

**INFLUENCE OF PROJECT PLANNING ON ROAD CONSTRUCTION
PROJECTS PERFORMANCE IN UASIN GISHU COUNTY, KENYA**

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**A Research Project Submitted to the Department of Entrepreneurship and Procurement in
the School of Human Resource Development in Partial Fulfillment of the Requirements for
the Award of the Degree of Master of Science in Project Management of
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DECLARATION

This research project is my original work which has never been presented to any other institution or university for the award of any degree.

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DEDICATION

I dedicate my work to my lovely mum; Roselidah Anyango Ondiek for having granted me the moral support to undertake my study, and that this work will make her proud. I also dedicate this piece of work to my boss Eng. John C. Cherogony for giving me time to study despite the responsibilities vested on me in Tai Enterprises Limited. And also to my dad; Mzee Andrew Ondiek Owaga, friends and relatives' will in my education and the nurturing of their adorable principles in bringing me to this level compels me to dedicate this study to them.

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ABSTRACT

The purpose of this study was to investigate influence of project planning on success of road construction projects within Uasin Gishu County. The study was guided by the following specific objectives, that is, to determine how project time planning, project cost planning, project scope planning, project risk planning influences the success of road construction projects in Uasin Gishu County. The study was based on the following theories, that is; Complexity Theory, Theory of Constraints, Resource Based View Theory and Network Theory. This study adopted descriptive research design. The target population of this study was 51 employees in 15 government road construction projects which are in construction within Uasin Gishu County. Census was adopted in this study where project managers in each road project were involved in the study totaling to 51 respondents. The study relied on primary data which was collected through use of a questionnaire. The questionnaire contained semi-structured questions. The study generated both qualitative and quantitative data. Pilot testing was done to test the validity and reliability of the research instrument. Quantitative data was coded and entered into Statistical Packages for Social Scientists (SPSS Version 17.0) and analyzed using descriptive statistics while qualitative was analyzed on thematic mode and presented in prose. Regression analysis was done to test the level of significance between one variable and the other. The study established how project planning affects the performance of construction projects and the greatest roles of the top project team thus informing decision making for future road construction projects. The study was carried out to enable managers and directors identify the aspects of project planning that need to be put in place for the effective performance of such projects. Out of 51 questionnaires distributed 47 respondents completely filled in and returned the questionnaires, this represented a 92% response rate. The study found that there was a positive correlation between success of road construction project and project time planning, project scope planning, project cost planning and project risk planning. The four independent variables that were studied, explain only 83.4% of the success of road construction project. Further the study found that project cost planning contributed most to success of road construction project followed by project scope planning then project risk planning while project time planning contributed the little to success of road construction project. The study recommends that since time schedule is one of the most important plans in a project. The development of time schedules should be based on the previously developed WBS. There is need to develop a clear project scope that can facilitate for the project organization to realize the actual magnitude of the work and creates an understanding for the achievements that are required in the project. The cost estimation of a project should be based on the project scope, the WBS and be connected to the project plan. To manage risks and opportunities effectively, there is need to conduct risk analysis throughout the project as more and more information becomes clear to the management team.

TABLE OF CONTENTS

DEDICATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
TABLE OF CONTENTS	ix
LIST OF FIGURES	x
DEFINITION OF TERMS	xi
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background of the Study.....	1
1.1.1 Global Perspective	3
1.1.2 Regional Perspective	5
1.1.3 Local perspective	7
1.2 Statement of the Problem	9
1.3 Objective of the Study.....	12
1.3.1 General Objective	12
1.3.2 Specific Objectives of the Study.....	12
1.4 Research Questions.....	12
1.5 Research Hypotheses	13
1.6 Significance of the study.....	13
1.7 Limitations of the Study.....	14
CHAPTER TWO	15
LITERATURE REVIEW	15
2.1 Introduction	15
2.2 Theoretical Framework.....	15

2.2.1 Complexity Theory	15
2.2.2 Theory of Constraints	16
2.2.3 Resource Based View Theory.....	17
2.2.4 Network Theory	18
2.3 Conceptual Framework	19
2.4 Review of Variables.....	21
2.4.1 Project Time Planning	21
2.4.2 Project Cost Planning	24
2.4.3 Project Scope Planning.....	25
2.4.4 Project Risk Planning	28
2.5 Critiques of the Existing Literature	30
2.6 Research Gap.....	32
2.7 Summary	33
CHAPTER THREE.....	36
RESEARCH METHODOLOGY	36
3.1 Introduction	36
3.2 Research Design	36
3.3 Target Population.....	36
3.4 Sample Size and Sampling Technique.....	37
3.5 Data Collection	37
3.6 Data Collection Procedures	37
3.7 Pilot testing.....	38
3.7.1 Validity of Research Instruments	38
3.7.2 Reliability of Research Instruments.....	39

3.8 Data Analysis and Presentation	39
CHAPTER FOUR	41
RESEARCH FINDINGS AND DISCUSSION	41
4.1 Introduction	41
4.2 Response Rate	41
4.3 Demographic Characterization of the Respondents	42
4.4 Project Time Planning.....	44
4.5 Project Scope Planning	48
4.6 Project Cost Planning.....	51
4.7 Project Risk Planning.....	53
4.8 Success of Road Project through Project Planning.....	57
4.9 Inferential Analysis.....	58
CHAPTER FIVE	63
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	63
5.1 Introduction	63
5.2 Summary of the Findings	63
5.3 Conclusion.....	65
5.4 Recommendation	67
5.5 Areas of Further Research.....	68
REFERENCES	69
APPENDICES	72
Appendix I: Introductory Letter	72
Appendix II: Questionnaire.....	73

LIST OF TABLES

Table 4.1 Response Rate.....	41
Table 4.2 Level of Professionalism	42
Table 4.3 Education Level of the Respondents.....	44
Table 4.4 Completion of the Projects in Time	45
Table 4.5 Influence Project Time Planning on Road Construction Projects	46
Table 4.6 Influences of Project Time Planning on Road Construction Projects.....	48
Table 4.7 Project Scope Planning and Success of Road Construction Projects	50
Table 4.8 Project Cost Planning and Success of Road Construction Projects.....	52
Table 4.9 Project Risk Planning Influences Success of Road Construction Projects .	54
Table 4.10 Project Risk Planning and Success of Road Construction Projects.....	56
Table 4.11 Success of Road Project through Project Planning.....	58
Table 4.12 Coefficient of Correlation.....	59
Table 4.13 Model Summary.....	60
Table 4.14 Regression Coefficients.....	61

LIST OF FIGURES

Figure 2.1 Project Planning on Success of Road Construction Projects	20
Figure 4.1 Duration of Working in Road Construction.....	43
Figure 4.2 Consideration Project Time Planning	44
Figure 4. 3 Project Scope Planning and Success of Road Construction Projects	48
Figure 4.4 Project Risk Planning on Success of Road Construction Projects	50

DEFINITION OF TERMS

Project cost planning	is a series of activities for estimating, allocating, and controlling costs within the project (Guoli, 2010).
Project risk planning	is identifying, assessing, prioritizing, and mitigating risks associated with any undertaking (PMI, 2013).
Project scope planning	refers to the process to manage scope changes and make sure the project will still come in on time and within budget (Fageha & Aibinu, 2013).
Project time planning	refers to a component of overall project management in which a timeline is analyzed and developed for the completion of a project or deliverable (PMI, 2013).
Project:	is an individual or collaborative enterprise that is carefully planned and designed to achieve a particular aim (Othman, Zain & Hamdan, 2010).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Over the last few decades, maintenance and development of any infrastructure is being recognized as catalyst of sustainable economic growth and investment opportunity (Ali & Khamidi, Idrus, 2009). Both developed and developing countries are facing unprecedented fiscal problems, and are unable to devote the resources necessary to properly expand and maintain it (Othman, Zain & Hamdan, 2010). The ability to execute projects effectively has become essential to success in government and business enterprises. However, delay in construction projects is one of the most common, costly, complex and risky problems encountered in construction projects success. Construction projects takes place all over the world, it entails building works, water works civil works, Road works and many others. Every construction project has the following constraints; time, cost and quality. It is common to experience delays during construction projects. Delays do not always result from a single catastrophic event. Delays can cause substantial damages to a firm. Construction industry has been frequented with occasional delays and disruptions causing time and cost overruns. These delays and disruptions are sources of potential risks that current studies are looking into ways to manage such as technical, social, economic, legal, financial, resource, construction and commercial (Kikwasi, 2012).

It is against this backdrop, governments and county governments are turning to effective planning process of these projects (Engel, Fischer & Galetovic, 2010). PMI (2011) defined planning as those processes performed to establish the total scope of the effort, define and refine the objectives, and develop the course of action required to

attain those objectives. According to Gupta, Aha, Nau and Munoz-Avila (2014) project planning defines project activities that will be performed; the products that will be produced, and describes how these activities will be accomplished and managed. It defines each major task, estimates the time, resources and cost required, and provides a framework for management review and control. It contains a set of plans which will help through execution and closure phases of the project. The plans, which are done during this phase, will help the organization to manage time, cost, quality, risk and related issues. It will also help to manage project team to deliver project on time. For the effectiveness of project success these processes should be properly planned.

The objective of the development of the project plan is used to create a consistent, coherent document that can be used to guide project execution and control (Gupta, Aha, Nau, & Munoz-Avila, 2014). The plan should include general plans regarding all areas of the project such as; project objectives, time schedule, budget among others (PMBOK, 2011). Since project plan is the main document developed in the planning process and it is very important to allocate sufficient amount of time and resources for this process. A project with a poor developed project plan is most likely to be poorly executed with high costs and delays as a result (Antvik & Sjöholm, 2007). The integration between the different elements of the plan is a complex process and is therefore often required to be iterated several times in order to reach a complete and integrated project plan (Antvik & Sjöholm, 2010).

There are 39 processes belonging to the nine project management knowledge areas by planning process and other processes. Out of the 39 processes listed, 21 are identified by the PMBOK as related to planning. For the planning processes to be properly planned, these 21 processes have to be properly executed. As described by Donnelly, Gibson, and Ivancevich (2008) planning, organizing, controlling, and directing/leading/

are the four primary management functions. But Planning is often cited as the most critical of the management functions in determining the overall project performance. And it is also considered the most important and critical phase to the success of an organization in meeting its goal and objectives.

Grater (effective) project planning processes improves the performance problem of project outcomes (Griffith & Gibson, 1995). The study by Hamilton and Gibson (2006) has shown the importance of project planning on projects and its influence on project success. Findings of their study have proven that higher levels of project planning effort can result in significant cost and schedule savings. Therefore planning was identified as extremely important project management function for the successes of project outcome.

1.1.1 Global Perspective

The challenge of delay in construction project is phenomenon that is also experienced in developing countries. In the Gulf region, studies showed that many construction projects have been affected by time and cost overruns. However, there is currently no clear indication that this problem is a major consequence of a lack of understanding or poor definition of project planning and scheduling in practice. For example, in a survey on the schedule performance of Saudi construction projects, Assaf and Al-Hejji (2006) reported that 45 out of 76 projects investigated were delayed by more than 30% beyond the originally scheduled completion date. Another study revealed that more than 50% of the sample of construction projects in UAE experienced varying degrees of schedule deviations and cost overruns (Faridi & Elgsayegh, 2006).

In Qatar, over 85% of construction projects were subject to time and cost overruns as a result of factors such as poor design and deficiencies in schedule and cost estimates

(Jurf & Beheiry, 2012). The Bahrain construction industry has faced the same problems, with projects delayed due to critical factors such as inadequate planning and scheduling (Altoryman, 2014). In Oman, a number of construction projects were also found to be subject to schedule delays by more than 40% beyond their original schedule plans (Alnuaimi & Al Mohsin, 2013). These studies within the Gulf region indicated that insufficient planning and poor scheduling of project activities, ineffective design stages, improper coordination between project stakeholders and lack of knowledge about project requirements are amongst the most critical factors causing schedule deviations and cost overruns.

Yang and Wei (2010) found that changes in the requirements of project stakeholders, especially owners, poor scope definition and an unrealistic initial or baseline plan were the top factors causing delay to a project. Consequently, there is a need to focus on factors affecting project planning, which in turn have a negative impact on the performance of the project. Dvir et al. (2003) found that the effective definition of project scope at the early planning stages is significant to the success of a project. The authors further revealed that the inadequate involvement of project stakeholders will negatively affect the effectiveness of planning.

