

**INFLUENCE OF CONTRACTOR CAPABILITY ON  
PERFORMANCE OF LARGE CONSTRUCTION PROJECTS;  
A CASE OF WEST POKOT COUNTY, KENYA**

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**A Research Project Report Submitted in Partial Fulfilment of the Requirement for the  
Award of the Degree of Master of Arts in Project Planning and Management of the  
University of Nairobi.**

**2019**

**DECLARATION**

This research project report is my original work which has not been presented to any other university.

Signature.....  
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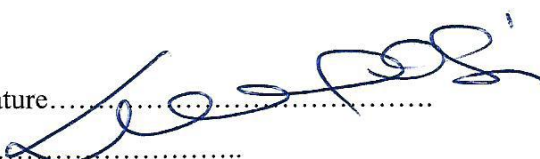
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## **DEDICATION**

This research project report is dedicated to my beloved wife Anne and son Levi for believing in me and their unwavering support and encouragement as I undertook my studies.

## **ACKNOWLEDGEMENTS**

First, I am grateful to God for the gift of life and opportunity to undertake the course and enabling me to carry out this research project. Secondly, I am thankful to my supervisor Dr. Joash Migosi for his great guidance through the entire period of the preparation of this research project report. Lastly, I am thankful to my course lecturers, fellow students and all the respondents who directly or indirectly contributed to the preparation of this research project report.

## **ABSTRACT**

The rising rate of poorly performed construction projects remains a serious problem affecting the construction industry in project delivery. Hence, this paper aims at investigating the influence of contractor capability on the performance of large construction projects in West Pokot County, Kenya. Time in this research has been used as the indicator for project performance. The objectives of this study were: to determine how Contractor planning, Contractor management capacity, Contractor resources and Contractor - Sub Contractor relationship influence the performance of large construction projects. A literature review was done where local, as well as global perspectives were looked into so as to fill a research gap. A conceptual framework was also provided as a guide to the study. The research adopted descriptive research design while using structured questionnaires and an interview guide to collect data. From a target population of 10 large construction projects in West Pokot County, 3 managers and site engineers from each of the project team (Contractor, Client, and Consultant) per project were selected as the sample. Therefore, a total sample of 90 respondents were used for the study with a 93.3% return rate. Data was collected using interviews and structured questionnaires. Questionnaire data was tallied and analyzed to frequencies, percentages, weighted mean and standard deviation and presented in tables. While data collected from interviews was analyzed using thematic analysis. In the findings, it was established that over 98.8%, 91.7%, 97.8% and 80.4% of the respondents indicated that contractor planning, contractor management capacity, contractor resources, and contractor-sub contractor relationship influenced performance of large projects. It was recommended that the government should formulate policies aimed at enhancing performance of contractors, and organize trainings for contractors to enhance their skills needed to use modern ways of reducing actual project completion time.

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## **ABBREVIATIONS AND ACRONYMS**

CAK- Competition Authority of Kenya

CDF-Constituencies Development Fund

CSF- Critical Success Factor

FIDIC- Fédération Internationale Des Ingénieurs-Conseils / The International Federation of Consulting Engineers

GDP-Gross Domestic Product

KPI- Key Performance Indicators

M&E- Monitoring and Evaluation

NACOSTI - National Council for Science, Technology and Innovation

NCA- National Construction Authority

NEMA – National Environmental Management Authority

PM- Project Manager

POW- Program of Works

RE- Resident Engineer

SD- Standard Deviation

SMHP-Sondu-Miriu Hydropower Project

SPSS - Statistical Package for Social Scientists

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the study

For a country's growth and economic development there should be efficient performance in infrastructural projects with construction firms being on the forefront in realization of this goal. A project's performance and success greatly depends on its time of completion from commencement to result delivery which has a direct bearing on management decisions on resource allocation, objectives attainment and quality standards. (Makori, 2015). In Saudi Arabia, Alotaibi, Sutrisna & Chong (2016) notes that there is prevalence in loss of huge amounts of public funds annually resulting from delays in most construction projects in both private and public sectors. Consequently, economic and social status of the country is being negatively impacted. Arya & Kansal (2016) further identifies construction delays as a major problem affecting construction projects in India during its lifetime resulting in disputes and legal actions; hence necessitating a need for a study and thorough analysis of the factors causing these delays.

In Algeria, Salhi, Messaoudi & Sassi (2018) notes that timeouts are a major problem often encountered in construction projects. The study notes that project time serves as a project roadmap and determinant of project success. Similarly, In Nigeria, Alade, Lawal, Omonori & Olowokere (2016), regards construction project delays as a persistent problem being experienced not only in the region but also globally. Several studies and explanations trying to explain these phenomena's have been made all showing a variety of reasons that vary from place to place. It is therefore important that these causes are identified and fixed so as such timelessness can be reduced to the minimum.

A delay in a construction project is as a result of the contractor, the consultant, or client jointly or independently. Their contribution results in the non-completion of a project within projected/intended completion time (Aibinu & Jagboro, 2002). A typical construction project in Kenya is made of three parties i.e. Client, Consultant, and Contractor. The Client is the party procuring the work, usually the land developer/owner. The Consultant is a party engaged by the client to provide the professional services like design and supervision of the works. While the Contractor, is one who undertakes the construction of a structure for a reward or other valuable consideration (National Construction Authority Act, 2012). The

different delay causes in large construction projects are therefore a consequence of a group of factors with a certain responsibility allocated to either party, i.e. the Contractor, Consultant or Client (Masood et. al., 2015).

A study by Kwatsima (2016) revealed contract management, funds, design variation and technology as significant factors that should be taken into consideration to ensure projects are completed on time. Most of the factors identified were contractor related. Other factors like lack of adequate construction equipment, low bidding by contractor, poor planning and management by contractor, other uses of mobilization advance also result in project delays (Acharya, Kim & Lee, 2004). As a consequence, there's need to thoroughly vet and confirm contractor capacity (finance, equipment, staffing, and experience) prior to engaging the contractor to undertake a project.

