

**CRITICAL SUCCESS FACTORS INFLUENCING PROJECT  
PERFORMANCE OF LOCAL ROAD CONTRACTORS IN UGANDA: A  
CASE STUDY OF SELECTED DISTRICTS IN NORTH EASTERN UGANDA**

**BY**

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## DECLARATION

I, Awoui Ahmad Okwir, declare to the best of my knowledge that; this piece of work is generally my own and has never been submitted by individual or organisation to any Institution/University before for any award. Therefore, any material referred here in has been fully acknowledged.

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## APPROVAL

The undersigned have accepted that this dissertation has been done under their close monitoring and they have gone through it and advised its acceptance by Kyambogo University. This dissertation is titled: “*Critical Success Factors Influencing Project Performance of Local Road Contractors in Uganda: A Case Study of Selected Districts in North Eastern Uganda*” in contribution to the requirements for the award of a degree of Masters of Science in Construction Technology and Management of Kyambogo University.

Signature.....

Date.....

Assoc. Prof. Lawrence Muhwezi (Supervisor)

Signature.....

Date.....

Eng. Acai Joseph (Supervisor)

## **DEDICATION**

I dedicate this write up to my family members, especially my wife, Mrs. Awoii Faima, my children and my mother for the encouragement and patience they had during the research period.

## **ACKNOWLEDGEMENT**

Glory goes to the Almighty God for the precious gift of life and wisdom that He has brought me this far. Without you Lord, things would not be easy.

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## LISTS OF ABBREVIATIONS/ACRONYMS

Bn	Billion
CAC	Cronbach's Alpha Coefficient
CAV	Alpha Cronbach Value
Co.	Company
CPM	CPM
CSO	Civil Society Organisations
CVI	Content Validity Index
et. al	And others
IPCs	Interim Payment Certificates
Km	Kilometre
LLC	Limited Liability Company
Ltd	Limited
ME	Managerial Efficiency
MFPED	Ministry of Finance Planning and Economic Development
MoWT	Ministry of Works and Transport
PAPS	Project Affected Persons
RII	Relative Importance Index
U	Uganda
UCLA	University of California Los Angeles
UGX.	Uganda Shilling
UNRA	Uganda National Roads Authority
US	United States
Vol	Volume

## ABSTRACT

This research established critical success factors determining project performance of local road contractors in the selected districts in north eastern Uganda. Local road contractors face challenges of time overrun, which leads to cost overrun, poor quality performance, leading to client dissatisfaction. In order to overcome these challenges, this research sought; to establish factors that impact on project execution of local road construction companies, to ascertain the effects of the established factors on road project implementation and to develop a framework to improve road project performance. A descriptive investigative research design was used, with mixed methods. The study population consisted of contractors, supervising engineers, client representatives, District/Town Engineer, local leaders and civil society organizations from which a sample size of 69 respondents was selected using simple random and purposive sampling methods. Questionnaire survey and interviews were the methods for data collection. Data were later analysed using relative importance index (RII) and regression analysis. The study examined a total of four factors and established that funding, ethical practices and technical capacity are the major critical factors that influence the performance of local road projects while managerial efficiency had no critical effect. It was further established that funding, ethical practices and technical capacity have significant ( $p < 0.05$ ) impact on road project performance, from which a framework to improve on performance of local road contractors was developed. The study concluded that critical success factors are; technical capacity, financial capacity and ethical practices.

**Key words;** *Success Factors, Projects, Performance, Local Road Contractors, Districts, North Eastern Uganda.*

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the study

Road implementation projects are key services undertaken by road contractors in many countries. Globally, it was a routine practice for most countries to select foreign companies to contract several road projects, although modern procurement procedures are also encouraging local contractors, which was one of the means of searching for least cost bidder for the contract (Ismail, & Hussaini, 2014). However, worldwide road construction industry was faced with under performance and lack of efficiency, with the United States facing a general setback in the performance of construction companies (Opuch, 2016). A road construction/rehabilitation project is believed to be satisfactorily when it is concluded within timeframe, proposed cost, within plan and to satisfaction of the stakeholders (Takim, 2016). The road construction industry, especially in underdeveloped countries, is faced with some challenges including; poorly performing contractors, inadequate modern equipment, and inadequate understanding of the project (Aboubaker *et al.*, 2017). As a result, projects are most often negatively impacted in terms of cost overrun, lack of safety, and poor quality.

In Africa, a compelling proportion of road projects blunder due to several factors such as; quality of materials used, manpower skills and technical competences, capacity of contractors to manage the process and work within desired ethical standards (World Bank, 2012). These factors are also observed on foreign companies but are most commonly experienced by local contractors. For example, in Gabon, the

main problems faced by road construction projects is the underperformance of contractors in delivering projects on time, financial challenge, non-availability of skilled man power, capacity to contract and inadequate client support (Onana, 2018). Hence, altering the overall execution of road construction activities.

However, the execution of road building works has been an area of interest in Uganda in recent years, with the problem of underperformance (Meyer, Witt, Kashiwagi & Kashiwagi, 2010). There are limited scholarly studies that have been conducted in Uganda, focusing on local road construction (Byaruhanga & Basheka, 2017; Basheka, Tumutegyeize, & Bogere, 2013). The government of Uganda, through Uganda National Roads Authority (UNRA) has for long dedicated resources in the construction and maintenance of road infrastructure, using both local and foreign based companies (UNRA, 2018). The performance status however, indicate several challenges, which this study sought to explore so as to ascertain the critical success factors influencing the achievement of local road contractors in North Eastern Uganda.

According to UNRA report (2018), there were several road construction projects which seemed to have had several challenges in performance, as seen in Table 1.1. These projects were found in UNRA stations of North Eastern Uganda, in the three districts of Soroti, Moroto and Kotido. UNRA Soroti station, covers the districts of Soroti, Amuria, Serere, Kaberemaido, Katakwi, Ngora, Kumi, Bukedea and Kapelebyong. UNRA Moroto station, covers the districts of Moroto, Nakapiripirit,

Amudat, Nabilatuk and Napak. UNRA Kotido station, covers the districts of Kotido, Abim, Kaabong and Karenga.

**Table 1.1: Contracts with performance challenges**

Project	Details	Challenges	Contractor	Supervisor	District
Term Maintenance of Katine Ochero (70.0km)	Maintenance Contracts for three years, from 2015-2018	Time overrun of two months	M M Construction Company Ltd	UNRA Regional Manager North East & Soroti Station Staff	Soroti
Periodic Maintenance of Arapai-Amuria, Obalanga-Alito & Amuria-Kapelebyong 105.0km	Periodic Maintenance for eighteen months, from 2015-2017 at 2 Bn.	Time overrun of 11 months; contract was closed at 80% Physical Progress	Kol Services Ltd	UNRA Regional Manager North East & Soroti Station Staff	Soroti
Periodic Maintenance of Soroti-Gweri-Magoro-Ngariam Road (71.0km)	Periodic Maintenance for eighteen months, from 2015-2017 at 2.0 Bn.	Time overrun of 3 months and delayed payment of IPCs	Gunya Company Ltd	UNRA Regional Manager North East & Soroti Station Staff	Soroti
Term Maintenance of Kumi - Brooks Corner-Serere & Soroti-Serere (83.0km)	Term Maintenance for three years, from 2015-2018 at 7Bn.	Time overrun of 3 months	BCR General Services Ltd	UNRA Regional Manager North East & Soroti Station Staff	Soroti
Frame work Contract for Routine Mechanized Maintenance for 205 km Under Kotido Station	Frame work Contract for three years from at 16.8 Bn.	Time overrun of 6 months	Shajapa Technical Works Ltd	UNRA Regional Manager North East & Kotido Station Staff	Kotido
Frame work Contract for Routine Mechanized Maintenance for 305 km Under Soroti Station	Frame work Contract for three years from 2018-2021 at 18 Bn. Good works within schedule.	Challenge was delayed payment of IPCs	Heat General Engineers & Contractors Ltd	UNRA Regional Manager North East & Soroti Station Staff	Soroti
Term maintenance of Kumi-ALadot & ALadot Palisa (48.0km)	Term Maintenance Contract for three years from 2015-2018.	Contract was behind schedule by two months	Joint venture of Bmce, Aptech Ltd	UNRA Regional Manager North East & Soroti Station Staff	Soroti

Frame work RRM Maintenance Moroto-Lokitanyal	Frame work Contract for three years from 2017-2020 at 14.7 Bn.	Time overrun of 6 months and poor-quality concrete delivered	Strackon Ltd	UNRA Regional Manager North East & Moroto Station Staff	Moroto
Periodic Maintenance Serere-Kasilo-Kagwara	Periodic maintenance for one year, from 2015-2016. At 1.8 Bn.	Time overrun of 9 months and contract was terminated	Akjo Construction Company Ltd	UNRA Regional Manager North East & Soroti Station Staff	Soroti

Source: UNRA Portal, 2019 & Local Government of Soroti, Moroto and Kotido

**Table 1.1 Continued**

Term Maintenance of Amuria-Acowa-Usuk & Katakwi-Usuk-Orungo (71km)	Term Maintenance for three years from 2015-2018 at 10 Bn. Project executed within cost & schedules.	Challenge was delayed payment of IPCs	Uganda Martyrs Housing and Construction Co. Ltd	UNRA Regional Manager North East & Soroti Station Staff	Soroti
Term maintenance of Kotido-Nakapelemoru-Lopei	Term Maintenance for 111.0km for three years from 2016-2019 at 8.0Bn.	Poor quality works, time overrun of 3 months and extreme weather	Consolidated Ltd	UNRA Regional Manager North East & Kotido Station Staff	Kotido
Term Maintenance of Kapedo-Karenga-Kabong-Kanawaat	Term Maintenance for 140.0km for three years from 2016-2019 at UGX. 9.0Bn. within cost.	Time overrun of 2 months & delayed payment of IPCs	Spider Limited	UNRA Regional Manager North East & Kotido Station Staff	Kotido
Construction of 2 No. Bridges	Construction of 2 No. Bridges at 3.6 Bn.	Its Behind schedule by 12 months, poor cash flow and change in design	Kasese Wood & Nail Industry Ltd in Joint Venture with Hands (U) Ltd	Supervisors from UNRA Road & Bridges Directorate	Soroti
Civil Works for upgrading from Gravel to Bituminous Paved Surface	Civil Works for upgrading 100.0km for 3 years from 2017-2020. at 380 Bn. Good work done	Time overrun of 2 months, cost overrun of 50bn (12.5%), delayed payment of IPCs and delayed acquisition of land	China Communication & Construction Co.	Supervisors from Road & Bridges	Soroti
Periodic Maintenance of Serere-Pingire-(Arapo-Mugaram 45.0km)	Periodic Maintenance Contract for eighteen Months- from 2016-2018. Good work done.	Time overrun of 2 months, delayed payment of IPCs and encroachment on road reserve	Techno three (U) Ltd	UNRA Regional Manager North East & Soroti Station Staff	Soroti

Civil works for upgrading from Gravel to paved Surface	Civil Works for upgrading 50.0km for eighteen months from 2017-2019. At 190 Bn. Good works delivered within schedule & Cost.	Delayed payment of IPCs	China Railway Three	Staff from Roads & Bridges	Moroto
Rehabilitation of Tororo-Mbale-Soroti	Rehabilitation for 3 year 2015-2017 at 140 Bn.	Poor quality work delivered	DOTT Services	-	Soroti

Source: UNRA Portal, 2019 & Local Government of Soroti, Moroto and Kotido

**Table 1.2: Summary indicating figures for Contracts signed out in the selected three districts for the last five years 2015-2019**

District	Year	Buildings Amount (UGX)	Roads Amount (UGX.)	Water Amount (UGX.)
SOROTI	2015	355,000,000	19,504,158,630	-
	2016	227,000,000	409,853,083,100	267,872,731
	2017	25,210,000,000	1,817,355,958	232,577,331
	2018	230,000,000	22,450,286,750	122,361,450
	2019	175,000,000	-	-
	Total	26,197,000,000	453,627,884,400	622,811,512
MOROTO	2015	440,569,169	7,232,737,000	475,000,000
	2016	5436,000,000	4,703,793,644	345,000,000
	2017	200,000,000	-	-
	2018	-	14,745,730,760	-
	2019	1,164,234,170	-	192,000,000
	Total	2,260,803,339	26,682,261,400	1,012,000,000
KOTIDO	2015	500,350,000	8,456,500,000	350,000,000
	2016	350,345,000	5,623,400,000	340,400,000
	2017	470,560,000	-	-
	2018	560,450,000	16,785,000,000	450,456,00
	2019	-	-	-
	Total	1,861,705,000	30,864,900,000	690,850,000
Total for all the three Districts		30,319,508,340	511,750,458,000	2,325,661,512
Allocation in Percentages		5.6%	94%	0.43%

Source: UNRA Portal, 2019 & Local Government of Soroti, Moroto and Kotido

From Table 1.2, government allocated over 90% of its funding in the roads sector (MFPED Report, 2017). Consequently, in the year 2019, the overall funding breakdown for the roads, building and water sector was close to UGX 544,395,627,900 (MFPED, 2019), which indicates clearly that Government injected much of its funding in the construction of roads totalling to 94% as compared to Buildings 5.6% and Water at 0.43%. Eleven out of eighteen projects signed in the selected districts, faced performance challenges as indicated in Table 1.2. Therefore, there was need to study project achievement on road implementation projects in the three UNRA stations of Soroti, Moroto and Kotido.

### **1.2 Statement of the problem**

There is growing evidence that participation of local road contractors in Uganda result to the growth of the construction industry in the country through rendering their service and remitting tax off the project returns. However, several local road construction companies in Uganda have had performance challenges. Over 15 road construction projects in North Eastern Uganda have experienced time overrun of not less than 2 months with some road contractors experiencing delays in processing payment of IPCs (UNRA, 2018). This directly turned into regular project cost overrun, amidst stakeholder dissatisfaction of the quality of works and environmental degradation challenge. Even though it is also experienced by foreign-based contractors, the challenge seems wider spread among the local road contractors as compared to the foreign firms. Eleven out of Eighteen projects executed in the selected districts of Soroti, Moroto and Kotido from 2015-2019 exhibited poor performance in time, quality and cost indicators (see Table 1.2). Limited empirical

studies have focused on success factors determining project execution of local road implementation companies in North Eastern Uganda. Therefore, the researcher sought to explore and establish major success factors impacting project performance of local construction companies in Uganda.

### **1.3 Objectives of the Study**

The objectives of this study are categorised as follows;

#### **1.3.1 Main Objective**

The main objective of this study was to identify and analyse the key critical success factors that significantly influenced the project performance of local road contractors operating in North Eastern Uganda, with a focus on selected districts. This in turn helped to develop a framework to improve performance of local road contractors in North Eastern Uganda.