Hwang et al. (2013) pointed that poor site management and lack of effective coordination among project stakeholders, as well as inadequate competence in the project management team, were ranked as the most significant factors having a negative impact on schedule performance. Voth (2009) assessed significant barriers to scheduling at the Aeronautical Systems Centre (ASC), where the findings revealed a lack of team training and acquisition of knowledge about scheduling, shortage of resources, lack of disciplined project management and schedule as the factors having the most impact on scheduling.

Snoo et al. (2011) revealed that project schedules did not seem to be properly considered by both project managers and their planners/schedulers, as many criteria were ignored while developing and executing the project schedule. These criteria concerned reliability and robustness of information in the schedule, resource utilization and constraints, skill and competence of the planners/schedulers, and the level of uncertainty and complexity within the internal and external environments.

In another study, on schedule performance in Indian construction projects, Iyer and Jha (2006) found that factors such as the commitment of project stakeholders, competence of owners and a diversity of perspectives from project stakeholders in planning were considered significant factors in the success of project schedule performance. In addition, adopting proactive scheduling, motivational programs and effective communication approaches are important factors for schedule performance (Nepal et al., 2006).

1.1.2 Regional Perspective

In Africa, delays in construction of government funded projects delivery is a common reality Hussin and Omran (2011) state that in Nigeria, seven out of ten projects surveyed suffered delays in their execution. Also cited by the same authors is Al-Moumani (2000) as observing that in Nigeria 5-10% of government construction pre-contract cost is based on contingency. This has been found inadequate which means extra financial commitments occasionally beyond the capacity of the owner. Clients are sometimes not prepared for this and so fund in terms of loans are sought to offset this additional costs. In a study carried out to examine construction projects performance in Sudan, Olatunji (2010) observe that despite large number of reported cases, construction ranging from the simplest to more complex projects platforms have increasingly experienced cost overruns. This phenomenon is also similarly observed in Ghana where Gaba (2013)

observes that studies reveal increase in cost overruns, delayed completion, unsatisfactory and unmet project objectives in most construction projects. While investigating the subject of project delays in South Africa, Olatunji (2010) observes that it is a phenomenon that can be attributed to the inability of the client/his representative and the project team to have a comprehensive view of the construction project from inception to completion. Aibinu and Jagboro (2002), state that construction delay has become endemic in Nigeria. They therefore advance the need to create awareness of the extent to which delays can adversely affect project delivery.

In country like Ethiopia, a study conducted in Ethiopia pointed that most types of projects shares many of the problems and challenges that are similarly faced in other developing countries. For example, the studied project reporting document and the survey questionnaire shows that 79.06 % of the project fails to meet its objectives in Ethiopia. Previous research works by [(Whittaker 1999), (Dvir, Raz and Shenhar 2003)] have indicated poor project planning to be one of the reason for project failure in developing countries. Regarding the factors influencing the project outcomes, Whittaker (1999) revealed three common reasons for project failures the first reason is poor (lack of) project planning or the project plan was weak. The paper by Aladwani (2002); Dvir, Raz and Shenhar (2003) also reported a positive relationship between project planning and project performance. Their results indicated that there is a high correlation between the planning efforts and overall project success. Although their studies have considered many factors that influence project outcomes, but planning was mentioned as an important factor for project success.

Studies carried out in Tanzania, Uganda, Nigeria, South Africa and Mozambique on causes and effects of risks, procedures, delays and disruptions in construction projects and managerial and environmental impacts resulting to project time and cost overruns

to project completion by various researchers such as Kikwasi (2012), Al-Tabtabai (2002), and Bennett and Gordon (1990) found out the major causes of delays and disruptions as; design changes, delays in payment to contractors, information delays, funding problems, poor project management, compensation issues and disagreement on the valuation of work done. Conversely, time overrun, cost overrun, negative social impact, idling of resources and disputes are the main effects of delays and disruptions. The studies suggested that there still exist a number of causes of delays and disruptions and their effects put construction projects at great risk that have an effect on their performance. The studies recommended that adequate construction budget, timely issuing of information, finalization of design and project management skills should be the main focus of the parties in project procurement process.

1.1.3 Local perspective

Kenya economy has enjoyed a high rate of economic growth for the past decade in East and Central Africa. In order to maintain her achievement for continual growth, Kenya seeks to provide more electricity, more roads and expansion of sanitation facilities, telecommunication networks, as well as large scale investment to expand its infrastructure. These projects have a major role to play in the economic development of a country. They are the building blocks for generating additional capital and for ensuring flow of goods and services to the nation. We have been investing large amount of money in projects related industries with a view to improve the socio-economic conditions of the people. These projects are designed with the aim of efficient management, earning adequate return to provide for future development with their own resources. Despite any types of project significant contribution to the economy of developing countries and the critical role it plays in the development of the countries, the performance of the project outcome in developing country still remains generally

low and poor. As Idoko (2008) noted that any projects in developing countries encounter considerable time and cost overruns, fail to realize their intended benefit or even totally terminated and neglected before or after their completion. Therefore Systematic improvement in project planning is required to improve the performance of project outcome. In addition, identifying the main problem areas in project planning activities and taking appropriate action is required. As far as the research is concerns, little or no research has been done in the country in this regard.

Majale (2009) noted that like many other countries, Kenya reformed its system of County Government with the aim of strengthening the capacity of county authorities to effectively fulfill their responsibilities particularly in regard to urban planning, management and service delivery and improving urban governances. The reasons for project delays, cost overruns and not meeting specifications in public or government projects have not yet been adequately investigated in local authorities or have not been published in the literature. In Kenya, the County Development Fund (CDF) was launched in year 2013 after the general election as depicted in the new constitution. The new constitution under devolved government, counties have been allocated funds with the help of Commission for Revenue Allocation. Article 216 mandates the Commission to make recommendations on the equitable basis for revenue sharing among county governments. The County Government Act places significant responsibilities on County Authorities, but also provides for legal, administrative and regulatory powers on the basis of decentralized authority. Since introduction of devolution in the country, there has been a tremendous increase in the number of construction projects in different counties in Kenya. Gwayo(2014) noted, there is a growing concern regarding the reasons why the requisite objectives are not achieved as per the projects' client's expectation. According to Kenya Urban Road Authority, (2013) reported there were

many projects which were not completed due to obstacles by client, non-availability of materials, poor infrastructure, lack of funds and lack of project managers competency. In most counties, most of the projects that were carried out were not completed in time due to slow progress on the work by contractors. Most counties accused the contractors of violating the terms and conditions of the tender. Failures of the contractors to meet the deadline lead to increase in cost of the project.

Under the act, Uasin Gishu County government authorities have responsibility for among other things, land use planning and delivery of infrastructure and social services. The county is also responsible for overseeing urban development, which is governed by various legislative acts. However, like any other county, Uasin Gishu County has experienced challenges in completing its projects which its carrying our moreso road projects due to lack of capacity and resources to carry out many of their functions and responsibilities. The county government projects are delayed or stalled affecting development growth and agriculture sector which is the main source of income in the area. According to Government of Kenya (2014), infrastructure plays a vital role in the economic development of the nation by increasing productivity and competitiveness. The second Medium Term Plan (2013-2017) has identified infrastructure as a key enabler for sustained growth and development under the Kenya Vision 2030 development agenda.

1.2 Statement of the Problem

Failure of project to be completed within the timeline is the main challenge in most developing countries; at least 79% of the executed project fails to meet its objective. The performance problems of project (cost overrun, time delay, quality deficiency) are caused by either in selection, planning, execution or control phase of the project and other factors. However, according to Richard (2012) one of the main reasons of project

failure in developing countries, Kenya included, is lack of effective planning processes. Similarly, some of the planning processes are neglected in Kenya projects, and the execution of the project is often started without developing project plan or poor project planning. The studied project confirms that most of the project in Ethiopia did not apply planning knowledge areas effectively for example Risk planning is implemented only in 20.35%, quality planning in 33.6%, communication planning in 44.2%, integration planning in 46.5%, and scope planning in 48.85%. The planning processes are according to PMBOK (2010), Antvik and Sjöholm (2007) highly important, and project execution without proper/poor/development of a project plan often causes delays, high costs and general execution problems in the project.

Project failures have significant effect from economic as well as political points of view. If the project takes longer time it requires additional resources, and budgets and this increases labor, material, machinery and equipment cost. This affects the budget of other projects and in general, it affects the economy of the country. Similarly, due to delay in project implementation the people and the economy have to wait for the provision of public and services facility longer than necessary. Thus failure of project limits the growth of the economy because the output provided by infrastructure, construction, manufacturing, IT projects serve as input for many other sectors of the economy. According to According Institute of certified public Accountants of Kenya devolution baseline survey (2014), Different counties indicate that they inherit poor infrastructure thus hindering them from effectively implementing their functions. Uasin Gishu County was listed by ICPAK among the five counties with less than 15% infrastructure growth, which affect growth and development in the county. According to Uasin Gishu County integrated development plan 2013-2017 Uasin Gishu County is facing development challenges where poor infrastructure is among the challenges.

Uasin Gishu County development has been hindered by poor infrastructure especially in areas where agriculture is practiced, although being among the 5 counties that had more than 25% priority to agriculture (ICPAK, 2014).

According to fiscal strategy 2016-2017 infrastructure in Uasin Gishu County will contribute 6.3% of the gross domestic products (GDP) in relation to Kenya vision 2030. However, without a decent plan and estimate, resources cannot be managed or organized, risks cannot be mitigated, dates and budgets cannot be forecasted, effective reporting cannot take place, and the measures of success will be imperfect from the beginning. According to PMI (2011) lack of an implemented project plan has caused problems in all project management areas and has made it impossible for the management team to have the required control of project activities. It is against this realization that the current study aimed to investigate influence of project planning on success of road construction projects within Uasin Gishu County.

1.3 Objective of the Study

1.3.1 General Objective

The aim of this study was to investigate influence of project planning on success of road construction projects within Uasin Gishu County.

1.3.2 Specific Objectives of the Study

This study aimed to focus on the following specific objectives:

1. To determine how project time planning influences the success of road construction projects within Uasin Gishu County
2. To evaluate the effect of project cost planning on the success of road construction projects in Uasin Gishu County
3. To assess the effect of project scope planning on the success of road construction projects within Uasin Gishu County
4. To find out the effect of project risk planning on the success of road construction projects in Uasin Gishu County.

1.4 Research Questions

The study was guided by the following research questions:

1. What is the effect project time planning on the success of road construction projects within Uasin Gishu County?
2. What is the effect of project cost planning influence the success of road construction projects within Uasin Gishu County?
3. What is the effect of project scope planning on the success of road construction projects within Uasin Gishu County?
4. What is the effect of project risk management influence the success of road construction projects within Uasin Gishu County?

1.5 Research Hypotheses

The study used the following hypotheses to test the regression model for the data analysis:-

- H₀₁ Project time planning has no significant effect on success of road construction projects within Uasin Gishu County.
- H₀₂ Project cost planning has no significant effect on success of road construction projects within Uasin Gishu County.
- H₀₃ Project scope planning has no significant effect on success of road construction projects within Uasin Gishu County.
- H₀₄ Project risk planning has no significant effect on success of road construction projects within Uasin Gishu County.

1.6 Significance of the study

This study will be of value to policy makers and academicians. The policy makers will use the recommendations of the study in coming with an effective model of involving the sectors stakeholders for effective work schedule. This study was intended to help construction professionals and corporate bodies increase the success of construction projects completion by managing well the factors that will help their successful completion. Government and individual architects, engineers, quantity surveyors, construction project managers and site agents will benefit from this study by applying the results of its findings while carrying out construction projects. Government funded and Project developers/clients will also benefit from the findings of this study and therefore achieve greater success in their construction projects. This is because they may apply the findings of this study in ensuring planning challenges faced in project implementations are successfully mitigated.

1.7 Limitations of the Study

The limitation of the study was that the cost incurred due to the vastness of the area which was required significant amount of time to collect adequate data, which the study has no control over. To overcome this limitation, the researcher contracted a research assistant. This ensured that the targeted population was reached.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter covered the literature review of the study as it was important to relate the study with different authors on the influence of project planning on success of road construction projects. The section is categorized into how project scope management, project time management, project communication management and project risk management influence implementation of optic fiber projects, theoretical framework, conceptual framework, research gap and summary of literature review.

