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IMPACT OF CONSTRUCTION CONTRACT TYPE ON PROJECT TIME AND COST PERFORMANCE IN UGANDAN LOCAL GOVERNMENTS: A CASE OF KIRYANDONGO DISTRICT

BY

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DECLARATION

I, **Niyonzima Emmanuel**, hereby declare that this dissertation is my work and has never been presented to any University or Institution of learning for any academic award.

Signature: ..... Date: .....

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CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by Kyambogo University a dissertation titled **"Examining the impact of construction contract type on project time and cost performance in Ugandan local governments: A Case of Kiryandongo District",** in fulfillment of the requirements for the award of a degree of Master of Science in Construction Technology and Management of Kyambogo University

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DEDICATION

This dissertation is dedicated to my family, the technical and administrative staff of Kiryandongo District.

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LIST OF ABBREVIATIONS

BMAU	Budget Monitoring and Accountability Unit
BOOT	Build Own Operate Transfer
BoQ	Bills of Quantities
COR	Cost Overrun Rate
CPI	Cost Performance Index
CPO	Construction Process Organization
CVI	Content Validity Index
DB	Design Build
DBB	Design Bid Build
DBIA	Design Build Institute of America
D&C	Design and Construct
ECR	Early Completion Rate
ESR	Early Start Rate
FY	Financial Year
GoU	Government of Uganda
MoFPED	Ministry of Finance Planning and Economic Development
MC	Management Contract
OAG	Office of the Auditor General
PPDA	Public Procurement and Disposal of Public Assets
PCM	Professional Construction Management
PRDP	Peace Recovery and Development Plan
UEGCL	Uganda Electricity Generation Company Limited

URF	Uganda Road Fund
US	United States
USD	United States Dollar
TOR	Time-Overrun Rate

ABSTRACT

The construction contract describes the number of works, obligations, rights, and highlighting risks between parties. The inability to fulfill the responsibilities described in the contract on time and budget has worsened globally hence becoming a chronic problem. The researcher therefore intended to examine the impact of construction contract type performance of project in terms of duration and cost in Ugandan local governments considering a case of Kiryandongo district. A research design that was adopted employed qualitative in cooperation with quantitative techniques. Collection of data was done in Kiryandongo district and analyzed using SPSS statistical application. The study established that the most common type of construction contract type is the old-style construction contract. In the same way, opinion of the respondents generally showed that there's marginal to moderate impact of the two construction contract types on cost and time performance. Combining old-style and unified construction contracts offer a better time performance, as supported by 34 (54.8%) respondents. Traditional construction contract type in addition, gives a better cost performance evidenced by 35 (56.5%) respondents and as such over 32 (51.6%) of respondents recommended the use of traditional construction contract type as opposed to integrated construction contract type. The time and cost performance monitoring tool for construction contract projects was developed as:

Z=- 20.236+2.265CT+1.406CO+0.612BE; where Z is a time and cost performance, a dependent variable, CT is completion time, CO is cost overruns and BE is budget estimates. The developed model will assist in monitoring traditional in cooperation with integrated construction contract type projects.

Key words: Construction, Contract, Time and Cost performance.

CHAPTER ONE

INTRODUCTION

1.1 Brief Introduction

The construction contract describes the number of works, obligations, rights, and highlighting risks between parties. The taking of an obligation under a contract thus comes with under taking a risk, which is the risk of failure to execute the obligation, hence affecting the project success in relation to cost, duration as well as quality (Flanagan & Norman, 1993).

The study on improper governance in public construction projects has become a significant development issue. Governance weaknesses can affect the quality of infrastructures constructed hence causing financial losses. In a study by Kenny (2011) on both other sectors and construction sector, it was found that improved transparency, if combined with monitoring, can improve development outcomes. However, the context of the studies is different since this study was conducted in an extremely different geographical area which and as such had to generate new results attributed to issues of diversity and variances between the two geographical scopes. The study examined the impact of building contract type on project schedule and cost performance in Ugandan local governments considering a case of Kiryandongo District.

The inability to fulfill the responsibilities described in the contract on time and budget has worsened globally hence becoming a chronic problem. Ir. Hj (2018) observed that the tendency of budget overruns is common across the global especially in developing countries. Contract falling behind its scheduled program results into delayed progress which could be caused by either parties. Delaying a contract results into losses in terms of revenue and time to either parties in the contract, this delay leads to cost overrun. A cost overrun incurred when the cost at the end project is more than earlier estimated cost (Azhar & Farouqi, 2008).

1.2 Background to the study

A contract is an important element during procurement process and it is required between two parties working together. A contract influences the parties the solemnity of the occasion. It necessitates that the parties to consider the effects of failure to fulfill their obligations (James, 2015). The Ugandan construction industry employs traditional procurement approach where clients and contractors are different. Clients habitually use consultants in designing as well as supervising building projects (Abbas, 2006).

Delays and cost overruns have raised great concerns for construction projects since most of them are carried using government resources. This usually occurs due to cost overruns as argued by the Ministry of Finance, Planning and Economic Development (MoFPED). Notably, cost overruns are due to failure to effect payments to contractors in appropriate time due to system of government, improper documentation and at times corruption (MoFPED, 2013).

There are many examples on the international and national scenes. For example in Uganda, Northern by-pass in Kampala was estimated to be finalized in a period of 2.5 years. However, the road was finalized after 5 years which had an impact on the budget that was meant for the road (Maina, 2012).

According to Bogere (2013), road construction projects are still linked to shoddy work, delays in projects completion and loss of public funds. Furthermore, the researcher found out that most of the resources are reserved for monitoring and supervision of road projects, however, the roads are found to be sub-standard when compared to works in which funds are not reserved. This implies that funds reserved are not essential in construction undertaken by the government. In Financial Year (FY) 2012/13 on the Fort Portal-Bundibugyo-Lamia Road where design and build contract was awarded, the contractor's local element of the payment

certificates for development partner in cooperation with the Government of Uganda (GoU) leading to Ug. Shs. 25 billion was not paid in time and in arrears of five months which constrained project performance (MoFPED, 2013).

Owiny (2018) projected that government will suffer high costs in the current building of Karuma Hydropower in Kiryandongo District after its implementation. Design and build contract type was awarded to Sinohydro tasked with engineering, procurement and construction of the dam. The contractor highlighted drawbacks in planning, engineering as well as uncontrollable issues. The project supervisor (Uganda Electricity Generation Company Ltd (UEGCL)) has admitted that project delays will result into cost overruns. The dam was originally planned to be completed in December 2018 maybe completed in 2023 due to delays (Owiny, 2018). The unexpected adjustment in the planned time frame was due to the change of the project completion time frame which was from 31st Dec 2019 to 30th November 2020 which resulted into cost overrun of $0.5 billion.

In the roads sub sector within Kiryandongo District, the motor-able state of district roads is at 60%, community access roads, at 30% and urban roads, at 65% (Kiryadongo District Local Government, 2015). This requires intervention to avert the situation. Uganda Road Fund (URF) and Peace Recovery and Development Plan (PRDP) funding has helped the district to rehabilitate and maintain sections of some roads in the district despite limited funding and budget cuts which negatively affected road work plan and maintenance activities within the district (Kiryadongo District Local Government, 2015). The projects in Uganda are usually implemented through either traditional construction contract type (Design-Bid-Build) or integrated construction contract type (Design & Build). For instance, in the construction of the Entebbe express highway, design and build contact was utilized, however, the project incurred both cost and time overrun (initial cost was USD 476,000,000.00 and revised to USD 479,172,020.00 + UGX 8,397,444,464.11, initial completion time was 18th November

2017, revised to 25th July 2019) (Ministry of Works and Transport, 2023). Similarly. The construction of Karuma hydrow power plant in Kiryandongo also wintnesed both cost and time overrun with the completion date set for December 31, 2019 and revised to June 22, 2022 (Daily Monitor, 2012). Likewise, concerning the use of traditional contract, the full rehabilitation of kigumba apodorwa mboira road 22kms in Kiryandogo district was characterized by cost overrun of 64,000,000 UGX and time overrun of over one month (Kiryadongo District Local Government, 2022). Hence, this study intended to examine the impact of building contract type on performance of relation time and cost performance in local government considering a case of Kiryandongo District.

1.3 Problem statement

Several major construction projects such as full rehabilitation of Nyakadote –Panyadoli-Kimogoro – Kawiti – Mutunda –Dima Road (40Km) at UGX 1.75billion as project cost, Construction of Kiryandongo District administration block at UGX 4.66 billion as project cost, and full rehabilitation of Kigumba – Apodorwa – Mboria Road (21Km) at UGX 1,10 billion as project cost, have been completed in Kiryandongo District. These projects experienced costs and time over runs (Kiryandongo district local government, 2021). As well, the Budget Monitoring and Accountability Unit (BMAU) observed that 75% of the road projects experienced delays whereas 38% experienced cost overruns (MFPED, 2018). It is also estimated that construction projects in Uganda contain cost over-runs of up to 52% and as well over 75% of government construction projects are bound to face delays (Tamale et al., 2020: Daily Monitor, 2022). Project cost and time over runs are always attributed delayed disbursement of funds, inadequate designs, changes in scope, land compensation legalities, inflation and weather conditions that affect implementation of project activities (Banyenzaki, 2016).Among the cause, there is a glaring lacuna on whether contract type leads to cost and time overruns.

In Kiryandongo District, the renovation and construction of Kiryandongo health facility project which was undertaken using a traditional contract type witnessed poor preparation and assessment of beneficiaries. This resulted into alterations in designs which later lead to changes within the contract. This consequently led to project time overrun (OAG, 2015). OAG report further noted that the procurement process for works contracts commenced twelve (12) months late and was completed twenty-two (22) months beyond the planned completion period of December 2011. This was attributed to delays in commencing the process on time due to adjustments in scope of works to fit into the available funding of USD 75.91 million. It was established that even after commencement, the works still delayed by more than three (3) months. At the time of audit in November 2015, the contract period had elapsed, yet works were still ongoing.

The efforts by government and development partners to increase cash flow to reduce payment delays in projects and contract financing by provision of debt free working capital, was aimed at helping to meet the challenges of contractors. This however is still futile to solving the problems (MoFPED, 2013) such as construction project time and cost overrun. It was upon such background that the researcher sought to examine the impact of building contract type on project duration and budget performance in Ugandan local governments to provide relevant information and recommendations for performance improvement.

1.4 Objectives of the study

The study was steered by both the general and specific objectives as presented in the sub sections here below.

1.4.1 General Objective of the study

The overall objective of the study was to find out the impact of construction contract type on project time as well as cost performance in Ugandan local governments considering a case of Kiryandongo District.

1.4.2 Specific Objectives

i. To identify the different construction contracts commonly used in Kiryandongo District;
ii. To determine the extent to which these constructions contracts affect construction project time and cost performance;
iii. To develop a tool for selecting the appropriate contract type to use on building projects.

1.5 Research questions

i. What are the different construction contract types common in Kiryandongo?
ii. To what extent do these construction contracts affect project time and cost performance?
iii. Is there a tool that can be used in coming up with the most appropriate construction contract type for the implementation of projects?

1.6 Justification of the study

Maina (2012) asserted that most of building projects undergo duration and cost overruns. There was great anxiety about stays and cost overruns as many public construction projects were implemented using government funds (Apolot et al., 2011). According to Odyek (2017), Uganda loses over $300m per year resulting from ineffective infrastructure spending. This was mostly through under estimating the cost to win contracts and failure to complete projects within budget and time limit, less work is done simply due to construction stays and cost overruns. Therefore, the study intended to evaluate the impact of construction contract type on project performance with an intention of the aim of providing suitable recommendations and solutions on how performance can be enhanced.

1.7 Significance of the study

The results from the study have contributed information relevant in determining which contract type is appropriate for government projects. The study findings shall be used as a baseline or reference point by policy makers in formulation of policies and laws regarding awards and management of construction contracts.

This study has provided recommendations to the local government on the best or preferred type of construction contract to use to reduce on project failure based on the results of this study. This study is to help the researcher attain a Master of Science in Construction Technology and Management of Kyambogo University

1.8 Scope of the study

This highlights what the study covered and this was presented into three viewpoints which includes; geographical, content and time frame

1.8.1 Geographical scope

This study was conducted in Kiryandongo District which is located 225 kilometers away from Capital City of Uganda, Kampala. It lies within the following cordinates: 02 00N, 32 18E (Latitude: 2.0000; Longitude: 32.3000). District that board Kiryandongo district are Nwoya District to the north, Oyam District to the northeast, Apac District to the east, and Masindi District to the south and west. Kiryandongo, the location of the district headquarters, lies approximately 225 kilometers (140 miles), by road, northwest of Kampala, Uganda's capital and largest city. The study area was selected based on experience and reports of Uganda Road Fund 2018. The report highlighted that there is always late project implementation in terms of duration and cost in over 60% of the works that are being financed by the fund.

Figure 1. 1: Location of Kiryandongo District in Uganda

Source: MoWT, (2014)

1.8.2 Content scope

The study concentrated on examining the impact of construction contract type on project duration and cost performance in Ugandan local governments. Construction contract types is the independent variable which is operationalized into traditional contract and integrated contract types whereas project time and cost performance is the dependent variable. The study was limited to identifying the different construction contracts commonly used in Kiryandongo District; determining the extent to which these constructions contracts affect construction project time and cost performance; and lastly, developing a tool for selecting the appropriate contract type to use on building projects to reduce project time and cost overrun while focusing on the district and town council road projects in Kiryandongo district.