#### **1.3.2 Specific Objectives**

This study was based on the following specific objectives:

- i. To establish factors that affect project performance of local road construction companies in the selected districts of north eastern Uganda.
- ii. To determine the effect of the established factors on project performance of local road construction companies in the selected districts of north eastern Uganda
- iii. To develop a framework to improve project performance of local road construction companies in the selected districts of north eastern Uganda.

#### **1.4 Research questions**

This study sought to answer the following questions:

- i. What are the factors that affect project execution of local road construction companies in the selected districts of north eastern Uganda?
- ii. What is the effect of the established factors on project performance of local road construction companies in the selected districts of north eastern Uganda?
- iii. What can be done to modify project performance of local road construction companies in the selected districts of north eastern Uganda?

#### **1.5 Justification**

The success of local road construction companies is not the only indication that they do not face performance challenges. There has been time overrun in road construction projects under local road contractors in north eastern districts of at least 2 months with some delays experienced in processing payment of IPCs (UNRA, 2018). This translated to regular project cost overrun, with stakeholder dissatisfaction of the work done and effects of the projects on the environment. Even though this is experienced by foreign-based contractors, there is growing interest by stakeholders in local road construction projects to understand why this is more eminent with local road contractors as compared to the foreign firms. Data in Table 1.2 indicates that eleven of eighteen projects by local road construction companies in Soroti, Moroto & Kotido from 2015-2019 exhibited substandard works, time and cost overruns. Therefore, due to the growing interest from the district stakeholders and the road user communities, there is need to establish factors that affect project achievement of local road construction companies, determine the impact of the established factors on

project execution of local road contractors and to formulate a framework to enable better project execution of local road building companies for the affected districts. It is anticipated that this study aimed at establishing major success factors impacting project performance of local road contractors in the selected districts of north eastern Uganda.

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

The study established critical success areas influencing project performance of local road construction companies in Uganda which will enable the improvement in policy formulation and decision making by stakeholders in local road construction, hence improving project performance.

The study findings shall add to the scholarly articles and review of related literature on critical success factors impacting project performance of local road construction companies in Uganda. Since other researchers with related areas of study may consult this literature to broaden their current body of knowledge.

To the researcher, this study increased and widened the researcher's understanding of the topic of study and led to the reward of Masters of Science Degree in Construction Technology and Management of Kyambogo University.

To the local road contractors in Uganda, the findings of this study shall be a source of information on critical success factors influencing project performance of local

road contractors. This may provide guidance on how to improve local road construction in Uganda.

### **1.7 Scope of the Study**

This research was based on the following scope:

#### **1.7.1 Subject scope**

This study was limited to road construction projects executed by local contractors in the selected districts of North Eastern Uganda for the period within 2015-2019. The specific objectives were; to establish factors that impact project implementation of local road construction companies in Uganda, to determine the impact of the established factors on project performance of local road construction companies in Uganda and to come up with a solution to modify on project execution of local road construction companies in Uganda.

#### **1.7.2 Geographical scope**

This research was conducted in Uganda and more specifically in the North Eastern districts of Soroti, Moroto and Kotido. The above region and districts, were selected because eleven out of eighteen projects executed in the three districts between 2015-2019 exhibited poor performance across major project parameters.

#### **1.7.3 Time scope**

This study was scheduled to have been conducted within one academic year, from August, 2019 to June, 2020. However, time overrun was experienced because of Covid-19 outbreak.

## 1.8 Conceptual Frame Work

The conceptual framework shows an illustration of the connection between study variables as indicated in Figure 1.1.

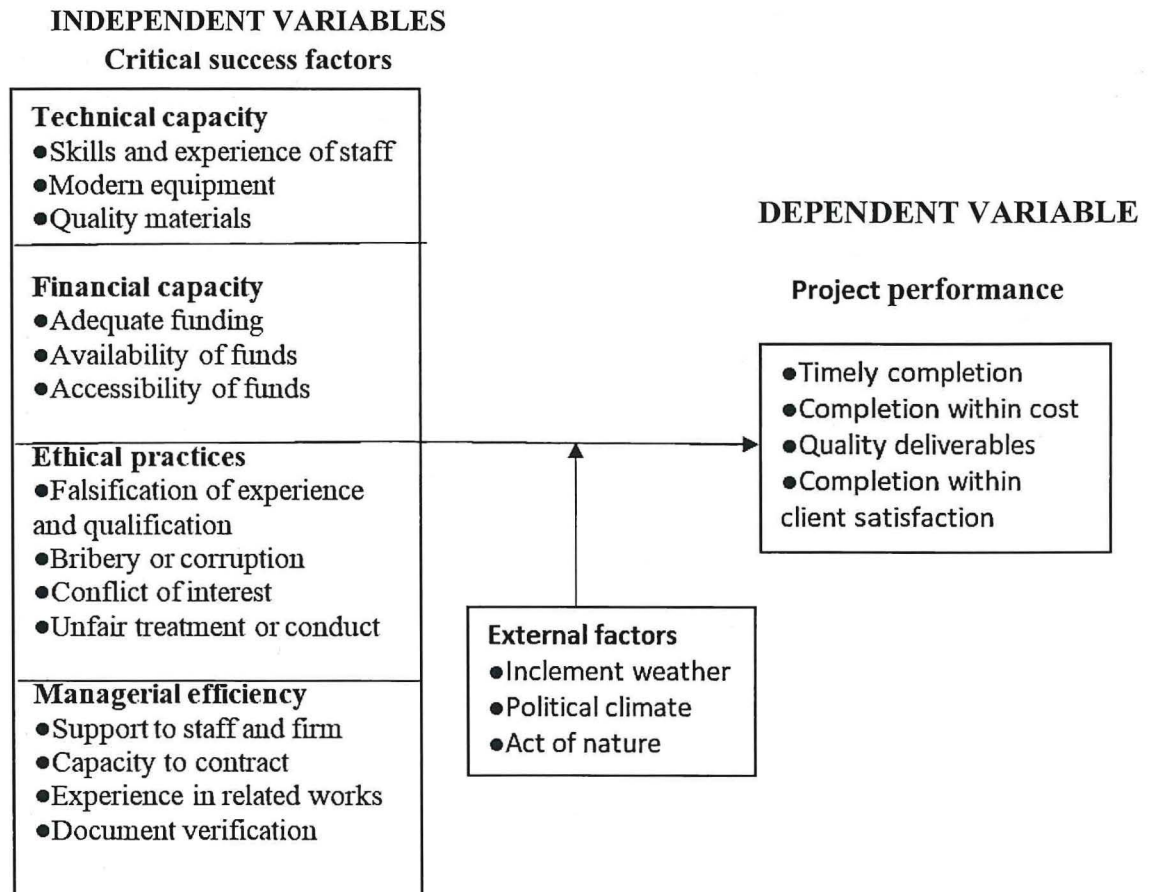


Figure 1.1 Conceptual frame work of the study

The conceptual framework describes a diagrammatic association between the determinant variable (success factors) and the response variable (project performance). The determinant variables include; financial capacity, technical capacity, ethical practices and managerial efficiency. Technical capacity was explored on the basis of skills and experience of staff, use of quality materials and modern equipment, while availability of funds, adequacy and accessibility were used

to measure financial capacity. Managerial efficiency was defined by support to staff, capacity to contract, experience and document verification. Falsification of experience and qualifications, bribery or corruption, conflict of interest and unfair treatment of employees by contractors was based on to describe ethical practices. Overall project performance was measured on the basis of timely completion and within project cost, quality of structures, client / stakeholders' satisfaction and proper functionality.

### **1.9 Chapter Summary**

This sub-section covered the introduction, statement of the problem, objectives of the study, research questions, justification of the study, significance, the extent and theoretical frame work which described the independent variable, dependent variable & moderating variables. The key word here is critical success factors for local road contractors in Uganda. The next chapter offers a review of the literature on major success factors influencing project achievement of local road construction companies.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter comprises of the theoretical, conceptual and empirical review of related literature on critical success factors influencing project performance of local road contractors in Uganda. This review of literature covers a detailed identification, and analysis of previous scholarly work on project performance.

#### **2.2 Theoretical review**

This study drew its inferences from two theories: The Parkinson's theory in regard to contract management (Parkinson, 1955) and Competence-based Strategic Management theory for competence and employee project performance (Sanchez & Heene, 2004).

##### **2.2.1 The Parkinson's theory**

Parkinson's theory was propounded by Cyril Northcote Parkinson in 1955. The Parkinson theory is a widely used theory in project management. Parkinson urged that work increases to occupy the time allocated for its conclusion. He emphasises that time management is all mental and that project managers naturally set themselves to complete a project just in time. The same task can be done within one hour or in a week depending on how much time project managers give to complete it (Parkinson, 1955).

Parkinson's theoretical frameworks was relevant for this study since it elaborated how people made work for one another hard, resulting into bureaucratic delays. Therefore, following protocol can increase the time to execute workload and the growth is connected to multiplication of subordinates and work (Chen & Hall, 2021).

Multiplication of juniors is related to a work situation in which a work over loaded person, looking to be promoted in a company is motivated to accumulate subordinates instead of making competitors by splitting their work. On the other hand, expansion of tasks asserts that people assign work for each other by complicating it to cater for everyone. This provides the impression that the staff is overburdened and due to lack of resources, more staff would be hired. The behaviour of Parkinson's Law has eminent effect on project implementation and it is one of the causes of project delays (Chen & Hall, 2021).

However, the Parkinson's Law was denounced based on its analogous concept of estimating time of project duration. This method manipulates past information from the related activity or project to estimate how long is the activity, yet road construction projects are different in nature of the location, time and human resource. However, much as this technique is regularly used to determine activity durations, the durations determined is likely be too lengthy, hence resulting in to incompetency due to Parkinson's Law. The risk of using activity durations from such projects affected by Parkinson's Law is also likely (Chen & Hall, 2021).

According to Parkinson's Law, other than basing on the alternative on contingencies, project managers should take it that they have adequate schedule to conclude an activity minus retarding the project progress (Chen & Hall, 2021). This contradicts with the idea of using reserve analysis to come up with the amount of alternative time required to manage uncertainty. Duration estimates should consist of; contingency alternatives, otherwise called schedule options, to account for unexpected. The uncertainty reserve needs to be utilised, decreased, or terminated as the project progresses and more data is available (Chen & Hall, 2021).

Parkinson assumes Critical Path analysis (CPA) as one of the approaches utilised to formulate a schedule in the fifth stage. In reality Critical Path Method guides project managers to ascertain if a schedule is one of the critical path (Chen & Hall, 2021). However, in Critical Path Method, durations of activities tend to be mainly overrated by staff to enable the activity to be concluded within the timeframe and to avoid blame if it is retarded. This method is criticised due to its overestimation of the time leads to inefficiency, brought about by the behaviour resulting from Parkinson's Law.

### **2.2.2 Competence-based Strategic Management theory**

This study also utilised Competence-based Strategic Management Theory. The competence-based strategic management theory was propounded in the 1990s (Sanchez & Heene, 2004) and looks at competence in the way that it must include first; the dynamic nature of the institution's ability to respond to both the outside environment and of its own inside processes.

However, competence theory considers a totally different technique of the duties of the individual in contract implementation. Kállay (2011) pointed out that there are representative rational individuals who allow an agreement or ban it and start another arrangement based on the overall costs of the economic environment, while for the case of the evolutionary theories, trust and loyalty are very necessary for human decision on contracts.

Competence theory states that operation costs are given and they should not vary based on different means of coordination and transaction. However, Kállay (2011) argues that it is common that production just as the equipment, depend on human activities, given that the desire of employees to acquire knowledge depends on the production company and the property rights. Therefore, this is the effort of the contract theories, only to reduce the transaction costs is not realistic. Therefore, the contract theories and the evolutionary competence-based frameworks are considerably different.

Competency framework is believed to be inappropriate for our fast-changing world (Rossilah, 2015). Rossilah (2015) further cited that finding out relevant skills may not be possible and useful in this unpredictable work environment. The adoption of functional analysis method is regular in many competency studies, though it is retrospective rather than prospective. Instead of increasing dynamic, managers who appreciate change are capable of dealing with future challenges and the risk seems to be that of the competency model in an emerging society (Rossilah, 2015).

A manager who is taken as competent in the institution, industry or in one country, may not necessarily perform good in another country (Rossilah, 2015). The importance of this perspective to managerial outcomes has always been written in literature. Even within similar organizations, explanation and application of some competencies differ within managers (Rossilah, 2015).

None the less, Competence-based theory applies in this study because competence includes knowledge, expertise and abilities formed in the process of understanding a given discipline, as well as being able to implement any activity based on the acquired knowledge, skills and capability (Aimzhan et. al., 2015).

### **2.3 Conceptual review**

The construction industry and more specifically the roads sector have attracted substantial publication over the last decades. Attention in this study draws from empirical literature to describe concepts that denote contracting and project performance. In this study, core concepts of examination are: technical capacity, funding, managerial efficiency and ethical practices.

#### **2.3.1 Technical capacity**

In spite of improvements in technology, skills and experience remain significant in road construction. Most studies have revealed that technical capacity is unavoidable factor in project performance and management (Ayalew et al., 2016, Alsulamy, et al., 2012). Therefore, skills and experience of staff to use the equipment is profoundly core in project performance for most countries (Asinza & Kimutai, 2017). Asinza *et al* (2017) added that inadequate or low-quality machinery can lead to project

stopovers in cases of failure and consequently lead to increase in costs through rise in overhead expenses and labour for maintaining idle workers. Delay in project implementation as a result of faulty or inadequate machinery leads to cost overruns occasioned by storage charges or exaggerated cost of materials.

A study conducted by Asinza, (2017) also found out that most contractors did not have the required capacity. Such contractors did not have the key skilled personnel needed for the project and all the equipment and tools necessary for project execution before commencement. They also lacked good will from suppliers of construction materials, adequate relevant construction work- experience and a majority did not have good site management skills such as site planning, and implementation scheduling and controls. Asinza, (2017) further established that most of the main contractors had poor control over project sub-contractors and were not responsive to Health, Safety and Environmental standards to labour-related laws. However, there was no recent study that presented literature on the outcome of technical abilities on local road contraction activities in north eastern Uganda, thus there was need for this analysis to prove critical success factors influencing project performance of local road contractors in north eastern Uganda.

### **2.3.2 Funding**

Chiocha (2011) cited project funding as the allocation of financial resources to an economically different capital investment activity which the funders look primarily to the availability of funds from the project as the origin of funds needed to pay-off loans and provide the returns of equity spent on the project. Mateseche (2013) adds

that funding involves capitalizing a given economic activity in which a lender is convinced to look originally to the cash disbursement and monetary benefits of that economic venture as the source of funds from which a loan will be reimbursed and to the assets of the economic /unit as the guarantee for the loan. Financing of construction projects like roads, railway, port harbours and many more is therefore expected to be an economic investment.