2.2 Theoretical Framework

2.2.1 Complexity Theory

This study grounded on complexity theory. The complexity theory as discussed by Curlee & Gordon (2011) is based upon the management belief that total order does not allow for enough flexibility to address every possible situation. The complexity exists in projects. The complexity theory acknowledges that projects by nature have parts that work together as a system. Because of this, even though some people would be unhappy with the changes; a lot of processes have to result from the changes. Certain impediments have to be removed, certain procedures that would be unproductive have to be changed or modified.

Complexity theory states that critically interacting components self-organize to form potentially evolving structures exhibiting a hierarchy of emergent system properties (Lucas, 2009). During project life cycle, many team members will be concerned about how the project will end. The project team is behind schedule, the challenge of delays

and how the project will probably end over budget. This explains why changes in project are likely to happen.

Complexity theorists view projects in a different light: a project is nonlinear and dynamic where the project has within itself the capacity to interact with its environment resulting in a whole that cannot be understood by analyzing its constituent parts. This perspective mandates that project team members should not be viewed mechanistically, where control, order and predictability are common. Instead, project team members should be viewed as having more engagement and influence in the project team environment and processes in order to encourage learning, creativity and, most importantly, adaptation. This aids in the identification of the potential occurrences that would impede the smooth flow of the project in form of project risks in a timely way. The risks can be mitigated timely to ensure project performance.

2.2.2 Theory of Constraints

Theory of Constraints (TOC) in Project Management The primary challenge of project management is to achieve all of the project goals and objectives while honoring the preconceived project constraints, Lamb, Robert, Boyden (2002) typical constraints are scope, time, and budget. The secondary and more ambitious challenge is to optimize the allocation and integration of inputs necessary to meet pre-defined objectives. Goldratt (1984) in his theory of constraints asserts that any manageable system is limited in achieving more of its goal by a very small number of constraints, and that there is always at least one constraint. Theory of Constraints is based on the premise that the rate of goal achievement is limited by at least one constraining process. Only by increasing flow through the constraint can overall throughput be increased (Cox, Jeff; Goldratt, Eliyahu (1986).

Constraints can be internal or external to the system. An internal constraint is in evidence when the market demands more from the system than it can deliver. If this is the case, then the focus of the organization should be on discovering that constraint and following the five focusing steps to open it up (and potentially remove it). An external constraint exists when the system can produce more than the market will bear. If this is the case, then the organization should focus on mechanisms to create more demand for its products or services. Internal constraints are often caused by equipment, people and policies, McKinsey (2001). This theory has provided a substantially better insight into the dimensions and complexity of the problem facing WBSs in project management. It also equips the researcher with a complete and thorough justification of the subsequent steps as well as with a realization of the importance of undertaking the research. In traditional project practices, there is a very strong emphasis on cutting expenses. The Theory of Constraints considers cutting expenses to be of much less importance than increasing throughput. Cutting expenses is limited by reaching zero expenses, whereas increasing throughout has no such limitations.

2.2.3 Resource Based View Theory

The core premise of the resource-based view is that organizational resources and capabilities can vary significantly across firms, and that these differences can be stable (Kiprono, P. and Daniel, W, 2016). Firms with higher competitive advantage tend to create a sense of confidence in stakeholders that their support, whether financial or otherwise, will be valued and put into action. The resource-based view in outsourcing builds from a proposition that an organization that lacks important, uncommon, unique and organized resources and capabilities, shall seek for an external provider in order to overcome that weakness (Müller & Jugdev, 2012).

Stakeholders will want to be involved in projects that have the resources available well managed. Outsourced resources tend to facilitate the reduction of costs of the entire project. Thus, stakeholders can be convinced that the project managers are working towards the achievement of the project at minimum costs for maximum utility and benefit. In the context of the current study, the County Government - funded projects, in line with project management, undergo transformation.

In this case, the projects' inputs are in form of funds they get from the County Government Ministry of Finance and Planning. The funds are supposed to be implemented in order for the projects to be successfully completed. The outputs as illustrated by the project management theory are exemplified by the completed County Government projects. The performance in the case of the aforementioned projects is measured by how successfully the projects are completed. Crawford, (2010) study found out that project managers do not necessarily have the required competence or perform the full activities required to promote and implement the changes that they are leading as part of their projects. Resource-based theory recognizes the existence of cost factors and resources and therefore informs proper planning so as to realize proper utilization an allocation of the resources towards achieving the project objectives.

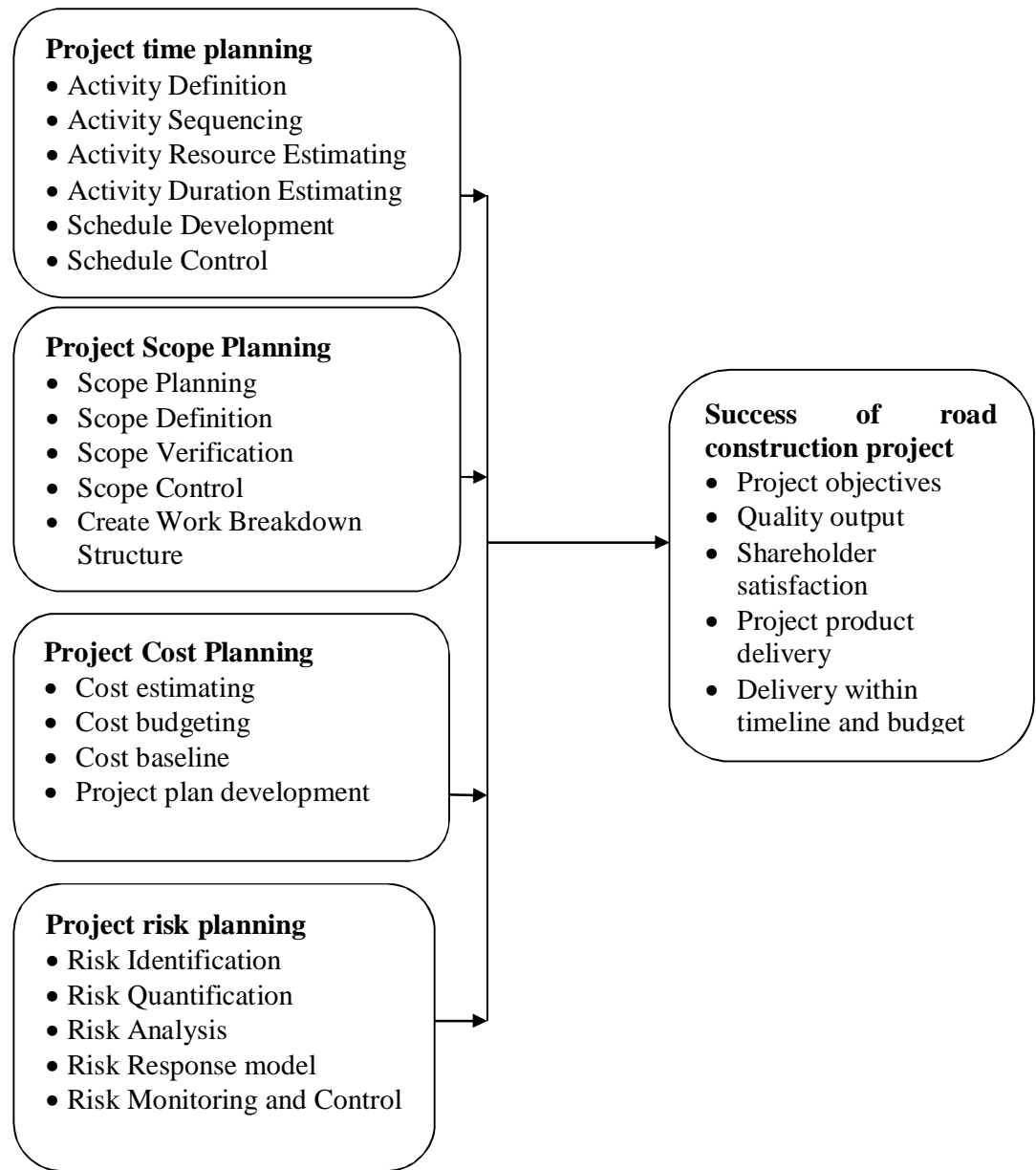
2.2.4 Network Theory

Decision-making processes are crucial in implementation of projects. Project managers should always communicate their projects through various media to do away with biasness while referring to similar projects (Olsson, 2008). This projects are exposed to numerous and interdependent risks of various nature, which makes their management more difficult. This theory aids in determining the power of social networks to improve health behavior sand methods that explain the influence of social networks on individual behaviour by mapping relationships within a community. This further

enables the stakeholders and the project team to have timely information and responses that as a result impacts positively on the project duration hence success.

2.3 Conceptual Framework

A conceptual is defined as an element of the scientific research process in which a specific concept is defined as a measurable occurrence or in measurable terms that basically gives a clear meaning of the concept (Mugenda & Mugenda, 2003). Conceptual framework is a diagrammatic presentation of the relationship between dependent and independent variables. In this study, the dependent variable is success of road construction projects while independent variables are project time planning, project scope planning, project risk planning and project cost planning.



Independent Variables

Dependent Variables

Figure 2.1 Project Planning on Success of Road Construction Projects

2.4 Review of Variables

2.4.1 Project Time Planning

Project scheduling is also referred to time planning which is a vital part of project implementation process. According to PMI (2013) project time planning is the processes required to manage timely completion of the project. Indeed, time planning is a process that records and controls time spent to finish each activity (PMI, 2013). Wideman (2010) defined time planning in a project as the function required to maintain appropriate allocation of time to the overall conduct of the project through the successive stages of its natural life-cycle, (concept, development, execution, and finishing) by means of the processes of time planning, time estimating, time scheduling and schedule control. Succeeding in a project does not mean signing a contract and expect that the project finish on time, on cost and according to the scope. To succeed in a project, it requires accurate project time/scheduling planning in all aspects. According to Chan *et al.*, (2014) project time management is considered one of the major contributors to project success and as the first step under the responsibility of project managers.

The output of project time planning process is a project schedule (Lines *et al.*, 2015). Project schedule allows the project manager to control the amount of time spent by each activity within the project. In project management includes a number of planning and controlling processes that should be applied to comply with the owners' requirements related to project time, cost, and quality (PMI, 2013). In fact, project management has evolved towards a sophisticated and comprehensive process that depicts the primary approach to succeed on the delivery of any project. Since knowledge on project management has been developing over time, several professional associations around

the world have issued guidelines and standards to put into practice such process. For instance, the Project Management Institute (PMI) has issued five editions of the PMBOK (Project Management Body of Knowledge) (PMI, 2013) while the Association for Project Management (APM) has so far released the sixth edition of the APM Body of Knowledge (PMI, 2013).

The standardization of the project management process contributes to disseminate best practices to improve project performance. Regarding the prevention of project delays, the PMBOK Guide dedicates one of ten Knowledge Areas to Project Time Management, which includes the processes required to accomplish timely completion of the project. This knowledge area includes processes such as Activity Definition, Activity Sequencing, Activity Resource Estimating, Activity Duration Estimating, Schedule Development, and Schedule Control. The appropriateness of Project Time Management can be seen as a relevant indicator that could be used to assess contractors' effectiveness and capability to succeed on the completion of a project and to evaluate contractors' performance (PMI, 2013).

The delays on the delivery of projects are seen as one of the most frequent problems in the construction industry (Sylvie, 2103). The aftermath of delays affects all people and organizations involved in the project. This is especially true for the owner's business since delaying the startup of the project will impede obtaining the expected project revenue and will increase financial costs. In addition, the owner may face several other difficulties resulting from the commitments assumed based on the delivery date established in the contract (Idoro, 2012). On the other hand, prolonging the project execution time usually results in contractors that have to deal with cost overruns due mostly to the following causes: extra expenses on management personnel, cost

escalations of materials, increase of financial cost, paying contract penalties, and so forth. Moreover, given the usual competitive environment in the construction industry, contractors that fail to complete projects on time may get their reputation harmed and become impeded to obtain new contracts.

Heldman (2011) conducted a study on project management excellence as the art of excelling in project management in Washington DC, USA. He found that time management is an important aspect of project implementation because it concerns keeping the project activities on track and monitoring those activities against the project plan to ensure that the project is completed on time. The processes that constitute project time management include the following: activity definition, activity sequencing, activity resource estimating, activity duration estimating, schedule development and schedule control. In a study conducted in Saudi Arabia by Al-Kharashi and Skitmore (2011) on causes of delays in Saudi Arabian public sector construction projects. The study found that the poor time management in construction projects is seen as one of the most frequent problems that hinder effective implementation of construction industry.