Kenya's Construction industry plays a big part in the development process in the country. The industry contributes majorly in the country's Gross Domestic Product due to its connections to the various sectors of the economy. Kenya's Vision 2030 aimed at increasing the overall contribution of the construction sector to the Gross Domestic Product (GDP) by at least 10% per annum with a goal to propel Kenya towards becoming the continent's industrial hub. Kaniaru, (2017) notes that construction plays a vital role in provision of essential public and private infrastructure, various structures for services, trade, utilities and manufacturing. Hence, construction is a critical component to the country's growth and development with a significant impact at locally and internationally. Gaal & Afrah (2017) acknowledges that poor infrastructure results in increased poverty levels and living standards as well as economic deficit in the society.

## **1.2 Statement of the Problem**

A Competition Authority of Kenya (CAK) Construction Study Report showed that Kenya is on a huge construction boom due to the government's heavy investments in undertaking construction projects in an attempt to develop the country's infrastructure. This has been necessitated by inadequate infrastructure and the ever rising demand occasioned by the country's rapid population growth. The construction industry is a key component of the economy and through its provision of services and facilities; it plays an essential role in economic growth.

Numerous challenges have been experienced that have barred various firms from completing construction projects at the budgeted cost, scheduled time and with the specified quality (Maendo, James & Kamau, 2018). These challenges have resulted in delays and projects disruptions hence other potential risks during project implementation. These delays in project delivery have adverse effects mainly on the cost of the project, with contract terminations and costly dispute resolution procedures like arbitration, and litigation also experienced (Tsegay & Hanbin, 2017). These effects have over the years remained a major problem in the construction industry. Murithi, Makokha & Otieno (2017) acknowledges that delayed project schedules are a common characteristic affecting many construction projects but there is a growing need to identify the main causes of schedule delays so as to implement actions that will prevent these delays.

The Kenya government has increasingly injected money to the construction industry (Gitau, 2000). Nonetheless, various large projects have failed to meet their target deadlines leading to several studies being conducted to assist in mitigating and managing this delays and untimely completion of the projects. These range from studies on delays in road projects, water projects, CDF Funded projects, Gated - community projects with a generalization of these factors causing these delays. It is however necessary to distinguish these factors with a responsibility allocated to the party that is accountable for the delays. This will in turn better assist in solving these phenomena and get to the root of the matter.

### **1.3 Purpose of the study**

This study aims at investigating the influence of Contractor capability on the performance of large construction projects in West Pokot County, Kenya.

### **1.4 Objectives**

The main objectives of this study are:

1. To determine how Contractor planning influences the performance of large construction projects in West Pokot County.
2. To examine the extent to which Contractor management capacity influences the performance of large construction projects in West Pokot County.
3. To establish how the Contractor resources influences the performance of large construction projects in West Pokot County.
4. To determine how Contractor – Sub contractor relationship influences the performance of large construction projects in West Pokot County.

### **1.5 Research Questions**

The study is guided by the following study questions:

1. How does Contractor planning influence the performance of large construction projects in West Pokot County?
2. How does Contractor management capacity influence the performance of large construction projects in West Pokot County?
3. How do Contractor resources influence the performance of large construction projects in West Pokot County?
4. How does Contractor – Sub contractor relationship influence the performance of large construction projects in West Pokot County?

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

This research will be of great value to contractor project managers in the construction industry by providing relevant information on the influence the contractor has on the

performance of a specific project. The research findings will thus inform the contractor management on future strategies to adopt during project implementation to improve and manage good performance in a project. This will in turn minimize on all costs associated with poor performance of construction projects.

The results of this study will also be beneficial to construction project clients during procurement of the Project Contractor(s) as factors highlighted will serve as a criteria/basis of qualification hence enhancing the selection process of awarding construction jobs to a contractor. Further it will assist in minimizing costs incurred by the Client as well due to poor project performance.

Similarly, future researchers and scholars can use this study to afford essential reference work and insightful information while conducting other studies and in addition, further on this research.

### **1.7 Limitations of the study**

While undertaking this study, various limitations were faced by the researcher. These include; some respondents were unwilling to, and/ or may have provided inaccurate data as they felt they were exposing the negative aspects of the project and contractor team. Moreover, the study only focused on large construction projects and can therefore not be generalized to all the constructions in Kenya.

### **1.8 Delimitations of the study**

Several factors influence the performance of large construction projects. However, this study only covers selected factors of large construction projects in West Pokot County. It is further delimited to solely Contractor related factors influencing performance of large construction projects that have a total project sum greater than Two Hundred Million. The study focused on completed and ongoing construction projects that commenced from March 2014 to date.

### **1.9 Basics assumptions of the study**

This study assumed that all the respondents were open and willing to avail all required information necessary for the study. In addition, the data the respondents availed was honest and accurate for this research.



### **1.10 Definitions of significant terms**

**Contractor Capability** Measure of the capacity that the contracted company has to undertake a given project and realize the specified objectives in the right quality, cost and duration.

**Contractor Planning:** Process of selecting particular method, order and sequence of work including fitting into a timescale.

**Contractor Resources:** possession of valuable assets that can be drawn on by the contractor organization in order to function effectively and efficiently.

**Contractor - Sub-contractor relationship** the manner in which the contractor associates with a company or person they have hired to undertake a specified task being part of the total project either through services rendered/material delivered

**Large Construction Projects:** Planned and organized process of constructing, renovating, refurbishing, developing a building, structure or infrastructure with a total value of more than Two Hundred Million Kenya Shillings

**Management Capacity:** Measure of the ability that the management possess to realize the specified objectives required in a given project.

**Performance of a construction project:** measure of the compliance to the contractual project stipulated time through which all project requirements are completed as per the specified standard

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### **1.11 Organization of the Study**

Chapter one serves as the outline of this study. It provides a background study of this research with an overview of the research title internationally, regionally and nationally. In this chapter, it is also clear the problem this study intends to address, including the main aim of conducting this study. Further, this chapter, states the main objectives, the research questions guiding the study and how significant the study is. Possible limitations and delimitations of the study are also looked at as well as the main assumptions made in the study and definitions of important terms.

Chapter two provides a discussion of existing literature that was previously done in relation to the study. The main study objectives form the basis of this chapter with discussions of differing opinions in relation to this study. This section includes literature on construction projects performance, influence of various contractor factors on the performance of projects

i.e. planning and control, management capacity, contractor capacity and Contractor – Sub contractor relationship. A conceptual framework is shown and the knowledge gap identified.