The concept of funding involves acquisition, allocation, utilization and accountability of financial resources (Pandey, 2011). Funding is determined by four core aspects: access, availability, adequacy and reliability of the flow. Basheka & Tumutegyereize (2013), revealed that while time, cost and quality are widely recognized parameters in assessing projects' performance, the concern of funds/ funding is also critical. Most noted among the key challenges experienced by contractors is funding (Korte, 2018; Basheka & Tumutegyereize, 2013).

### **2.3.3 Managerial efficiency**

Management is a core function in any undertaking. Managerial efficiency (ME) has been expounded out in many management studies. In this study, managerial efficiency is considered in terms of project management, and will focus on contractors' support to staff, support that contractor receives from the agency, capacity to contract, experience and document verification.

Fapohunda and Stephenson (2010) stated that to achieve the proposed project goals, the project manager needs to experience a realistic influence over cost, time, extent

and quality which makes it necessary for the manager to be able to exercise authority and absolute control.

#### **2.3.4 Contractors' ethical practices**

Ethics are norms/conduct that differentiates between the tolerable and intolerable behaviours (Resnik, 2013). Amudjie (2019) added that ethics is referred to as acceptable and unacceptable practices that affect our choices in decision making when faced with a test of our integrity, moral standards as well as our professional values, over an issue as an individual or organization.

For a performance measurement system to be considered as beneficial, the management needs to ensure that ethical practices not only in documentation, but also relations and minimize the lapse of ethics, contractual terms and conditions should be well spelt (Hamzah, 2018; Hamra, 2000; Hamimah et al., 2011). This study specifically focused on ethical practices regarding: documentation, working experience and qualifications, bribery or corruption, conflict of interest and treatment of employees in local road construction projects of north eastern Uganda.

#### **2.3.5. Project performance**

Several studies have explored on the concept of project performance in the context of several factors (Korte, 2018; Takim, 2016; Queiroz, 2016; and Byaruhanga & Basheka, 2017). These have concisely depicted that the ultimate outcome of the contract is a performed outcome (Takim, 2016), and so project performance is a successful accomplishment of a given contract. One key indicator of poor project performance is late project completion. Scholars' works continue to show that

construction projects for decades have been experiencing factors that contribute to delays (Muhwezi, Acai & Otim, 2014).

## **2.4 Factors affecting project performance of local road construction companies**

### **2.4.1 Technical capacity**

For long, contracting has apparently based on contractual capacity and that is why in road construction works, the technical abilities are necessary (Neely, 2015; Takim, 2016). Owing to this, several studies have focused on technical capacity as a core consideration in assessing contract performance of road contractors (Alsulamy, et al., 2012; Ayalew et al., 2016). Scholars have for quite some time agreed that technical capacity influences project performance, and so right from identification of a supplier, agencies interested in contracting a road construction company assess the credibility of the contractor in terms of equipment, tools, materials, and human resources (Verzuh 2015).

Ayalew et al., (2016) pointed at the study done in Ethiopia, which indicates that effective performance of road construction projects is assured when tools & techniques are of standard. However, no specific attention was given to establish whether contractors are foreign or local firms, given challenges in technological improvement in underdeveloped countries. Perspectives are likely to change with local contractors for road projects if undertaken in Uganda construction industry. Attention in this study, was to narrow down this perspective to local road construction projects manned in north eastern Uganda by local road contractors under UNRA supervision.

### **2.4.2. Funding**

Wambui *et. al* (2015) urged that finances stand out as a necessity in performance, hence lack of adequate funds limits the contractor from employing labour with required skills and purchase materials of better quality and quantity (Akali *et. al.*, 2018). In addition, if funds are lacking, contractors may fail to acquire good quality equipment. All these affect value performances in project for road works, thus, contractors' financial ability has a key role to play as far as performance of road construction projects are concerned.

According to Olatunji (2010), project funding is among the factors which although outside the contractor's control, still impact on the smooth flow of scheduled activities. Onana (2018) affirmed that contractor's funding is the essential resource for the smooth running and implementation of road works at site. It comprises of money at hand, in the bank, credit facilities, on-going work and invoiced amount. Onana (2018) added that for satisfactory project work, there must be adequate funds. Rahman (2013) also points out that financial strength of the contractors and adequate funding are essential in keeping on-going works as planned. However, this literature on the effect of funding is a more general perspective, since funding of projects may vary based on different types of projects, size, scope and time allocated. Thus, providing an opportunity for this study to be conducted specifically in north eastern Uganda.

### **2.4.3. Managerial efficiency**

Managerial efficiency has been explored in several studies, and found to be unavoidable for contracting works. According to Iyer and Jha (2015), proponents to

better project performance should have an overview of essential managerial issues. Iyer & Jha (2015) recount that proper project performance is guided by better decision making, co-ordination monitoring and feedback mechanism and there is need for worthwhile managerial efficiency. According to Ogohill (2019), if project management practices are well implemented, like managerial efficiency, there would be more possibility of having a practical project that can yield sound business success. However, this review is a comparison outside Uganda, which does not provide impact of managerial efficiency in a perspective of north eastern Uganda, thus a reason for conducting this study.

Thom-Otuya (2013) concluded that effective management is crucial for management since it influences the productivity of the employees and the organization as a whole. Surprisingly, the repercussions of managerial efficiency on project implementation of local road construction companies in north eastern Uganda remains unknown, since there are no recent studies providing current literature.

#### **2.4.4. Ethical practices**

Ethics constitute a core aspect on inter-party dealings (Hamimah et al, 2011). Some unprofessional contractors undertake inappropriate documentation and ensure that these documents are in their favours, as they effect payments. The deviation from budget, as well as personal interest tends to affect the project. This is one of the essential ethical areas that constrain activities of road construction projects. According to Maina (2013), several construction projects fail to reach completion

date because of not being within budget, or altered to meet desired qualities and needs of managers.

Hamzah *et. al.*, (2010) further point out that more significant ethical matter in construction affect a wide number of people. Such groups of people include; sector of private and government funded works, local authorities, suppliers, contractors, consultants and users of public infrastructure are all in the range of expert ethics. Those stated have their individual inputs concerning the issues in hand and integrity issues in the construction industry (Hamzah et al, 2010).

Al-sweity (2013) affirmed that road works attainment chiefly depends on the behaviour of the project team from the commencement to discharge stages. This was not adequate to draw conclusions on the outcome of ethical considerations on project performance of local road contractors in north eastern Uganda, hence this necessitates further studies. Factors affecting project performance of local road construction companies are summarised alongside with the scholars who reviewed them as indicated in Table 2.1.

**Table 2.1 Summary of factors impacting on project performance of local road construction companies**

Factors affecting project performance	Scholars
Technical capacity	Neely (2015) Takim (2016) Ayalew et. al., (2016) Alsuamy et. al., (2012) Verzuh (2015)
Funding	Wambui (2015) Akali et. al., (2018) Olatunji (2010) Onana (2018) Rahman (2013) Iyer and Jha (2015) Ogohill (2019) Thom-Otuya (2013)
Managerial efficiency	Iyer and Jha (2015) Ogohill (2019) Thom-Otuya (2013)
Ethical practices	Hamimah et. al., (2015) Maina (2013) Oyewobi et. al., (2011) Al-sweity (2013)

## 2.5 Impact of the established factors on road construction projects

### 2.5.1 Impact of technical capacity

Kent (2011) contended that based on knowledgeable consultancy firms' judgement a given number of approximations for the least desired expertise mix and the number of staff needed with appropriate skills per unit can be determined as points of reference. Kent (2011) added that skills and knowledge of project staff effectively utilized, staff members should have the desire and inspiration to take over their roles and carry out required duties according to specified rules of behaviour. Staff incentive will not clearly be observed, when it is connected to benefits and rewards for desired performance within a project crew. Akali (2018) added that technical skills are paramount in executing road works, as it ensures that set standards and

requirements are adhered to, thus improving quality of road works. This leads to improved level of client satisfaction of local road construction in north eastern Uganda.

Ngaira, & Malenya (2019) also cited that trained staff entrusted with project works have the desired technical skills in the area of specialization. Where possible, degree of capability should be increased to counter the demand and with ongoing business in developing such potential within the office as necessary. Therefore, this study is yet to establish how skills and experience of staff in local road construction impact on project performance of local road construction companies specifically in north eastern Uganda.

### **2.5.2 Impact of funding**

According to Valentin and Vorster (2012), the little noticeable working capital as a proportion of yearly returns, the higher the likelihood of failure, especially if the credit facility from banks does not exist. Valentin and Vorster (2012) added that the other factor to consider in funding is a situation in which a contractor prioritises financing the long-term assets as this can severely compromise the ability of a firm to continue with its operations.

Gacheru (2015) cited challenges in the construction projects of Uganda and Kenya, where he established poor funding's management, corruption, and limited financial resources due to the deviation of project finances. Gacheru (2015) further noted that the governments of Kenya and Uganda were affected up to the tune of 45% road

construction projects. Gacheru (2015); Hussein and Omran (2012) added that the general lack of funds to complete a project, or delayed payment of the services by the clients can result to great problems. However, this research seeks to determine how significant the impact of delays and availability of funds is to local road construction projects in north eastern Uganda.

### **2.5.3 Impact of managerial efficiency**

Thom-Otuya (2013) also cited that managerial efficiency leads to organization productivity, therefore, the manager must ensure that the requirements of the employees are addressed alongside with the organizational goal and objectives. Thom-Otuya (2013) emphasized that managerial efficiency cannot just come up like that; it will have to be developed. Organizational productivity is about assessing and improving the efficiency and effectiveness of organizations.

Assaf *et al.* (2014) found out that challenges in collaboration between those involved in project implementation is among the elements that lead to late project completion. That is, team work problems due to incompetency of the project manager may cause project delays. In a road construction project, there are several parties involved such as contractor, consultant, sub-contractor and client. Often, it may be challenging for these various separate parties to coordinate well in order to conclude the project.

Ngaira *et, al* (2019) have opined that inadequate collaboration between contractors and subcontractors slows down the project activities, for instance in the circumstance that amended construction drawings of a project may be issued late by the

contractors to the subcontractors. This leads to construction faults and the work necessitating to be redone. Yet reconstruction work takes additional time and resources, thus, impacting upon the completion time and cost of the project.

McMiniminee et al., (2010), asserted that a weak link in the process, such as inadequate project management expertise, could adversely affect timely execution/timely completion of the projects. When there is no proper inspection/supervision, quality control is greatly compromised. Chism and Armstrong (2010) agreed by stating that inspection and workmanship standards are quite important to achieve quality. However, this remains unknown for local road construction projects in north eastern Uganda. Hence this study seeks to establish how construction site managers' efficiency impacts on project performance in north eastern Uganda.

#### **2.5.4 Impact of ethical practices**

Hamimah, Norfashiha, Mohd & Norizan (2011) have explained unfairness with deceit. They cited that; deception constitutes unruly behaviour thus, more appropriately linked to fraud. Other occasions instances relate to professional dues, such as non-payment of consultants' fees by customers and developers after receiving their services (Hamimah *et. al*, 2011).

According to Hamimah *et. al*, (2011), nepotism relates to disposition in which someone in a position of trust, such as a lawyer, a politician or administrator or director of a corporation, has personal interests which could make it hard to fulfil his

or her duties impartially. Even if there is no clear evidence of improper behaviour, a conflict of interest can lead to emergence of impropriety that can erode trust in the capability of that person to act correctly in his/her position.

Ayat (2013) finally urges that profit maximization by contractors, personal culture or personal behaviour, delayed payment of workers, discriminating workers, lack of raw materials freely in the market, are the common factors that lead to the unfair behaviours. From contractor's perspective, financial matter relating to delayed payment and claims are some of the factors affecting performance (Afolabi *et. al.*, 2020. Table 2.2 summarises the impact of established factors impacting project performance of local road construction companies alongside with the scholars who reviewed them as presented in Table 2.2;

**Table 2.2 Summary of the established factors and their impact on road project performance**

Impact of established factors	Scholars
Technical capacity leads to adherence to set standards	<ul style="list-style-type: none"> <li>• Akali (2018)</li> <li>• Ngaira &amp; Malenya (2019)</li> </ul>
Inadequate funding results to smaller working capital which then leads to high probability of project failure.	<ul style="list-style-type: none"> <li>• Valentin and Vorster (2012)</li> <li>• Gacheru (2015)</li> <li>• Hussein and Omran (2012)</li> </ul>
Managerial efficiency improves organisation productivity and also impacts on time of project completion	<ul style="list-style-type: none"> <li>• Thom-Otuya (2013)</li> <li>• Assaf <i>et. al.</i>, (2014); Ngaira <i>et.al.</i>, (2019)</li> <li>• Mcminiminee <i>et. al.</i>, (2010)</li> </ul>
Ethical practices like unfair tendering leads to low competition of private companies	<ul style="list-style-type: none"> <li>• Hamimah, Nortashiha, Mohd &amp; Norizan (2011)</li> <li>• Afolabi <i>et. al.</i>, (2020); Ayat (2013)</li> <li>• Sweis <i>et. al.</i>, (2014)</li> </ul>

## 2.6. Improving project performance of local road construction companies.

For successful project implementation, there has to be enough working capital. In that note, Rahman (2013) identified that monetary capacity of contractors and

reliable cash flow is essential in keeping construction progress as scheduled in the plan. Ameh (2011) observed that insufficient funds lead to delayed conclusion and sufficient funding ensures reasonable cash flow.

According to Kent (2011), the relative importance of the institution's repayment plan and likelihood for professional development and advancement may encourage staff and serve as benefits for good project achievement. Rules of professional behaviour, required specifications and expectations on how staff members are required to perform during their work. The level to which these standards are obeyed also provide some sign of quality of staff performance and how effectively an agency is administered. Iyer & Jha (2015) have asserted that it is ideal to have proper consideration of project performance drawing from skills, and competences enhancement. Technical skills improvement makes the employees perform their roles not only better but also in the cost-friendly manner (Sambasivan, 2016).

According to Mbaabu (2012), stakeholders' engagement is necessary in upgrade projects. Stakeholder's involvement helps in proper project execution. He suggested that stakeholder involvement is required when resolution on complex situations with far-reaching impacts on the project area are to be taken by clients. The stakeholder involvement should be done proactively, rather than in response to a problem to avoid unforeseen problems. Hence, it is the responsibility of the client to involve the stakeholders at the right time to avoid time overrun in the project. The stakeholders should include the community where the project road is being constructed, agencies providing water, electricity, and communication systems, national and rural roads

including county governments (Mbaabu, 2012). However, based on the discussions that have been presented from this review, this study seeks to come up with a framework to modify project execution of local road construction companies in north eastern Uganda. Strategies to improve project performance of local road construction companies are summarised alongside with the scholars who reviewed them as indicated in Table 2.3.