In Africa, Marzouk, El-Dokhmasey and El-Said (2011) did a study on assessing construction engineering-related delays in Egypt. The study found that aftermath of delays affects all people and organizations involved in the project. This is especially true for the owner's business since delaying the startup of the project will impede the implementation of the project and will increase financial costs. In addition, the owner may face several other difficulties resulting from the commitments assumed based on the delivery date established in the contract. PMAT (2015) conducted online poll in Tanzania on project management performance and results were, 46.2% partly successful, 33.3% failure, 8.6% successful. NMB bank has encountered also problems

in executing its IT related projects including cost overrun, and delay due to scope creep in implementing Microsoft Dynamics NAV ERP project of which initial requirements were not implemented on time (NMB ICT Audit Report, 2015).

A time schedule without control is fairly useless to the project organization. The control must be carried out regularly and relatively often in order to detect deviations early. This makes it possible for the project team to take necessary actions to avoid longer delays (Antvik & Sjöholm, 2007). The schedule control and development must be an iterative process in order for the project team to have updated schedules throughout the project (Guo-li, 2010). Estimating schedule activity durations uses information on scope of work, required resource types, estimated resource quantities, and resource calendars with resource availabilities. Inputs originate from the person or group on the project team who is most familiar with the nature of the work content in the specific schedule activity. Duration estimates are progressively elaborated, and the process considers the quality and availability of input data.

2.4.2 Project Cost Planning

Project cost planning knowledge area includes the processes of cost estimating and cost budgeting. The main objective of cost planning knowledge area is to complete the project within the approved budget (PMBOK, 2004). The project budget is very important and influences all areas in both planning and execution of a project. It is important to keep track of total costs as well as costs for different work packages in a project (Guoli, 2010).

A professional developed budget does not only control the project costs, but also creates good conditions for development of a well-functioning cash flow in the project. The consequence of insufficient cash flow in a project is often connected to large extra costs

and delays, as there is a high risk for a temporary stop of the whole project (Antvik & Sjöholm, 2007). The cost estimation should be based on the project scope, the WBS and be connected to the project plan. To reach a correct estimation it is important that each activity is estimated based on the conditions of the execution of the specific activity. Since there often are several factors that are uncertain in a project, a reserve cost can be assigned to activities with a low level of detailed information or work packages with potential high financial risks (Adisa Olawale & Sun, 2010).

Cost budgeting involves aggregating the estimated costs of individual schedule activities or work packages to establish a total cost baseline for measuring project performance. The project scope statement provides a summary budget. However, schedule activity or work package cost estimates are prepared prior to detailed budget requests and work authorizations. Management contingency reserves are budgets reserved for unplanned, but potentially required, changes to project scope and cost.

2.4.3 Project Scope Planning

Project scope management planning is a process to ensure that the project includes all the work required, and excludes the work that is not required, to complete the project successfully. This planning knowledge area consists of scope planning, scope definition, and creates WBS (PMBOK, 2004). The importance of a well formulated scope of work has been shown several times in different projects. It is not unusual that a project is rushed into start without the proper planning and preparation. This often leads to problems as extra costs and delays are likely to occur (Antvik & Sjöholm, 2007). A clear project scope facilitates for the project organization to realize the actual magnitude of the work and creates an understanding for the achievements that are required in the project (Briner, Hastings, & Geddes, 1996).

Scope planning is the process of elaborating the work that is needed to deliver the product of the project. It should be based on the product/output/ description and requirements from the customer (PMBOK, 2004). The outcome from the scope planning is the scope management plan that mainly describes how the project scope will be managed and how scope changes will be integrated into the project (Gupta, Aha, Nau & Munoz-Avila, 2008). Defining the project scope significantly influences the project's overall success. The development of the project scope management plan and the detailing of the project scope begin with analysis of information contained in the project charter the preliminary project scope statement, the latest approved version of the project management plan, historical information contained in organizational process assets, and any relevant enterprise environmental factor.

The scope of work is defined very early in the project planning and estimation phases. Fageha and Aibinu, (2013) stated that an incomplete scope definition in early stages of a project's life cycle is a common source of difficulty in project implementation process. Karl (2014) adds that a well-defined scope sets expectations among the project stakeholders. The scope definition helps the project manager assess the resources needed to implement the project and make realistic commitments. Controlling and managing scope change is critical to the success of any project, as scope changes can significantly impact the cost, schedule, risks and quality of the entire effort. Knapp (2011) states that failing to clearly define and manage project scope are one of the most common reasons that can cause projects to fail. A well-defined project scope enables successful completion of a project within the planned time, budget, and quality parameters. In the field of project management, scope definition is carried out during the pre-planning phase, which is a period that requires investing a substantial amount of time and resources in activities leading to the final investment decision. This effort

is proven to be an effective way of increasing the chances of project success while significantly decreasing the risks that could arise during project implementation.

In the scope definition, the project's major deliverables/products/ and conditions documented in the scope statement are analyzed. The analysis should be based on needs and expectations from stakeholders, and thereby generate requirements of the project (Gupta, Aha, Nau, & Munoz-Avila, 2008). When more specified requirements are known, the deliverables are subdivided into smaller, more manageable groups, through the use of a Work Breakdown Structure. By dividing major tasks into smaller work packages, the accuracy of cost, time and resource estimates are improved. A WBS also makes it easier to assign clear responsibility to each group of tasks, which is necessary in order for the project organization to gain control of the project (Antvik & Sjöholm, 2007).

In project management, stakeholders would be looking at the completion of the project and how it produces intended outcome. The completion is good when it comes out as was expected. And also the outcome is good when it does not bring in unexpected work and cost. This is why before a project begins, there is necessity for having clearly defined requirements for its acceptance. Defining and planning a project are necessary in successfully managing a project. The agreed work to be delivered has to be completed within the timeframe and budget allocated which in other words is the scope management. The scope management is to ensure that all the work required, and only the work required to complete the project, is included in the project throughout the life of a project. The project scope management is management of the process required to ensure that the project includes all the work required and to complete the project successfully, (Ghosh, 2007).

Nguyen (2010) states that part of the work-the-plan process is preparing for the inevitable fact that, once the project starts, the client will probably end up asking for more (or different) work than what was originally agreed to. This is why scope-change management is used. Scope can change for a number of reasons including internal factors (stakeholder requires insight into a problem), or external factors (government regulations, market conditions). Harrington and McNellis (2006) argue one of the most common reasons for project failure is the inability to properly define or effectively manage scope. The prime focus for the Project manager should not be to deliver the agreed scope on time and on budget, but to optimize the benefit that is generated by the project. If that means allowing the scope to change then that scope change is a good thing, not a bad thing.

2.4.4 Project Risk Planning

Risk management is one of the nine knowledge areas propagated by the Project Management Institute (PMI, 2013). Risk management is a comprehensive and systematic way of risk identification, risk analysis and risk response with a view to achieving the project objectives (ICE, 2005). Risk is often referred to as the presence of potential or actual threats or opportunities that influence the objectives of a project during implementation, commissioning, or at time of use (ICE, 2005). Mitigating risk by lessening their impact is a critical component of risk management. Implemented correctly, a successful risk mitigation strategy should reduce adverse impacts. In essence, a well-planned and properly administered risk mitigation strategy is a replacement of uncertain and volatile events with a more predictable or controlled response (Chapman & Ward, 2007).

The main objectives of project risk management is to increase the probability and impact of events that are positive to the project and decrease the probability and impact

of events that are negative to the project (Wallace & Blumkin, 2007). Risk planning includes risk identification, qualitative and quantitative risk analysis, and risk response planning. All projects have uncertainties that can either turn out to be an opportunity or a risk. Uncertainties often occur in areas where the management has little information of the current conditions. By effective management many uncertainties can be evolved into an opportunity rather than a risk (Antvik & Sjöholm, 2007). Risk analysis is often carried out early in a project when the information is highly limited within several areas. To manage risks and opportunities effectively, the analysis must be iterated throughout the project as more and more information becomes clear to the management team (Kululanga & Kuotcha, 2010).

The purpose of a risk analysis is to gain control of the uncertainties in the project. When risks are identified it is therefore important that a strategy is developed in order to respond to the risk. A response strategy can be to eliminate the probability or impact of a risk, or to accept the risk and calculate with a potential extra cost if the risk occurs (Kululanga & Kuotcha, 2010). A common and effective approach to analyze risks is to estimate the probability and impact of a risk. The risk response is then based on the combined value of each risk, which leads to a risk management where the response is in relation to the magnitude of the risk (Briner, Hastings, & Geddes, 1996).

Risk identification determines which risks might affect the project and documents their characteristics. All persons associated with a project should be encouraged to identify risks. It is important to have the project team involved in the identification process so that they can develop and maintain a sense of ownership and responsibility for the project risks and associated risk response actions. Quantitative risk analysis is performed on risks that have been prioritized by the qualitative risk analysis process as potentially and substantially impacting the project's competing demands. Quantitative

risk analysis assigns a numerical rating to risks and applies quantitative approaches to making decisions in the presence of uncertainty using such techniques as Monte Carlo simulation and decision tree analysis.

2.5 Critiques of the Existing Literature

One of the most important phases of project management is the “Planning phase”, in which all work to be done is determined and defined. Planning is the most time consuming set of activities but valuable if done properly. In this phase, many different techniques are used, such as tables, work breakdown structure (WBS), charts and networks. Bigelow (2011) claims that planning is the most important yet most undervalued element of project management. It is perceived as being the map that sets the direction for a project. It is critical to the project management process because it forms the basis for the project scope, schedule, resources, quality, risk and integration. Griffith and Gibson (2012) found that greater project planning efforts lead to improved performance on projects in the areas of cost, schedule, and operational characteristics.

Hamilton and Gibson (2013) have shown the importance of project planning on projects and its influence on project success. Findings of their study have proven that higher levels of project planning effort can result in significant cost and schedule savings. Success in any endeavor requires careful preparation and planning and without proper planning and preparation, failure is almost guaranteed. Anyone who has ever undertaken a complex task already has learned the importance of careful planning. Good planning conserves resources, prevents wasted effort, and saves time and money, prevents small problems from becoming big problem, it establishes a solid foundation for the remaining managerial functions.

The study by Cleland and King, (2003); Baker et al., (2004); Milis and Mercken, (2006); Dvir et al. 2008) provides much evidence that a well-set project plan plays a vital role in project success. For any project, Keider's research indicated that the lack of good project planning is ranked as the most likely single cause of project failure (Keider, 2004). Effective planning is more than just setting up an elaborate plan at the start of a project. According to Kerzner (2006) the primary driver behind project planning is uncertainty reduction which was supported by Zwikael and Sadeh (2007). Planning allows the project team to address different factors such as quality, cost, schedule, performance and supportability that determine project success or failure (Akinsola, 2007). Therefore proper planning is a key project driver for success. The success of any organization's project implementation depends on thoughtful planning (Tomlinson, 2010).

Different study confirms the importance of project planning for project successes. For example the research works by (Whittaker 1999), (Dvir, Raz and Shenhar 2003) have indicated poor project planning to be one of the reason for project failure in developing countries. Regarding the factors influencing the project outcomes, Whittaker (1999) revealed three common reasons for project failures the first reason is poor project planning/improper planning/or the project plan was weak. Aladwani (2002) also reported a positive relationship between project planning and project performance. Dvir, Raz and Shenhar (2003) have also studied the relationship between project planning effort and project success. Their results indicated that there is a high correlation between the planning efforts and overall project success. Although the previous studies have considered many factors that influence project outcomes, but planning was mentioned as an important factor for project success

There are different criteria for evaluating project performance. Project success was measured on the bases of time, cost and quality (Navarre and Schaan, 1990). Atkinson (1997) identified these three criteria as the 'Iron Triangle'. He further suggests that while some different definitions about project management have been made, the criteria for success, namely cost, time and quality remain and are included in the actual description. Apart from these three basic criteria Pinto & Pinto (1991) supported that measures for project success should also include project psychosocial outcomes, the satisfaction of interpersonal relations with project team members. The inclusion of satisfaction as a success measure can also be found earlier in the work of Wuellner (1990), Kumaraswamy and Thorpe, (1996) included a variety of criteria in their study. These include meeting budget, schedule, and quality of workmanship, client and project manager's satisfaction, transfer of technology, friendliness of environment, health and safety. Different literature suggests that different criteria were hypothesized by different researchers.