Chapter three deals with how the research was designed and has a blueprint of how the study was conducted. It outlines the targeted population and the procedure that was adopted to arrive at the sample size used for this study. The data collection tools, validity and reliability checks for the research instruments is also included in this chapter. The chapter further show the methods that were used to collect data, analysis of collected data and presentation and the ethical considerations that were observed during the study. A table showing the operationalization of variables is also presented in this chapter.

Chapter four deals with analysis, presentation and a discussion of the collected data. It shows how the data was analyzed and the data is presented in frequency tables, means and standard deviations. This chapter also shows an analysis of qualitative data and its presentation. Further discussion of the data is done with reference to discussed literature in chapter two.

Chapter five outlines the summary of all key findings from the research objectives and the conclusions made from the findings. Recommendations are made regarding the obtained findings and suggestions made for further research.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This Chapter discusses existing literature associated with this study that has been previously done by other scholars. The chapter identifies and outlines the major factors that influence on the performance of construction projects with a focus made to Contractor related factors. The main contractor capability parameters investigated are Contractor Planning, Contractor Management Capacity, Contractor Resources and Contractor - Sub Contractor relationship. The relationships among the various variables are then shown using a conceptual framework.

#### 2.2 Performance of Construction Projects

Time, cost and quality are the main indicators of performance in a project, and are used to determine project success (Salhi, Messaoudi & Sassi, 2018). Completion time is critical in every construction project and costly when not observed. To a contractor, such costs of delay include, increased overhead costs resulting from a prolonged construction period, increased costs on materials due to inflation, bad company reputation and loss of reliability. The client similarly bears the cost of delayed profits that were intended to be earned after completion of the investment on the planned project time (Yogita & Desai, 2015).

Acharya, Kim & Lee (2004) acknowledge that untimely completion of construction projects is a common phenomenon experienced in majority of infrastructural projects. This may either be as a result of a single calamitous event or a number of factors. The study as well shows a need for owners and project stakeholders to come up with various project requirements which will anticipate, manage and compensate for such delays which end up being very costly.

Delays in construction projects is a phenomenon observed globally. A research conducted by Masood, Ali, Shafique, Zafar, Maqsoom & Ullah (2015) tried to solicit views from contractors, clients, and consultants on the main factor causes of delays and subsequent consequence of these delays. The study also aimed at establishing the responsibility allocated for each group of delay factors. The study established that the contractor has 40% responsibility, consultant has 21%, and owner has 9% whereas stakeholders share 30% responsibility because of contingencies. This study highlighted the need to monitor, control and manage delay risk by understanding its main causes and its ominous effects.

### **2.3 Factors influencing Performance of Large Construction Projects**

The success of any construction project is greatly dependent on its performance. Numerous factors affect the duration taken by a construction project thus resulting into delay in completion and ultimate failure of the project (Saraf, 2015). Previous studies have set out to explain various delay causes in construction projects. Chan, Scott & Chan (2004) reviewed several high ranking major journals to establish factors causing project success. The study identified a list of variables tied to construction methods, project management techniques, human factors and external environment factors which formed the Critical Success Factors (CSF). The study showed that there was a need to look into the variables KPI (Key Performance Indicators) so as determine relationships with the CSF's. This information would be useful in project team selection, identification of the major developmental needs by the project team and predicting the construction project performance level prior to its commencement. This would hence ensure successful project implementation.

In Amravati, Saraf (2015) undertook a study to understand the main aspects that had led to poor performance of construction projects. The study elicited insights on the relative importance of various factors. From the survey findings, it was clear that the client, contractor and consultant agreed on most crucial factors that affect the performance. The main factors identified were: poor planning & decision making, poor project designs, improper site management techniques, unsuitable construction methods, lack of necessary resources (personnel, materials & machinery) and poor quality of work. Notably, client related and technical factors were considered to be more significant than the operational factors in project performance.

In Kakamega County, Kenya; Kanda, Muchelule & Mamadi (2016) recognized both client-related and contractor-related factors that influenced completion of water projects. The main factors identified associated with the contractor were financial strength, equipment and man power disposal, supervision capability, quality material accessibility, and control over suppliers. This factors showed a positive strong correlation with project performance. The client-related factors studied were availability of funds, client interference, decision-making capability, and modifications in designs. This factors similarly had a positive but weak correlation with project delivery.

## **2.4 Contractor Planning and Performance of Construction Projects**

Block & Peterson (2015) notes that the preparation of an all-inclusive and suitable project schedule is a prudent method for delay avoidance. The schedule should then be followed accurately and constantly maintained and updated during project implementation. Schedule preparation involves, anticipation of the tasks required to be undertaken as per the scope of the project, considering of the interrelationships among the various tasks, identifying the factors that can cause delay and temper unrealistic expectations as to the project progress. Thereafter, the tasks are arranged in order of sequence, showing time frames and resources required. The very act of preparing the contract schedule is an essential tool in daily management and a major component in project delay avoidance. However, its preparation is not sufficient if the schedule is rarely updated, maintained or subsequently overlooked. Mwangi & Iravo (2015) similarly notes that the structured process of effective and efficient planning and scheduling of resources is therefore very vital before project implementation and is a major component of project delay avoidance. Further, the plan should be well maintained and constantly updated to reflect the true status of the project and potential delays are identified and mitigated. Monitoring, Evaluation and Control are thus very essential management functions for ensuring that project objectives and schedules are fully achieved and maintained.

A study by Rómel, Gilberto & Aldo (2015) assessed the degree of usage of the main processes that relate to Project Time Management which included schedule planning and project control processes. The relationship of these processes with the level of project performance regarding timely completion of construction projects was examined. These projects studied had fixed extraneous variables like same client, same level of contractor specialty, similar design and type of construction project, construction duration and identical environmental conditions. The projects were then monitored throughout the construction and study results showed statistical dependence between Project Time Management processes and level of Project Performance in respect to timely completion of construction projects. Further emphasis was made on the need for using scheduling and controlling process as they were directly tied to timely completion.

Munyao (2017) conducted a study to investigate the how Program of Works has an influence in contractor performance during construction project implementation in Kenya. The significance of the Program of Works/Time schedule in project management as a vital

component considered in meeting construction timeliness was highlighted. The study also found that there's need for proper preparation, implementation and constant updating of the program of works to enhance its efficiency.