**Table 2.3 Summary of the plans to improve project performance of local road construction companies**

<b>Improving project performance</b>	<b>Scholars</b>
Need for adequate working capital	<ul style="list-style-type: none"> <li>• Rahman (2013)</li> </ul>
Motivation of staff	<ul style="list-style-type: none"> <li>• Ameh (2011)</li> </ul>
Need to adopt norms of professional behaviour, set standards and expectations	<ul style="list-style-type: none"> <li>• Kent (2011)</li> </ul>

## **2.7 Chapter summary**

This chapter highlighted literature on performance challenges and impact on project performance. Literature was reviewed in reference to the study goals under consideration. This was done to ascertain what the underlying concepts in the area of study as well as what other scholars have found in their past studies. The review of related literature also presented the Parkinson's theory and the Competency-based Strategic Management theory. However, the Parkinson's Law was criticised based on its analogous concept of estimating time of project duration. Literature reveals that the technique uses past data from a similar activity or project to approximate the time lag of an activity yet road construction projects are different in nature of the location, time and human resources (Chen & Hall, 2021). Competency-based Strategic Management Theory is said to be incompatible with today's fast-changing world (Rossilah, 2015). Rossilah (2015) further cited that; identification of basic

competencies is impossible and not useful in this changing work environment. Literature further identified technical capacity, funding, managerial efficiency and contractors' ethical practices as factors affecting and impacting on construction projects. However, this study sought to confirm whether these are the key success factors driving project performance of local road construction companies in Uganda.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

The methodology is a systematic process of providing solutions to a research problem (Kothari, 2007). Therefore, methodology refers to a step-by-step process of data compilation and analysis. Hence, it comprises of the study design, area of study, population size, sample size and sampling procedure, sources of data, methods of data collection and data collection instruments, validity and reliability of instruments, measurement of the variables, data interpretation and presentation, ethical considerations and possible hindrances to the study.

#### **3.2 Research Design**

A research design represents a scheme, outline or plan that is followed to generate answers to research problems. This research problem was studied by employing descriptive investigative design, which according to Kothari (2007) is a form of research design used to collect data that enables the establishment of the true makeup of a particular cluster. Therefore, a descriptive study involved getting answers to questions (often in the form of a questionnaire) from a large group of persons either by mail, telephone or in person. Thus, the main benefit of descriptive study was that it contained a possibility of granting the researcher adequate information from relatively large specimen of individuals. Using the research design, this study focused on acquisition of quantitative and qualitative data from a group of people involved in the road construction sector. Hence an observational research method enabled the researcher to describe the critical success factors influencing project

performance of local road contractors in Uganda based on the research questions (Yin, 2017).

### **3.3 Research approach**

This study adopted quantitative and qualitative research approaches. These were chosen to enable compilation and analysis of both qualitative and quantitative data. Quantitative approach was used on quantitative data and qualitative approach was used on qualitative data. Amin (2005) added that descriptive research together with quantitative and qualitative approaches help the investigator to gain an insight and understanding of the phenomenon through intensive collection of narrative data to explain the prevailing situation.

### **3.4 Study Population**

Study population entails a set of all the units which possess variable characteristic under study and for which findings of research can be generalised (Kant & Shukla, 2021). The entire study population of this study consisted of contractors, supervising engineers, client representatives from road authorities (Moroto, Kotido and Soroti), District/Town Engineer, local leaders and Civil society organization from (Moroto, Soroti & Kotido) participating in monitoring of road execution project. According to Mugenda and Mugenda (2005), the study population should possess observable attributes to which the researcher intends to deduce the result of the investigation. This explanation assumed that the target audience is nonhomogeneous and composed a population of 135 persons drawn from all the key stakeholders for the period 2015-2019.

### 3.5 Sampling

#### 3.5.1 Sample size and selection

A sample is representative statistic that describes the population. It is a representative that has been considered for the general population under study (Bryman, 2015). A sample is key for saving costs, times, and providing a high level of response that may not be guaranteed by considering entire population (Kothari, 2005). The researcher stratified the study population from each project by category (contractor, consultant, client-UNRA, district local Government-Technical, Political & Civil Society Organization). The researcher anticipated a 95% closed interval and the level of precision as 5%. Since the population proportion is not known, a proportion P of 0.5 is assumed. Therefore, the sample size was determined using equation (3.1).

$$n = (Z^2 pq)/e^2 \dots\dots\dots \text{(equation 3.1)}$$

$$n = \frac{(0.83)^2(0.5)(0.5)}{(0.05)^2}$$

$$n = 69 \text{ respondents}$$

Where; n-is the sample size, which is justifiable where n is the sample size, Z is the abscissa of the normal curve that cuts off an area  $\alpha$  at the tails (1 -  $\alpha$  equals the desired confidence level is 95%), e is the desired level of precision, p is the estimated proportion of an attribute that was present in the population and was assumed, and q is 1-p. The value for Z was found in statistical tables which contain the area under the normal curve. For this study, Z = 0.83, p= 0.5 (assumed), q= 1-0.5 and e = 0.05.

**Table 3.1 Sample size composition**

<b>Category</b>	<b>Population</b>	<b>Sample Size</b>	<b>Sampling Techniques</b>
Contractors	18	17	Purposive
Consulting Engineers/Supervisors	18	05	Purposive
Client representatives	72	39	Simple random
District/Town Engineers	12	03	Purposive
Local Leaders	09	03	Purposive
Civil Society Organization	06	02	Purposive
<b>Total</b>	<b>135</b>	<b>69</b>	

### 3.5.2 Sampling method

Sample size selection was done at two stages; At first stage, using proportional random sampling method, the study population was divided into Contractors, Consulting engineers/In-house Supervisors, District/Town Engineers, Client representatives, Local leaders and Civil Society Organization. At second stage, a sample size of 69 respondents was purposively and randomly selected from each layer. Stratified sampling was used since there was a great deal of difference within the audience (Hamed, 2016). Its motive was to ensure that every layer is adequately constituted. This research utilized both likelihood and non-likelihood assortment techniques. Probability helped to reduce sampling selection and inclusion errors that did not give equal chances for all members in the category (Leedy & Ormrod, 2015).

## 3.6 Data Collection methods

### 3.6.1 Questionnaire method

Questionnaire method was used to collect data from consultant engineers, contractors, client representatives, district/town engineers, community leaders and

representatives of community-based organisations. The participants' literacy levels too favoured the use of questionnaire method, which yielded proper profile of the situation and the data provided describes who, what, how, when and where of the variables in the study. Jackson (2011) emphasised that questionnaire method is used in order to test concepts, reflect attitudes of the respondents and establish the level of client satisfaction on the data collection method was applied to compile data from a sample of respondents in a systematic way.

### **3.6.2 Interview method**

An interview is a two-way discussion between the researcher and an informant, initiated purposely to obtaining information for a specific study (Stewart, 2008). A structured interview was conducted between the researcher and all the respondents. The purpose of using interview method was to provide an in-depth exploration of critical success factors influencing project performance of local road contractors. Roberts (2020) emphasised that qualitative interviewing provides an open-ended, in-depth exploration of an aspect of life about which the interviewee has substantial experience, often combined with considerable insight.

### **3.6.3 Document review**

Secondary data was collected through document review of supporting documents on local road construction projects from UNRA. Such documents included; projects progress reports, notifications on time overrun with associated costs and notifications of delayed payment of interim payment certificates with associated costs. Reappraisal was particularly useful in helping the researcher get an in depth understanding of the concepts under study for meaningful discussions.

### **3.7 Data collection instruments**

#### **3.7.1 A questionnaire**

A questionnaire is a data collection instrument in which each study participant is asked to respond to the same set of questions in a predetermined order (Obeidat, 2013). The questionnaire used in this study was designed on a summative scale approach of 1 to 5; where 1 is very insignificant, 2-insignificant, 3-average, 4-significant and 5-very significant. Section A of the questionnaire is on basic demographic data, Section B Part I is on technical capacity, Part II is on funding, Part III is on ethical practices and Part IV is on managerial efficiency. All the sections contained close ended questions with pre-determined responses.

#### **3.7.2 Interview guide**

Interview guide is a list of questions drawn from the specific objectives of the study, aimed at providing answers to research questions. A structured interview guide was used to guide the process of interrogation, to ensure that all the necessary questions pertaining to the study were included.

#### **3.7.3 Document review guide**

Reappraisal was guided by document review guide. This contained a list of required documents arranged in reference to the study objectives. Document review guide was used to ensure that the process of document review covered all the study objectives.

### **3.8 Data Sources**

The study utilized raw and second-party data.

#### **3.8.1 Primary**

This study collected raw data directly from the respondents using questionnaire.

Primary data just as the name suggests, is data which is collected directly from respondents for the first time by the researcher (Oluwatosin, 2017). The researcher used this data source to enable access of direct opinions from the respondents in order to solve the problem at hand.

### 3.8.2 Secondary

This study further obtained second-party data through documentary review method. Secondary data are the data already collected or produced by others (Oluwatosin, 2017). The reason for using this data source was to supplement on the data collected from primary source. Published journals, contract documents and management files, MoWT specifications for roads and bridges and other UNRA reports were consulted to provide relevant information to this study.

### 3.9 Measurement of variables

The study of critical success factors had independent variables as: technical capacity, funding, ethical practices, and managerial efficiency, while project performance was considered dependent variable which were measured as illustrated in Table 3.2.

**Table 3.2 Measurement of study variables**

Variable	Indicators	Measurement Scale	Types of Analysis
Technical capacity	<ul style="list-style-type: none"> <li>- Skills and experience</li> <li>- Modern equipment</li> <li>- Quality of materials</li> </ul>	Likert scale	Regression
Funding.	<ul style="list-style-type: none"> <li>- Availability</li> <li>- Adequacy</li> <li>- Accessibility</li> </ul>		Regression
Ethical practices	<ul style="list-style-type: none"> <li>- Falsification of experience and qualification</li> <li>- Bribery or corruption</li> <li>- Conflict of interest</li> <li>- Unfair treatment/conduct</li> </ul>	Likert scale	Regression
Managerial efficiency	<ul style="list-style-type: none"> <li>- Support to staff and company</li> <li>- Capacity to contract experience in</li> </ul>	Likert scale	Regression

	related work - Documentation and verification		
Contractor performance	- Timely completion - Quality roads - Cost effectiveness - Client satisfaction	Likert scale	Regression

**3.10 Testing Validity and Reliability of research instruments**

**3.10.1 Validity of the research instruments**

This refers to the potential of the tool to measure what it is intended to measure with high level of accuracy (Creswell, 2013). In this study, the tools were pretested by administering the questionnaires to at least ten (10) Staff at UNRA offices Soroti branch. Outcome of the pre-test were later used to compute Content Validity Index (CVI).

$$CVI = \left( \frac{\text{Relevant item}}{\text{Total item}} \right) \times 100 \dots\dots\dots \text{(Equation 3.2)}$$

The feedback given by staff were checked against the study objectives and ranked using a scale of 1-Not relevant, 2-Somewhat relevant, 3-Quite relevant and 4-very relevant. The Content Validity Index was used to determine the validity by adding up all the items rated using a scale of 3 and 4 by the pretested respondents and dividing the total sum by the total number of respondents.

Using the formula,  $CVI = \sum \left( \frac{3 \text{ and } 4}{N} \right) \dots\dots\dots \text{(equation 3.2)}$

Where N= number of respondents=10. The content of the questionnaire was considered valid since it attained an average CVI of 0.793 which is above 0.7 (Amin, 2005).

**Table 3.3 Content validity index**

No.	Factors affecting performance	Grouped	No. of 3&4	(3&4)/N	AC VI
1	Lack of Knowledge, skill and experience of the managers	Technical capacity	8	0.80	0.88
2	Lack of Knowledge, skill and experience of the project team members		9	0.90	
3	Lack of modern equipment		10	1.00	
4	Substandard Materials/Poor quality Materials		8	0.80	
5	Non-availability of Funds	Financial capacity	10	1.00	0.87
6	Inadequate funding		9	0.90	
7	Non-Accessibility of Funds		7	0.70	
8	Falsification of experience and qualification	Ethical practices	7	0.70	0.75
9	Bribery or Corruption		8	0.80	
10	Conflict of interest		8	0.70	
11	Unfair treatment or Conduct		7	0.80	
12	Non-support to Staff & Firm	Managerial efficiency	6	0.60	0.70
13	Lack of experience in related works		7	0.70	
14	Lack of Capacity to Contract		8	0.80	
15	Poor Contract documentation & Verification		7	0.70	
<b>Average CVI</b>					<b>0.80</b>

### 3.10.2 Reliability

This means the consistency, stability, or dependability of the data (Mugenda & Mugenda, 2005). In regard to reliability, questionnaires were subjected to a Cronbach's Alpha Coefficient (CAC) test using a computer excel sheet method. Ten respondents were subjected to the fifteen questions in the questionnaires. The rating used were as follows; 1- for respondents who responded yes and 0- for respondents who responded no. Therefore, the tools in this study were considered satisfactorily reliable when they met the criteria, and attained CAC test values above 0.7. A reliable total is one that gives a result  $\alpha$  being above 0.7. (Mugenda & Mugenda, 2005).

**Table 3.4 Cronbach’s alpha coefficient**

Factors	Respondents										
	1	2	3	4	5	6	7	8	9	10	
1	1	1	1	1	1	1	1	1	1	1	10
2	1	1	1	1	1	1	1	0	1	1	9
3	1	1	1	1	1	1	1	0	1	1	9
4	1	1	1	1	0	1	1	1	0	1	8
Technical capacity	4	4	4	4	3	4	4	2	3	4	36
5	1	1	1	1	1	1	0	1	0	1	8
6	1	1	1	1	1	1	1	0	0	1	8
7	1	1	0	1	1	0	0	1	1	1	7
Financial capacity	3	3	2	3	3	2	1	2	1	3	23
8	1	0	1	0	1	1	1	1	1	0	7
9	1	1	0	0	0	0	0	1	1	0	4
10	1	0	0	1	0	0	0	0	1	0	3
11	0	1	1	0	0	0	0	0	0	1	3
Ethical practices	3	2	2	1	1	1	1	2	3	1	17
12	0	0	1	1	0	0	1	1	0	0	4
13	0	1	0	0	0	1	1	0	0	0	3
14	0	0	0	0	1	1	1	0	0	0	3
15	0	0	0	0	0	0	0	1	1	1	3
Managerial efficiency	0	1	1	1	1	2	3	2	1	1	13
	10	10	9	9	8	9	9	8	8	9	
p	0.667	0.67	0.533	0.6	0.533	0.6	0.6	0.53	0.6	0.6	
q	0.333	0.33	0.467	0.4	0.467	0.4	0.4	0.47	0.4	0.4	
pq	0.22	0.22	0.25	0.24	0.25	0.24	0.24	0.25	0.24	0.24	

$$\alpha = \left( \frac{k}{k-1} \right) \left( 1 - \frac{\sum pq}{s^2} \right) \dots \dots \dots \text{(equation 3.3)}$$

Where k=No of respondents =10

P= proportion of respondents who responded yes and q=proportion of respondents who responded no,  $\sum pq$  = the product of p and q and  $S^2$  = the variance;

$$\alpha = (10/10-1) (1-(2.39/8.394))$$

$$\alpha=0.795$$

### 3.11 Attainment of specific objectives

The study undertook efforts to realize the set objectives as follows:

**Objective One;** the researcher established factors that affect project performance from the review of related literature and then classified using Relative Importance Index (RII) by ranking them in ascending order using equation (3.4);

$$RII = (W_1 + W_2 + W_3 + \dots + W_n) / A * N, \dots \dots \dots \text{(Equation 3.4)}$$

Where W=Weights given to each factor by the respondents and it ranges from 1 to 5, where 1 is less significant and 5 is extremely significant. A= the highest weight (i.e 5 in this case) and N=total number of respondents. This helped to identify which factors were relatively more important in affecting performance of local road contractors.