1.8.3 Time scope

The study started in October 2019 and ended in April 2022, this is because during such a period when Kiryandongo District local government would have implemented several construction projects. At the time of the presentation of this report, all the projects selected

for my research were one-year-old since completion. The projects selected for consideration were mainly road projects and buildings and from the period running from 2011 to 2021, a period of 10years.

1.9 Conceptual framework

The conceptual framework below illustrates how study variables are related

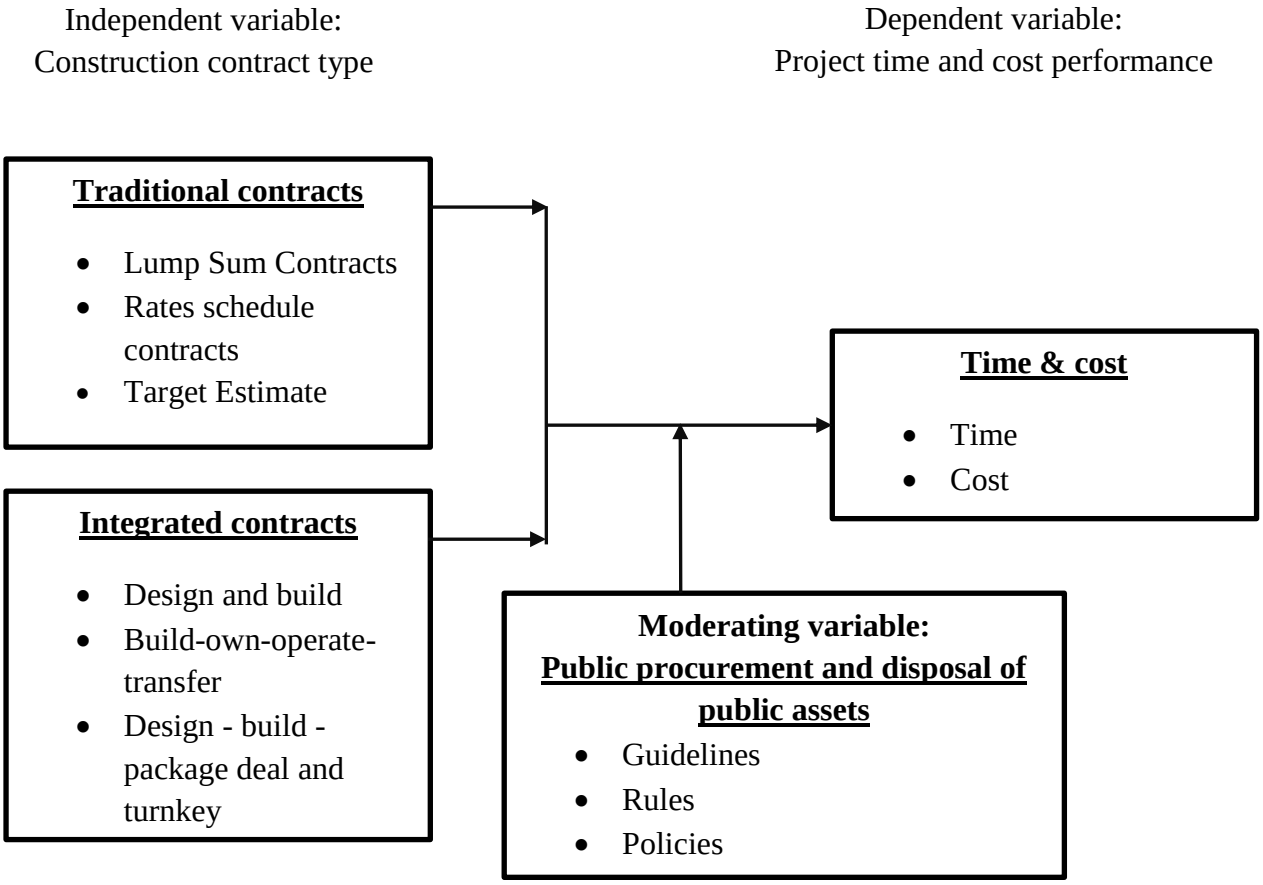

Figure 1. 2: Study conceptual framework
Source: Adopted from Maina (2012) and revised by the researcher

Figure 1.2 shows a conceptual framework illustrating the correlation between construction contract type and project time as well as cost performance where construction contract type was the explanatory variable and was operationalized into traditional contract and integrated contract while dependent variable was cost and time performance. Traditional contract was operationalized in terms of lump sum contracts, rates schedule contracts and target estimate.

Furthermore, it was also hypothesized that the use of traditional contracts consequently influences the construction projects cost and time performance. Relatedly, integrated contract was also conceived to influence the cost and time construction projects performance and the antecedents of unified contracts were conceived as design and construct, construct-own-operate-transfer, designing-building methods deal as well as turnkey which are commonly used within the local government system. Project time and cost performance was measured in terms of projects completed within budget and time. In addition, it also showed a unilateral influence of PPDA on the correlation between construction contract type and project time and cost performance where it was conceived that PPDA is the moderating variable of the study; and it was operationalized into policies, regulations and guidelines.

1.10 Chapter Summary

This chapter highlighted the background to the study, problem statement, study objectives of the study, research questions, Study hypothesis, study significance and justification, scope, conceptual framework and operationalization of key terms. The next chapter discuss different studies that have been carried out by other researchers in relation to study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter highlights a review of related studies that were done about the study objectives. The chapter further highlights the theory that was reviewed about the study

2.2 Theoretical review

The researcher carried out the study based on agency theory which states that in the current establishment where share possession is broadly held, managerial engagements deviate from those required to take full advantage of shareholder returns (Berle, et. al., 2021). The theory reflects on best contract form for that pervasive control link in which one person such the principal assigns work to another individual (the agent).

The theory was simply specified in terms of two circumstances. An action based contract is boosted when the behavior of an agent behavior is observed since the observed behaviors are the bought product. This is an example where the information is complete. The second situation is when the information is incomplete. The agent knows his/her behaviors unlike the principal. A tight spot rises since the principal cannot know if the agent has acted accordingly (Eisenhardt, 1989). In this study, the principal grants the construction contract to the agents who accomplish the responsibilities in the contract (meeting the cost and time stipulated within contractual agreements) hence influencing the project time and cost performance. Therefore, this theory helped the researcher to evaluate the impact of construction contracts granted to agents on the project performance.

2.3 Types of construction contracts

Construction contracts is a multi-faceted legal documents that ties different project parties such as designers, owners, contractors and construction managers so as to complete project or a program (Saad, 2020). Such contracts can be regarded as a subset of the supply chain management which is under procurement management. A building contract is the profitable agreement that guides the affiliation amongst the client and the builder within a construction works. A contract defines works to be implemented, the cost, payment conditions, guidelines for monitoring the builder's performance and how uncertainties are to be controlled (Calderon, 2017).

2.3.1 Integrated contracts.

According to Ashworth, (2001), these contracts combine the tasks of building and design of the project. All tasks are awarded to a particular hired firm. It is also known as a parallel or single obligation contract whereby the employer has to deal with a particular firm for building as well as designing planned project. In this case, the contractor will have to involve and be in charge of designing and constructing teams. This contract type involves design and construction system. Under this contract, the employer in cooperation with his/her consultants formulates a bidding document that comprises of the project brief and employers' desires as well as inviting different contractors for bidding. In order to submit tenders, the invited bidders will bring their own plans, building and budget estimates. Normally the best evaluated bidder enters into an agreement based on lump sum price and specified period (Ashworth, 2001). Therefore, development of structural drawings and construction is a Construction Process Organization (CPO), where building and design are implemented by one contractor (Leiringer, 2001).

This type of contract further includes; Package deal, Turnkey, Develop and Construct. Contracts that demand the contractor to be accountable for building as well as designing the

project, permit early start of duties by reducing activities before attaining the tender, hence, they save time (Rashid et. al., 2006).

In a study that was done by Hurmerinta et al. (2019), integrated contracts are used where the contractor is accountable for designing as well as construction stages not excluding handing over the work completed. Major distinctive features of unified contracts are that the service provider is accountable for designing as well as construction stages and handing over of the project. In such engagements, the major purpose is to assist the employer to transfer most of the responsibilities to the builder. Such responsibilities include: design, building and sometimes total cost. They are referred to as more of "types of contract" other than management contracts Maina, (2012). In a study by Mbaya et. al., (2004), integrated contracts that have been in presence for some time include: Plan and Design - construct– package, Design and construct, turnkey and deal, Construct-Own-Operate-Transfer as well as its variants. Some of the projects undertaken in Uganda using integrated contract type include but not limited to, Kampala Entebbe express highway, Northern by pass, Karuma Hydro power plant, North Eastern Road-Corridor Asset Management Project among others to mention a few (Daily Monitor, 2021: Ministry of Works and Transport, 2023)

2.3.2 Traditional contract

Traditional Contracting is defined as contracts with varying degrees that assigns construction and design risk to clients (Motika, 2020). Maina, (2012) asserts that with old-style contracts employer designs while the contractor executes the works. Old-style Contracting has been the leading technique used in contracting of infrastructure works with the main trait being the transfer of building, as well as designing the risk to the client. As the construction industry changed, other procurement techniques such as Alliance and Public Private Partnership (PPP) were established and utilized. There are misrepresented opinions that Old-style Contracting is

an unwanted procurement technique that gives rise to in antagonistic conduct and clashes (Australian Government, 2015). The distinctive attribute of these kinds of contracts is the distinguished responsibilities of designing the project from that of its construction. Even where variations of the elementary arrangement permit collaboration between the builder and the employer. The two essential fundamentals continue to be the two distinct units (Maina, 2012). According to Mbaya, (2004), the key kinds of old-style contracts that are used currently are; Bills of Quantities, Lump Sum Contracts, Bills of Quantities, Drawings and Stipulations, Rates Schedule Contracts, Standard schedule, Adhoc schedule, Bill of Quantity for earlier project.

Mohsini and Davidson, (1992) defined old-style contract system as delivery method where the employer distinctly awards the designer and the builder to come up with drawings and builder a facility independently. The researchers assert that at the inception of the procurement process, the design and building firms are equally engaged as distinct bodies.

According to Rashid et al., (2006), a old-style contract is where the tasks of building and designing of the works are parted and are done by distinct organizations known as builders and designers. It is also referred to linear or sequential contracting method or multi-tasks contracting method. It is a method where the project development accomplishments which begin with pilot study, documentation to construction, preliminary design as well as commissioning are done consecutively (Motika, 2020). Occasionally, the complete working design has to be arranged by the designers before contract and construction activities commence (Rashid et al., 2006).

2.3.3 Management contract

Management contracts are defined as contracts that represent the request of management values with the different roles of administration from roles of building and designing. One

body takes charge overall management of building project features so as to meet approved budget aims (Ritz, 1994). Management contracts comprises of: Professional Construction Management (PCM), Management Contracting (MC), and Management of a project. They are regarded as management as well contract methods. This is because they are comprised of a builder who is called a management specialist, because they are planned to specifically find out and accomplish the administration task (Mbatha, 1993). Others at risk include Design and building Manager at risk (Master Mann, 1996).

In a study carried by Rashid et. al (2006) found out that management contract emphasizes on the supervision and amalgamation of the construction drawing and building works. Under this contract, the builder acts as a consultant delegated by the employer to handle the administration of the design and building works. The building itself is handed over to numerous sub-contractors who were awarded a contract by the employer. The introduction of such contract method is because of the idea that the contractor possesses more knowledge. This contract method was familiarized on grounds that the builder is more skilled to supervise the design and building of works (Rashid et al., 2006). However, as expert, the construction of works is not done by the appointed builder his/herself. The design consultants among other specialists are obliged to accomplish the design and building. Rashid et al., (2006) further stressed that construction management, management contracting, design and manage are the major forms of such contracts.

2.4 Traditional contract and project duration and cost performance

In a research by Maina, (2012) in Kenya about the impact of building contract type on project cost and duration performance showed that most of the projects were implemented under old-style contracts. However, the projects that were implemented using unified contract type had

a lower cost and time overrun on average compared to those that were under old-style contracts.

The old-style contract type has been widely condemned for being ineffective in procurement process since it always includes cost and duration overrun on building works. This was in similar to the results of the study that was done by Osemenam, (1992) who found out that "the old-style technique results into long stays in project start and completion hence habitually resulting to high project cost than the estimated cost."

In a research by Ojo et al., (2006) in South-Western Nigeria that 35 construction sites found out that the old-style procurement had the trend of overrun in terms of time and cost by 160% and 53.50% correspondingly. Furthermore, in a study by Adeyemi et al., (2002) that was carried out in metropolitan Lagos about cost effectiveness of direct labor where 2,772 construction units were involved revealed that had old-style contract procurement system had been used, these projects would suffer cost overrun of 36.72%

The major advantages of the old-style contract are; that it permits checks and balances amongst the architect and the builder due to separation of duties and it encourages excellent work from either firm Molenaar et al. (1998). Furthermore, it permits the employer to make adjustments during the planning stage, which is cheaper than during the building stage. Le-Hoai et al. (2008) suggests that however much old-style engagements are good, alternative forms such as management contracts and united contracts can offer a better performance.

Use of lump sum contract is majorly characterized by lower contract administration costs, and entices contractors to carry out better cost control procedures (Khalafalla and Rueda, 2020). Similarly, Chan et al. (2010), showed that objective cost-estimate contract approach creates an overabundance of paybacks during a complete delivery process of the project, provision of

cost enticements for the contractor to work resourcefully inclusive thereby attaining improved value for money and more reasonable general project success in terms of cost, time, and dispute incidence.