FIDIC (2017) is used as guidance for the preparation of Conditions of Contract for construction projects in Kenya. It requires that the Contractor should submit a detailed time program showing order, anticipated timing of each stage, methods, equipment and personnel to the Consultant within a period of 28 days upon receipt of commencement notice. Additionally, the contractor is required to submit a revised schedule whenever the submitted schedule is varying with actual progress or with the Contractors responsibilities. Therefore, an updated Program of Works is contractual further emphasizing the importance of proper prior planning and scheduling of activities. A study was conducted by Maendo, James & Kamau (2018) in Kenya that aimed at understanding the importance of project monitoring and evaluation on road projects. The study concluded that monitoring and evaluation has a substantial role on the overall performance of road construction projects. This study recommended conducting regular monitoring and evaluation, allocating sufficient finances and employing qualified monitoring and evaluation staff so as to increase the performance of road construction projects.

Conversely, Murithi, Makokha, & Otieno (2017) while examining the effects of proper project scheduling & monitoring of public construction projects on project duration, established that the performance of public construction projects had a negative relationship with project planning. The study further noted that performance of public construction projects may not be necessarily high regardless of a proper project plan.

## **2.5 Management Capacity and Performance of Construction Projects**

A project manager is responsible in coming up with a conclusive plan and ensure efficient control on company resources to enable project completion at the stipulated duration, budgeted costs and required quality standard (Bakar, Razak, Karim, Yusof & Modifa, 2011). Hence, the project manager requires relevant knowledge and skills to maintain a project. A manager's competency is through a combination of those skills acquired during training and those developed through experience and proper application of acquired knowledge. (Fotwe & McCaffer, 2000). According to Atout (2014), an experienced construction manager equipped with sufficient technical knowledge and aware of managerial procedures will most likely

meet the project timelines and with the rendered resources. Further, Shibani & Sukumar (2015), highlights the need for project managers to participate in all project phases and be in possession of an array of technical, management, human and interpersonal skills which will in turn improve project delivery.

Nyariranwge & Babatunde (2016) conducted a study aimed at establishing the impact the project management proficiency in successfully delivering complex construction projects. The study obtained existing literature on infrastructure projects and reviewed the prominent key concepts of project management and leadership. The study emphasized on the complexity of infrastructure projects which require more than just effectively managing time, cost and quality factors. Further, the study established the importance of project managers being more flexible, inventive and continually develops their skills in order to accurately manage the complex nature involved in projects. The study concluded that project managers' competences are necessary in enhancing successful construction project delivery.

A study by Salhi, Messaoudi & Sassi (2018) aimed at examine the prominent delay factors affecting delivery of construction projects. Results from the study pointed out to managerial factors which relate to planning, organizing and proper management as the most significant factors leading to delay of projects. This highlighted the importance of the project management team and need to optimize the major processes involved and their instruments. This would in turn ensure project stakeholders improve on planning of tasks and allocation of resources. By so doing, projects would be completed successfully and in a timely manner.

A study by Jurgen, Gesche & Medcof (2000) intended to come up with a logical and practical guideline to project manager's selection and development. The study categorized the different managers into five different project manager types. These are the project star, promising newcomer, focused creative expert, uncreative decision maker and thick-skinned pragmatist. This categorization used was on the grounds of their supervisor's assessments and their capabilities in project management. Measures of success respectively was determined and matched with the type of projects they were most likely to be successful. Project Star types of managers were heavily linked with costly projects of high priority and they played majors roles. The thick-skinned pragmatists in contrast, were rarely involved in high priority projects and had little contribution in project goal formulation. The study emphasized on the need for training and developing majorly on the weak abilities that each project manager style

possesses as opposed to training on those project management techniques associated with project success.

Kamoona, Hares & Isik (2016) conducted a study aimed at exploring the decision making process during the project lifecycle of large infrastructural projects. The study identified the different decision making aspects during the project life cycle to include: autocratic, participatory and free-rein. The study emphasized on the need for using the decision making aspects all together or at different times to ensure a paramount leadership decision and enhance success rate (time, quality, cost) during the project cycle.

Additionally, development of technical skills and knowledge through thorough and constant training on new and existing trends ensures project performance improvement. In Mombasa County Kenya, Nyambura (2015) studied the influence that strategies adopted by management have on successful project delivery. From the study it was clear that a good percentage of 40% of project officials did not clearly understand the project requirements. This showed that many project officials lack the expertise hence a need for proper training to improve project success. These training programs update management knowledge, ensure management is aware of the constantly evolving project management techniques and processes which in turn enhances performance (Saraf, 2015).

In Nairobi county Kenya, Kihoro & Waiganjo (2015) examined various factors that impacted on the performance of gated community projects in regards to timely completion, cost management and quality of work. One of the research questions sought to establish the competence level of the project managers (contractors) as a factor that affected the achievement of project goals. Findings from the study showed majority of the respondents ranked this factor very highly by either strongly agreeing or agreeing hence a strong positive correlation of .641\*\* between competence of project manager and project success.

## **2.6 Contractor Resources and Performance of Construction Projects**

In Kenya, Mutoro, Asinza, Kanda & Malenya (2017) studied the relationship between monitoring and evaluation and contractor capacity on completion time of water projects. Through a descriptive survey research design, the study focused on 50 water projects all of which the Monitoring and Evaluation (M&E) factors were studied. This included stakeholder participation and communication strategy which showed weak positive relationship of the factors with project completion time. The main contractor capacity factors under study were



availability of finances, required key personnel, relevant construction work-experience, availability of necessary tools and equipment, goodwill to acquire material from suppliers and control over sub-contractors which most contractors studied lacked. Study analysis showed that these factors which were tied to the contractor capacity had a strong and noteworthy positive correlation with the finishing time of water projects.