2.6 Research Gap

Construction projects are notorious for failing to complete in time being over budgeted, late and saddled with scope creep, as well as for poor communication protocols and inadequate controls around scope change management this especially pronounced in nonprofit organizations (Guerin, 2012). Timely completion of construction project is fundamental if the project objectives and success is to be achieved. A project that is completed in time exhibits overall efficiency of project planning, management and implementation and effective tracking project progress.

There are different causes for project failure or to fall short of realizing its full potential. It is major and most common problem faced by many projects and become abundant on some stage of its completion. Mostly, such problems result from a lack of proper

planning. A complex project, such as a road project will be likely fail without a plan. Without adequate planning, it is difficult to really understand what it will take to complete a project successfully. Planning is used to put the project back on track if it deviated from the plan and also it is used to control a project and establishing a baseline with which to gauge progress. Without planning, there is no control (Anton, 2003).

In as much as there are few projects that have been established in Africa as compared to the rest of the world, actually evaluate the success of these projects (Vander, 2004). Equally there is limited literature on the factors that influence successful completion of such projects in Africa and in Kenya specifically. Indeed, without determining the influence of planning process and factors that affect the success of these projects, implementers of these projects cannot be able to show evidence of the benefits of such projects and whether these projects are actually helping to achieve better services to the population. Therefore this research seeks to investigate influence of project planning on success of road construction projects within Uasin Gishu County.

2.7 Summary

This chapter looks at the literature review which included the discussion of previous studies done by other scholars in relation to project planning on success of construction project. The study discussed the theories that are related to the study which includes Complexity Theory, Theory of Constraints, Resource Based View Theory and Network Theory. Complexity theory states that critically interacting components self-organize to form potentially evolving structures exhibiting a hierarchy of emergent system properties. Complexity theorists view projects in a different light: a project is nonlinear and dynamic where the project has within itself the capacity to interact with its environment resulting in a whole that cannot be understood by analyzing its constituent

parts. Theory of Constraints is based on the premise that the rate of goal achievement is limited by at least one constraining process. This theory provides a substantially better insight into the dimensions and complexity of the problem facing WBSs in project management. Resource Based View Theory states that organizational resources and capabilities can vary significantly across firms, and that these differences can be stable. Resource-based theory recognizes the existence of cost factors and resources and therefore informs proper planning so as to realize proper utilization an allocation of the resources towards achieving the project objectives. Network Theory states that project managers should always communicate their projects through various media to do away with biasness while referring to similar projects. This theory aids in determining the power of social networks to improve health behavior sand methods that explain the influence of social networks on individual behaviour by mapping relationships within a community.

There are a number of variables potentially determine success of construction project. To succeed in a project, it requires accurate project time/scheduling planning in all aspects. According to Chan *et al.*, (2014) project time management is considered one of the major contributors to project success and as the first step under the responsibility of project managers. The project budget is very important and influences all areas in both planning and execution of a project. It is important to keep track of total costs as well as costs for different work packages in a project (Guoli, 2010). The importance of a well formulated scope of work has been shown several times in different projects. It is not unusual that a project is rushed into start without the proper planning and preparation (PMBOK, 2004). Risk management is a comprehensive and systematic way of risk identification, risk analysis and risk response with a view to achieving the project objectives (ICE, 2005).

The study also provides the critique of literature such as Bigelow (2011) claims that planning is the most important yet most undervalued element of project management. It is perceived as being the map that sets the direction for a project. It is critical to the project management process because it forms the basis for the project scope, schedule, resources, quality, risk and integration. Indeed, without determining the influence of planning process and factors that affect the success of these projects, implementers of these projects cannot be able to show evidence of the benefits of such projects and whether these projects are actually helping to achieve better services to the population.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter outlines the overall methodology that was used in this study. This included the research design, population of the study, sample size, sample frame, data collection methods, research procedures and data analysis and presentation.

3.2 Research Design

The study employed descriptive research design. Descriptive research described data and characteristics about the population or phenomena being studied. Descriptive research answers the questions who, what, where, when and how (Pervez & Kjell 2005). In context, the research tends to lie more on quantitative approach than on qualitative one. The aspect that views collected was from the players' point of view, their own subjective frames of reference, necessitates a qualitative approach. For the attainment of the objectives, it was essential that the dealers' own subjective perspectives are captured. Chandran (2004) describes research design as an understanding of conditions for collection and analysis of data in a way that combines their relationships with the research to the economy of procedures. Krishnaswamy (2009) suggests that research design deals with the detailing of procedures that was adopted to carry out the research study. Mugenda and Mugenda (1999) on the other hand give the purpose of descriptive research as determining and reporting the way things are Borg & Gall (1989).

3.3 Target Population

Target population is defined as all the members of a real or hypothetical set of people, events or objects to which a researcher wishes to generalize the results of the research study (Borg & Gall, 1989). The study was carried out in Uasin Gishu County. Currently

there are 15 Government road Projects be carried out in Uasin Gishu County. Therefore, the target population for this study consisted of employees in all the 15 Government road projects in the Uasin Gishu County that are going on. From each government construction projects in the Uasin Gishu County, the study targeted the following members either Government architects, structural engineers, civil engineers, construction project managers, mechanical engineers, electrical engineers, quantity surveyors, land surveyors and contractors on site.

3.4 Sample Size and Sampling Technique

Sampling means selecting a given number of subjects from a defined population as representative of that population. Any statements made about the sample should also be true of the population (Orodho, 2002). Mugenda and Mugenda (2003) recommend that when the target population is small (less than 1000 members), a minimum sample of 30% is adequate for research. Since the sample the target population of this study is small and manageable, the study adopted census where all 51 respondents were involved in the study.

3.5 Data Collection

The main tools of data collection for this study were questionnaires where primary data was collected. The questionnaire was used for data collection because it offers considerable advantages in the administration. It also presented an even stimulus potentially to large numbers of people simultaneously and provided the investigation with an easy accumulation of data. Gay (1992) maintains that questionnaires give respondents freedom to express their views or opinion and also to make suggestions.

3.6 Data Collection Procedures

The data was collected by the use of questionnaires to collect both quantitative and qualitative information. The questionnaire contained semi-structured questions since they are easy to analyze. The questionnaires were self-administered using give and take method.

3.7 Pilot testing

Key informants in the categories of respondents were used in the pilot test to establish the reliability and validity of the instrument, the questionnaires were administered to the key informants and the information analyzed to establish its validity and reliability. Any questions within the instrument found to be resulting in unreliable or invalid information was altered in order to result in more reliable and valid information.

3.7.1 Validity of Research Instruments

Validity, according to Borg and Gall (1989) is the degree to which a test measures what it purports to measure. According to Borg and Gall (1989) content validity of an instrument is improved through expert judgment. Construct validity deals in how questions in the questionnaires were prepared in terms of being clear and not vague. As such, the researcher sought assistance of the assigned supervisor, who, as an expert in research, will help in improving content validity of the instrument. According to Kothari (Kothari, 2004), validity is the degree to which an instrument measures what it is supposed to measure. Therefore, the term refers to the extent to which an instrument asks the right questions in terms of accuracy. The content validity of the research instrument for this study was determined through piloting, where the responses of the subjects were checked against the research objectives. For a research instrument to be considered valid, the content selected and included in the questionnaire must be relevant to the variable being investigated. The researcher performed the pilot test to 5

respondents who were randomly selected but was not included in the final study. Content validity of the instrument is tested using a research expert's opinion, who involved the research supervisor. The research expert would independently judge the validity of the items in the questionnaire in relation to research objectives.

3.7.2 Reliability of Research Instruments

Reliability is concerned with the question of whether the results of a study are repeatable. A construct composite reliability co-efficient (Cronbach alpha) of 0.7 or above, for all the constructs, was considered to be adequate for this study. The acceptable reliability coefficient is 0.7 and above (Rousson, Gasser and Seifer, 2002). Cronbach Alpha was used to test the reliability of the research instrument.

3.8 Data Analysis and Presentation

Data was collected, examined and checked for completeness and clarity. The data was collected and analyzed quantitatively. Numerical data was collected using questionnaires which were coded and entered and analyzed using descriptive statistic with the help of Statistical Package for Social Scientists (SPSS) programme 21. Frequency tables with varying percentages were used to present the findings and tables of mean and standard deviation obtained from SPSS was also be used to represent the findings.

Qualitative data was analyzed based on the content matter of the responses. Responses with common themes or patterns were grouped together into coherent categories. Descriptive statistics involved use of absolute and relative (percentages) frequencies, measures of central tendency and dispersion (mean and standard deviation respectively). Quantitative data was presented in tables and graphs and explanation was presented in prose. In addition, the researcher used multiple regression analysis to

establish the strength of the relationship between the dependent and independent variables.

The regression equation is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Where: **Y** is the dependent variable (Success of road construction project),

β_0 is the regression coefficient/constant/**Y**-intercept,

β_1 , β_2 , β_3 and β_4 are the regression coefficients to be estimated,

X_1 is the project time planning

X_2 is the project scope planning,

X_3 is the project cost planning,

X_4 is the project risk planning,

e is an error term normally distributed about a mean of 0 and for purpose of computation, the **α** is assumed to be 0.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter discusses the interpretation and presentation of the findings. The purpose of the study was to analyze influence of project planning on road construction projects performance in Uasin Gishu County, Kenya. The researcher made use of frequency tables and figures to present data. The finding was intended on answering the study's research questions. Data composed was collated and reports were produced in form of tables and figures and qualitative analysis done in prose.

4.2 Response Rate

The study targeted a sample of 51 respondents' from the government road construction projects in Uasin Gishu County. However, out of 51 questionnaires distributed 47 respondents completely filled in and returned the questionnaires, this represented a 92 percent response rate. This is a reliable response rate for data analysis as Mugenda and Mugenda (2003) pointed that for generalization a response rate of 50 percent is adequate for analysis and reporting, 60 percent is good and a response rate of 70 percent and over is excellent. However, 8 percent of the respondent gave their response but they were filled incorrectly where most of the respondents had given multiple responses where only one response was required.

Table 4.1 Response Rate

Response	Frequency	Percentage (%)
Filled in questionnaires	47	92
Un returned questionnaires	4	8
Total	51	100

4.3 Demographic Characterization of the Respondents

This section analyses demographic characteristics of the respondent such as level of professionalism of the respondent, duration of working and highest level of education of the respondent.

4.3.1 Level of Professionalism

The study aimed to investigate respondents' level of professionalism in the project planning process. From the findings (30 percent) of the respondents were civil engineers, 17 percent were director, 13 percent were project manager, inspectors and surveyor as shown in each case, 11 percent were supervisor while 2 percent were electrical engineer and foreman. Holbrough (2008) recommended that ranks or position one held in the workplace leads to easier application of planning approaches adopted in any operation or implementation process. This illustrates that all participants of the study were under the level to which the study targeted as stipulated in previous chapter.

Table 4.2 Level of Professionalism

Level of professionalism	Frequency	Percent
Directors	8	17
Civil Engineers	14	30
Electrical Engineers	1	2
Project Managers	6	13
Inspectors	6	13
Supervisors	5	11
Surveyors	6	13
Foremen	1	2
Total	47	100

4.3.2 Duration of Working in Road Construction

The study aimed to investigate the duration the respondents has worked in the road construction. From the findings, 40 percent of the respondents pointed out that they have worked in the road construction projects for a period of 1-5 years, 38 percent had worked for 6-10 years, and 19 percent had worked in the road project for a period of 11-15 years while 2 percent had worked for more than 16 years.