Kordas, (2015) estimated the efficiency of traditional contract procurement using the degree of risk transfer, the Cost Performance Index (CPI) as well as the project delivery ineffectiveness. In this study simple geometrical representation technique was utilized to envisage the cost increases attained before and after project completion. The study further showed that an enhancement was reached at for all cost types. However, the mean cost performance enhancement realized for the whole of the folder equivalent to 2% for the 64% of projects that were assessed. The research carried out by Ojo et al., (2006) showed that when old-style contract approach is used in procurement of residential buildings, the time spent was reduced compared to other cost types.

The research that was done on fifty-seven housing works of different cost forms started by the government of Nigeria between the year 1999 and 1993 where time and cost performances of the old-style contract procurement technique was used revealed that category where one to five million naira was spent has least time overrun of 18.98%, whereas a category where five to ten million naira was spent had a duration overrun of 99.64 percent. The study further revealed that the category with at least ten-million-naira expenditure had the least overrun of 9.13% in terms of cost while less than one-million-naira expenditure category showed the highest overrun of 34.55 % in terms of cost. The category of 1 to 5-million-naira expenditure showed weak correlation between cost and duration overruns, however, a category with at least 5-million-naira category indicated strong correlation. The study established that the category of 1 to 5-million naira is rather appropriate for old-style contract method on construction works in Nigeria (Federal Ministry of Works and Housing,

1991). In a study on projects acquired under old-style contract approaches by Idoro, (2012) found out that projects acquired by the old-style contract approach result to overrun 49.38% and 28.40% in terms of duration and budget respectively.

Correspondingly, a research by Idoro, (2012) revealed that there are reduced project overruns in terms of cost and time during old-style procurement if contract and approach statements are put in place. The study further found out that there are fewer overruns in the cost and duration if work and materials schedules are needed for the fruitful implementation of projects acquired by the old-style contract approach.

Kadiri et. al., (2017) evaluated cost and duration overruns in construction works implemented in Nigeria under old-style contract method. Duration and budget estimates of construction works were evaluated from haphazardly selected leading building economics firms in area of the research. These included time information on forty-one private and fifty-one government construction works as well as forty-two public and thirty-three private building projects cost data. The analysis of data was carried by help of descriptive statistics. The results of the study showed that both government and private building works implemented in the study area using old-style contract method experienced cost and duration overruns to varying degrees. However, the approach was better in terms of budget performance than duration performance.

Apolot et. al., (2013) carried out a study on causes of failure to complete construction project on time and within the estimated budget in Uganda's public sector with an aim of establishing the factors responsible of budget and duration overruns as well as how they are ranked basing on severity, occurrence, and significance. The study revealed that 53% and 46% of the projects studied had cost and time overruns respectively. The study further revealed that using old-style contracting resulted into delays in building projects. The study further went on to recommend for use of design-build type instead of old-style contract type

as well as improving cash flow on side of the client in order solve the issue of payment delays. Tibagala, (2014) revealed delays in most of building procurement in Uganda is normally caused by bureaucracy in procurement processes as well as using old-style method of contracting

2.5 Integrated contract and project time and cost performance

According to Maina, (2012), unified contracts are better in budget and duration performance compared to old-style contract type. Maina's study further revealed that better performance by unified contracts is not only recognized by those who use it but also by those that use old-style contract approach, and lack of information about advantage unified contracts is said to be the main reason for limited use of these kind of contracts. Maina's study further encouraged that the parties in the building sector to use suitable contracts for building works in order to improve performance of a project. In precise, that unified contracts be recommended to all parties in government and private works as well as professional and educational bodies

In attempt to encounter conflictual relationships amongst the firms involved in building works, unified contract has come up as a favorable method to eliminate some of the old-style inefficiencies of old-style contracting approach and optimize success of the building works. Though, unified contracting is struggling to catch up in the sector and there exists a need to appreciate the value that it can offer less time, budget efficiency, improved works, and amplified production are some of the main advantages achieved by adoption of unified contracts (De Marco and Karzouna, 2018).

The design and build (DB) delivery system has gained popularity because it offers higher cost and duration performance. A more finely and greater analysis was done by Chen at al., (2016) from Design–Build Institute of America (DBIA) where a set of four hundred eighteen DB

works were studied using early start rate (ESR), early completion rate (ECR), cost overrun rate (COR) and time-overrun rate (TOR) under project type such as institutional constructions and civil infrastructure works, and contract approaches. The results revealed that the commonly used contract approach was lump sum. The DB approach offers quite decent duration performance where majority (75 percent) of Design and Build works were finished on time, although there was more than 50% of DB works that had failed in budget perfomance, this implies that it is not clear whether DB is effective in cost overrun reduction. ANOVA tests showed that DB contract approaches have significant effect on cost performance (Chen et. al., 2016).

In a study done by Moon (2023) where budget performance of design-bid-build (DBB) and design-build (DB) delivery systems were analyzed to assess superiority of project delivery system (PDS) over other in terms of cost growth, it was revealed that Design and Build grants less cost, however, other researchers opposed the findings and asserted that it was not be superior compared to Design-bid and build.

The efficiency of DB projects was examined in based on eminence, cost and duration by Ling and Leong (2012). The study showed that contractors, architects and clients were in agreement that Design and Build projects perform greatly in the in terms of quality, duration and cost. The study further revealed that DB contract is certainly a better type of contract and suggested that various users must understand its structure and assent the evolution within contract use.

Shrestha and Mani (2014) carried out a study on forty-seven Clark County government DBB road works in Nevada, then seventeen DBB road works in Texas in Transportation section with the objective finding out how design cost impacts on the use of DBB contract on the budget and duration growth of road works. A significant negative correlation between the

design cost percentage and the total cost growth of road project was discovered. Furthermore, there was a strong negative correlation between design cost percentage and final cost of project. This means that design cost under DBB contract increased as final cost of the project decreases which is an indication that DBB reduces cost overruns of construction works.

Similarly, Calahorra-Jimenez (2019) showed that DB is performs greatly when adjusting cost growth is compared to old-style DBB approach.

Jamie (2022) argues that design and building under turnkey contract gives a more effective method for building and designing new works. Turnkey delivery combines various agreements into a particular point of responsibility as were as providing early risk transference with assurance of time and cost, together with results in enhanced delivery. Jamie (2022) further asserted that turnkey-design-build normally lead to reduction in time by at least 20%, which equivalent to at least ten months on majority of the projects.

MoFPED, (2013) noted that the failure to finish works within budget and time frame remains to be a protracted problem in Uganda's road construction sector. The Ministry suggested that project management should be improved by changing from the old-style contract type to the DB type where the design and building services are procured by a one body. The Ministry further emphasized that the DB method has various benefits compared to classic-design-bid-build approach that comprises of one source of responsibility, enhanced communication, budget management, accelerated project implementation and quality assurance.

According to a report by Ministry of Works and Transport (MoWT), (2011) road work contacts are not implemented within the planned schedule and budget hence delays. Majority of road works are delayed at implementation stage which in turn leads to time and cost overruns. The report further showed that there were over fifty road projects that were delayed after expiry of their planned time of implementation. On this note therefore, the report

recommended the use of unified contracts in road works so as solve the issue of cost and time overruns.

2.6 Existing framework used to reduce time and cost overruns

Ullah et. al., (2017) came up with a theoretical framework to solve duration and budget overruns issues in the building sector in Malaysia by assessing factors responsible for the failure to complete projects within time and budget frame. The framework was built on previous studies that investigated reason why projects delay. The factors responsible for project delays were considered to have been caused by contractor, consultants, client or other external causes. In addition, the researchers recommended to deeply further study problems of schedule and cost overrun in the building sector so as to come up with appropriate solutions as well as understanding the intensity of such solution in completion of construction projects.

Al-keim, (2017) found 7 major solutions to reduce duration and cost overrun in projects, these include (a) setting project time and cost, (b) use of software, (c) managing design phase, (d) contract management, (e) processes and procedures, (f) planning, (g) deciding clear scope. The researcher commended senior supervisors to increase the consciousness of their supervision team at all stages so as to have a mutual understanding, values, and approach in implementing the sector best norms. Viswanathan, (2012) asserted that in order to solve issue of cost overruns in projects, much emphasis should be put on proper project planning, staying within the original time and budget frame, scrutinizing a contractor's competence before engagement, use of good planning tools and charts, constantly monitoring and evaluating the project and ensuring that the project stakeholders have a common understanding of the project.

In study Simushi, (2017) on client's point of view, identified an approach of managing a project to be used in controlling duration and cost budget in big building works in South Africa. The project management approach comprised of the supervision of project environments and parties outside the organization. This was to ensure combined project capability of the team for designing and implementation of big projects. The suggested management approach also necessitated a high-level project organization, a risk evaluation team, prior cooperation of stakeholders, and an increase in labor-based activities.

Divakar and Ashitha, (2016) discovered a structure to be used in agile approach while building infrastructure by embracing survey as well as analysis of case study. Agile approach has gained popularity due to its ability to increase the steadfastness of project performance by disintegrating the project into lesser controllable categories and finalizing the parts with better delivery worth. According to the researchers, Agile framework reduces the time overruns in construction project for about 6o percent to 80 percent.

2.7 Knowledge gap

From the literature reviewed above, the integrated contract has a short run time and less cost run compared to the traditional contract. In addition, traditional contracts lead to time and cost overruns. The literature reviewed above indicates a knowledge gap about the construction contract type impact on project duration and cost performance in Ugandan local governments as there are less published work on the study done in the study area. Further still, no framework or strategy had been proposed on how to manage or reduce construction project time and cost overrun in Uganda.

2.8 Chapter summary

This chapter presented a review of previous studies related to the study. The literature presented objective by objective. The next chapter highlights the methods that the researcher explored in the study.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

Under this section, methods that were used by the researcher are highlighted and they include study design, target population, sample size, the sampling technique, the data collection process, measurement of variables and techniques used in analyzing data.

3.2 Research design and approach

A cross sectional research design was utilized in the study. Caroll (2022) defines a cross sectional study as an observational study that collects data on one or more variables from a specific observation at specific period of time. Cross sectional studies provide information but do not influence variables. Caroll (2022) further suggests that in order to come up with a cross sectional study, the target population, time frame and variables have to be well defined. Similarly, in a cross-sectional survey design, data is used to make inferences about the target population (Lavrakas, 2008). This study design was used because it fits within the time frame of the researcher since the researcher is supposed to carry the research within his academic calendar.

This helped the researcher to find out how the construction contract type impacts on project performance in Ugandan local governments considering a case of Kiryandongo District. The researcher was able to triangulate quantitative in cooperation with qualitative methods; the quantitative approach was used to quantify the findings using mean, correlation and regression while the qualitative technique was applied to gain explanations for key phenomena.

3.3 Target Population

The target populations were the staff of Kiryandongo District Local Government and contractors in Kiryandongo District based on their role and contribution to the construction projects and these were 65 in total from 60 projects. These 60 projects were selected based on the time scope of the study from 2011 to 2021. This was also because the staff of Kiryandongo District Local Government and contractors in Kiryandongo had relevant knowledge about the study.

3.4 Sample size determination

The researcher used Yamane (1967) formula to calculate the sample size. The formula is as shown in equation 3.1.

$n = \frac{N}{1+N\,(e^2)}$ …… (Equation 3.1)

Where;

n = sample size
N = Population size
e = level of precision and equal to 0.05.

For example considering the population category of contractors, N = 20

$$n = \frac{20}{1 + 20(0.05)}$$

$$n = 19$$

Also, considering the population category of Local Leaders (LC V, Speaker, Councilors), N = 30

$$n = \frac{32}{1 + 32(0.05)}$$

$$n = 30$$

Table 3. 1: Method of sampling and Sample size

No	Population category	Target Population	Sample size guided by Yamane (1967)	Sampling Method
1	Contractors	20	19	Simple Random Sampling
2	Chief Administrative Officer	1	1	
3	District Engineer	1	1	
4	District Procurement Officer	1	1	
5	Contracts Committee	5	5	
6	District Executive Members	5	5	
7	Local Leaders (LC V, Speaker, Councilors)	32	30	
	Total	**65**	**62**	

Source: Kiryandongo District records (2019)

3.5 Sampling method and process

Simple random sampling was used while recruiting study participants. This is a form of probability sampling in which all elements in sampling frame are given equal chances of being recruited into the sample (Amin, 2005). Simple random sampling helps in eliminating selection bias thus increases precision of results. The district engineer and local leaders who

sit on the committee for awarding contracts were selected since they are knowledgeable about the study.

3.6 Data collection methods

The researcher employed semi-structured questionnaire survey, documentary review and interview method to collect data.

3.6.1 Questionnaire survey

A semi-structured and self-administered questionnaire was utilized in collection of quantitative primary data. This method of data collection helped the researcher to save both time and money (Amin, 2005). The questionnaire can be found in Annex 1.

3.6.2 Interview method

Interviews enabled the researcher to get deep understanding of the response, this was achieved by asking what, how and why questions in relation to the study objectives (Neuman, 2000). The researcher scheduled interviews with a selected sample of respondents in order to collect qualitative data to supplement on results from quantitative data. Qualitative data has helped the researcher to get the insights about various phenomenon within study scope for instance the data was obtained by interviewing key informants who were knowledgeable about contracts.

3.6.3 Documentary review

In order to understand the impact of building contract type on project duration and cost performance in Ugandan local governments, primary data was supplemented with secondary data. Critical documents were reviewed to cross check and collaborate information generated from primary data collection technique. Crucial information has informed the analysis and discussions that were obtained through documentary review. The researcher reviewed the

performance reports of Kiryandongo district, reports from Ministry of Works; Auditor general's reports, sector performance reports, and OPM reports among others.