**Objective Two;** Using regression analysis, the researcher determined the impact of established factors affecting performance of local road contractors. The dependent variable, performance (quality, time, cost and client satisfaction) was regressed on the independent variables, technical capacity, funding, ethical practices and managerial efficiency. The R-square, probabilities and regression multiplier were used to ascertain the extent of significance and to validate the impact of the established factors on project implementation of local road contractors.

**Objective Three;** after validating the consequence of the established factors on project performance of local road contractors using the regression analysis, a decision flow diagram was then developed as a framework to improve project performance of local road construction companies in the selected districts of north

eastern Uganda. Unlike other forms of analysis, coefficients and probabilities obtained from regression analysis enabled validation of the impacts of established factors based on the magnitude of the coefficients and level of significance.

### **3.12 Procedure for data gathering**

Following the approval of the proposal by Kyambogo University to collect data, the investigator sought for permission from Uganda National Roads Authority (UNRA). With the help of recommendation letter from the University, the researcher started the process of data collection after seeking permission from relevant road contractors' and consultancy firms involved in the research. A research assistant was engaged to assist in data collection. To clearly understand the research instruments, the assistant was trained on the intention of the study and moral values of research. The questionnaires to the respondents were administered face to face and via email. Telephone and email address including physical address of the respondents were obtained. Deliveries were carried out and followed up with reminders and personal collection was done by the researcher and the assistant. A few questionnaires were received through email.

### **3.13 Data analysis**

Analysis of data included sorting, cleaning and organization of data from the questionnaires. The study collected both qualitative and quantitative data. The information was then coded and entered into spread sheet, which was then analysed in STATA using descriptive statistics. The dominant rateable techniques used included descriptive statistics such as frequencies, percentages and regression analysis. Quantitative data were presented in tables and explanation presented in

prose. The R-square, probabilities and regression coefficients were used to establish and validate the results obtained using the questionnaire. Average Relative Importance Index (ARII) of critical success factors was calculated, then factors whose Relative Importance Indices were greater than (ARII) were the only factors subjected to regression analysis. The general regression equation with suppressed constant term appeared as indicated in equation 3.5;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \alpha \dots \dots \dots \text{(Equation 3.5)}$$

Regression procedure: each dependent variable (quality, cost, time and clients' satisfaction) was regressed using backward and forward procedure on all the independent variables (funding, technical capacity, managerial efficiency and ethical practices).

This technique was used to provide an initial screening of the candidate variables when a large group of variables exists. For example, suppose you have fifty to one hundred variables to choose from, way outside the realm of all possible regressions' procedure. The forward and backward selection procedure of variables enabled selection of the best independent variables for regression. This procedure was a good choice in controlling multicollinearity problem within variables. The variables that had the greatest R-Squared were selected. At each step, candidate variables increased R-Squared the most and then the researcher stopped adding variables on the model which were not significant.

From equation 3.5: Y was performance of local road contractors, which was the dependent variable. Y was defined as; quality, cost, time and clients' satisfaction.

The independent variables include;

$X_1$  = funding

$X_2$  = technical capacity

$X_3$  = managerial efficiency

$X_4$  = ethical practices

$\beta_0$ : is the constant/Y-intercept.

$\beta_1$ ,  $\beta_2$ ,  $\beta_3$ , and  $\beta_4$  are the regression coefficients.

$\alpha$  is a residual term normally distributed about a mean of 0 and for purpose of computation, the  $\alpha$  is assumed to be 0.

Qualitative data from interviews was organized, categorized, and then patterns and themes were developed from responses given by the respondents, which were later analysed and interpreted into meaningful statements using the method of content analysis. This was used to supplement on findings from the questionnaires.

### **3.14 Ethical considerations**

The objective of ethics in research is to ensure that no one suffers adverse consequences from the research activities (UCLA Centre for Policy research, 2015). The researcher's aim was to ensure that the rights of the respondents are not violated. This was done with the following in mind, no provision for respondents' actual names on the questionnaire; respondents consented to be included in the study and the researcher gave satisfactory reasons for conducting the study.

**CHAPTER FOUR**

**DATA ANALYSIS, PRESENTATION AND INTERPRETATION OF**

**FINDINGS**

**4.1 Introduction**

This chapter discusses the interpretation and presentation of the findings obtained from the field. The chapter presents the background information of the respondents, findings of the analysis based on the objectives of the study. Descriptive and inferential statistics have been used to discuss the findings of the study.

**4.2 Response rate**

The study sampled 69 respondents in collecting data on factors influencing performance of contractors in the road construction sector: Case of selected contractors in North Eastern Uganda. The questionnaire return rate results are shown in Table 4.1.

**Table 4.1 Response rate from the study**

	Questionnaires issued	Questionnaires received	Percentage (%)
Total	69	65	94.2

A selection of 69 respondents was the study target from which 65 filled in and returned the questionnaires with a rate of response of 94.2%. This rate was acceptable to make conclusions for the study as it was considered representative. According to Mugenda and Mugenda (1999), a rate of response of 50% is sufficient for analysis and reporting; a rate of 60% is good and a rate of response of 70% and over is exceptional. Based on this assertion, the response rate was outstanding.

### 4.3 Demographic characteristics

The analysis of respondent's characteristics was carried out in relation to gender, age bracket, educational level, type of organization, experience of the respondents and timeframe within which the respondents has worked in road construction projects.

#### 4.3.1 Gender profile of the respondents

The proportion of male and female respondents in road construction in North Eastern Uganda is presented in Table 4.2.

**Table 4.2 Gender of respondents**

Gender	Frequency	Percentage (%)
Male	59	90.8
Female	6	9.2
<b>Total</b>	<b>65</b>	<b>100.0</b>

From the study results, it was noted that majority of the respondents, 90.8% were male whereas only 9.2% were female. This implies that road construction in North Eastern Uganda is majorly dominated by male compared to female. This calls for affirmative action that will aim at encouraging girl child to take engineering courses in order to fill this gap.

### 4.3.2 Age of the respondents

The respondents were asked to state their age bracket. The results are presented in Table 4.3

**Table 4.3 Age of respondents**

Age bracket	Frequency	Percentage (%)
21 – 30 years	13	20
31 – 40 years	18	28
41– 50 years	26	40
51 + Years	8	12
<b>Total</b>	<b>65</b>	<b>100.0</b>

From the study results, it was noted that 12% of respondents were aged over 50 years, 40% were aged 41 to 50 years, and 28% were aged 31 to 40 years, whereas 20% were aged 21 to 30 years. This represents even distribution of the age of the study population hence meaningful findings.

### 4.3.3 Education level of respondents

The respondents were asked to indicate their level of education. The findings are presented in Table 4.4.

**Table 4.4 Level of education**

Level of education	Frequency	Percentage (%)
Certificate	07	11
Diploma	12	18
Bachelor's degree	41	63
Masters	05	08
<b>Total</b>	<b>65</b>	<b>100</b>

According to feedback from respondents, the study noted that 11% of the respondents' held certificates, 18% of the respondents was indicated to hold Diploma 63% of the participants indicated to hold Bachelor's degree, while only 8% held Masters. This infers those respondents were educated enough to easily respond to research questions, thus providing reasonable study findings.

#### 4.3.4 Type of organization

The participants indicated their organization as shown in Table 4.5.

**Table 4.5 Organization type**

<b>Nature of Organizations considered</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Client/UNRA	37	57
Consultant	04	6
Contractor	16	25
Local Government	03	4
Civic organizations & Local leaders	5	08
<b>Total</b>	<b>65</b>	<b>100</b>

From the research outcome, the study noted that 57% were Clients/UNRA, 6% of the respondents were Consultants, 25% of the respondents were Contractors, amongst the other categories, 4% were from the Local Government and 8% represented civic organizations and local leaders. This infers that the respondents understood the questionnaires and were able to make the right responses, which yielded better findings.

### 4.3.5 Company's experience in road construction projects

The respondents were asked to indicate how many years of experience their company had while executing road works. Then the company's years of experience were categorized in Table 4.6.

**Table 4.6 Company's level of experience in road construction**

Experience (years)	Frequency	Percentage (%)
6 – 10	5	08
11 – 15	35	54
16 – 20	22	34
21 – 25	3	04
<b>Total</b>	<b>65</b>	<b>100</b>

The study discovered that with a majority of the organizations'/contractors' years of experience being between 11 – 15 contributing to 54%, the lowest having 21 – 25 years of experience being 4% and for the ranges of 16 – 20 and 6 – 10 being 34% and 8% respectively. It implies that the contractors operating in North Eastern Uganda had enough experience in the sector and therefore were able to provide meaningful findings to this study.

### 4.3.6 Respondent's experience in local road construction

The participants indicate the number of years of experience they had in road construction works. For this analysis, the researcher presented the respondents' years of experience in categories as illustrated in Table 4.7.

**Table 4.7 Level of experience**

<b>Respondents' experience in years</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Less than 5	7	11
6 – 10	18	28
11 – 15	25	39
16 – 20	11	17
21 and above	4	06
<b>Total</b>	<b>65</b>	<b>100</b>

Findings from Table 4.7 indicate that 39% of the respondents had attained experience of 11 to 15 years, followed by 28% with 6 to 10 years of experience, then 17% with 16 to 20 years, 11% with less than 5 years' experience and only 6% were 21 and above as regards years of experience. This infers that the respondents were experienced, easily understood the questionnaire and were able to provide clear opinions resulting into meaningful, reliable and dependable findings.

#### **4.4 Empirical findings**

##### **4.4.1 Factors that affect project performance of local road contractors in**

###### **Uganda**

The study facts from the questionnaire were used to find out how the respondents rated the influence of knowledge, skills and experience of managers and contractors, modern equipment, materials quality, funds, bribery and corruption, conflict of interest, documentation and verification of documents.

**Table 4.8 Factors that affect performance of local road contractors**

No.	Factors	5=V.S 4=S 3=A 2=I 1=V.I										RII	R
		5	W5	4	W4	3	W3	2	W2	1	W1		
1	Inadequate funding	28	140	28	112	7	21	1	2	1	1	0.849	1
2	Non availability of Funds	32	160	19	76	9	27	5	10	0	0	0.840	2
3	False experience & qualification	23	115	19	76	17	51	5	10	1	1	0.779	3
4	Bribery or Corruption	18	90	25	100	19	57	2	4	1	1	0.775	4
5	Lack of Modern Equipment	17	85	24	96	15	45	9	18	0	0	0.769	5
6	Non-Accessibility of Funds	15	75	32	128	9	27	8	16	1	1	0.760	6
7	Lack of knowledge, skills and experience	17	85	24	96	15	45	9	18	0	0	0.751	7
8	Lack of Capacity to contract	17	85	24	96	15	45	9	18	0	0	0.742	8
9	Substandard Materials	18	90	26	104	10	30	5	10	6	6	0.739	9
10	Lack of experience in related works	14	70	23	92	18	54	9	18	1	1	0.723	10
11	Conflict of interest	14	70	17	68	22	66	9	18	3	3	0.692	11
12	Poor Contract documentation	15	75	19	76	18	54	7	14	6	6	0.692	12
13	Non-support to Staff & Firm	8	40	23	92	17	51	15	30	2	2	0.662	13
14	Unfair treatment or Conduct	9	45	17	68	15	45	21	42	3	3	0.625	14
<b>Average Relative Importance Index (RII)</b>											<b>0.743</b>		

*V.S=Very, Significant, S=Significant, A=Average, I=Insignificant, V.I=Very Insignificant, W=Weights and R=Rankings.*

Table 4.8 above presents findings of factors affecting performance of local road contractors according to their relative importance index. It can be observed that; inadequate funding is relatively more important (RII= 0.8492) compared to the rest of the factors, followed by non availability of funds (RII=0.8400), then falsification of experience and qualification (RII=0.7785) take third, fourth factor is bribery or corruption (RII=0.7754) within the local road construction companies and modern equipment comes fifth (RII=0.7692). The least relatively important factors affecting

local road construction projects are lack of support to staff (RII=0.6615) and lastly unfair treatment (RII=0.6246).

According to the findings, technical capacity of local road contractors in form of modern equipment was the fifth relatively important (RII=0.7692) factor in local road construction, hence it affected project performance of local road contractors in north eastern Uganda. *This relates to what some respondents cited in an interview that; inadequate modern equipment in local road construction leads to low quality in road projects.* These findings are line with Akali (2018) who found out that technical skills are paramount in executing road works, as it ensures that set standards and requirements are adhered to.

Findings further revealed that project funding in form of availability of funds was the second relatively important (RII=0.84) factor affecting local road contractors. This signifies that funding affects project performance of local road contractors in north eastern Uganda. *An interview with some respondents revealed that non-availability or inadequate funds for local road construction hindered completion of most road projects.* Indeed, when funds are readily available and easily accessed, there is timely and quality performance of local road contractors. This relates to Olatunji (2010) who stated that project finance is one of the limitations which although it is beyond the jurisdiction of the parties to the contract, still influences continuous flow of scheduled activities. Onana (2018) affirmed that to guarantee successful project implementation, there has to be adequate capital for operation.

Findings have further revealed that ethical practices like falsification of qualification and experience, bribery or corruption are the third and fourth relatively important (RII=0.7785 and 0.7754) factors in project performance of local road contractors. *Similarly, findings from interviews indicate that falsification of experience, corruption and conflict of interest led to failure in achieving desired standards in road projects. They added that unfair treatment led to delayed completion in road projects.* Therefore, ethical practices within contractors affect performance of local road contractors in north eastern Uganda. This is in line with Hamimah *et. al*, (2011) who added that ethics is one of the core aspects on inter-party dealings. Hamzah *et al*, (2010) further added that the specialist's ethical matters in construction affect a large group of people. Such categories of people include; local authorities, customer organizations, suppliers, contractors, consultants and users of public infrastructure.