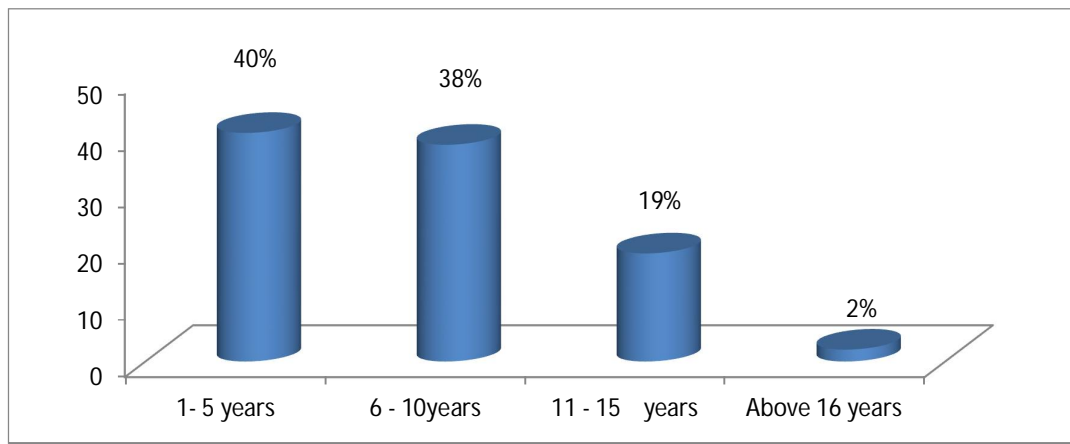


Figure 4.1 Duration of Working in Road Construction

4.3.3 Education Level of the Respondents

The researcher was also inquisitive to determine the highest level of the academic qualification that the respondent held. Table 4.3 shows the findings of the result, majority (55 percent) of the respondents were undergraduate, 30 percent held diploma as their highest level of education, 13 percent of the participant were post graduate while 2 percent had certificates. Perrett (2003) pointed that academic qualification of the staff in an organization enhances their ability to handle their tasks and also to understand any working formula developed in work place. This depicts that most of the staffs working at road construction projects had relevant knowledge that is required in project planning process.

Table 4.3 Education Level of the Respondents

Education Level	Frequency	Percent
Post Graduate	6	13
Diploma	14	30
Undergraduate	26	55
Certificate	1	2
Total	47	100

4.4 Project Time Planning

4.4.1 Consideration Project Time Planning

The study requested the respondent to indicate whether their organization consider project time planning when doing road construction. From the findings, 98 percent of the respondents pointed out that their organization consider project time planning in road construction projects while (2 percent) indicted that the organization do not care much on project time planning.

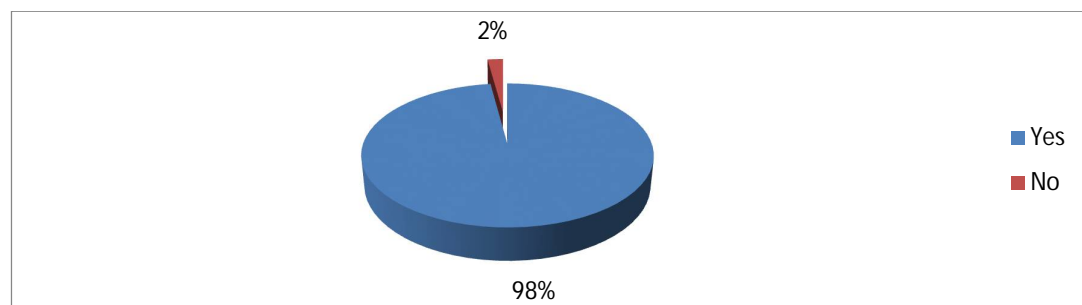


Figure 4.2 Consideration Project Time Planning

4.4.2 Completion of the Projects in Time

The study requested respondents to indicate whether they managed to complete other construction projects within the projected time. From the findings, 89 percent indicated

that they managed to complete previous road construction project within the stipulated time while the rest (11 percent) indicated that they did not manage to complete the projects within the time planned.

Table 4.4 Completion of the Projects in Time

Timely Completion	Frequency	Percent
Yes	42	89
No	5	11
Total	47	100

4.4.3 Influence of Project Time Planning on Road Construction Projects

Table below illustrates the finding of the study on the respondents’ level of agreement on the aspects relating to influence of project time planning on road construction projects. The measurement was done on a Likert scale which ranged from 1-To no extent, 2-To a little extent, 3-to a moderate extent, 4-to a great extent and 5-to a Note, measurement was done on a Likert scale which ranged from 1- strongly disagree, 2- disagree, 3- somewhat agree, 4- agree, 5- strongly agree. The data was represented using frequency and percentage. From the findings, majority 51 percent of the respondents strongly agreed that identifying and documenting the specific activities to be performed to produce the project deliverables is key in project management, 34 percent agreed, 9 percent disagreed while 6 percent strongly disagreed with the statement. Majority 51 percent of the respondents agreed that in the project management, activities sequence is key as it defines the logical sequence of work to obtain the greatest efficiency given all project constraints, 38 percent strongly disagreed, and 6 percent strongly disagreed while 4 percent were neutral with the statement. On resources estimating, most 43 percent of the respondents agreed that the

success of the project management is significantly influenced by the resources assigned to them, 40 percent strongly agreed, 11 percent strongly disagreed, 4 percent disagreed while 2 percent were neutral with the statement. To activity duration, most 47 percent of the respondents agreed that activity duration estimates helps to quantify assessments of the likely number of work periods that will be required to complete an activity, 34 percent strongly agreed, 11 percent disagreed, while 9 percent were neutral with the statement. On the schedule development, majority 57 percent of the respondent agreed that the schedule development process in a project management must often be iterated prior to determination of the project schedule, 28 percent strongly agreed, 9 percent strongly disagree, 4 percent were neutral while 2 percent disagreed with the statement. To schedule control, most 40 percent of the respondent strongly agreed and agreed that the ability of project management team to track planned dates versus actual dates and to forecast the effects of schedule changes, real or potential, makes it a useful tool for schedule control, 11 percent strongly disagreed, 6 percent were neutral while 2 percent disagreed with the statement. From the findings it is clear that schedule development, schedule development and activity definition are the main aspects of Project time planning that influence success of road construction projects.

Table 4.5 Influence of Project Time Planning on Road Construction Projects

Statement	%	SD	D	N	A	SA	Total
Identifying activities to be performed to produce the project deliverables is key in project management.	%	6	9	0	34	51	100
Activities sequence is key in a project as it defines the logical sequence of work to obtain the greatest efficiency given all project constraints.	%	6	0	4	51	38	100

The success of the project management is significantly influenced by the resources assigned to them	%	11	4	2	43	40	100
Activity duration estimates helps to quantify assessments of the likely number of work periods that will be required to complete an activity.	%	0	11	9	47	34	100
The schedule development process in a project management must often be iterated prior to determination of the project schedule.	%	9	2	4	57	28	100
The ability of project management team to track planned dates versus actual dates and to forecast the effects of schedule changes, real or potential, makes it a useful tool for schedule control.	%	11	2	6	40	40	100

4.4.4 Extent that Project Time Planning Influences Road Construction Projects

Table 4.6 shows results of the findings on the extent to which project time planning influences road construction projects. From the findings, (49 percent) of the respondents were of the opinion that project time planning influences road construction projects to a very great extent, 29 percent purported that project time planning influences road construction projects to a great extent while 16 percent alleged that project time planning influences road construction projects to a moderate extent, 4 percent to a moderate extent while 2 percent to a little extent.

Table 4.6 Influences of Project Time Planning on Road Construction Projects

Effect of Timely Planning	Frequency	Percent
Very Little Extent	7	16
Little Extent	1	2
Moderate	2	4
Great Extent	14	29
Very Great Extent	23	49
Total	47	100

4.5 Project Scope Planning

4.5.1 Influence of Project Scope Planning on Success of Road Construction Projects

The study further aimed to investigate whether project scope planning influences success of road construction projects. Figure 4.3 shows the results of the findings, majority (98 percent) of the respondents indicated that project scope planning influences success of road construction projects while 2 percent were of the opinion that project scope planning does not influences success of road construction projects.

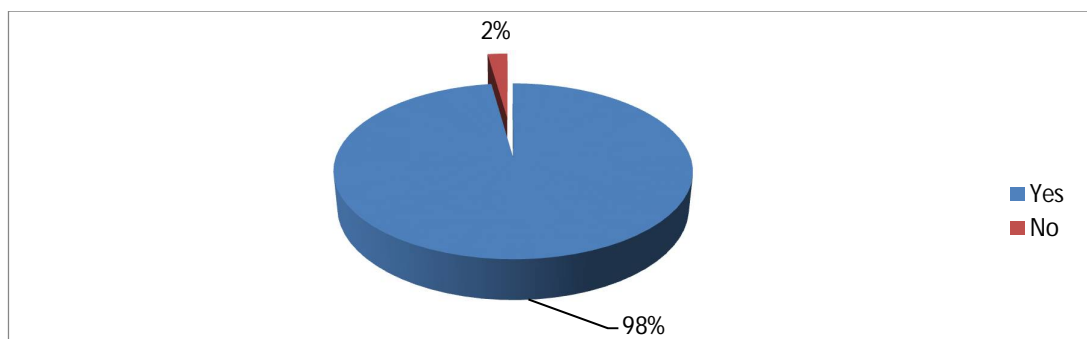


Figure 4. 3 Project Scope Planning and Success of Road Construction Projects

4.5.2 Aspects of Project Scope Planning on Success of Road Construction Projects

Table 4.7 summarizes respondents' level of agreement on aspects relating to project scope planning and how they influence success of road construction projects. On scope planning, most 40 percent of the respondents strongly agreed and agreed that the practice of scope planning is key in management practices for planning and delivering project successfully while 6 percent strongly disagreed, disagreed and were neutral with the statement. To the scope definition, most 49 percent of the respondents strongly agreed that definition of project scope helps in identifying major project work components, deliverables, and requirements, 28 percent agreed, 13 percent were neutral, 9 percent strongly disagreed while 2 percent disagreed with the statement. On scope verification, 55 percent agreed that scope verification helps to defines how project work will be confirmed and ultimately accepted by the client, 26 percent strongly disagreed, 11 percent were neutral, and 4 percent disagreed and strongly disagreed with the statement as shown in each case. To scope control, majority 57 percent agreed that estimating a mechanism for controlling project scope is critical to project success, 28 percent strongly agreed, 9 percent were neutral, 4 percent strongly disagree while 2 percent disagreed with the statement. On creation of Work Breakdown Structure, most of the respondents (40 percent) strongly agreed that creating Work Breakdown Structure provides the necessary framework for detailed cost estimating and control, 38 percent agreed, 11 percent were neutral, 9 percent strongly disagree while 2 percent disagreed with the statement.

Table 4.7 Project Scope Planning and Success of Road Construction Projects

Statement	%	S	D	N	A	SA	Total
			D				
The practice of scope planning is key in management practices for planning and delivering project successfully.	%	6	6	6	40	40	100
Definition of project scope helps in identifying major project work components, deliverables, and requirements	%	9	2	1	28	49	100
Scope verification helps to defines how project work will be confirmed and ultimately accepted by the client.	%	4	4	1	55	26	100
Estimating a mechanism for controlling project scope is critical to project success	%	4	2	9	57	28	100
Creating Work Breakdown Structure provides the necessary framework for detailed cost estimating and control.	%	9	2	1	38	40	100

4.5.3 Extent to which Project Cost Planning Influences success of Road Construction Projects

The researcher further aimed to investigate the extent to which project cost planning influences success of road construction projects. Most (44 percent) of the respondents strongly agreed that project cost planning influences success of road construction projects, 38 percent agreed, 16 percent strongly disagreed and 2 percent were neutral that project cost planning influences success of road construction projects.

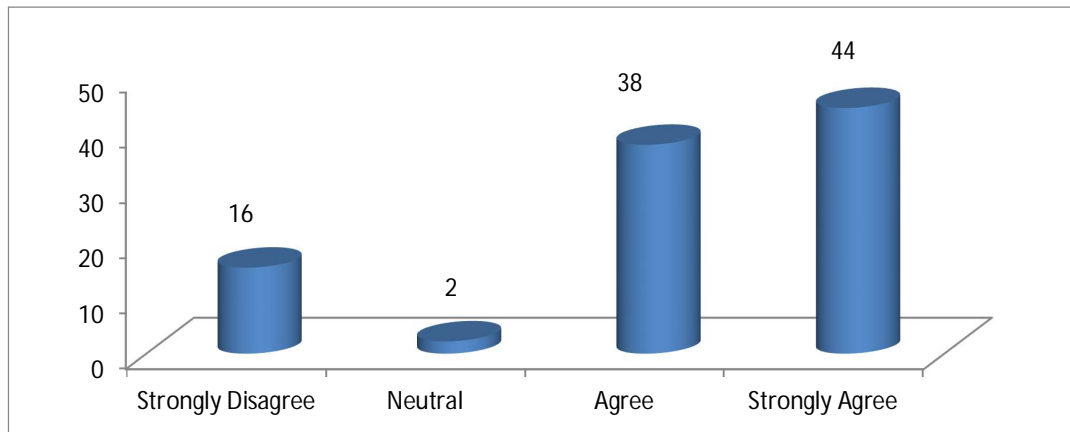


Figure 4.4 Project Cost Planning and success of Road Construction Projects

4.6 Project Cost Planning

4.6.1 Project cost planning and Success of Road Construction Projects

The study requested the respondent whether project cost planning influences success of road construction projects. From the findings, all (100 percent) of the respondents indicated that indeed project cost planning influences success of road construction projects.