Maendo, James, & Ngugi (2018) aimed at establishing the influence of mobilizations of project resources by local contractors with the performance of those road projects. From the study, it was clear that proper resource mobilizations by the contractor greatly influenced the performance of the project. Okeyo, Rambo & Odundo (2015), further conducted a study in the same county to examine the impact delay in mobilization of project resources had on the completion time of Sondu-Miriu Hydropower Project (SMHP). This was due to the project completion date being delayed by six years from the initial completion date of 2005 to 2011. Hence, the study intended to examine the relative importance of contractor mobilization among other components of contractual delays and the alleged effect of this delayed contractor mobilization was studied. Periodical reports showed the delay was mainly as result of delayed mobilization of resources. From the results of the study, it was evident that the delay on mobilization of resources required to undertake the project led to a 92.3% re-scheduling and re-sequencing of tasks, productivity losses and inefficiency (82.1%), increased costs related to time (79.5%), late completion (76.9%), in addition to extended time and speeding up of works (74.4%). A perfect start is a key factor for project completion on time. Therefore, lack of required resources and/or insufficient mobilization of resources have a significant negative influence on project success (Mutairi, 2017).

Fugar & Agyakwah-Baah (2010) looked at the main delay causes in building projects and the rated the causes in significance based on the key project contributors, i.e. contractor, consultant and client. The study showed several delay causes were identified through an analysis of various literature and interviews in the implementation processes and grouped the factors. Factors in the financial group had the highest ranking amongst all the other delays factors. The study highlighted inadequate contractor financial resources and difficulty in accessing credit as major factor contributing to project delays and stressed on the importance of the contractor having an adequate resource pool.

Upadhyay, Agrawal & Jain (2016) noted that large commercial construction projects demand newest construction technologies, tools, and materials which are more effective and minimize delays. Further the study encouraged the contractor to study and ensure selection of suitable and modern construction methods and techniques to ensure timely completion of projects.

## **2.7 Contractor – Sub contractor relationship and Performance of Construction Projects**

There's need for contractors to take full responsibility over their own processes in a bid to be an attractive customer to their suppliers. Frödell (2011) notes that a good contractor-supplier relationship enhances an increase in input variables and efficiency of the work. According to Muinde (2008), 90% of the Contractors depend on subcontractors for the execution of their works as they provide skilled labor, minimize work, financial pressure and overhead costs. Hence the need for a cooperative relationship and integration of subcontractors into a partnering approach hence improved relationship and effective project performance.

A tremendous emphasis had been made on management research regarding emerging construction technologies, the necessary social and human factors that enable implementation of these technologies has however largely been ignored. Ideally, to accomplish certain goals and objectives in construction there's need to build collaborative teams among the contracting parties which ensure effective communication among the members. Most construction projects participants undertake their actions based on mutual trust. Trust has thus been used over the years to build on successful integrated teams. (Gad, & Shane, 2014). Contractor-Sub contractor relationship should be that of mutual trust, cooperative long term relationship. There's need for trust among the two parties on an adversarial nature for a better mutual understanding of needs and creation of a conducive working environment. A lack of this has resulted to delays in projects, antagonistic attitudes and climate among the parties, increased project cost and litigation. Further, the limited sub-contractor involvement denies the construction industry of their expertise and specialized contribution. (Rahman, Hadikusumo, Ogunlana & Mahmood, 2012)

For the success of construction projects, relationships between Contractors and Subcontractor have become very paramount. Tan, Xue & Cheung (2017), conducted a study in which the main contractors were grouped into four groups based on their relationship with subcontractors. These groups were made up of collaborative, adversarial, partnering and

competitive relationships. The study further explored impact of these relationships on the competitiveness of the main contractor the pertinent factors that inhibit a cooperating and collaborative relationship. The study showed a positive connection between good contractor-subcontractor relationships with main contractor competitiveness. Hence the needs to properly manage contractor-subcontractor relationships as they greatly affect project performance.

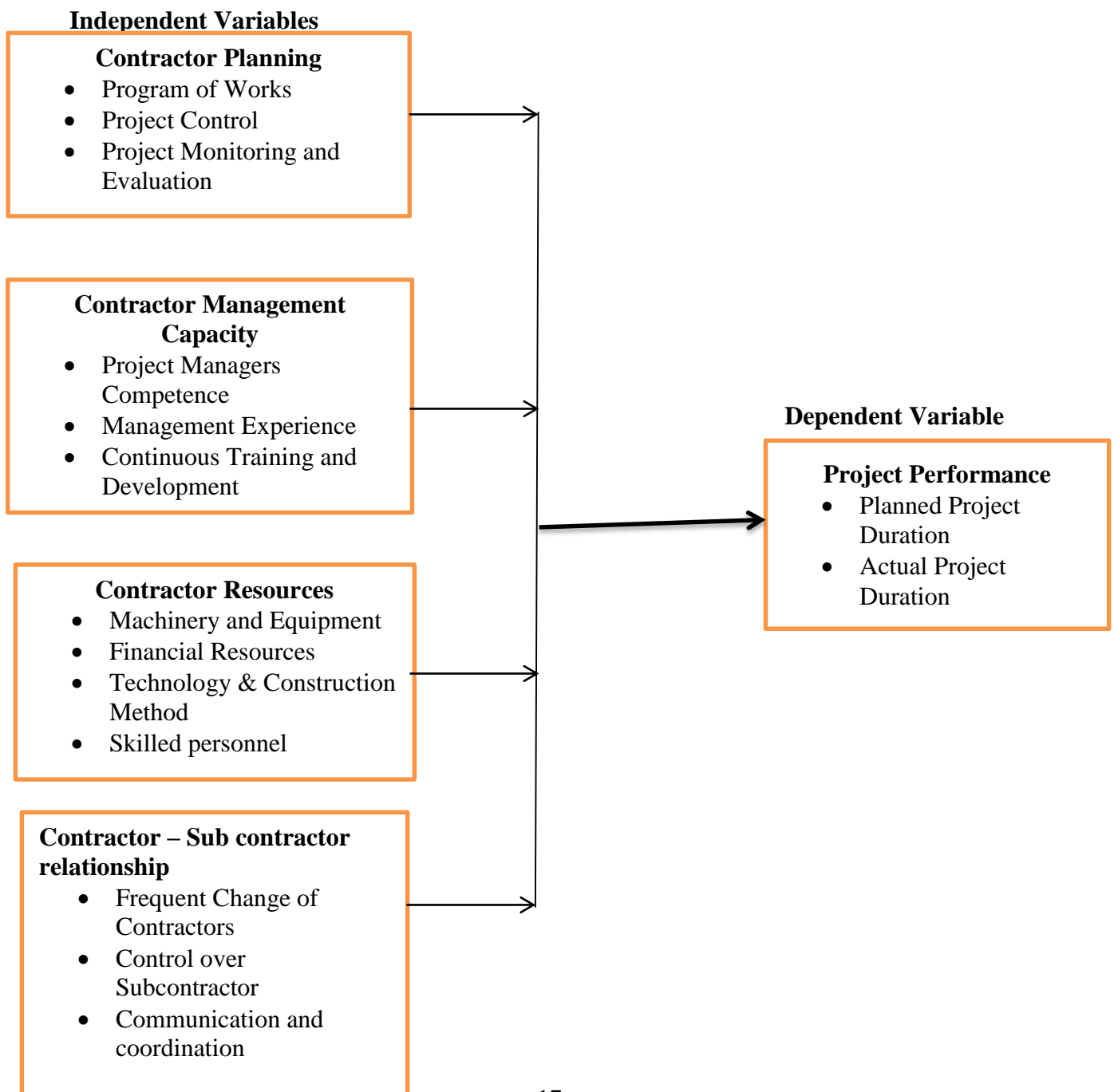
In Gaza Strip, Enshassi, Arain & Tayeh (2012), conducted a study aimed at identifying and evaluating the main problems that affect the performance of contractors and subcontractors in the construction projects. The study highlighted the main contractor's financial constraints, untimely payment of contract progress amounts, improper observance to the contract and project specifications, delays in execution of works, poor quality standards by Sub contractor as the most prominent causes of poor relationships among the contractor and the subcontractor.