The study further established that non-support to staff and unfair treatment were the least (RII=0.6615) relatively important factors affecting local road contractors in north eastern Uganda. *Though the finding from an interview revealed that non-support to staff by employers led to lack of proper concentration to work.* Non-support and unfair treatment of staff are some of the ethical considerations for local road construction projects. Amudjie (2019) added that ethics is referred to as acceptable and unacceptable practices that affect our choices in decision making when faced with a test of our integrity, moral standards as well as our professional values, over an issue as an individual or organization.

The researcher sought to present the critical success factors affecting local road construction according to the theoretical framework as shown in Figure 4.1;

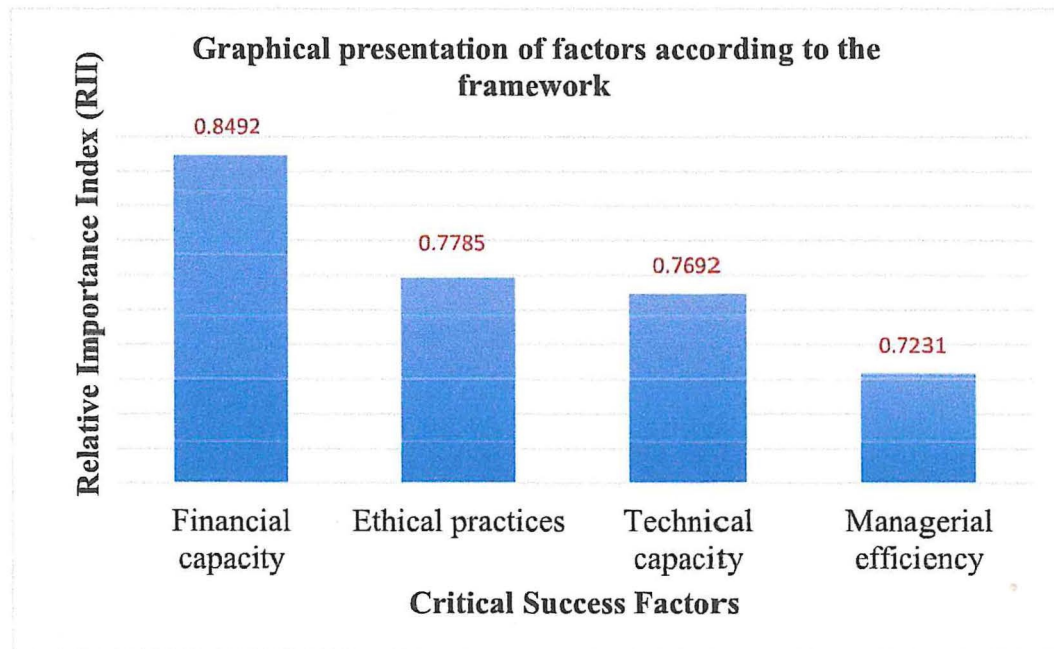


Figure 4.1 Ranking of critical success factors based on Relative Importance Index

It can be observed from Figure 4.1 that financial capacity was graded as the most critical success factor affecting local road construction projects in north eastern Uganda with the greatest relative importance index (RII=0.8492), followed by ethical practices of contractors with relative importance index (RII=0.7785) and managerial efficiency was ranked the least critical success factor in local road construction with the relative importance index (RII=0.7231).

#### **4.4.2 Impact of the established factors on project performance of local construction companies in north eastern Uganda**

To establish the impact of the established factors on local road construction in north eastern Uganda, Average Relative Importance Index (ARII) of the established critical success factors in Table 4.8 was calculated. Only those factors whose RII was greater than the average were categorized according to funding, ethical practices and

technical capacity, then a multivariate regression analysis for those factors was performed.

#### 4.4.3 Regression analysis

Multivariate regressions of cost, time, quality and client satisfaction were performed and findings were presented as follows;

##### i) Performance within Cost

Equation	Obs	Parms	RMSE	"R-sq"	F	P
$P_c$	65	4	1.997	0.981	799.610	0.000

$P_c$	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]
Tc	0.169	0.133	1.276	0.207	-0.096 0.435
F	0.418	0.101	4.124	0.000	0.215 0.621
EP	0.352	0.097	3.636	0.001	0.158 0.546
ME	0.126	0.119	1.064	0.291	-0.111 0.364

$P_c$  = Performance within cost, TC=Technical Capacity, F=Funding, EP=Ethical practices and ME=Managerial efficiency.

With the constant term suppressed, model equation (4.1) appears as;

$$P_c = 0.169TC + 0.418F + 0.352EP + 0.126ME \dots \dots \dots (\text{model equation 4.1})$$

Since the R-square value (0.9813) of the performance in terms of cost of local road construction projects is above 50%, this implies therefore that the model is a good fit. Therefore it implied that 98.13% of the variations in costs of local road construction projects in north eastern Uganda are explained by technical capacity, funding, and ethical practices of local road contractors, while 1.87% of the variation in costs is not explained and could be from other factors not included in this model.

There were significant ( $p < 0.05$ ) impacts of funding and ethical practices on the cost of local road contractors in north eastern Uganda. This corresponded to a unit increase in non availability of funds, inadequate funding and lack of access to funds by local contractors which on average led to 0.418 rise in the cost of local road constructions in north eastern Uganda. These findings mean that whenever local road contractors in north eastern Uganda faced financial constraints, it significantly affected the cost of road construction projects. Specifically, the lack of availability of funds, inadequate funding, and limited access to funds were contributing factors. These findings also mean that ethical issues such as corruption, bribery, or unethical business practices could potentially inflate project costs. Therefore, promoting ethical conduct in the industry may help control costs.

Similarly, findings from an interview of client, contractor and consultant, revealed that *inadequate funding and lack of access to funds led to delays in some local road construction projects from north eastern Uganda. Interview findings revealed that delayed access to funds led to increase in costs due to increase in time spent on procurement of required materials.* Indeed, adequate funding allows for the use of better-quality materials and skilled labour, which can result in higher construction standards and longer-lasting infrastructure. This can reduce the need for frequent repairs and maintenance, ultimately lowering long-term costs. In contrary, insufficient funding can lead to cost-cutting measures, compromising the quality of materials, workmanship, and project scope. Likewise ethical practices like transparency in communications foster accountability and minimize the risk of corruption or mismanagement of funds which would escalate project costs. Although

implementing ethical practices can initially increase project costs. For example, complying with environmental regulations or providing fair wages to workers might lead to higher expenses. These findings agree with Gacheru (2015) who cited bad financial management, corruption, and lack of funds as a result of misappropriation of road construction funds. Inadequate funds to complete road works or delays in payment by project management may lead to compelling issues (Gacheru 2015; Hussein and Omran, 2012).

Therefore, a unit increase in unethical practices like bribery and corruption led to 0.352 increase in the cost of local road construction works. This relates to findings from an interview, which revealed that *unethical practices like corruption caused unexplained rise in the cost of road works*. Contractors might offer kickbacks or bribes to officials in exchange for awarding contracts or approving inflated project costs. This artificially inflates the project budget and diverts funds that should be used for legitimate project expenses. This finding is related to what Hamimah *et. al* (2011) established that dishonesty involves illegal behaviour which is directly linked to fraud.

On the otherhand, there were no significant ( $p>0.05$ ) impacts of technical capacity and managerial efficiencies towards the cost of local road construction projects in north eastern Uganda. However, findings from the model above indicate that a unit increase in lack of technical capacity such as lack of experience, use of out dated equipment and poor quality materials on average led to 0.169 increase in the cost of local road construction in north eastern Uganda. These disagree with Akali (2018)

who argued that technical skills are essential in implementing road works, as it enables the set standards and requirements to be adhered to thus improving quality of road works.

Furthermore, a unit increase in managerial inefficiencies such as lack of potential to contract and lack of experience in related works, lack of support to staff and poor documentation of contracts on average led to 0.126 rise in the cost of local road constructions in north eastern Uganda. However, findings from the interview indicate that *local road managers' experience in related works, support and motivation of staff affected project performance*. Experienced managers were more likely to make informed decisions based on their knowledge of construction techniques, regulations, and industry best practices. This led to better project planning and execution. Despite such findings, effect of managerial efficiency was not realistic enough to cause change on client satisfaction, hence disagreeing with Thom-Otuya (2013) who cited that managerial efficiency leads to organization productivity, therefore, the manager needs to ensure that the desires of the employees are addressed in line with organizational goals and objectives.

## ii) Timely performance

mvreg Pt = Tc F EP ME, noconstant cformat(%9.3f)  
 pformat(%5.3f) sformat(%8.3f)

Equation	Obs	Parms	RMSE	"R-sq"	F	P
Pt	65	4	1.922	0.982	832.482	0.000

Pt	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]
Tc	0.195	0.128	1.528	0.132	-0.060 0.450
F	0.326	0.098	3.342	0.001	0.131 0.521
EP	0.363	0.093	3.891	0.000	0.176 0.549
ME	0.157	0.114	1.369	0.176	-0.072 0.385

$P_t$  = Performance within time, TC=Technical Capacity, F=Funding, EP=Ethical practices and ME=Managerial Efficiency.

With the constant term suppressed, model equation (4.2) appears as;

$$P_t = 0.195TC + 0.326F + 0.363EP + 0.157ME \dots \dots \dots \text{(model equation 4.2)}$$

Since the R-square value (0.982) of performance within time of local road construction projects is above 50%, which indicates that the model is a good fit. Therefore, 98.2% of the variation in time spent on local construction projects is explained by technical capacity, funding, ethical practices and managerial efficiency of local road contractors, while 1.8% of the variation in timely performance is not explained and could be from other factors not included in this model.

There were significant ( $p < 0.05$ ) impacts of funding and ethical practices on the time spent on local road construction projects in north eastern Uganda. The outcome above also indicates that a unit increase in non-availability of funds, inadequate funding and lack of access to funds by local contractors on average led to 0.326

increase in the time spent by local road contractors on local road construction projects in north eastern Uganda. Adequate funding can also ensure that contractors have the necessary resources to complete the project within the stipulated timeframe, reducing delays and associated costs. This suggests that the study found statistically significant evidence that funding and ethical practices play a role in influencing timely completion of local road construction projects. Adequate funding ensures that contractors have the necessary resources to complete the project within the stipulated timeframe, reducing delays and associated costs. On the other hand, strict adherence to ethical practices might cause delays if additional time is required to ensure regulatory compliance, stakeholder engagement, or transparent decision-making. Related to this finding, Akali *et. al.*, (2018) posted that non-availability, inadequate and limited access to finance hinders the contractor from undertaking recruitment of staff and acquire materials for local road construction. Therefore, this could lead to time over run hence leading to increase cost of local road construction.

Furthermore, findings from the model above indicate that a unit increase in unethical practices like falsification of qualification and experience, bribery or corruption, conflict of interest and unfair treatment on average led to 0.363 increase in the time spent by local road contractors in local road construction projects of north eastern Uganda. Similarly findings from the interview of the respondents indicate that; *bribery and corruption may lead to beaurocratic delays which inturn can lead to increase in time spent in local road construction.* Absolutely, bribery and corruption have far-reaching negative effects on local road construction projects, including causing bureaucratic delays that ultimately result in increased time spent on the

project. McMiniminee et. al., (2010) also added that a weak link in the process, such as inadequate project management experience, may adversely affect timely completion of the project works.

On the other hand, there were no significant ( $p>0.05$ ) impacts of technical capacity and managerial efficiency on the time spent on local road construction projects in north eastern Uganda. Therefore, a unit increase in lack of technical capacity inform of lack of experience, use of non modernized equipment and poor quality materials on average led to only 0.195 increase in the time spent on local road construction projects of north eastern Uganda. In contrary, this relates to McMiniminee et al., (2010) who maintained that a weak connection in the process, such as lack of project management experience, could adversely affect timely execution of the projects.

Additionally, findings indicate that a unit increase in managerial inefficiencies like lack of capacity to contract and lack of experience in related works of contracts on average only led to 0.1565373 increase in time spent by local road contractors on local road construction projects of north eastern Uganda. This result is in agreement with Ogohill (2019) who emphasised that if project management practices are well implemented like managerial efficiency, there would be more chance of having a practical project that can ensure better performance.

iii) Quality performance

Mvreg Pq = Tc F EP ME, noconstant cformat(%9.3f) pformat(%5.3f)  
sformat(%8.3f)

Equation	Obs	Parms	RMSE	"R-sq"	F	P
Pq	65	4	1.986262	0.9817	819.6772	0.0000

Pq	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]
Tc	0.379	0.132	2.869	0.006	0.115 0.642
F	0.359	0.101	3.561	0.001	0.157 0.561
EP	0.218	0.096	2.267	0.027	0.026 0.411
ME	0.153	0.118	1.294	0.200	-0.083 0.389

*Pq = Quality performance, TC=Technical Capacity, F=Funding, EP=Ethical practices.*

With the constant term suppressed, model equation (4.3) appears as;

$$Pq = 0.379C + 0.359F + 0.218EP + 0.153ME \dots \dots \dots (\text{model equation 4.3})$$

Since the R-square value (0.982) of performance within quality of local road construction projects is above 50%, this indicates therefore that the model is a good fit. Therefore, 98.2% of the variations in quality of local road construction is explained by technical capacity, funding, ethical practices and managerial efficiency of local road contractors while 1.8% of the variation in costs is not explained and could be from other factors not included in this model.

There were significant ( $p < 0.05$ ) impacts of technical capacity, funding and ethical practices on the quality of local road construction in north eastern Uganda. A unit increase in technical capacity in form of experience, use of modern equipment and

quality materials on average led to 0.379 improvement in quality of local road construction projects of north eastern Uganda. The study findings implied that use of modern equipment, quality materials and adequate skills and experience significantly ( $p < 0.05$ ) impacted on the quality of local road construction projects in north eastern Uganda. Proper funding allows for the purchase of quality construction materials that meet safety and durability standards. High-quality materials contribute to the longevity of the project and reduce the need for frequent repairs. Similar findings were revealed in an interview of client, contractors and supervisor, that; *use of substandard equipment can affect the quality of local road construction*. Substandard equipment does not have the necessary precision, reliability, or capabilities to perform construction tasks accurately. This could have resulted in uneven surfaces, poor compaction, improper alignment, and other defects that affect the overall quality and functionality of the road. This agrees with Akali (2018) who affirmed that technical skills are necessary in executing road works, as it ensures that set standards and requirements are adhered to, thus improving quality of road works.

Furthermore, a unit increase in availability of funds, adequate funding and improved access to funds by local contractors on average led to 0.359 improvement in quality of local road construction in north eastern Uganda. Related to the findings, Akali *et al.*, (2018) also established that non-availability, inadequacy and limited access to funds constrains the contractor from timely recruitment of skilled labour and purchase of quality materials for local road construction. Non-availability, limited access and inadequate funding led to poor quality work of local road construction project. Unlike when funds are readily available, easily accessed and are adequate for

local road construction, quality materials are acquired on time, hence improving the quality of work done.