4.6.2 Aspects of Project Cost Planning on Success of Road Construction Projects

Table 4.8 illustrates the finding of the study on the respondent level of agreement on whether project cost planning influence success of road construction projects. From the findings, most 47 percent of the respondents agreed that cost management plan is developed to describes how cost variances will be managed on the project to make it successful, 32 percent strongly agreed 9 percent were neutral and strongly agreed as shown in each case while 4 percent disagreed. On cost estimating, 43 percent of the respondent strongly agreed that allocating the overall cost estimate to individual work items to establish a baseline for measuring success of project is key, 9 percent were neutral while 6 percent strongly disagreed with the statement. To cost baseline, 43

percent of the respondent agreed that they ensure projects that only have appropriate project changes are included in a revised cost baseline, 32 percent strongly agreed, 13 percent were neutral, 11 percent disagreed while 2 percent strongly disagreed with the statement. On project plan cost, most 45 percent of the respondents agreed that developing a project plan is one of the important control instrument in measurement of whether the project has reached its goal, 40 percent strongly agreed 6 percent were neutral and disagreed as shown in each case while 2 percent strongly disagreed. To the cost estimate, most 45 percent of the respondent agree that to ensure project success, we conduct cost estimate of the costs of the resources needed to complete project activities, 38 percent strongly agreed, 9 percent strongly disagreed, 6 percent were neutral while 2(1) disagreed with the statement. On project labour resources, most 40 percent of the respondent agreed that identifying situations where project labor resources are being used ensure smooth flow of the project and its success, 38 percent strongly agreed, 11 percent were neutral and 6 percent disagreed while 4 percent strongly disagreed with the statement.

Table 4.8 Project Cost Planning and Success of Road Construction Projects

Statement	%	SD	D	N	A	S	Tota
						A	I
Cost management plan is developed to describes how cost variances will be managed on the project to make it successful	%	9	4	9	47	32	100
Allocating the overall cost estimate to individual work items to establish a baseline for measuring success of project is key	%	6	0	9	43	43	100

we ensure that only appropriate project							
changes are included in a revised cost	%	2	11	13	43	32	100
baseline							
Developing a project plan is one of the							
important control instrument in measurement	%	2	6	6	40	45	100
of whether the project has reached its goal							
To ensure project success, we conduct cost							
estimate of the costs of the resources needed	%	9	2	6	45	38	100
to complete project activities							
Identify situations where project labor							
resources are being used ensure smooth flow	%	4	6	11	40	38	100
of the project and its success							

4.6.3 Influences of Project Cost Planning on Success of Road Construction Projects

Figure 4.5 illustrates the findings of the study on the influences of project cost planning on success of road construction projects. Majority (47 percent) of the respondents' strongly agreed that project cost planning influences success of road construction projects, 38 percent agreed while 16 percent strongly disagree that project cost planning on success of road construction projects.

4.7 Project Risk Planning

4.7.1 Project Risk Planning Influences Success of Road Construction Projects

The study requested the respondent to indicate whether project risk planning influences success of road construction projects. From the findings, 96 percent of the respondents

pointed out that project risk planning influences success of road construction projects (4 percent) indicated that project risk planning does not influences success of road construction projects.

Table 4.9 Project Risk Planning Influences Success of Road Construction Projects

Influence of Risk Planning	Frequency	Percent
Yes	44	96
No	3	4
Total	47	100

4.7.2 Aspects of Project Risk Planning on the Success of Road Construction Projects

The researcher requested the respondents to indicate their level of agreement on the statements relating to aspects of project risk planning and their influence success of road construction projects. From the findings, on risk Identification most 43 percent of the respondents agreed that having a strong risk identification system is important to the success of a project, 38 percent strongly agreed, 9 percent disagreed 6 percent were neutral while 4 percent strongly disagreed with the statement. On risk quantification 40 percent of the respondents strongly agreed that project risk quantification helps to identify the risk that may occur in a project, 34 percent) agreed, 21 percent were neutral while 2 percent disagreed and strongly disagreed with the statement. On risk analysis, most 40 percent of the respondents strongly agreed that identifying qualitative risk allows for effective monitoring of risk before it occurs, 40 percent agreed, 11 percent were neutral, 6 percent strongly disagreed while 2 percent disagreed with the statement. On risk Response model, most 45 percent of the respondents agreed that quantitative risk analysis helps to analyze numerically the probability of each risk and its

consequence on project objectives, 40 percent strongly agreed, 9 percent were neutral, 4 percent strongly disagreed while 2 percent strongly disagreed with the statement. Further majority 47 percent of the respondents agreed that they have risk response plans to reduce the probability or impact of the risk even, 28 percent strongly agreed, 15 percent were neutral, 9 percent disagreed while 2 percent strongly disagreed with the statement. Finally most 45 percent of the respondent agreed that they have developed a model that we apply to correctly identify, respond and monitor risks to save time and money, 28 percent agreed, 17 percent were neutral, 6 percent disagree while 2 percent strongly disagreed with the statement.

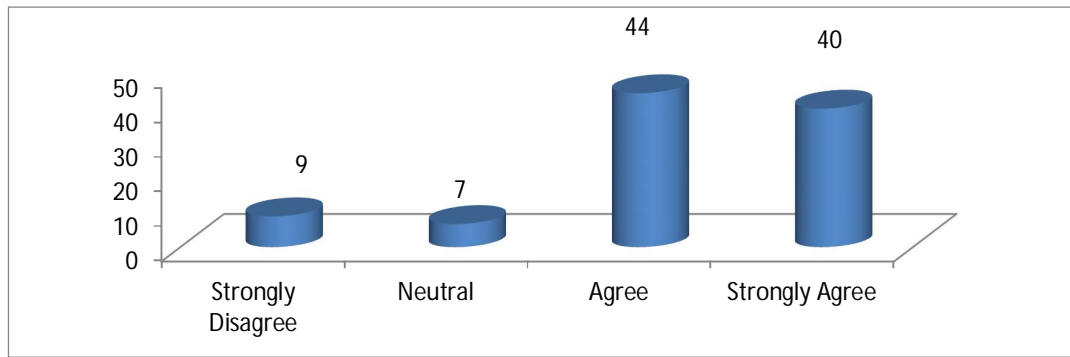


Figure 4.5 Project Risk Planning on Success of Road Construction Projects

4.8 Success of Road Project through Project Planning

Table 4.11 summarizes respondents' level of agreement on whether project planning aspects have ensured road projects are successful and have achieved the desired outcome. Most (43 percent) of the respondents strongly agreed that through effective planning of a project we ensure project objectives are attained, 36 percent agreed, 15 percent were neutral, 4 percent disagreed while 1 percent strongly disagreed. Further respondent also agreed that quality output is attained by ensuring resources available utilized effectively when planning the road projects as shown by 43 percent strongly agreed, 40 percent agreed, 6 percent strongly disagreed and disagreed while 4 percent were neutral. Respondents strongly agreed that at the end of the project we ensure that the shareholder are satisfied by the project success as shown by 43 percent, 38 percent agreed, 11 percent were neutral, 4 percent disagreed and other strongly disagreed. Further, respondent agreed that ensuring the project product delivery is within the expectation of the beneficiary and clients is key for success of a project as shown by 57 percent of the respondent, 26 percent strongly agree, 13 percent were neutral, while 2 percent disagreed and strongly disagreed. Finally, respondent strongly agreed that ensuring the project is completed within the stipulated timeline is key for success of a project as

indicated by 47 percent of the respondents, 34 percent agreed, 15 percent were neutral while 4 percent strongly disagreed.

Table 4.11 Success of Road Project through Project Planning

Statement	%	SD	D	N	A	S	Total
Through effective planning of a project we ensure project objectives are attained	47	2	4	15	34	43	100
Quality output is attained by ensuring resources available utilized effective in planning projects	47	6	6	4	4	43	100
At the end of the project we ensure that the shareholder are satisfied by the project success	47	4	4	11	3	43	100
Ensuring the project product delivery is within the expectation of clients is key	47	2	2	13	5	26	100
Ensuring the project is completed within the stipulated timeline is key for success of a project	47	4	0	15	3	47	100

4.9 Inferential Analysis

4.9.1 Coefficient of Correlation

To compute the correlation (strength) between the study variables and their findings the researcher used the Karl Pearson's coefficient of correlation (r). From the findings, it was clear that there was a positive correlation between success of road construction

project and project time planning as shown by a correlation figure of 0.523, it was also clear that there was a positive correlation between success of road construction project and project scope planning with a correlation figure of 0.614, there was also a positive correlation between success of road construction project and project cost planning with a correlation value of 0.746 and a positive correlation between success of road construction project and project risk planning with a correlation value of 0.521. This shows that there was a positive correlation between success of road construction project and project time planning, project scope planning, project cost planning and project risk planning.

Table 4.12 Coefficient of Correlation

Variables		Success of	Project Time	Project Scope	Project Cost	Project Risk
Success of road project	Pearson Correlation	1				
	Sig. (2-tailed)					
Project Time Planning	Pearson Correlation	.523	1			
	Sig. (2-tailed)	.0032				
Project Scope Planning	Pearson Correlation	.6140	.3421	1		
	Sig. (2-tailed)	.0021	.0014			
Project Cost Planning	Pearson Correlation	.7460	.1240	.0621	1	
	Sig. (2-tailed)	.0043	.0120	.0043		
Project Risk Planning	Pearson Correlation	.5210	.3420	.0000	.1660	1

Sig. (2-tailed)	.0172	.0031	1.000	.0031
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4.9.2 Coefficient of Determination

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (success of road construction project) that is explained by all the four independent variables (project time planning, project scope planning, project cost planning and project risk planning). The four independent variables that were studied, explain only 83.4 percent of the success of road construction project as represented by the adjusted R². This therefore means that other factors not studied in this research contribute 16.6 percent to success of road construction project. Therefore, further research should be conducted to investigate the other factors (16.6 percent) that influence success of road construction project.

Table 4.13 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.913	0.834	0.751	0.4538

4.9.3 Multiple Regression

Multiple regression analysis was conducted as to determine the relationship between success of road construction project and the four independent variables.

Table 4.14 Regression Coefficients

Model	Unstandardized		Standardized		t	Sig.
	Coefficients		Coefficients			
	B	Std. Error	Beta			
(Constant)	1.308	1.342			1.623	0.357
Project Time Planning	0.558	0.310	0.172		4.342	.0276
Project Scope Planning	0.731	0.156	0.210		3.532	.0285
Project Cost Planning	0.785	0.322	0.067		3.542	.0202
Project Risk Planning	0.620	0.245	0.148		3.458	.0249

As per the SPSS generated table 4.14, the equation

($Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + e$) becomes:

$$Y = 1.308 + 0.558X_1 + 0.785X_2 + 0.620X_3 + 0.731X_4$$

The regression equation above has established that taking all factors into account (project time planning, project scope planning, project cost planning and project risk planning) constant at zero, success of road construction project will be 1.308. The findings presented also shows that taking all other independent variables at zero, a unit increase in project time planning will lead to a 0.558 increase in success of road construction project; a unit increase in project scope planning will lead to a 0.731 increase in success of road construction project; a unit increase in project cost planning will lead to a 0.785 in success of road construction project and a unit increase in project risk planning will lead to a 0.620 increase in success of road construction project. This

infers that project cost planning contribute most to success of road construction project followed by project scope planning then project risk planning while project time planning contributed the little to success of road construction project.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter depicts the summary of the data findings on influence of project planning on road construction projects performance in Uasin Gishu County, the conclusions and recommendations are drawn there to. The chapter is therefore structured into summary of findings, conclusions, recommendations and area for further research.