3.7 Data collection tools

3.7.1 Questionnaire

The study utilized a semi-structured questionnaire in data collection which helped respondents in making interviewee give quick responses thus saving time; Furthermore, semi-structured questionnaire was intended to help the researcher in quantifying the information easily for enhanced analysis and reduce on errors that could be committed in data collection and analysis (Sekaran, 2013). The questionnaires looked at background and designation of the respondents before delving into the technical concerns of the available methods for measuring construction projects performance then considered knowledge, frequency, reasons, effectiveness and efficiency. The questionnaire had a five-point Likert scale ranging from 5 = strongly agree, 4 = Agree 3= Not sure, 2= Disagree and 1= strongly disagree giving consistent responses.

3.7.2 Interview guide

The respondents were recruited based on what they do in project implementation. The interview guide contained a set of questions which guided the enumerators while conducting the interviews. The guide was developed having questions asking respondent's thinking on what impact the construction contract type has on project duration and cost performance in Ugandan local governments (refer to Annex II).

3.7.3 Documentary checklist

Documentary checklist was developed by the research containing the name of the construction project, initial cost at the start and at the end of the project, the start data,

expected completion date and actual completion date of the project and the type of contract used.

3.8 Quality Control

Pre-test survey was carried out so as to come up with the reliability and validity of the study tools.

3.8.1 Reliability

The researcher used 10 percent of the total sample size who were interviewed in pre-testing; this was guided by Mugenda and Mugenda (1991). The researcher interviewed 6 respondents in the pre-test which represented 10% of the sample size of 62 respondents. Furthermore, pilot study was carried out were 6 respondents were interviewed. The consistence of the tool was distinguished using the Cronbach's alpha coefficient where variables with an alpha coefficient value above 0.7, the questionnaire considered reliable for the study (Amin, 2005). This co-efficient was generated using SPSS software version 20.0 and it was 0.9.

Table 3. 2: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha from Standardized Items	Number of Items
0.86	0.90	16

3.8.2 Validity

After developing the study tools, three expert professionals in government road and building construction projects were asked to score their relevance in ensuring that the study objectives are achieved. After getting the score from the experts, content validity index C.V.I was calculated using the formula below

$$CVI = \frac{Number\ of\ valid\ items}{Number\ of\ total\ items\ in\ the\ questionnaire} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (Equation\ 3.2)$$

$$CVI = \frac{15}{16} = 0.94$$

0.94 A CVI got which was within the acceptable range according to Amin, (2005).

3.9 Data analysis

The researcher utilized both qualitative and quantitative data analysis techniques.

3.9.1 The different construction contracts commonly used in Kiryandongo District

To identify the different type of construction contracts used, documentary analysis of the existing contracts being used to undertake construction projects within Kiryandongo District was undertaken whereby the documents reviewed were from the procurement department of Kiryandongo District. Upon the documentary review, a table was developed indicating the category (either traditional or integrated) of the contracts being used.

3.9.2 The extent to which these construction contracts affect construction project time and cost performance

Statements pertaining effect of contract type on time and cost overruns were formulated. In particular, what is the level of impact of traditional contract on construction project time and cost performance and which is the level of impact of integrated contract on construction project time and cost performance were the statements that were formulated. The interviewees were asked to state their opinions. This was done by ranking the statements about the effects of contact type on cost and time overruns based on a scale of; no impact, marginal impact, moderate impact, strong impact, very strong impact. The average ranking was determined and used to evaluate the extent to which traditional contract affect the time and cost performance. Analyzed data at this stage were presented in a table for easy interpretation. This was done on each type of the contract i.e traditional and integrated contract types

3.9.3 Tool for selecting the appropriate contract type to use on construction projects

In this study, regression analysis was utilized to give a basis for choosing an appropriate contract type to use on construction projects. The regression analysis was undertaken considering 5% level of significance. Analyzed data pertinent to this objective was presented in form of a table for ease of interpretation.

3.10 Measurement of variables

An ordinal scale was utilized in measuring variables where concepts of their exact operational meaning were defined. A Likert scale numbered from 1-5 was used to measure variables where 5=strongly agree, 4=Agree, 3= Not sure, 2=Disagree and 1 strongly disagree. Scaled variables from the study tool were utilized to obtain opinions of interviewees about the impact of construction contract type. The variables were measured by operational definition of concepts and statements were developed basing on variable definitions that assisted in capturing responses from study participants using a five point Likert scale.

Measure – Variable measurement scale in SPSS is predetermined depending on the data type. For instance, for variables that have type “numeric,” predetermined measurement scale is defined scale variable in SPSS, variables with type “string,” the predetermined measurement scale is a nominal scale, and variables with ordered categorical are defined as “ordinal,” However, it is not done by default, this, it is better assign each variable an proper measurement scale (“scale” > “ordinal” > “nominal”) since it has effect on statistical methods to be used.

3.11 Chapter Summary

This chapter discussed the research design used, method used to determine the study population, the sampling approach/technique, sample size determination, data collection methods that included but were not limited to use of questionnaires, interview method and contract reviews. The chapter also expounds on the quality controls used as validity and

reliability checks. Data analysis methods taking the form of qualitative as well as quantitative techniques were utilized. The chapter closed with the discussion on how measurement of variables was handled. The next chapter highlights the presentation and discussions of the results of the study.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS

4.1 Introduction

This chapter highlighted various analyzes and interpretations of the study results based on the primary data. In the first section of this chapter, response rate, background characteristics about the respondents. The second section discusses the empirical findings of the study.

4.2 Respondents background information

This section highlights background features of the respondents which include but to limited professions, job title, level of education and experience worked and the findings of the study were highlighted in the subsequent sections of the observations.

4.2.1 Response rate

The study administered a total of sixty-two questionnaires and all of them were returned thus a response rate of 100% as presented in Table 4.1. According Amin (2005) this is an excellent response rate for research. This gives an implication that the researcher collected considerable amount data enough to give representative findings.

Table 4.1: Response Rate

Category	Sample size	Responses	Percentage response rate
Contractors	19	19	100%
Chief Administrative Officer	1	1	100%
District Engineer	1	1	100%
District Procurement Officer	1	1	100%
Contracts Committee	5	5	100%
District Executive Members	5	5	100%
Local Leaders (LC V, Speaker, Councilors)	30	30	100%
Total	**62**	**62**	**100.0%**

Source: Primary data, 2022

4.2.2 Category of the Respondents

Respondents were asked to category under which they follow thus the subsection illustrates the results in this regard as indicated in Figure 4.1.

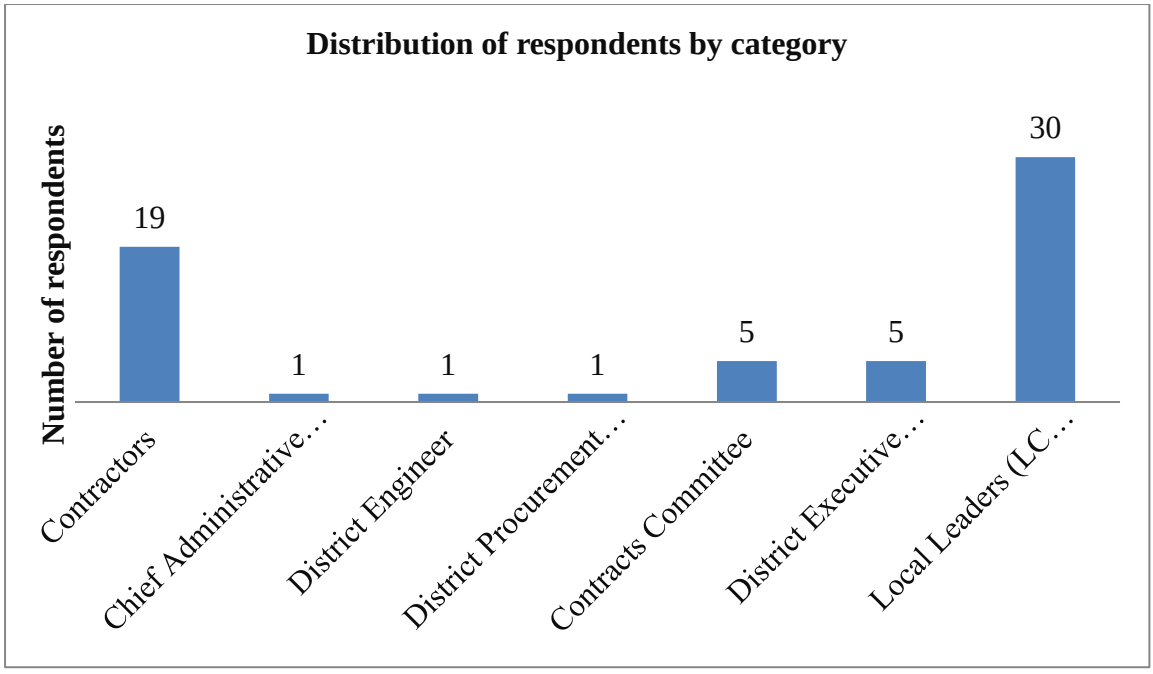

Figure 4. 1: **Category of the respondents**
Source: Primary data, 2022

Figure 4.1 showed that a high number of the respondents were Local Leaders (LC V, Speaker, Councilors), followed by contractors, District Executive Members and Contracts Committee, followed by District Procurement Officer, and followed by District Engineer, and lastly Chief Administrative Officer. This finding implies that the results were not biased with regards to the category of the interviewees.

4.2.3 Gender of the Respondents

This subsection highlights interviewees' sex and the results are illustrated in Table 4.2 below

Table 4.2: Gender of the respondents used in the study

Sex	Frequency	Percent
Male	38	61.3
Female	24	38.7
Total	**62**	**100.0**

Source: Primary data, 2022

The findings in Table 4.2 indicate that males were the majority with 61.3 percent of the total individuals that were interviewed. This finding suggested that the study accessed more male respondents in all fields than female. This finding also revealed that the study was not gender biased since there was a fair representation of both male and female respondents.

4.2.4 Respondents' Level of Education

This subsection highlights the respondents' level of education and the results regarding are highlighted in Figure 4.2 below

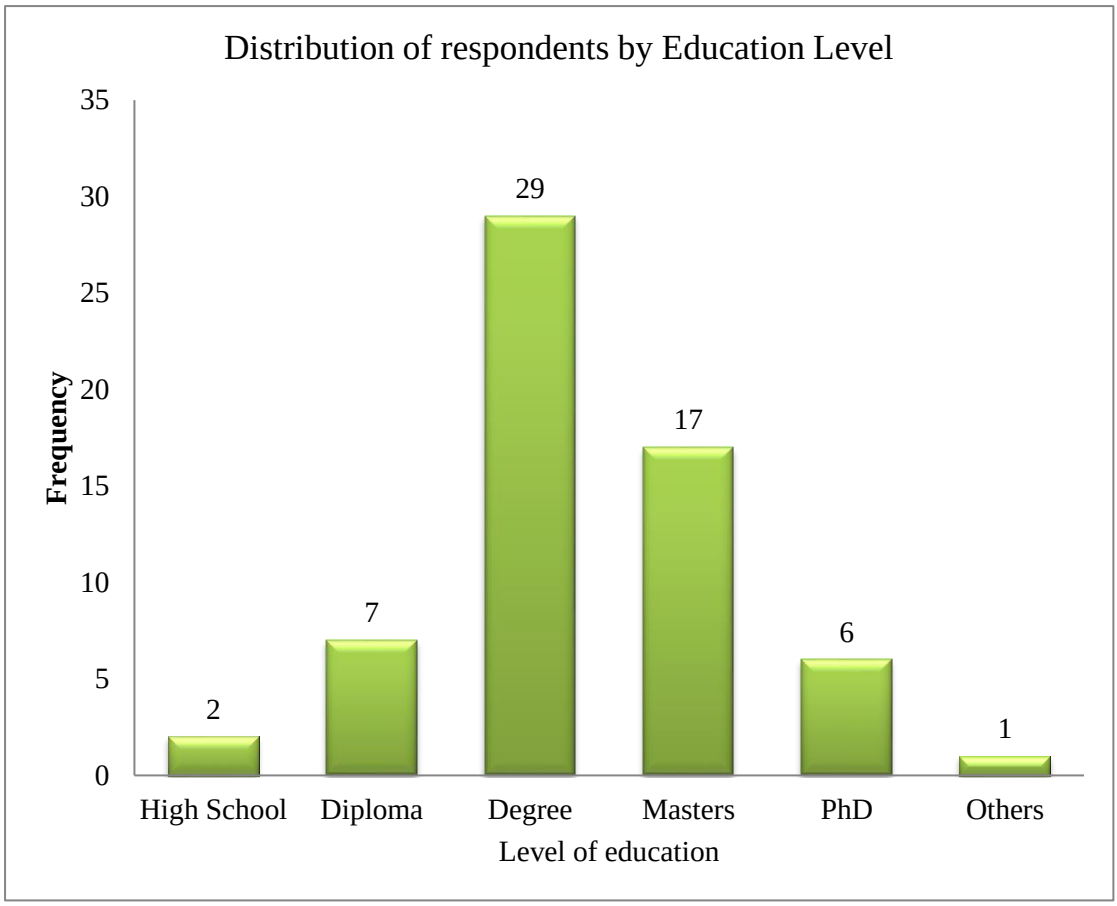

Figure 4. 2: Education level of the respondents used in the study

Source: Primary data, 2022

From figure 4.2, it was shown that the majority (46.8%) of the respondents had a first degree as their highest education level, 27.4% had a master's degree, 11.3% had a diploma, 9.7% had attained a PhD, 3.2% had an advanced certificate level of education while only 1.6% had attained other level of education. These study outcomes suggested that the interviewees had reasonable education level which gives assurance that they understood and appreciated issues under study and the responses were not biased with regards to the education level of the respondents.