Similarly, a unit improvement in ethical practices like experience, decrease in bribery or corruption, conflict of interest and unfair treatment on average led to 0.218 improvement in quality of local road construction of north eastern Uganda. Ethical practices such as qualification and experience, corruption or bribery significantly ( $p < 0.05$ ) impact on the quality of local road constructions in north eastern Uganda. This agrees with Hamimah *et. al*, (2011) who affirmed that even unethical action did not exist, a conflict of interest can cause a situation of impenitence that can lower confidence in the ability of that person to act properly in their position.

Surprisingly, there was insignificant ( $p > 0.05$ ) impact of managerial efficiency on the quality of local road construction projects in north eastern Uganda. Findings indicate that a unit improvement in managerial efficiencies in form of capacity to contract and experience in related works of contractors on average led to 0.153 improvement in quality of local road construction of north eastern Uganda. These findings disagree with Ogohill (2019) who cited that if project management practices are implemented properly, like managerial efficiency, it increases the possibility of having a quality project that can ensure sound business success.

## iv) Performance for client Satisfaction

Mvreg Pcs = Tc F EP ME, noconstant cformat(%9.3f)  
 pformat(%5.3f) sformat(%8.3f)

Equation	Obs	Parms	RMSE	"R-sq"	F	P
Pcs	65	4	2.130887	0.9742	576.5496	0.0000

Pcs	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]
Tc	0.432	0.142	3.052	0.003	0.149 0.715
F	0.175	0.108	1.618	0.111	-0.041 0.391
EP	0.304	0.103	2.940	0.005	0.097 0.510
ME	0.083	0.127	0.656	0.515	-0.170 0.337

$P_{cs}$  = Performance within client satisfaction, TC=Technical Capacity, F=Funding, EP=Ethical Practices and ME=Managerial Efficiency.

With the constant term suppressed, model equation (4.4) appears as;

$$Pcs = 0.432TC + 0.175F + 0.304EP + 0.083ME \dots \dots \dots (\text{model equation 4.4})$$

Since the R-square value (0.974) of performance within client satisfaction of local road contractors is above 50%, this infers therefore that the model is a good fit. Therefore, 97.4% of the variation in client satisfaction of local road contractors is explained by technical capacity, funding and ethical practices of local road contractors, while 2.6% of the variation in costs is not explained and could be from other factors not included in this model.

There were significant ( $p < 0.05$ ) impacts of technical capacity and ethical practices on the level of client satisfaction on performance of local road contractors in north eastern Uganda. A unit increase in technical capacity such as experience, use of modern equipment and quality materials on average led to 0.432 increase in client

satisfaction on local road construction projects in north eastern Uganda. These findings agree with Akali (2018) who cited that technical skills are necessary in implementing road works, since it encourages set standards and requirements to be followed, hence improving quality of road works and the level of client satisfaction. Additionally, a unit improvement in ethical practices like possession of experience, decrease in bribery or corruption, reduced conflict of interest and fair treatment on average led to 0.304 increase in client satisfaction of local road construction.

Similarly findings from the interview revealed that; *the client may not be satisfied with falsified experience and unqualified local contractors*. This highlighted the possibility of negative consequences of hiring contractors who falsify their experience and lack the necessary qualifications for local road construction. When contractors falsify their experience, they may present themselves as having completed projects or possessing skills that they do not actually have. This could involve exaggerating their past accomplishments, claiming to have worked on projects they haven't, or inflating their level of expertise. If a client discovers that a contractor's experience has been falsified, it undermines trust and confidence in the contractor's ability to deliver on the project's requirements. These findings agree with Ayat (2013) who concluded that profit maximization by contractors, personal culture or personal behaviour that leads to personal gains, delayed payment of workers, segregating workers and lack of raw materials in the market are the most regular factors that cause unethical behaviours.

On the otherhand, there were no significant ( $p>0.05$ ) impacts of funding and managerial efficienciencies as regards to the level of client satisfaction of local road construction projects in north eastern Uganda. Outcome also indicate that a unit increase in availability of funds, adequate funding and improved access to funds by local contractors on average only led to 0.175 increase in client satisfaction of local road contractors. These results agree with Akali *et. al.*, (2018) who posted that non-availability, inadequate and limited access to funds hinder the contractor from recruitment of staff and purchase of materials for local road construction. Therefore, this could affect the performance of the contractor, hence lowering the level of client satisfaction. Similar findings indicate that a unit increase in managerial efficiencies like experience in works related to local road construction, capacity to contract and support to staff on average only led to 0.083 increase in client satisfaction.

#### **4.5 A framework to improve project performance of local road construction companies in Uganda**

A framework was developed to improve project performance of local road construction companies in north eastern Uganda, based on the impact of the established factors. It is clear from Figure 4.2 that if the road contractor, consulting engineers/ supervisors, UNRA Engineers and others, execute all their functions in line with the external factors and as such have the right technical capacity, funding and ethical practices for each responsible party, then poor/ shoddy work will be minimized otherwise, if they don't execute their duties well, the impact of time overrun, cost overrun, poor quality and lack of client satisfaction will remain unresolved among project participants.

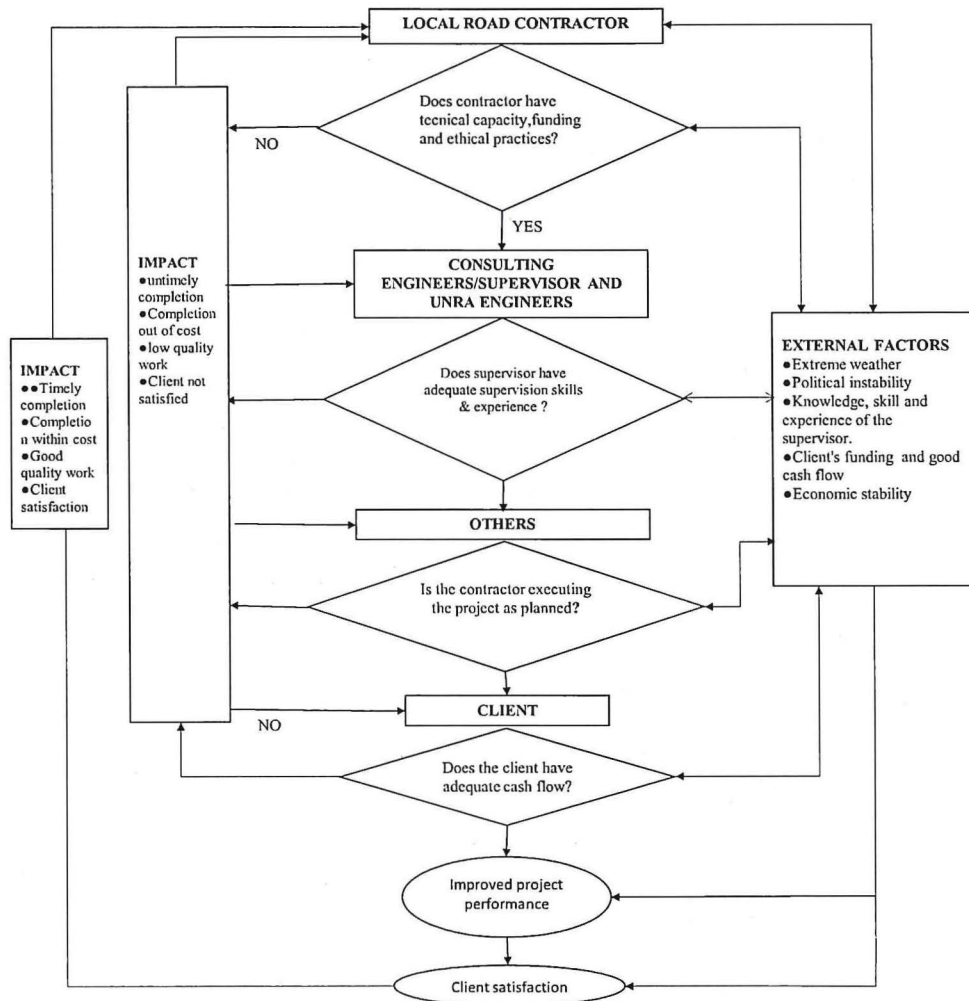


Figure 4.2: A framework to improve project performance of local road contractors

It is observed from (Figure 4.2) that in order to improve local road construction projects in north eastern Uganda, consulting engineers/ supervisors and UNRA engineers have to be cautious about the contractor's technical capacity with respect to skills and experience of staff, equipment used and quality of materials. There is also need to take note of project funding such as availability and accessibility of funds. In addition, ethical practices such as experience and qualification of staff, cases of bribery or corruption, conflict of interest and fair treatment of employees

need to be taken into consideration. Once all these factors are taken into consideration, then local road contractors' performance is bound to improve in north eastern Uganda. These findings agree with Lyer *et. al.*, (2015) who revealed that it is ideal to have proper consideration of project performance drawing from skills, and competence enhancement, since technical skills enhancement makes the employees perform their roles not only better but also in a cost-friendly manner (Sambasivan, 2016).

## CHAPTER FIVE

### CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter covers conclusions and recommendations drawn from the study outcome in chapter four, guided by the study objectives as follows;

#### 5.2 Conclusions

This study was intended to identify and analyse the key critical success factors that significantly influenced the project performance of local road contractors operating in North Eastern Uganda, with a focus on selected districts. This in turn was to guide the development of a framework to improve performance of local road contractors.

The study has identified funding, ethical practices, and technical capacity as the most significant critical success factors affecting the project achievement and performance of local road construction companies in the region. This underscores the importance of these factors in ensuring the success of such projects. While managerial efficiency was identified as one of the critical success factors, it appears to be relatively less important compared to funding, ethical practices, and technical capacity. This suggests that improving managerial efficiency, while still important, may not have as significant impact on project performance as the other factors.

The development of a framework based on the identified critical success factors was a practical and valuable outcome of the study. This framework can serve as a guide for local road contractors in north eastern Uganda to measure and improve their

project performance. The framework provides a structured approach to addressing the key factors that influence success.

In conclusion, this study contributes valuable insights into the factors that drive the achievement and performance of local road construction projects in north eastern Uganda. The emphasis on funding, ethical practices, and technical capacity as the most significant factors highlights areas where contractors should focus their efforts to enhance local road construction projects' outcomes. The framework developed as a result of this research, offers a practical tool for contractors to assess and improve their performance, ultimately benefiting the infrastructure development in the region.

### **5.3 Recommendations**

The researcher recommends that;

- i. Local road contractors, consulting engineers/ supervisors and UNRA engineers from North Eastern Uganda should execute all their functions in line with the right technical capacity, funding, ethical practices and managerial efficiency.
- ii. Among the established critical success factors, local road contractors should also take into consideration of the more critical factors such as; project funding, ethical practices and technical capacity of local road contractors and managerial efficiency.
- iii. Local road contractors in Uganda should use funding, ethical practices inform of qualification and experience and technical capacity for benchmarking purposes, which should also be key components of their organization's move towards achieving best practice in order to overcome performance problem.

#### **5.4 Constraints of this study**

This research faced a challenge of limited time due to the interruptions caused by COVID-19 pandemic. This increased the time scope of this study to more one academic year yet earlier the researcher had planned to carry out this study for one academic year.

This study was limited by financial resources. The increase in time scope led to increase in financial resources required for travels made to meet the supervision appointments.

#### **5.5 Suggested topics for more research**

This study recommends further research to be conducted on the following areas;

- i. Critical external factors affecting project achievement of local road contractors in Uganda. A study in this area is necessary since not much was said in this study about external factors influencing project performance.
- ii. Effect of political climate on project performance of local road contractors in Uganda. A study in this area is necessary since this study did not critically look into the effect of political climate on local road construction projects.
- iii. Analysis of managerial efficiency and the success of local road construction in Uganda. A study should be conducted in this area since this study found out that there was insignificant impact of managerial efficiency on project performance of local road construction companies in Uganda.

#### **5.6 Limitations of the study**

This study had several limitations and such limitations affected the generalizability and reliability of the study findings. Some possible limitations could include;

- The study did not account for external factors such as economic changes, political instability, or natural disasters that could have influenced project performance. To overcome these limiting factors, the researcher had to complement quantitative data with qualitative research through interviews and this helped to gain insights into how external factors influenced local road construction projects in north eastern Uganda. Additionally, the researcher sought opinions of experts in the field to validate the study findings and this provided context regarding the impact of external factors.
- Also, the interpretation of critical success factors and project performance might have been subjective, leading to variations in how different participants perceived and reported such factors. The researcher managed to overcome this challenge by clearly defining critical success factors in the research. Additionally, the researcher created a conceptual framework for reference purpose while designing the questionnaire and interview guide for data collection and reporting to ensure consistency.
- Conducting research in certain areas was challenging due to factors such as limited access to reliable data, language barriers, or logistical issues. The study might have not adequately addressed ethical considerations, such as informed consent, confidentiality, and potential conflicts of interest. To overcome these challenges during this study, the researcher had to explore multiple potential sources of data, both primary and secondary, to compensate for limitations in any single dataset. When data was scarce, the researcher gathered primary data through surveys and interviews to

supplement existing information. Additionally, the researcher engaged qualified translators to translate documents, questionnaires, or interviews to and from the required languages. Prior to data collection, informed consent was obtained from the participants, which involved clearly explaining the research objectives, methods, and potential risks. Approval was also sought from institutional review boards (IRBs) or ethics committees to ensure compliance with ethical standards.

- The study was limited by scope which led to coverage of a narrow set of critical success factors, omitting other relevant factors that could also impact project performance. To overcome such a limitation, the researcher conducted an extensive literature review to identify the broad range of potential critical success factors that influence local road project performance. In addition, a gap analysis was undertaken to highlight the factors that have been overlooked in previous research or not adequately covered in the study. Also, quantitative and qualitative data collection methods were used to capture a broader range of critical success factors. Finally, areas for future research were suggested in the conclusions that can explore the omitted critical success factors in more depth, providing a roadmap for subsequent studies.