5.2 Summary of the Findings

The objectives of this study were to how project time planning influences the success of road construction projects within Uasin Gishu County, to determine the effect of project cost planning on the success of road construction projects in Uasin Gishu County, to determine the effect of project scope planning on the success of road construction projects within Uasin Gishu County and to determine the effect of project risk planning on the success of road construction projects in Uasin Gishu County.

5.2.1 Influence of Project Time Planning on Success of Road Construction Projects

From the study findings most of the organizations consider project time planning in road construction projects. This is clearly manifested by most of organization having completed other project done previously within the stipulated time. Further the study established that during the road construction project, project management, activities sequence is key as it defines the logical sequence of work to obtain the greatest efficiency given all project constraint. Likewise, during the construction identifying and documenting the specific activities to be performed to produce the project deliverables is key in project management and that activity duration estimates helps to quantify assessments of the likely number of work periods that will be required to complete an

activity. Ability of project management team to track planned dates versus actual dates and to forecast the effects of schedule changes, real or potential, makes it a useful tool for schedule control, the schedule development process in a project management must often be iterated prior to determination of the project schedule to a great extent.

5.2.2 Influence of Project Scope Planning on Success of Road Construction Projects

To the objective project scope planning, the study established that project scope planning influences success of road construction projects. Creating work breakdown structure provides the necessary framework for detailed cost estimating and control, along with providing guidance for schedule development and control. Definition of project scope helps in identifying major project work components, deliverables, and requirements. Scope verification helps to defines how project work will be confirmed and ultimately accepted by the client. The practice of scope planning is key in management practices for planning and delivering project successfully.

5.2.3 Influence of Project Cost Planning on Success of Road Construction Projects

On project cost planning, the study found that indeed project cost planning influences success of road construction projects. The study also established that project cost planning on success of road construction projects. Allocating the overall cost estimate to individual work items to establish a baseline for measuring success of project is key. Identify situations where project labor resources are being used on multiple projects to ensure smooth flow of the project and its success and to ensure project success, employees conduct cost estimate of the costs of the resources needed to complete project activities. In every project there is need to develop a cost management plan that describes how cost variances will be managed on the project to make it successful.

5.2.4 Influence of Project Risk Planning on Success of Road Construction Projects

To the objective of project risk planning, the survey found that most project risk planning influences success of road construction projects. Contractors also consider having a strong risk identification system is important to the successful completion of project. Quantitative risk analysis helps to analyze numerically the probability of each risk and its consequence on project objectives, as well as the extent of overall project risk. Project risk quantification helps to identify the risk that may occur within the course project and then coming up with a plan or course of action in order to prevent it. Construction firm have developed risk response plans to reduce the probability or impact of the risk.

5.3 Conclusion

The study aimed at finding out influence of project planning on road construction projects performance in Uasin Gishu County. Based on the findings the study made the following conclusion

5.3.1 Influence of Project Time Planning on Success of Road Construction Projects

The study concluded that most organizations consider project time planning in road construction projects. Time is key success of road construction project and this has been observed by majority of the contractors. The study also concludes that during the road construction project, project management, and activities sequence are key aspects as they defines the logical sequence of work to obtain the greatest efficiency given all projects constrain. Identifying and documenting the specific activities to be performed to produce the project deliverables are critical aspects in project management.

5.3.2 Influence of Project Scope Planning on Success of Road Construction Projects

On the objective of project scope planning, the study concluded that project scope planning influences success of road construction projects. Creating work breakdown structure provides the necessary framework for detailed cost estimating and control, along with providing guidance for schedule development and control. Definition of project scope helps in identifying major project work components, deliverables, and requirements.

5.3.3 Influence of Project Scope Planning on Success of Road Construction Projects

To project cost planning, the study concluded that indeed project cost planning influences success of road construction projects. Allocating the overall cost estimate to individual work items to establish a baseline for measuring success of project is key. Identify situations where project labor resources are being used on multiple projects to ensure smooth flow of the project and its success. In every project there is need to develop a cost management plan that describes how cost variances will be managed on the project to make it successful.

5.3.4 Influence of Project Risk Planning on Success of Road Construction Projects

On the objective of project risk planning, the study concluded that most project risk planning influences success of road construction projects. Contractors also consider having a strong risk identification system is important to the successful completion of project. Quantitative risk analysis helps to analyze numerically the probability of each risk and its consequence on project objectives, as well as the extent of overall project risk. Construction firm have developed risk response plans to reduce the probability or impact of the risk.

5.4 Recommendation

Based on the objectives of the study, the following recommendations were reached.

The study recommends that since time schedule is one of the most important plans in a project. The development of time schedules should be based on the previously developed WBS. Likewise, in order to develop realistic and achievable schedules, it is important that activities are sequenced accurately. The activity sequencing involves identifying logical relationships and dependencies between the project activities. A time schedule without control is fairly useless to the project organization. The control must be carried out regularly and relatively often in order to detect deviations early. This makes it possible for the project team to take necessary actions to avoid longer delays. The schedule control and development must be an iterative process in order for the project team to have updated schedules throughout the project.

On project scope planning the study recommends that there is need to develop a clear project scope that can facilitate for the project organization to realize the actual magnitude of the work and creates an understanding for the achievements that are required in the project. Likewise, the study recommends that there is need to have a well-designed WBS since it makes it easier to assign clear responsibility to each group of tasks, which is necessary in order for the project organization to gain control of the project.

To project cost planning, the study recommends that since project budget is very important and influences all areas in both planning and execution of a project. It is important to keep track of total costs as well as costs for different work packages in a project. The cost estimation should be based on the project scope, the WBS and be

connected to the project plan. To reach a correct estimation it is important that each activity is estimated based on the conditions of the execution of the specific activity.

On project risk planning, the study recommends that risk analysis should be carried out early in a project when the information is highly limited within several areas. To manage risks and opportunities effectively, the analysis must be iterated throughout the project as more and more information becomes clear to the management team. All persons associated with a project should be encouraged to identify risks. It is important to have the project team involved in the identification process so that they can develop and maintain a sense of ownership and responsibility for the project risks and associated risk response actions.

5.5 Areas of Furth Research

This study investigated on the influence of project planning on road construction projects performance in Uasin Gishu County. The study suggests that further research to be done on inter-organizational factors facing success of construction projects. The study also suggests that further study be done on factors that influence success of road construction project among small contractors in Kenya to give reliable information that depicts real situation within the sector.

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APPENDICES

Appendix I: Introductory Letter

Ondiek, Francis Benedict,
P.O. Box 301-30100,
Eldoret

Dated: February, 2018

Dear Respondent,

RE: REQUEST FOR DATA COLLECTION

I am a post graduate student at Jomo Kenyatta University of Agriculture and Technology undertaking a research project on “Influence of Planning on the Success of Road Construction Projects Undertaken by Construction Companies within Uasin Gishu County, Kenya”.

You have been selected for this study to fill the questionnaire attached herewith.

Kindly respond to the questions in the attached questionnaire to your best knowledge.

The information provided will exclusively and solely be used for academic purposes and will be treated with the confidence it deserves. Upon request, you will be furnished with a copy of the final report.

Your cooperation will be highly appreciated.

Sincerely yours,

Ondiek, Francis Benedict

Appendix II: Questionnaire

Section A: General Information

1. Kindly, indicate the title (level of professionalism/expertise) that you hold in road construction projects.

- | | | | |
|-------------------------------|-----|----------------------|-----|
| Government architects | [] | Structural engineers | [] |
| Civil engineers | [] | Mechanical engineers | [] |
| Construction project managers | [] | Electrical engineers | [] |
| Quantity surveyors | [] | land surveyors | [] |
| Contractors | [] | | |
| Any other (specify)..... | | | |

2. How long have you worked in this road construction in your position?

- | | | | |
|-------------|-----|----------------|-----|
| 1- 5 years | [] | 11 - 15 | [] |
| 6 - 10years | [] | Above 16 years | [] |

3. What is your highest level of education?

- | | | | |
|--------------------------|-----|-------------|-----|
| Post Graduate | [] | Diploma | [] |
| Undergraduate | [] | Certificate | [] |
| Any other (specify)..... | | | |

Section B: Project Planning on Success of Road Construction Projects

Part I: Project Time Planning

4. Does your organization consider project time planning when doing road construction?

- | | | | |
|-----|-----|----|-----|
| Yes | [] | No | [] |
|-----|-----|----|-----|

5. Of the other construction that you have done previously have you completed them within the projected time?

- | | | | |
|-----|-----|----|-----|
| Yes | [] | No | [] |
|-----|-----|----|-----|

If no, explain why?

.....
.....
.....
.....

6. Indicate your level of agreement that the following aspects of project time planning have an influence on the success of road construction projects. Use a scale of 1-5.

Where 1- Strongly disagree, 2- Disagree, 3- Somewhat agree, 4- Agree, 5- Strongly Agree

	1	2	3	4	5
Identifying and documenting the specific activities to be performed to produce the project deliverables is key in project management.					
In the project management, activities sequence is key as it defines the logical sequence of work to obtain the greatest efficiency given all project constraints.					
The success of the project management will is significantly influenced by the resources assigned to them					
Activity duration estimates helps to quantify assessments of the likely number of work periods that will be required to complete an activity.					
The schedule development process in a project management must often be iterated prior to determination of the project schedule.					
The ability of project management team to track planned dates versus actual dates and to forecast the effects of schedule changes, real or potential, makes it a useful tool for schedule control.					

7. Do you agree that project time planning influences success of road construction projects?

Strongly Disagree [] Agree []
 Disagree [] Strongly agree []
 Somewhat agree []

Part II: Project Scope Planning

8. Do project scope planning influences success of road construction projects?

Yes [] No []

9. What are the factors that you consider when considering project scope?

.....

.....

 10. Indicate your level of agreement that the following aspects of project scope planning have an influence on the success of road construction projects. Use a scale of 1-5. Where 1- Strongly disagree, 2- Disagree, 3- Somewhat agree, 4- Agree, 5- Strongly Agree

	1	2	3	4	5
The practice of scope planning is key in management practices for planning and delivering project successfully.					
Definition of project scope helps in identifying major project work components, deliverables, and requirements					
Scope verification helps to defines how project work will be confirmed and ultimately accepted by the client.					
Estimating a mechanism for controlling project scope is critical to project success					
Creating Work Breakdown Structure provides the necessary framework for detailed cost estimating and control, along with providing guidance for schedule development and control.					

11. Do you agree that project cost planning influences success of road construction projects?

Strongly Disagree [] Agree []
 Disagree [] Strongly agree []
 Somewhat agree []

Part III: Project Cost Planning

12. Do project cost planning influences success of road construction projects?

Yes [] No []

13. What are the factors that you consider in project cost planning?

.....

17. What are the factors that you consider when considering risk associated with a project?

.....

18. Indicate your level of agreement that the following aspects of project risk planning have an influence on the success of road construction projects. Use a scale of 1-5. Where Strongly disagree, 2- Disagree, 3- Somewhat agree, 4- Agree, 5- Strongly Agree

	1	2	3	4	5
Having a strong risk identification system is important to the successful completion of project					
Project risk quantification helps to identify the risk that may occur within the course project and then coming up with a plan or course of action in order to prevent it					
Identifying qualitative risk allows for effective monitoring to quickly recognize when a risk has occurred and take mitigation action					
Quantitative risk analysis helps to analyze numerically the probability of each risk and its consequence on project objectives, as well as the extent of overall project risk					
We have risk response plans to reduce the probability or impact of the risk even					
We have developed a model that we apply to correctly identify, respond and monitor risks to save time and money					

19. Do you agree that project risk planning influences success of road construction projects?

Strongly Disagree [] Agree []
 Disagree [] Strongly agree []
 Somewhat agree []

20. Kindly indicate your level of agreement that the following project planning aspects have ensured road projects are successful and have achieve the desired outcome. Use a scale of 1-5. Where 1- Very low extent, 2- low extent, 3- moderate extent, 4- great extent, 5- very great extent

	1	2	3	4	5
Through effective planning of a project we ensure project objectives are attained					

Quality output is attained by ensuring resources available utilized effective when planning the road projects					
At the end of the project we ensure that the shareholder are satisfied by the project success					
Ensuring the project product delivery is within the expectation of the beneficiary and clients is key for success of a project					
Ensuring the project is completed within the stipulated timeline is key for success of a project					

21. What would you recommend to ensure project planning ensure success of road projects within the county government?

.....

.....

.....

.....

.....

THANK YOUR FOR YOUR PARTICIPATION