## **2.8 Conceptual Framework**

This is a schematic drawing that illustrates the independent and dependent variables and their causal relationship. The independent variables are outlined which consist of contractor planning, contractor management capacity, contractor resources and contractor-subcontractor relationship and their indicators are broken down: The dependent variable which is project performance is also shown and its cause-effect relationship with the independent variables.

**Figure 2.1: Conceptual Framework**

**Influence of Contractor Capability on the Performance of Large Construction Projects;  
A Case of West Pokot County, Kenya.**



## **2.9 Research Gap**

In view of the reviewed literature, the basis for this study is driven by the fact that most studies generalized numerous factors in construction projects linked to all project participants while the study intends to study those factors influencing project performance due to the Contractor. The contractor plays a vital part in the project implementation stage by virtue of being the one who majorly undertakes the construction of a structure. It is therefore imperative that the Contractor has a smooth process during project execution and to enhance performance so as to complete projects within set timelines.

## **2.10 Summary of Literature Review**

This review has underlined the various challenges that influence construction projects timelines particularly in large projects which vary from country to country and from one circumstance to another. It is evident that construction project implementation is a serious problem being experienced worldwide which requires to be solved. This has necessitated several studies being undertaken to come up with solutions for this underlying problem.

The literature tries to review the many key factors that the researcher feels majorly influence completion of projects on planned time with a particular focus to Contractor-related factors. These main factors form the objectives of the study and are thoroughly discussed from previous researcher's works and studies and their relationship to timely completion. A conceptual framework is also outlined showing the interdependence of the various variables.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

The research approach used is outlined in this chapter. This includes; the target population and sample size for the study, the sampling procedure adopted and the data collection instruments. To ensure that the data obtained is reliable and valid, the chapter illustrates the various tests and manner that the pilot studies were conducted. The chapter also shows how data obtained was analyzed, and the various techniques that were used in presentation of the data and drawing of conclusions regarding the study. In addition, the chapter presents an operationalization of variables tables and the ethical issues that the researcher observed during the study.

#### **3.2 Research Design**

Research design refers to the conceptual framework which provides a layout of the entire design procedure (Kothari, 2004). This study employs descriptive research design method. The study adopted this method because it is convenient for a small population where information on all or majority of the units is needed. (Cooper & Schindler, 2003). This method involves collecting distinct data for every single element in the population. It also allows collection of a lot of knowledge through both qualitative and quantitative data which is needed for this study to show cause and effect relationship between the independent variables being Contractor planning, Contractor management capacity, Contractor resources and Contractor – Sub contractor relationship and the dependent variable project performance.

#### **3.3 Target Population**

Population is the total count of all people or items in the researcher's study area (Mugenda and Mugenda, 1999). In order to generalize results obtained from the population they should have an observable and distinguishable trait/characteristic that sets them apart. The target population for the study consisted of both completed and ongoing large construction projects all being undertaken by different Government bodies that commenced between the period between March 2014 and March 2019 in West Pokot County, Kenya. Records from NCA (National Construction Authority) showed that a total of 10 large projects had been launched from March 2014 to date which would all form the population of the study.

### 3.4 Sample Size

A study sample size refers to the number of observations to be used in a statistical sample which helps in deducing of inferences about a particular population in regards to a certain research study. For sufficient statistical power, the sample of respondents used for this study was the complete data of the population under study. This included persons who are/were directly involved during the project execution stage of each of the 10 projects identified. This included Civil Engineering technical staff from the Contractor, Consultant and Client of each of the project.

**Table 3.1 Sample Size**

<b>Target Population Category</b>	<b>Target Population</b>	<b>Sample size</b>
Project Engineer	10	10
Resident Engineer	10	10
Site Agent	10	10
Ass Project Engineer	20	20
Ass Resident Engineer	20	20
Ass Site Agent	20	20
<b>Total</b>	<b>90</b>	<b>90</b>

A total of 3 from each team, hence 9 per project and a total of 90 respondents were therefore used.

### 3.5 Sampling Technique

The study used census method hence the sample used was the complete set of the population under study. This was due to the nature of required information which can be better obtained from a certain group of people who are responsible during project implementation. Hence, the Managers and Site Engineers from each of the project were selected from and each sub group. A sample of 90 respondents was therefore used which consisted of 3 Technical Staff from each of the team (Contractor, Client, Consultant) from every project identified.

### 3.6 Research Instruments

Research instruments refer to the measurement tools designed to obtain data on a particular area of study, Mugenda (1999). Data was collected through structured questionnaires to 90 respondents from all the project participants and administering of interviews to 20

respondents mainly from the client and consultant representatives. The questionnaires were divided into sections to collect demographic data and questions regarding the objectives through indicators stating clearly all the possible answers the respondent is required to fill in to describe existing situation at best. Interviews on the other hand, were used to ascertain answers given and make clarifications for questionnaires answers. All these instruments are all necessary in obtaining required data for this study.