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## APPENDICES

## Appendix 1: Measurement of variables

Variable	Description	Measurement	Cited Author(s)
Technical Capacity	These are competencies that a firm has in its operations that may be expressed in terms of machines, materials, capital and human resources skills.	This will be measured by asking questions on: Skill & Experience held by staff on various departments in contracting firms Observing and asking about the user friendliness of the equipment used. Asking for records about the equipment used and their purchase times Quality Materials- will be considered as those re-usable items that are either in stock, or work-in progress being used. Their special features and abilities will be considered Questions was measured on the scale of 1-5.	Hassanali & Pun (2008)  Ayalew et al., (2016).  Asinza & Kimutai (2017)
Funding	The ability of the firm to acquire, provide, and allow for access to financial resources in cash or cash equivalents.	Was measured based on linkert scale questions set on: Availability of Funds which is the degree by which funds/financial resources are in place Adequate funding- The extent to which funds in place are enough to run the project activities Accessibility of funds – the ease with which user departments and persons can have the necessary funds/financial resources as they need. Questions were measured on the scale of 1-5.	Basheka & Tumutegyereize, (2013)  Korte (2018)
Ethical Practices	The extent to which contractors conform to standards and treat other parties involved with respect, and accordance to set rules and guidelines of road contracts performance	Linkert scale questions were asked to measure ethics. Parameters of consideration were: Falsification of experience and qualifications Bribery or corruption Conflict of interest Unfair treatment/conduct and communication skills Questions were measured on the scale of 1-5.	Salleh (2009)  Hamzah (2018)  Hamimah et al., (2011).

Managerial Efficiency	The ability of the leaders to plan, control, supervise, and oversee all the activities of the project as and in the mode and means expected/defined.	Was based on a linkert scale (1-5), questions were asked on: Support to Staff & Firm Capacity to contract Experience in related works Documentation Verification	Iyer & Jha, (2015)  Samson & Lema, (2011)
Project Performance (Dependent Variable)	This will be the outcome variable. It is the extent to which project fulfils the set project goals, objectives and outcomes as defined in the contract	Was based on a linkert scale (1-5), questions were asked on: Timely Completion Completion within Cost Quality Structures Stakeholders' Satisfaction Functionality of the road	Takim (2016)  Queiroz (2016)  Byaruhanga & Basheka (2017)

**Appendix 2: Projects in the three selected Districts of North Eastern Region from 2015-2019**

Project	Details	Contractor	Consultant	Supervisor
Term Maintenance of Katine Ocherro (70.0km)	Term Maintenance Contracts for three years, from 2015-2018 At 7 Bn. Time overrun of two months	MM Construction Company Ltd	-	UNRA Regional Manager North East & Soroti Station Staff
Periodic Maintenance of Arapai-Amuria, Obalanga-Alito & Amuria-Kapelebyong (105.0km)	Periodic Maintenance for eighteen months, from 2015-2017 at 2 Bn. The Contract was behind schedule and was terminated at 80% Physical Progress	Kol Services Ltd	-	UNRA Regional Manager North East & Soroti Station Staff
Peridic Maintenance of Soroti-Gweri-Magoro-Ngariam Road (71.0km)	Periodic Mainte eighteen months, from 2015-2017 at 2.0 Bn. The Contract was behind schedule	Gunya Company Ltd	-	UNRA Regional Manager North East & Soroti Station Staff
Term Maintenance of Kumi Brooks Corner-Serere & Soroti Serere (83.0km)	Term Maintenance for three years, from 2015-2018 at 7Bn. Was Behind schedule	BCR General Services Ltd	-	UNRA Regional Manager North East & Soroti Station Staff
Frame work Contract	Frame work Contract for	Shajapa	-	UNRA

for Routine Mechanized Maintenance for 205 km Under Kotido Station	three years from at 16.8 Bn. Behind Schedule	Technical Works Ltd		Regional Manager North East & Kotido Station Staff
Frame work Contract for Routine Mechanized Maintenance for 305 km Under Soroti Station	Frame work Contract for three years from from 2018-2021 at 18 Bn. Good work within schedule	Heaat Genenral Engineers & Contractors Ltd	-	UNRA Regional Manager North East & Soroti Station Staff
Term maintenance of Kumi-Ladot & Ladot Palisa (48.0km)	Term Maintenance Contract for three years from 2015-2018. Contract was behind schedule for two months	Joint venture of Bmce, Aptech Ltd	-	UNRA Regional Manager North East & Soroti Station Staff
Frame work RRM Maintenance Moroto-Lokitanyal	Frame work Contract for three years from 2017-2020 at 14.7 Bn. It was behind schedules	Strackon Ltd	-	UNRA Regional Manager North East & Moroto Station Staff
Periodic Maintenance Serere-Kasilo-Kagwara	Periodic maintenance for one year, from 2015-2016. At 1.8 Bn. Was behind schedule & Contract was not complete	Akjo Construction Company Ltd	-	UNRA Regional Manager North East & Soroti Station Staff
Term maintenance of Matany-Lokopo-Turtuko-Apeitoli	Term Maintenance for three years from 2016-2019 at 7.6 Bn. It was within schedule & Cost	Capital Logistic Ltd		UNRA Regional Manager North East & Moroto Station Staff
Term Maintenance of Amuria-Acowa-Usuk & Katakwi-Usuk-Orungo (71km)	Term Maintenance for three years from 2015-2018 at 10 Bn. It was good work done within Cost & schedule	Uganda Martyrs Housing and Construction Co. Ltd		UNRA Regional Manager North East & Soroti Station Staff
Term maintenance of Kotido-Nakapelemoru-Lopei	Term Maintenance for 111.0km for three years from 2016-2019 at 8.0Bn. Poor quality & behind schedules	Consolidated Ltd		UNRA Regional Manager North East & Kotido Station Staff
Term Maintenance of Kapedo-Karenga-	Term Maintenance for 140.0km for three years	Spider Limited		UNRA Regional

Kabong-Kanawaat	from 2016-2019 at 9.0Bn. within cost & quality			Manager North East & Kotido Station Staff
Construction of 2 No. Bridges	Construction of 2 No. Bridges at 3.6 Bn. Its Behind schedule	Kasese Wood & Nail Industry Ltd	-	Supervisors from UNRA Road & Bridges Directorate
Civil Works for upgrading from Gravel to Bituminous Paved Surface	Civil Works for upgrading 100.0km for 3 years from 2017-2020. at 380 Bn. Good work done and completed within scedule	Chaina Communication & Construction Co.	MBW	Supervisors from Road & Bridges
Periodic Maintenance of Serere-Pingire-(Arapo-Mugaram 45.0km)	Periodic Maintenance Contract for eighteen Months-from 2016-2018 Good work done. Completed within Schedule & Cost	Techno three (U) Ltd	-	UNRA Regional Manager North East & Soroti Station Staff
Civil Works for upgrading from Gravel to paved Surface	Civil Works for upgrading 50.0km for eighteen months from 2017-2019. at 190 Bn. Good work done within schedule & Cost	China Railway Three	COWI	Staff from Roads & Bridges
Rehabilitation of Tororo-Mbale-Soroti	Rehabilitation for 3 year 2015-2017 at 140 Bn. Poor quality	DOTT Services	GIBB Africa	

### Appendix 3: Questionnaire for the Respondents

Dear respondent,

I am Awoui Ahmad Okwir, a student of Kyambogo University undertaking this research title “Critical success factors influencing project performance of local road contractors in Uganda” A Case study of Districts in North Eastern Uganda. This is to fulfil one the requirements for the award of a degree of Masters of Construction Technology and Management”. You have been chosen to take part in this research. All your responses will be used for academic purposes and thus considered confidential.

#### SECTION A: Basic Demographic Data (Please Tick where Appropriate)

1. Gender

1). Respondent’s sex     Male         Female

2. Age (Years)

22-30     31-40     41-50     41-50     51 and above

3. Education Background (Tick the Highest qualification)

1). Certificate     3). Diploma     3). Degree  4). Masters  5). Phd

4 Type of Organization (Tick one)

1). Contractor  2). Consultant  3). Supervisor  4). Client  5).

Others

If other, specify.....

## 5. Experience of Organization in road construction projects

- 1). Less than 1 year [ ] 2) 1-5years [ ] 3). 6-10 years [ ] 4). 11-20 years [ ]  
5) over 20 years [ ]

## 6. Experience of respondent in road construction projects

- 1). Less than 1 year [ ] 2). 1-5years [ ] 3). 6-10 years [ ] 4). 11-20 years [ ]  
5) Over 20 years [ ]

**SECTION B: FACTORS AFFECTING PERFORMANCE OF LOCAL ROAD CONTRACTORS**

A) Provided below are possible factors that affect performance of Local road construction contracts. In your opinion kindly indicate by ticking in the box the degree of significance of causes of poor performance on the project which you have undertaken

5=Very significant, 4=Significant, 3=Average, 2=Insignificant, 1=Very Insignificant

(For District Engineers, Consultants & Supervisors on Contractor's side

No.	Factors that affect performance of local road contractors	Degree of significance				
		5	4	3	2	1
1	Lack of Knowledge, skill and experience of the Project team					
2	Lack of Modern Equipment					

3	Substandard Materials/Poor quality Materials					
4	Non availability of Funds					
5	Inadequate funding					
6	Non-Accessibility of Funds					
7	Falsification of experience and qualification					
8	Bribery or Corruption					
9	Conflict of interest					
10	Unfair treatment or Conduct					
11	Non-support to Staff & Firm					
12	Lack of experience in related works					
13	Lack of Capacity to Contract					
14	Poor Contract documentation & Verification					

Others, (Specify and rank them)

.....

.....

B). Basing on your experience, please indicate the level of impact these factors have on performance of local road construction Projects measured in terms of: Time, Cost, Quality and Client satisfaction.

5=Very high impact, 4=High impact, 3=Low impact, 2=Very low impact, 1=No impact

N o.		Cost					Time					Quality					Client Satisfaction				
		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
1	Managers' Incompetency																				
2	Team's Incompetency																				
3	Lack of Modern Equipment																				
4	Substandard/ Poor quality Materials																				
5	Non availability of Funds																				
6	Inadequate Fund																				
7	Non accessibility of Fund																				
8	Falsification of experience & Qualification																				
9	Bribery or Corruption																				
10	Conflict of Interest																				
11	Unfair treatment/ Conduct																				

12	Non-support to Staff & Firm																			
13	Lack of Experience in related works																			
14	Lack of Capacity to Contract																			
15	Poor Contract documentation & Verification																			

(Supervisor related)

No.	Factors that affect performance of local road contractors in Uganda	Degree of significance				
		5	4	3	2	1
1	Lack of Knowledge, skill and experience of the Staff					
2	Certification of poor-quality Materials					
3	Conflict of interest					
4	Unfair Treatment/Conduct					
5	Lack of Experience in related works					
6	Poor Contract documentation & Verification					
7	Falsification of experience and qualification					
8	Bribery or Corruption					
9	Conflict of interest					
10	Unfair treatment or Conduct					

B). Basing on your experience, please indicate the level of impact on (Time, Cost, Quality and Client satisfaction), which these challenges do have on poor performance of road construction Projects. 5=Very high impact, 4=High impact, 3=Low impact, 2=Very low impact, 1=No impact

No		Cost					Time					Quality					Client Satisfaction				
		5	4	3	2	1	5	4	3	2	1	5	4	3	2	1	5	4	3	2	1
	Response																				
1	Lack of Skill & experience of Staff																				
2	Certification of poor-quality Materials																				
3	Falsification of experience & qualification																				
4	Bribery or Corruption																				
5	Conflict of Interest																				

6	Unfair treatment /Conduct																			
7	Non availability of fund																			
8	Inadequate Fund																			
9	Non accessibility of Fund																			
10	Lack of Experience in related works																			
12	Documentati on & Verification																			

Thank you

**Appendix 4: Interview guide**

Dear respondent,

The interview am conducting relates to “Critical Success factors of selected Local road Contractors in Uganda: A case study of District in North Eastern Uganda”. You have been chosen to take part by sharing your experience and make this study successful. Therefore, information that you will give will be treated with utmost confidentiality .

**SECTION A: Project performance of local road contractors in North Eastern Uganda**

According to you, how do you understand by Skill and experience of Local Contractor’s Staff in relation to Project Performance of road Project?

Client.....

Contractor .....

Consultant.....

How does Modern equipment affect Project performance local road contractor?

Client.....

Contractor .....

Consultant.....

How does quality of Materials affect Project Performance of local road Contractors?

Client.....

Contractor .....

Consultant.....

How does availability, adequacy & accessibility of fund affect Project performance of local road contractors?

Client .....

Contractor .....

Consultant.....

How does falsification of experience and qualification of Local Contractors Staff affect project performance?

Client.....

Contractor.....

Consultant.....

Does Bribery or Corruption affect Project Performance of local road Contractors? If so how?

Client.....

Contractor.....

Consultant.....

Does Conflict of interest affect the performance of local road Contractors? If so how?

Client.....

Contractor .....

Consultant.....

Does unfair treatment/Conduct affect Project Performance of local road Contractors?

If so how? Client.....

Contractor.....

Consultant.....

Does support to Staff affect Project Performance of local road Contractors? If so how?

Client.....

Contractor.....

Consultant.....

Does experience in related works affect performance of local road Contractors? If so how?

Client.....

Contractor.....

Consultant.....

Does documentation & verification affect the Performance of local road Contractors.

If so how

Client.....

Contractor.....

Consultant.....

Does Capacity to Contract affect Project Performance of local road Contractors. If So how?

Client.....

Contractor.....

Consultant.....

**Section B: Impact of factors on Project performance of local Road Contractors in North Eastern Uganda**

From your own observation, did Skill & experience of Staff affect Project performance of local road Contractor? If so how?

Client.....

Contractor.....

Consultant.....

From your own observation, did modern equipment affect Project performance of local road Contractors? (if so, how?)

Client.....

Contractor.....

Consultant.....

From your own observation, did quality of materials affect Project performance of local road Contractors? If so, how?

Client.....

Contractor .....

Consultant.....

From your own observation, did fund availability, adequacy & accessibility affect Project performance of local road Contractors? If so how?

Client.....

Contractor.....

Consultant.....

From your own observation, did falsification of experience & qualification affect the project performance of local road Contractors? If so how?

Client.....

Contractor .....

Consultant.....

From your own observation, did corruption & bribery affect Project performance of local road Contractors? If so how?

Client.....

Contractor .....

Consultant.....

From your own observation, did conflict of interest affect Project performance of local road Contractors? If so how?

Client.....

Contractor.....

Consultant.....

From your own observation, did unfair treatment/conduct affect Project performance of Local road Contractors? If so how?

Client.....

Contractor.....

Consultant.....

From your own observation, did support to Staff & firm affect Project performance of Local road Contractors? If so how?

Client.....

Contractor.....

Consultant.....

From your own observation, did Capacity to Contract affect Project performance Of local road Contractor? If so how?

Client.....

Contractor.....

Consultant.....

From your own observation, did experience in related works affect the Project performance of local road Contractors? If so how?

Client.....

Contractor.....

Consultant.....

From your own observation, did documentation & verification affect the Project performance of local road Contractors? If so how?

Client.....

Contractor.....

Consultant.....

***Thank you for your time and information***

**Appendix 5: Documentary review guide**

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# **ANTI-PLAGIARISM REPORT**

# CRITICAL SUCCESS FACTORS INFLUENCING PROJECT PERFORMANCE OF LOCAL ROAD CONTRACTORS IN UGANDA

*by Ahmad Awoii*

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