4.2.5 Experience of the respondents

This subsection highlighted the experience (in years) the respondents had worked within the position held by the time of the interview and the results are highlighted in Figure 4.3 below

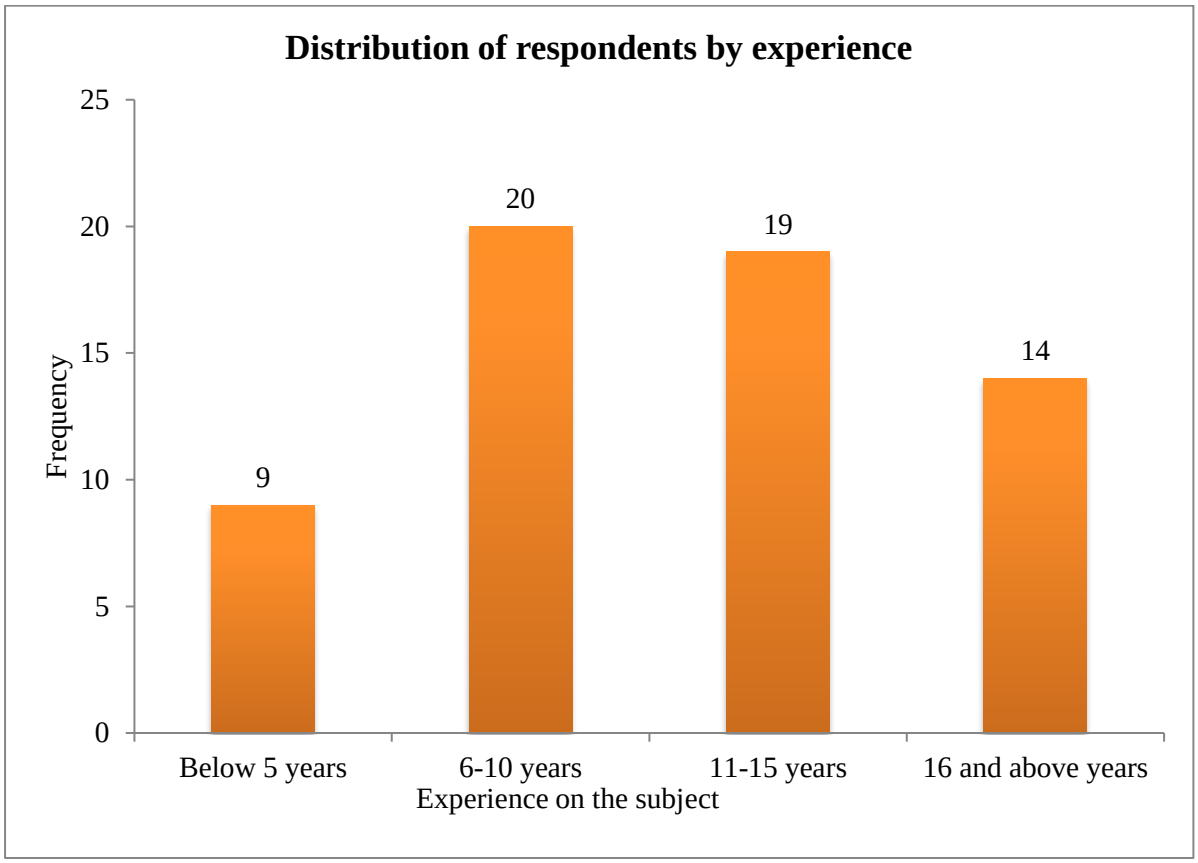

Figure 4. 3: Years of experience on construction projects in Local Governments in Uganda

Source: Primary data, 2022

Figure 4.3 shows that majority, 20 (32.3%) of the respondents had worked for 6-10 years, 19 (30.6%) had worked for 11-15 years, 14 (22.6%) had worked for over 16 years while 9 (14.5%) had worked for less than 5 years. This finding suggests that majority of the respondents (85.5%) had reliable experiences on the research topic since they had worked for more than 5 years on construction projects in Local Governments in Uganda. Thus, respondents provided reliable data based on the experience that they possessed. This helped to produce reliable and dependable results that can be used with confidence to inform the discussion on building contract type impact on project performance.

4.2.6 Age of the respondents

This subsection shows the age the respondents had by the time the study was conducted and the results are shown in Table 4.6 and Figure 4.3.

Table 4.3: Age of the respondents

Age bracket	Frequency	Percent
Under 25	1	1.6
26-35	11	17.7
36-45	25	40.3
46 and above	25	40.3
Total	**62**	**100.0**

Source: Primary data, 2022

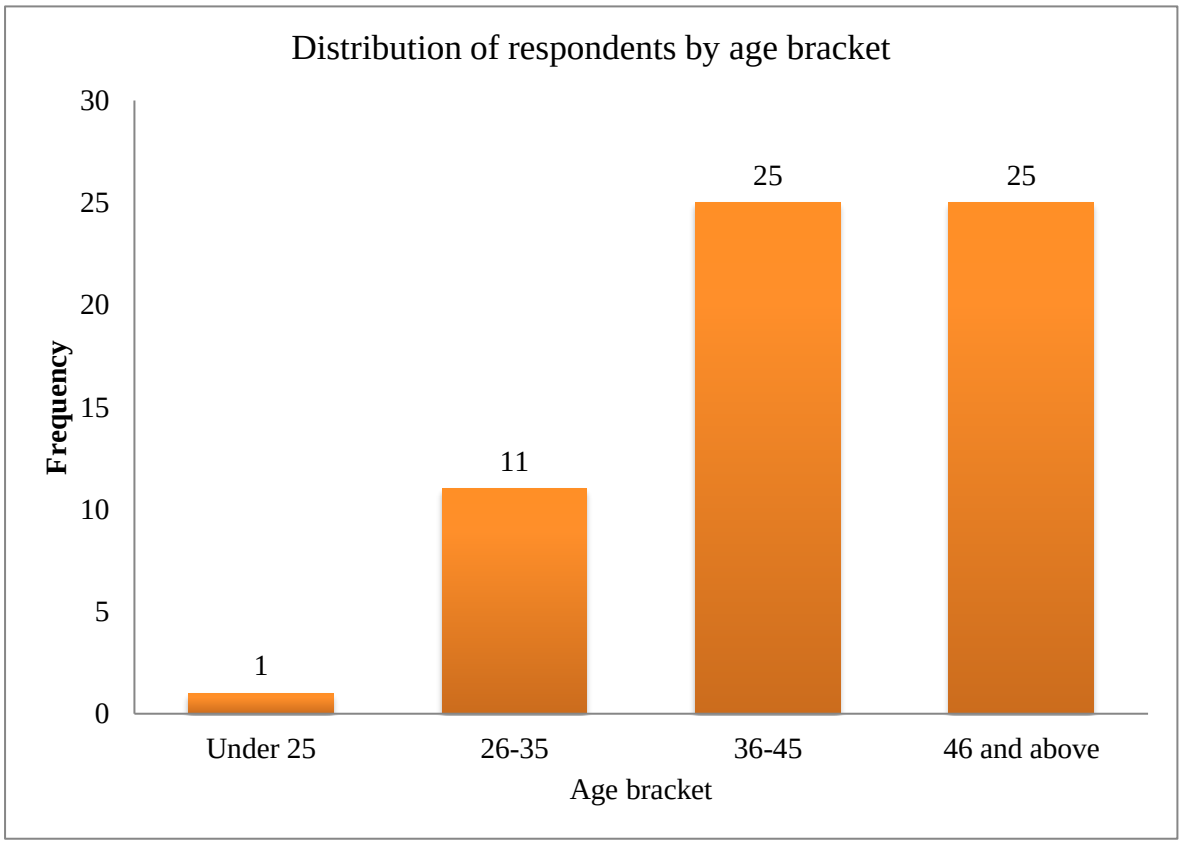

Figure 4. 4: **Age of the respondents**
Source: Primary data, 2022

Table 4.3 and Figure 4.4 showed that a higher number 40.3% of the respondents were aged between 36-45 years. Similarly, 40.3% of the respondents were aged 46 years and above,

17.7% were of age between 26-35 years while 1.6% were of age under 25years. This finding showed that 94.4% of the respondents had 25years and above therefore the responses were given by mature people who are expected to give an objective response from experience.

4.2.7 Knowledge on the construction contract types

The subsection highlights the respondents' opinion on the knowledge about construction contract types by the time of the study and the results are presented in Table 4.7. This knowledge provided a foundation to answering the need to identify the different construction contracts commonly used in Kiryandongo District that affect construction project time and cost performance;

Table 4.4: Familiarity with contract types

Knowledge on the contract types	**Frequency**	**Percent**
Traditional Contracts	31	50.0
Integrated Construction Contracts	31	50.0
Total	**62**	**100.0**

Source: Primary data, 2022

Table 4.4 shows the middle split with 31 (50%) of the respondents acknowledging to have knowledge on traditional contract type and another half that is 31 (50%) having knowledge on integrated contract type. This finding suggests that the case study area had adequate knowledge on both types of construction contracts and so legitimacy of the data collected on the impact of building contract type on project duration and cost performance in Ugandan local governments.

4.3 Empirical Findings

This study examined the construction contract type impact on building project duration and cost performance in Uganda local government. In order to establish this, quantitative data was obtained from respondents by means of semi-structured questionnaires, whilst the

qualitative data gathered by carrying out interviews to give realistic representation. The researcher came up with three objectives that guided the study. The objectives were analyzed one by one in chronological order and with descriptive statistics, significances and correlations were obtained. Results from the study and review of different documentaries were discussed to aid triangulation of the information.

4.3.1 Construction contracts commonly used in Kiryandongo District Local Government

The study specific objectives were; to identify the different building contracts commonly used in Kiryandongo, that affect construction cost and duration performance, to explore the extent by which these constructions contracts affect construction duration and cost performance, and to propose a tool that can reduce project time and cost overrun. In this study, project performance was premised on cost and time. This subsection first details the findings on the degree of impact each of the contract type has on project time and cost performance as shown in Table 4.5 a - c. Statements pertaining effect of contract type on time and cost overruns were formulated. This was attained by asking the respondents to state their opinions regarding the following questions based on a scale of; no impact, marginal impact, moderate impact, strong impact, very strong impact.; what is the level of impact of traditional contract on construction project time and cost performance and which is the level of impact of integrated contract on construction project time and cost performance. The mean of the responses were then used to rank the statements about the effects of contact type on cost and time overruns. The average ranking was determined and used to evaluate the extent to which traditional contract affect the time and cost performance.

Table 4.5a: Level of impact of the construction contract types

Traditional Construction Contracts	**Frequency**	**Percent**
No Impact	9	14.5
Marginal Impact	19	30.6
Moderate Impact	15	24.2
Strong Impact	10	16.1
Very Strong Impact	9	14.5
Total	**62**	**100.0**

Source: Primary data, 2022

Table 4. 5b: Level of impact of the construction contract types

Integrated Construction Contracts	Frequency	Percent	Valid Percent	Cumulative Percent
No Impact	15	24.2	24.2	24.2
Marginal Impact	26	41.9	41.9	66.1
Moderate Impact	18	29.0	29.0	95.2
Strong Impact	3	4.8	4.8	100.0
Very Strong Impact	0	0	0	100.0
Total	**62**	**100.0**	**100.0**	

Source: Primary data, 2022

Table 4. 5c: Detail of construction contract types

No.	Contract type	Name of the Project	Company Name
1	Traditional Construction Contract	Construction of OPD,2 Blocks of 4- stance lined Latrine	Monaco Contractors Ltd
2	Traditional Construction Contract	Construction of Maternity ward, placenta pit, Supply and delivery of lightening Protection 10,000ltr at Apodorwa H/C II	Lubra Contractors
3	Traditional Construction Contract	Construction of 2 Blocks of 3 class rooms each,three blocks of 5 stance drainable latrines, supply and delivery of furniture supply and Installation of 10,000lt rain water harvesting tank per Block at Yabwengi Primary School	Kingstar Construction Ltd
4	Traditional Construction Contract	Rehabilitation of Kawiti-Mutunda	Enmarg Group Inc
5	Traditional Construction Contract	Completion of District Administration Block	Solution D'Infrastructure
6	Traditional Construction Contract	Construction of 2 Blocks of 3 class rooms each, three blocks of 5 stance drainable latrines, supply and delivery of furniture supply and Installation of 10,000lt rain water harvesting tank per Block at Kibanda Secondary School	Monaco Contractors Limited
7	Traditional Construction Contract	Construction of 2 Blocks of3 class rooms each,three blocks of 5 stance drainable latrines, supply and delivery of furniture supply and Installation of 10,000lt rain water harvesting tank per Block at Kankoba Primary School	TMK Agencies
8	Traditional Construction Contract	Construction of 2 Blocks of3 class rooms each,three blocks of 5 stance drainable latrines, supply and delivery of furniture supply and Installation of 10,000lt rain water harvesting tank per Block at Mutunda Primary School	Kingstar Construction Ltd

11	Traditional Construction Contract	Construction of 2 Blocks of3 class rooms each, three blocks of 5 stance drainable latrines, supply and delivery of furniture supply and Installation of 10,000lt rain water harvesting tank per Block at Mutunda Primary School Block at Bweyale Public Primary School	Otolomoi Investments Limited
12	Traditional Construction Contract	Construction of 2 Blocks of3 class rooms each,three blocks of 5 stance drainable latrines, supply and delivery of furniture supply and Installation of 10,000lt rain water harvesting tank per Block at Mutunda Primary School Block at Bweyale Public Primary SchoolBlock at Bweyale COU Primary School	Kataza Engineering Limited
13	Traditional Construction Contract	Full Rehabilitation of Panyadoli Kimogoro-Kawiti road 40km	Enmarg Group
14	Traditional Construction Contract	Construction of Mini Solar Powered Water Scheme at Apodorwa RGC	Lubra Contractors
15	Traditional Construction Contract	Drilling and Installation of 6 Deep Bores	KLR

Table 4.5a - c, unveil the opinion on the impact that the two construction contract types have on cost and time combined and the detail of the contracts reviewed. The findings show that the traditional construction contract type has a marginal impact at 19 (30.6%) followed by moderate impact with 15 (24.2%) and for Integrated Construction contract type, a similar trend was observed with Marginal impact at 26 (41.9%) followed by moderate impact at 18 (29.0%). These show that the respondents had good knowledge on the impact from both construction contract types. The finding in Table 4.5c is a validation of the data that were provided by respondents via questionnaires as indicated in Tables 4.5a and 4.5b. it was revealed that the most common type of construction contract type used is traditional construction contract type. This finding is in agreement with Maina, (2020) who established that majority of contracts in Kenya were executed using traditional contracts. In the same way, the results from the respondents indicated that the two construction contract types had moderated impact on cost and schedule performance.