### **3.7 Pilot Study**

Pilot study refers to the preliminary study carried out to evaluate the intended study design procedures for appropriateness and identify potential problems that may be encountered prior to conducting the main study. (Zailinawati, Fracgp & MMed, 2006). The pilot study was important in determining the viability of the study and ensured the appropriateness of study instruments and the entire research design method. The pilot study was conducted by sending out questionnaires to smaller construction projects in the West Pokot County (project value less than 200million shillings). The effectiveness and appropriateness of the entire study design was ascertained to be feasible.

### **3.8 Validity of the Research Instruments**

Fraenkel & Wallen (2009) denotes validity as the accuracy, appropriateness, and meaningfulness to which the findings of a specific study represent the correct elements intended to be measured. To achieve content validity in the study, the field experts were consulted to assist and the supervisors supported to ascertain the variables used, their measurement and their accuracy to provide adequate coverage of this study topic. Valid research data requires valid data collection instrument so as to provide sufficient representation of the test being studied (Kothari, 2004).

### **3.9 Reliability of Research Instruments**

Orodho (2012) states that reliability is the extent to which a research tool yields constant and consistent results when re administered to the same group twice without altering the existing conditions and subject matter. A pilot study was conducted preceding the main study to ascertain consistency of the research assessment tools and instruments of data collection. From the pilot study, the reliability was measured using the Cronbach's Alpha coefficient method



**Table 3.2: Reliability Statistics**

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.874	27

The reliability coefficient obtained was 0.874. This was above 0.7 which according to Cooper & Schindler (2008) is satisfactory for this study.

### **3.10 Data Collection Procedures**

After successful defense of the research proposal, the researcher obtained an authorization document from the National Council for Science, Technology and Innovation (NACOSTI). The questionnaires were sent out to the 90 respondents and explained to on how to fill and return back. Face to face interviews and some were phone calls made to 20 respondents and the answers from the interview guide noted down and were used for analysis.

### **3.11 Data Analysis Techniques**

After data was collected, it was systematically put together and evaluated using statistical tools to obtain meaningful information which was used to make a research opinion. This study is descriptive survey and hence descriptive data analysis methods were used to evaluate the measured quantitative data from the questionnaires. (Orodho, 2012). This quantitative data was entered into Statistical Package for Social Sciences (SPSS) analyzed in frequencies and percentages and presented in tables as they were easy to read and interpret. Further means and standard deviations were done so as to understand relationships. Qualitative data collected from interviews was analyzed using thematic analysis. This included organizing the notes taken into themes(objectives) and sub themes (indicators) and summarized. Descriptive statistics were used in tallying and tabulating and the data was evaluated.

### **3.12 Ethical Considerations**

According to Gakuu & Kidombo, (2013) Research Ethics should be considered as an essential part during the research planning stage and while conducting the actual research and all research ethics applicable should be observed. Permission was sought and a letter of introduction was issued to respondents prior to participation to ensure that participation is

free and voluntary. Confidentiality will also be observed of all data received and acquired and all the information obtained will be solely used for academic purposes.

### **3.13 Operationalization of Variables Table**

This is a representation of the study objectives, their indicators and how they will be collected, measured and analyzed.

**Table 3.3: Operationalization of variables**

<b>Objectives</b>	<b>Variables</b>	<b>Indicators</b>	<b>Data Collection Methods</b>	<b>Measurement Scale</b>	<b>Method of Analysis</b>
To establish how Contractors planning influences the timely completion of large construction projects in West Pokot County.	<u>Independent Variable</u> Contractor Planning	Time Schedule Project Control as per plan Project Monitoring & Evaluation	Interviews Questionnaires	Nominal Scale	Thematic analysis for interviews Descriptive statistics for questionnaires
To find out the extent to which Contactor management capacity influence timely completion of large construction projects in West Pokot County	<u>Independent Variable</u> Contractor Management Capacity	Project Managers Competence Management Experience Continuous Training & Development	Interviews Questionnaires	Nominal Scale	Thematic analysis for interviews Descriptive statistics for questionnaires
To determine how Contactor resources influence the timely completion of large construction projects in West Pokot County.	<u>Independent Variable</u> Contractor Resources	Machinery & Equipment Technology & Construction Method Skilled personnel	Interviews Questionnaires	Nominal Scale	Thematic analysis for interviews Descriptive statistics for questionnaires
To determine how Contractor financial capability influences the timely completion of large construction projects in West Pokot County.	<u>Independent Variable</u> Contractor-Sub Contractor Relationship	Frequent Changes of Subcontractor Control over subcontractor Effective two way Communication & coordination	Interviews Questionnaires	Nominal Scale	Thematic analysis for interviews Descriptive statistics for questionnaires

## **CHAPTER FOUR**

### **DATA ANALYSIS, PRESENTATION & DISCUSSION**

#### **4.1 Introduction**

This chapter analyses and presents the findings and discussions of the study. This include: the returns rates achieved from the questionnaires sent out, analysis of the demographic data of all the respondents, analysis of the respondent data from the questionnaire on each specific objective of the study. Features of the data are summarized and measured using descriptive statistics like frequency percentages, means, standard deviation and regression analysis is carried out to determine the relationship of the independent and dependent variable.

#### **4.2 Questionnaire Response rate**

All the 90 questionnaires were issued to the various respondents who were directly involved in the implementation of the projects. Following up of the responses was done through phone calls and 84 (93.3%) of the issued questionnaires were returned while 6 (6.7%) were not returned. Baruch (1999) suggests that the average reasonable rate of success for academic research should be 55.6%. Thus, a success rate of 93.3% is way above the 55.6% and can therefore considerably be used to report valid results.

#### **4.3 Demographic characteristics of Respondents**

To obtain the general characteristics of the respondents, demographic information was sought out. This included, information on role of organization the respondent works for in the project, position of the respondent in the project, and the number of years of experience of the respondent in the construction field.