4.3.2 Effects of constructions contracts types on construction project time and cost performance

4.3.2.1 Traditional construction contract type and cost performance

In line with specific objective two, the researcher asked respondents to share their opinion on how the different parameters apply on the traditional construction contract type and how this contract type affects project cost and time performance. Table 4.6 below shows opinions of the respondents on building contract type cost performance

Table 4.6: Traditional Construction Contract type and cost performance

Fact finding statements	Mean of responses		Std. Deviation	Ranking
	Statistic	Std. Error		
Traditional construction contracts don't require legal expertise to interpret	4.10	0.08	0.65	1st
Traditional construction contracts usually lead to the demand for supplementary funding	4.00	0.10	0.83	2nd
Projects under the Traditional construction contracts are completed within the project cost	3.76	0.10	0.76	3rd
Economic instabilities usually affect Traditional construction contracts	3.48	0.17	1.34	4th
Traditional construction contracts usually lead to the demand for supplementary funding	3.45	0.17	1.33	5th
Traditional construction contracts caters for any losses or damages occasioned that require insurance	3.42	0.10	0.76	6th
Project cost is a crucial factor in the early or fixed completion of projects in Kiryandongo District	3.40	0.16	1.25	7th
Traditional construction contracts are usually affected by legal or similar entities involved directly by the client.	3.26	0.09	0.75	8th
Traditional construction contracts are easily understood by stakeholders at the local government	3.21	0.13	0.99	9th
Traditional construction contracts can easily be challenged in court	3.16	0.15	1.22	10th
Traditional Contracts attracts extra cost in the project implementation	3.11	0.10	0.77	11th

Table 4.6 presents responses from Contractors, Chief Administrative Officer, District Engineer, District Procurement Officer, Contracts Committee, District Executive Members, Local Leaders (LC V, Speaker, Councilors) who at the time of sampling had worked with different projects, which projects were linked to projects of interest by this research. The information provided in Table 4.9 shows that respondents' agreement that traditional construction contracts don't require legal expertise to interpret the contract ranked first with a statistical mean of 4.10(standard deviation=0.65), followed by agreeing that traditional construction contracts usually lead to the demand for supplementary funding with an average of 3.10 and standard deviation of 0.83 whilst thirdly they agreed that Projects under the Traditional construction contracts are completed within the project cost with a mean of 3.76 and standard deviation of 0.76. This finding deviates from Kadiri. et al., (2017) in their study in Nigeria which showed that both government and private construction projects completed under old-style contract approach experienced cost and duration overruns but changed to different extent. The study, however, established that the method was better in terms of budget performance than duration performance. The trend of agreement was such that the assumption on traditional contracts attracts extra cost in the project implementation was the least, having an average of 3.11(standard deviation = 0.77). However, it should be noted that the difference of 0.65 was rather small. This therefore signifies that all the statements about traditional construction contracts had strong bearing on cost performance.

4.3.2.2 Traditional construction contract type and time performance

In line with specific objective two, the researcher asked the respondents to give their opinion on how the different parameters apply on the traditional construction contract type and how this contract type affect project cost and time performance. The results on the respondents' opinion are as shown in Table 4.7.

Table 4.7: Traditional construction contract type and time performance

Fact Finding Statements	Mean of responses		**Std. Deviation**	**Rankings**
	Statistic	**Std. Error**		
Traditional construction contracts cater for any form of delay in impediment or prevention by the contractor	4.16	0.10	0.79	1st
Project implementation under traditional construction contracts usually attracts extra time in the project	3.84	0.13	1.01	2nd
Project time is a crucial factor in the early or fixed completion of projects under traditional construction contracts in Kiryandongo District	3.44	0.13	1.00	3rd
Traditional construction contracts make the delays caused by authorities not foreseeable by an experienced contractor.	3.35	0.11	0.87	4th
Projects under the traditional construction contracts are completed within the originally planned project time	3.16	0.12	0.96	5th
Traditional construction contracts provide contractors with the luxury to adjust their project implementation time	3.03	0.13	1.05	6th
Traditional construction contracts have a lot of details that eventually affects effects the project time	2.69	0.14	1.11	7th
Political, Social and Economic instabilities usually affect Traditional construction contracts	2.44	0.14	1.07	8th
Contractors adhere to the time provisions of the traditional construction contracts	1.94	0.09	0.67	9th
Traditional construction contracts put into consideration any form of delay caused by the contractor	1.92	0.09	0.71	10th

Source: Primary data, 2022

Table 4.7 provides responses from Contractors, Chief Administrative Officer, District Engineer, District Procurement Officer, Contracts Committee, District Executive Members, Local Leaders (LC V, Speaker, Councilors) who at the time of sampling had worked with different projects, which projects were linked to projects of interest by this research. The information provided in Table 4.10 showed that respondents were in strong agreement that

traditional construction contracts cater for any form of delay in impediment or prevention by the contractor and they ranked first with an average of 4.16(standard deviation of 0.79). This was followed by agreeing that project implementation under traditional construction contracts usually attracts extra time in the project with an average of 3.84(standard deviation = 1.01). This is in agreed with Apolot et. al., (2013) in their study to establish factors responsible construction project delays and budget overruns in Uganda's public sector, established that traditional contracting was one of the major causes. This is also alluded by Tibagala, (2014) who established that long procurement process by the client, coupled with the use of old-style contracts were the common causes of project delays. There was also agreement that project time is a crucial factor in the early or fixed completion of projects under traditional construction contracts with 3.44 on average and 1.00 as standard deviation and was ranked in third position. The trend of opinion was such that the assumption on traditional construction contracts put into consideration any form of delay caused by the contractor was the least, having 1.92 on average and 0.71 standard deviation. The analysis implies that some statements about traditional construction contracts type had strong bearing on time performance than others. It is therefore imperative that a close look at the statements ranking from 1st to 3rd is considered.

4.3.2.3 Integrated construction contract type and cost performance

In line with specific objective two, interviewees were asked to give their views on how the different parameters apply on the integrated construction contract type and how this contract type affect project cost and time performance. This was done being cognizant of the fact that the construction of the head quarter of Kiryandongo district was implemented using design and build contract. The results on the respondents' opinion are as shown below Table 4.8.

Table 4.8: Integrated construction contract type and cost performance

Fact finding Statements	Mean of responses		**Std. Deviation**	**Ranking**
	Statistic	**Std. Error**		
Integrated construction contracts can be challenged in court	4.48	0.08	0.62	1st
Economic instabilities usually affect Integrated construction contracts	4.37	0.12	0.94	2nd
Projects are completed within the project cost	4.37	0.08	0.63	3rd
Integrated construction contracts require a lot of expertise	4.32	0.10	0.83	4th
Project cost is a crucial factor in the early or fixed completion of projects	4.00	0.09	0.70	5th
These contracts attract extra cost in the project implementation	3.85	0.11	0.88	6th
Integrated construction contracts are easily understood by stakeholders at the local government	3.79	0.13	0.99	7th
Integrated construction contracts caters for any loss or damage that require insurance	3.10	0.12	0.92	8th
They usually lead to the demand for supplementary funding	2.82	0.09	0.71	9th
They are usually affected by legal, similar entities involved directly by the client.	2.39	0.09	0.73	10th
Integrated construction contracts don't require legal expertise to interpret	2.32	0.10	0.82	11th

Source: Primary data, 2022

Table 4.8 provides responses on integrated construction contract type and cost performance. The information provided in Table 4.11 indicates that respondents were in strong agreement that integrated construction contracts can easily be challenged in court, being ranked in first position with an average of 4.48 and 0.62 as standard deviation. It was followed by agreeing that economic instabilities usually affect integrated construction contracts with an average of 4.37(standard deviation = 0.94) whilst thirdly they agreed that projects under the integrated construction contracts are completed within the project cost with an average of 4.37(standard deviation = 0.63) The trend of opinion was such that the assumption that integrated

construction contracts don't require legal expertise to interpret was the least, having a mean of 2.32 and 0.82 as standard deviation. This shows that the most of the respondents were not in agreement of integrated contacts requiring legal expertise to be utilized. The reverse of the statement is unanimously true that this kind of contract types in fact require legal interpretation. On the other hand, the general output from the analysis show that above 50% of the statements about integrated construction contracts type had strong bearing on cost performance. It is therefore imperative that a close look is considered on all the statements.

4.3.2.4 Integrated construction contract type and time performance

In line with specific objective two, interviewees were asked to present their opinion on how the different parameters apply on the integrated construction contract type and how this contract type affect project cost and time performance. The results on the respondents' opinion are as shown below Table 4.9.

Table 4.9: Integrated construction contract type and time performance

Fact finding Statements	**Mean of responses**		**Std. Deviation**	**Rankings**
	Statistic	**Std. Error**		
Integrated construction contracts provide contractors with the luxury to adjust their project implementation time	4.11	0.10	0.79	1st
Integrated construction contracts have a lot of details that eventually affects the project time	3.90	0.13	1.05	2nd
Integrated construction contracts make the delays caused by authorities not foreseeable by an experienced contractor.	3.76	0.13	1.05	3rd
Project time is a crucial factor in the early or fixed completion of projects under integrated construction contracts in Kiryandongo District	3.71	0.13	1.03	4th
Projects under the integrated construction contracts are completed within the originally planned project time	3.53	0.17	1.33	5th
Integrated construction contracts cater for any form of delay in impediment or prevention by the contractor	3.34	0.16	1.23	6th

Integrated construction contracts put into consideration any form of delay caused by the contractor	3.24	0.16	1.26	7th
Political, Social and Economic instabilities usually affect integrated construction contracts	2.76	0.14	1.11	8th
Contractors adhere to the time provisions of the integrated construction contracts	2.60	0.14	1.12	9th
Project implementation under Integrated construction contracts usually attracts extra time	2.29	0.14	1.09	10th

Source: Primary data, 2022

Table 4.9 provides responses from Contractors, Chief Administrative Officer, District Engineer, District Procurement Officer, Contracts Committee, District Executive Members, Local Leaders (LC V, Speaker, Councilors) who at the time of sampling had worked with different projects, which projects were linked to projects of interest by this research. The information provided in Table 4.12 showed that respondents strongly agreed that integrated construction contracts provide contractors with the luxury to adjust their project implementation time, ranking first with an average of 4.11(standard deviation of 0.79). This finding agrees with Jamie, (2022) who established that design and construction under the turkey contract which provides early risk transference with certainty of results in schedule reduction of 20% or more schedule and cost results in accelerated delivery of projects.

This was followed by agreeing that integrated construction contracts have a lot of details that eventually affects the project time with an average 3.90 and 1.05 as standard deviation. whilst thirdly they agreed that integrated construction contracts make the delays caused by authorities not foreseeable by an experienced contractor with a mean of 3.76 and standard deviation of 1.05. The trend of opinion was such that the assumption that project implementation under integrated construction contracts usually attracts extra time was the least, having an average of 2.29 with 1.09 as standard deviation. This means that the majority of the respondents don’t agreed that integrated contract type attracts extra time. The general

output from the analysis show that more than 90% of the statements about integrated construction contracts type had strong bearing on time performance. It is therefore imperative that a close look considers the statements.

4.3.3 Opinion on the different construction contract types

4.3.3.1 Type of contract that give better time performance for a project

In order to reinforce the findings to objective two, this subsection sought to understand the opinions of respondents on which of the two construction contract types, gives a better time performance. Table 4.10 presents the opinions of the respondents as indicated.

Table 4.10: Detail of evidence for a better time performance

Construction Contract Types	Frequency	Percent	Valid Percent	Cumulative Percent
Traditional Construction contracts	6	9.7	9.7	9.7
Integrated Contracts	14	22.6	22.6	32.3
Both Traditional and Integrated	34	54.8	54.8	87.1
Not Sure	8	12.9	12.9	100.0
Total	**62**	**100.0**	**100.0**	

Source: Primary data, 2022

Table 4.10 gives a breakdown on opinions shared by respondents concerning the type of construction contract type that gives a better time performance for projects. The findings show that both old-style and integrated construction contracts type combined give a better time performance “provided all other factors stay constant” as supported by 34 (54.8%) respondents.

4.3.3.2 Type of contract that gives better cost performance for a project

Further bracing to objective two was by this subsection that sought to understand the opinions of respondents on which of the two construction contract types, gives a better cost performance. Table 4.11 presents opinions of the respondents as indicated.

Table 4.11: Details of a better cost performance

Construction Contract Types	Frequency	Percent	Valid Percent	Cumulative Percent
Traditional Constructional Contracts	35	56.5	56.5	56.5
Integrated Contracts	15	24.2	24.2	80.6
Both Traditional and Integrated	10	16.1	16.1	96.8
Not Sure	2	3.2	3.2	100.0
Total	**62**	**100.0**	**100.0**	

Source: Primary, 2022

Table 4.11 gives a breakdown on opinions shared by respondents concerning the type of construction contract type that gives a better cost performance for projects. The findings show that traditional construction contract type gives a better cost performance "provided all other factors stay constant" as provided for 35 (56.5%) respondents.

4.3.3.3 Contract type recommendable for a project in Kiryandongo District

The conclusion to objective two was drawn from this subsection that sought to understand the opinions of respondents on which of the two construction contract types, is recommendable for Kiryandongo District. Table 4.12 presents opinions of the respondents as indicated.

Table 4.12: Detail of analysis on the recommendable construction contract type

Construction Contract Types	Frequency	Percent	Valid Percent	Cumulative Percent
Traditional Constructional Contracts	32	51.6	51.6	51.6
Integrated Contracts	16	25.8	25.8	77.4
Both Traditional and Integrated	12	19.4	19.4	96.8
Not Sure	2	3.2	3.2	100.0
Total	62	100.0	100.0	

Source: Primary data, 2022

Table 4.12 gives a breakdown on opinions shared by respondents concerning the type of construction contract type that is recommended for projects in Kiryandongo District. The findings show that traditional construction contract type was recommended as provided for by 32 (51.6%) of the respondents.

4.3.4 Development of Performance Monitoring Tool for Construction Projects

In order understand more clearly project performance in both traditional and integrated construction contract types, three parameters were considered: Completion Time (CT), Cost Overrun (CO) and Budget Estimates (BE). These were subjected to regression analysis. These factors were obtained from the responses of questions 9, 10, 12 and 13 in the questionnaire used and later subjected to analysis. As a result, a regression model was obtained as presented in equation 4.1 and regression model coefficients are presented in Table 4.13

$$Z = -20.236 + 2.265CT + 1.406CO + 0.612BE \quad \text{4.1}$$

This developed model will be used as a performance monitoring tool for both traditional and integrated construction contract type projects, by monitoring the variables in the equation.

The Z is construction contract type project performance in terms of time and cost. The model works in such a way that once the value of Z is below 15% at first variation and cumulatively does not exceed 25% of the original contract price, that is (15%≤Z≤25%); the construction contract type used is acceptable, otherwise any value of Z above 25% will render the construction contract type not suitable for use and therefore should be avoided, this is according to Local Governments (Public Procurement and Disposal of Public Assets, PPDA regulations, 2006).

Table 4.13: Model Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig. P
	B	Std. Error	Beta		
(Constant)	-20.236	0.070		-0.666	0.031
Completion Time (CT)	2.265	0.155	0.005	0.078	0.025
Cost Overruns (CO)	1.406	0.165	0.106	1.237	0.012
Budget Estimates (BE)	0.612	0.161	0.020	1.466	0.000
a. Dependent Variable: Time and cost performance in both traditional and integrated construction contract types					

Source: Primary data, 2022

Considering model coefficients in Table 4.13, the findings indicate that the prevailing conditions that heavily affect the time and cost performance of building contract type projects include completion time, cost overruns and budget estimates respectively and were all significant with the p values below 0.05. The results of statistical analysis of variance (ANOVA) and suitability of the model and the impact of significant individual terms on performance of construction contract type projects are illustrated in Tables 4.13, 4.14 and 4.15.

Table 4. 14: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.809[a]	0.815	0.860	0.11421
a. Predictors: (Constant), completion time, cost overruns, and budget estimates				
b. Dependent Variable: Time and cost performance in both traditional and integrated construction contract types				

Source: Primary data, 2022

To test the fitness of the model, the regression equation and the coefficients of determination (R^2) were evaluated. It was established that the value of R^2 was 0.815 which means that a variation of 81.5% in the consideration of schedule and cost performance of the building contract types to enhance performance is due to the factors indicated in the model. The value of the adjusted coefficient of determination (Adjusted R^2= 0.860) is also quite high which

further supplements on information given by R squared hence the model is significant (Khuri and Cornell, 1987; Saqib et. al., 2012).

Table 4.15: Analysis of factors that affect time and cost performance of construction contract types

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.211	7	1.615	501.231	0.000[b]
	Residual	200.234	118	1.855		
	Total	208.445	125			
a. Dependent Variable: Time and cost performance in both traditional and integrated construction contract types						
b. Predictors: (Constant), completion time, cost overruns, and budget estimates						

Source: Primary data, 2022

The F-test (F_{model}=501.231) with a low probability value of <0.0001 shows high significance for the regression model at 5% significance level since the p-value is less that the 5% level of significance. The p-value is smaller, the model corresponding variable is more significant (Chen et. al., 2008). From the ANOVA results, all the three variables studied were found to be statistically significant terms and therefore are significant factors to examining the impact of building contract type on project duration and cost performance. From the mathematical model developed (equation 4.1) it can be deduced that the effectiveness in monitoring performance of projects will (largely depend on completion time followed by cost overuns and lastly budget estimate. This therefore means that if management is committed to completing project on time, minimise cost overruns and also work within the budgeted estimates, both traditional and integrated construction contract types are highly likely to achive better time and cost performance.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter highlights conclusions, recommendations and limitations of the study in regards to the study objectives and review of the related studies that were previously done on building contract types. The study aim was successfully achieved with the development of the evaluation model. Given the model, planners and or procurement and technical teams can effectively evaluate the planned projects using previous similar project parameters to judge whether or not to use the same or otherwise different construction contract type. Although the findings are based on Kiryandongo District Local Government, the tool can comfortably be used in all other District Local Governments with Uganda and or any other country with same system of governance. This is because, Kiryandongo like any other District has and or uses the same administrative/organization structure and handling and dealing with the same infrastructure development agenda. Therefore, sections below present conclusions, followed by recommendations, and then limitations of the study.

5.2 Study Conclusions

This sub section presents the conclusions of the study on, examining the impact of building contract type on project duration and budget performance in Uganda, in Kiryandongo district local government. The section presents an analysis of the specific objectives and how they were addressed:

5.2.1 The different construction contracts commonly used in Kiryandongo District

The study concluded that the common type of construction contract is the traditional construction contract. In the same way, opinion of the respondents generally shows that there is marginal to moderate impact of the two construction contract types on cost and time performance.

5.2.2 The extent to which these constructions contracts affect construction project time performance and cost performance

This study concludes that the use of both integrated and traditional contracts gives a better time performance compared to only using traditional contracts or only integrated contracts. In addition, this study concludes that traditional contract gives a better cost performance than integrated contract or use of both integrated and traditional contract. More so, the study also concludes that in bid to attain optimal cost performance of construction projects, clients should use traditional contract when awarding projects.

5.2.3 Tool for selecting the appropriate contract type to use on construction projects

The schedule and cost performance monitoring tool for building contract projects was developed as:$Z = -20.236 + 2.265CT + 1.406CO + 0.612BE$. The developed model will be used as a monitoring tool for both traditional and integrated construction contract type projects, by monitoring the variables in the equation. Where Z is time and cost performance, CT is completion time, CO is cost overruns and BE is budget estimates.

5.3 Recommendations for further study/research

This sub section presents the recommendations of the study on examining the impact of construction contract type on project time and cost performance. More research needs to be done on other factors such as contract management, variations of design change, and financial resource management, among others, that could be affecting time and cost performance of construction contract type. This will help in advising and concretizing the approval of a traditional construction contract type as the preferred contract type for local governments.

5.4 Limitations of the study

The results of the study can only be generalized in Kiryandongo District since data was only collected from this district. This limits the generalization and application of the tool developed in other districts. Furthermore, due to limited time available for the study, the tool could not be tested (validated) and applied to an actual project.

5.5 Contributions of the study

This study has also contributed to the body of knowledge regarding the extent to which construction contract type affects cost and schedule performance of building projects. The developed tool will be of use to district engineers and contractors who bid and execute civil engineering jobs at and for the local government in improving duration and cost performance of any construction project regardless of contract type.

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Annex I: Questionnaire used

KYAMBOGO UNIVERSITY

Department of Civil and Environmental Engineering

P. O. BOX 1, KYAMBOGO – KAMPALA, UGANDA

TEL: +256-41-287340, FAX: +256-41-289056/222643

RESEARCH QUESTIONNAIRE

Dear Respondent,

I am Niyonzima Emmanuel, a student of Kyambogo University, Kampala pursuing a Master of Science degree in Construction Technology & Management. I'm conducting research titled ***"Examining the impact of construction contract type on project time and cost performance in Ugandan local governments: a Case study of Kiryandongo District***" as a requirement for the award of a Master of Science degree in Construction Technology & Management of Kyambogo University. This questionnaire is intended to help the researcher get information on the said topic. The purpose of this study is purely academic and the information given will be treated with the highest degree of confidence. You have been selected as a key respondent for this study. Kindly, complete the questionnaire to enable the researcher complete the study. Please tick the answer which represents your opinion on the subject.

I appreciate your participation in this effort.

Thank you,

Niyonzima Emmanuel (18/U/GMET/22133/PD)

Contact: +256753527124

SECTION A: Background Information (Please tick appropriately)

1. Gender of respondent:

   a) Male ( )

   b) Female ( )

2. Your age bracket

a) Under 25 years ( )

b) 26– 35 years ( )

c) 36 – 45 years ( )

d) 46 years and above ( )

3. Your designation in the organization

a) Engineers ( )

b) Clients ( )

c) Contractors ( )

d) Consultants ( )

e) Contract Manager ( )

f) If others, please specify……

4. Your level of education

a) High school ( )

b) Diploma ( )

c) Degree ( )

d) Masters ( )

e) PhD ( )

f) Others (please specify) ……....

5. How many years have you worked with construction contracts in local governments in Uganda?

a) less than 5 years ( )

b) 6-10 years ( )

c) 11-15 years ( )

d) 16 and above ( )

6. The general categorization of construction contracts that are delivered as either traditional construction contract and or integrated construction contract are Design – Bid – Build and or Design and Build respectively. Which of the following construction contract types are you familiar with?

   a) Design – Bid – Build (Traditional Construction Contract) ( )

   b) Design – Build (Integrated Construction Contract) ( )

7. On a Likert scale of 1-5 where; 5- Very Strong Impact; 4- Strong Impact; 3- Moderate Impact; 2- Marginal Impact; 1- No Impact, Please indicate the level of impact each of the contract type has on project time and cost performance.

Table 1: Is on the level of impact of the construction contract types

Contract type	No Impact	Marginal Impact	Moderate Impact	Strong Impact	Very Strong Impact
Traditional Contracts (Design – Bid - Build)					
Integrated Contracts(Design - Build)					

SECTION B: TRADITIONAL CONSTRUCTION CONTRACTS

8. For each of the statements in this section, please tick the number that best expresses your opinion using the following scale:

Strongly Disagree = 1, Disagree = 2, Not sure = 3, Agree = 4, and Strongly Agree = 5.

Table 2: Traditional contracts and project cost						
		1	2	3	4	5
1.	Traditional construction contracts attracts extra cost in the project implementation					
2.	Traditional construction contracts require a lot of expertise					
3.	Traditional construction contracts are easily understood by stakeholders at the local government					
4.	Traditional construction contracts don't require legal expertise to interpret					
5.	Traditional construction contracts can easily be challenged in court					
6.	Projects under the Traditional construction contracts are completed within the project cost					
7.	Economic instabilities usually affect Traditional construction contracts					
8.	Traditional construction contracts caters for any loss or damage occasioned for which insurance is required to be effected					
9.	Traditional construction contracts are usually affected by statutory or other service providers or similar bodies engaged directly by the Employer.					
10.	Traditional construction contracts usually lead to the demand for supplementary funding					
11	Project cost is a crucial factor in the early or fixed completion of projects in Kiryandongo District					

9. What was the cost implication at the end of the contract?

a) Within budgeted cost ( )
b) Well above budgeted cost ( )
c) Well below the budgeted cost ( )

Table 3: Traditional construction contracts and project time						
		1	**2**	**3**	**4**	**5**
1.	Projects under the traditional construction contracts are completed within the originally planned project time					
2.	Traditional construction contracts have a lot of details that eventually affect the project time					
3.	Political, social and economic instabilities usually affect Traditional construction contracts					
4.	Contractors adhere to the time provisions of the traditional construction contracts					
5.	Traditional construction contracts cater for any form of delay in impediment or prevention by the contractor					
6.	Traditional construction contracts make the delays caused by authorities not foreseeable by an experienced contractor.					
7.	Traditional construction contracts put into consideration any form of delay caused by the contractor					
8.	Traditional construction contracts provide contractors with the luxury to adjust their project implementation time					
9.	Project implementation under traditional construction contracts attracts extra costs					
10.	Project time is a crucial factor in the early or fixed completion of projects under traditional construction contracts in Kiryandongo District					

10. How was the time of delivery of the project within the contract?

a) Start time not on schedule ( )
b) End time within schedule ( )
c) Start time on schedule ( )
d) End time outside schedule ( )
e) Total project time beyond schedule ( )
f) Total project time within schedule ( )

SECTION C: INTEGRATED CONSTRUCTION CONTRACTS

11. For each of the statements in this section, please tick the number that best indicates your opinion using the following scale:

Strongly Disagree = 1, Disagree = 2, Not sure = 3, Agree = 4, and Strongly Agree = 5.

Table 4: Integrated construction contracts and project cost

		1	2	3	4	5
1	Integrated construction contracts attract extra cost in the project implementation					
2	Integrated construction contracts require a lot of expertise					
3	Integrated construction contracts are easily understood by stakeholders at the local government					
4	Integrated construction contracts don't require legal expertise to interpret					
5	Traditional construction contracts can easily be challenged in court					
6	Projects under the Integrated construction contracts are completed within the project cost					
7	Economic instabilities usually affect Integrated construction contracts					
8	Integrated construction contracts caters for any loss or damage occasioned for which insurance is required to be effected					
9	Integrated construction contracts are usually affected by statutory or other service providers or similar bodies engaged directly by the Employer.					
10	Integrated construction contracts usually lead to the demand for supplementary funding					
11	Project time is a crucial factor in the early or fixed completion of projects under integrated construction contracts in Kiryandongo District					

12. What was the cost implication at the end of the contract?

a) Within budgeted cost ( )
b) Well above budgeted cost ( )
c) Well below the budgeted cost ( )

Table 5: Integrated construction contracts and project time						
		1	2	3	4	5
1	Projects under the integrated construction contracts are completed within the originally planned project time					
2	integrated construction contracts have a lot of details that eventually affects effects the project time					
3	Political, social and economic instabilities usually affect integrated construction contracts					
4	Contractors adhere to the time provisions of the integrated construction contracts					
5	Integrated construction contracts cater for any form of delay in impediment or prevention by the contractor					
6	Integrated construction contracts make the delays caused by authorities not foreseeable by an experienced contractor.					
7	Integrated construction contracts put into consideration any form of delay caused by the contractor					
8	Integrated construction contracts provide contractors with the luxury to adjust their project implementation time					
9	Project implementation under Integrated construction contracts attracts extra cost					
10	Project time is a crucial factor in the early or fixed completion of projects under integrated construction contracts in Kiryandongo District					

13. How was the time of delivery of the project within the contract?

a) Start time not on schedule ( )
b) End time within schedule ( )
c) Start time on schedule ( )
d) End time outside schedule ( )
e) Total project time beyond schedule ( )
f) Total project time within schedule ( )

14. In your opinion, which of the following types of contracts can give better time performance for a project?

a) Traditional Construction contracts ( )
b) Integrated contracts ( )
c) Both Traditional and Integrated ( )
d) Not sure ( )

15. In your opinion, which of the following types of contracts can give better cost performance for a project?

a) Traditional Construction contracts ( )
b) Integrated contracts ( )
c) Both Traditional and Integrated ( )
d) Not sure ( )

16. In your opinion, which of the construction contracts would you recommend for adoption on an upcoming project at the District?

a) Traditional Construction contracts ( )
b) Integrated contracts ( )
c) Both Traditional and Integrated ( )
d) Not sure ( )

Thank you for your time and God Bless You.

ANNEX II: INTERVIEW GUIDE USED

Dear Respondent,

I am Niyonzima Emmanuel, a student of Kyambogo University, Kampala pursuing a Master of Science degree in Construction Technology & Management. I'm conducting research titled ***"Examining the impact of construction contract type on project time and cost performance in Ugandan local governments: a Case study of Kiryandongo District***" as a requirement for the award of a Master of Science degree in Construction Technology & Management of Kyambogo University. This interview guide is intended to help the researcher get information on the said topic. The purpose of this study is purely academic and the information given will be treated with the highest degree of confidence. You have been purposively selected as a key respondent for this study. Kindly, respond to the questions that will be posed to enable the researcher complete the study.

I appreciate your participation in this effort.

Thank you,

Niyonzima Emmanuel (18/U/GMET/22133/PD)

Contact: +256753527124

Section A: Bio data of key informant interview

Gender: ……
Name of organization: ……
Position in the organization: ……..

Section B: Objective related questions

1) In your opinion, please can you comment on the commonly used type of construction contracts in Kiryandongo? (Probe for traditional and integrated construction contract type)
2) In your view, how does (mentioned construction contract type in 1) affect construction project time and cost performance?
3) In your view, what kind of tools do you suggest that can be developed to selecting the appropriate contract type to use on construction projects?
4) Do you have any other comments?

THANK YOU

ANNEX III: DOCUMENTARY REVIEW CHECKLIST

S/N	Project Name	Initial cost at start	Cost at the end of project	Start date of the project	Cost overrun	Expected end date	Actual end date	Time overrun
1								
2								
3								
4								
5								

Annex IV: Table determining the sample size from the given population

TABLE 1
Table for Determining Sample Size from a Given Population

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size.
S is sample size.

Annex V: List of construction projects implemented at Kiryandongo district

S/N	Name of the Project	Contract type	Original contract cost	Final Contract cost	Cost Overun	Contract Start Date	Expected Completion date	Actual completion date	Time overrun (days)
1	Construction of 5stanceVIP Lined Latrine at Nyamahsa	Traditional	17,853,500	17,853,500	0	1/14/2016	2/26/2016	0	
2	Rehabilitation of Panyadoli-Kimogoro road	Traditional	66,839,500	63,407,800	0	12/8/2015	3/4/2016	0	
3	Construction of two blocks of 3 classroom each; 3 blocks of drainage and supply 108 desks 6 tables and 6 chairs of kigumba muslims at kigumba muslim primary school	Traditional	455,037,075	446,845,485	8,191,590	15/09/2020	15/3/2021	0	
4	Rehabilitation of congodoch kiryandongo high school 3.8 kms	Traditional	338,373,000	338,373,000	0	5/2/2022	23/06/2023	0	
5	Borehole drilling and installation	Traditional	213,925,740	213,925,740	0	5/3/2021	30/06/2021	0	
6	Rehabilitation of kigumba kinyara masindi port 15.1 kms	Traditional	970,089,750	970,089,750	0	31/3/22	31/10/22	0	
7	Water supply system of apodorwa	Traditional	29,797,950	29,797,950	0	30/3/21	30/6/21	0	
8	Borehole drilling and installation	Traditional	297,462,686	297,462,686	0	2/5/2018	2/9/2018	0	
9	Construction of two classroom block at kiryandongo cou	Traditional	47,998,000	47,998,000	0	12/10/2016	12/10/2017	0	
10	Construction of maternaty ward at kigumba health center 111	Traditional	188,859,276	188,859,276	0	15/2/15	25/6/15	0	
11	Construction of 2stanceVIP Lined Latrine at masindi s/c main block	Traditional	7,809,600	7,809,600	0	21/12/15	21/4/16	0	
12	Two phase of construction of administration block at kigumba t/c	Traditional	221,889,270	221,889,270	0	27/2/17	27/8/17	0	
13	construction of two classroom block	Traditional	55,258,982	55,258,982	0	12/12/2015	12/6/2016	0	

	at kankooba p/s								
14	Construction of 5stanceVIP Lined Latrine at mutunda s/c	Traditional	14646635	14646635	0	18/2/15	30/4/15	0	
15	4 deep borehole drilling under lot4	Traditional	78,602,160	78,602,160	0	22/10/15	9/5/2016	6/6/2016	27
16	4 deep borehole drilling under lot2	Traditional	82,662,803	82,662,803	0	19/1/16	2/4/2016	0	
17	completion of staff house at apodorwa health center 11	Traditional	18,514,125	18,514,125	0	15/12/2015	15/5/2016	0	
18	4 deep borehole drilling under lot3	Traditional	70,796,817	70,796,817	0	26/10/15	26/12/15	15/3/16	94
19	fencing of panyandoli livestock mkt	Traditional	13,983,000	13,983,000	0	8/4/2016	8/6/2016	0	
20	Construction of two classroom block at isunga pri schl	Traditional	47,737,925	47,737,925	0	20/10/15	20/1/16	0	
21	Construction of 5stanceVIP Lined Latrine at kizibu pri sch	Traditional	35,484,000	35,484,000	0	20/10/15	20/1/16	0	
22	Construction of 5stanceVIP Lined Latrine at katurikire p/s	Traditional	35,707,000	35,707,000	0	1/10/2015	1/1/2016	0	
24	Construction of 5stanceVIP Lined Latrine at kitogozi p/s	Traditional	35,457,000	35,457,000	0	27/10/15	27/1/15	0	
25	4 deep borehole drilling under lot1	Traditional	70,860,888	70,860,888	0	20/10/15	20/12/15	0	
26	fencing of kiigya health center 11	Traditional	16,496,400	16,496,400	0	23/2/21	23/3/21	0	
27	construction of two classroom block at yabwenge p/s	Traditional	49,107,660	49,107,660	0	13/10/16	13/1/17	0	
28	construction of administration block at masindi port s/cty	Traditional	118,551,573	118,551,573	0	30/8/16	30/8/17	0	
29	Construction of 2stanceVIP Lined Latrine at kinyara livestock mkt	Traditional	9,231,568	9,231,568	0	27/1/17	27/4/17	0	
30	Construction of 2stanceVIP Lined Latrine and fencing at masindi por livestock market	Traditional	37,365,720	37,365,720	0	18/1/17	18/4/17	0	
31	Construction of 5stanceVIP Lined Latrine at kifuruta p/s	Traditional	35,048,307	35,048,307	0	18/1/17	18/4/17	0	
32	Rehabilitation of 3 deep boreholes	Traditional	19,300,000	19,300,000	0	18/1/17	18/4/17	0	
33	construction of two classroom block at alero p/s	Traditional	47,998,000	47,998,000	0	15/10/16	15/1/17	0	
34	Construction of 5stanceVIP Lined Latrine at nyakibeti p/s	Traditional	15,876,098	15,876,098	0	19/5/17	15/7/17	0	

35	Construction of 2stanceVIP Lined Latrine at mutunda p/s	Traditional	7,407,640	7,407,640	0	19/5/17	19/7/17	0	
36	construction of two classroom block at diima p/s	Traditional	48,000,000	48,000,000	0	18/10/2016	18/12/16	0	
37	construction of two classroom block at kiigya p/s	Traditional	56,517,000	56,517,000	0	18/9/16	18/11/16	0	
38	Construction of 5stanceVIP Lined Latrine at kankooba p/s	Traditional	24,945,700	24,945,700	0	18/11/16	18/1/16	0	
39	Construction of 5stanceVIP Lined Latrine at kaduuku rural growth centre	Traditional	19,891,767	19,891,767	0	13/10/16	13/1/17	0	
40	construction of two classroom block at bweyale public p/s	Traditional	48,757,680	48,757,680	0	13/10/16	13/1/17		
41	Construction of 2stanceVIP Lined Latrine at myeeba community p/s	Traditional	1,287,000	1,287,000	0	6/5/2021	6/6/2021	0	
42	Construction of 5stanceVIP Lined Latrine at gaspa market	Traditional	21267652	21267652	0	23/2/21	23/4/21	0	
43	Construction of 2stanceVIP Lined Latrine at kajeba mkt and ogunga p/s	Traditional	29,664,368	29,664,368	0	2/1/2020	2/3/2020	2/4/2020	33
44	construction of general maternity ward and two blocks of four stance latrines at panyandoli health center 4	Traditional	640,172,398	640,172,398	0	15/12/20	15/3/21	0	
45	Construction of two blocks of 3classroom,3blocks of drainable latrines and supply of furniture at kibanda ss	Traditional	456,588,245	456,588,245	0	7/1/2021	7/4/2021	0	
46	construction of two classroom block at kigumba cou	Traditional	68,589,140	68,589,140	0	30/11/2020	30/1/21	0	
47	construction of market stalls at kitukuuza masindi port	Traditional	28,581,500	28,581,500	0	4/6/2020	4/8/2020	4/10/2021	376
48	construction of two gravel roads 2.5kms of which one includes box type cd work and each aproach	Traditional	8,862,199,060	8,862,199,060	0	10/10/2022	10/4/2022	0	
49	Rehabilitation of katurikire panyandoli road 10.6kms	Traditional	543,746,910	543,746,910	0	15/9/21	15/12/21	0	
50	full Rehabilitation of kigumba apodorwa mboira road 22kms	Traditional	1,097,153,168	1,161,159,849	-64,006,682	19/8/20	24/8/21	2/9/2021	9

51	full Rehabilitation of magamaga gaspa road 6.7kms	Traditional	410,224,500	410,224,500	0	5/3/2022	5/7/2022	0	
52	renovation of community hall at kiryandongo s/c	Traditional	54,220,778	54,220,778	0	2/2/2021	2/4/2021	0	
53	fencing of mpuumwe health center 11	Traditional	56,645,551	56,645,551	0	2/2/2020	2/6/2020	0	
54	Construction of maternaty ward incinarator and medical waste pit at mpanyandoli health center3	Traditional	660,526,278	660,526,278	0	31/8/21	31/12/21	0	
55	Construction of 2stance VIP Lined Latrine atmutunda s/c	Traditional	24352558	24352558	0	22/2/21	22/5/21	0	
56	Construction of phase 4 bweyale administrative block	Traditional	115648260	115648260	0	6/2/2021	6/8/2021	0	
57	fencing of mutunda administration block	Traditional	58,694,552	58,694,552	0	17/1/20	30/5/2020	0	
58	construction of two classroom block at diima p/s	Traditional	44,863,750	44,863,750	0	14/2/16	14/5/16	0	
59	Construction of 2stanceVIP Lined Latrine at kihuura market	Traditional	6,271,720	6,271,720	0	23/2/16	23/4/16	0	
60	Construction of 5stanceVIP Lined Latrine atisungap/s	Traditional	16,918,770	16,918,770	0	17/3/16	17/6/16	0	