##### **4.3.1 Distribution of Respondents by Implementation team**

Stratified sampling technique was employed to arrive at the main participants responsible during the project implementation stage. Data was then collected from 3 respondents from each sub group per project.

**Table 4.1: Distribution of Respondents by Implementation Team**

<b>Respondents Distribution</b>	<b>Frequency</b>	<b>Percent Frequency (%)</b>
Client	27	32.2
Consultant	29	34.5
Contractor	28	33.3
<b>Total</b>	<b>84</b>	<b>100.0</b>

The distribution of the 84 respondents was 27(32.2%) from the client, 29(34.5%) from the consultant and 28(33.3%) from the contractor. The researcher considered that collecting data from the contractor singly would not give a true picture with fears of biased opinions. This equal distribution from each of the main participants directly involved in the implementation of the project ensured more accurate, reliable and unbiased data was collected for this study.

#### **4.3.2 Distribution of Respondents by Position**

The respondents were required to indicate their job position in the project.

**Table 4.2: Distribution of Respondents by Job role**

<b>Respondents Role</b>	<b>Frequency</b>	<b>Percent Frequency (%)</b>
Project Engineer	9	10.7
Resident Engineer	9	10.7
Site Agent	9	10.7
Ass Project Engineer	18	21.4
Ass Resident Engineer	20	23.8
Ass Site Agent	19	22.6
<b>Total</b>	<b>84</b>	<b>100.0</b>

After the researcher's inquest on respondent's roles, 9(10.7%) respondents indicated that they were Project Engineers, 18(21.4%) were their assistants representing the Client team, 9(10.7%) were Resident Engineers and 20(23.8%) were their assistant Resident Engineers representing the Consulting team while 9(10.7%) were Site Agents and 19(22.6%) their assistants representing the Contractor team. From each implementing team, the respondents selected were construction staff with a technical background in construction and who held a major role in management of the project. This included managers of the project from the 3

project participants and their assistants. The researcher believed they understood and responded to the required information for the study by the nature of their management roles. Some of the information needed was also technical and needed a technical background to respond to.

### 4.3.3 Summary of Respondents experience in construction (years)

Construction experience was sought by the study so as to ensure that the respondents were well vast in the field hence the information collected when analyzed, would be used to form a research opinion.

**Table 4.3: Respondents Experience in Construction**

Respondents		Percent Frequency		
Experience	x	Frequency	(%)	Fx
1-5 Years	3	23	27.4	69
6-10 Years	8	20	23.8	160
11-15 Years	13	24	28.6	312
16-20 Years	18	17	20.2	306
<b>Total</b>		<b>n=84</b>	<b>100.0</b>	<b>ΣFx= 847</b>

Mean =  $\Sigma Fx / n = 847/84 = 10.08$

The respondents ages showed that 23 (27.4%) had 1-5 years' experience while 20 (23.8%) had 6-10 years' experience in construction. 24 (28.6%) of the respondents had 11-15 years' experience and 17 (20.2%) had 16-20 years' experience. The projects under study being large construction projects required experienced personnel to undertake them, hence most were experienced with an average age of 10.1 years. This is equally enough experience for the study as the information obtained would be satisfactory to deduce a research opinion.

### 4.4 Descriptive Statistics

These were used to analyze the data on each of the project objectives that was collected from the questionnaires

#### 4.4.1 Contractor Planning and Project Performance

Project planning is a major function of management and ensures order and smooth running of the project. Contractor planning was the first objective of the study whereby the respondents would answer to various questions. The responses to the questionnaires on the main

indicators given were analyzed to show contractor planning and its influence on the performance of construction projects.

**Table 4.4: Contractor planning influence performance?**

<b>Contractor Planning Influences</b>		
<b>Performance</b>	<b>Frequency</b>	<b>Percent Frequency (%)</b>
Yes	83	98.8
No	1	1.2
<b>Total</b>	<b>84</b>	<b>100.0</b>

The table showed that 83(98.8%) of the respondents recognized the importance of planning as a major factor influencing the performance of a construction project while 1(1.2%) did not see planning as a significant factor in the performance of the project. This showed a strong opinion towards contractor planning which was in line with Mwangi & Iravo (2015) who noted that the structured process of effective and efficient planning and scheduling of resources is a vital component of ensuring good project performance. The 1% may have felt that project planning is just a small component influencing project performance and may not be necessarily high regardless of a proper project plan as highlighted by Murithi, Makokha, & Otieno (2017).

**Table 4.5: Contractor Planning and Project Performance**

<b>Indicator</b>	<b>Strongly Disagree</b>		<b>Disagree</b>		<b>Agree</b>		<b>Strongly Agree</b>		<b>Mean</b>	<b>S.D</b>
	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>		
The Contractor has/had a Time Schedule from the project start	6	7.1	21	25	23	27.4	34	40.5	3.0119	.97553
The Contractor follows the Time Schedule	20	23.8	27	32.1	27	32.1	10	11.9	2.3214	.97141
The Contractor has/had properly communicated the Time Schedule to the construction team.	21	25.1	28	33.3	28	33.3	7	8.3	2.2500	.92976
The Contractor has constantly been updating the Time Schedule	29	34.5	39	46.4	13	15.5	3	3.6	1.8810	.79766
The Contractor constantly checks actual progress against planned progress and takes necessary corrective measures	33	39.3	41	48.8	10	11.9	0	0.0	2.6190	.79007

From the responses presented in table 4.5, 34 (40.5%) strongly agreed while 23 (27.4%) agreed that contractor had a time schedule from the beginning of the project. On the other, 21 (25.0%) and 6 (7.1%) disagreed and strongly disagreed respectively that the contractor had a time schedule from the beginning of the project. Block & Peterson (2015) states that a proper schedule contains all the project activities, interrelationships, order of sequence and the time frames and resources required. Having an all-inclusive schedule is a major component in a successful project time performance.



In another case, the study showed that 27(32.1%) and 20(23.8%) of the respondent disagreed and strongly disagreed respectively that the contractor followed the laid down project schedule. This showed that despite well documentation of the schedule or not the contractor completely didn't follow the schedule. Contrary to that, 27(32.1%) and 10(11.9%) agreed and strongly agreed respectively that the contractor followed the laid down schedule. This shows that the schedule was followed however not with total conformance. The project schedule is a major requirement for all construction projects as per FIDIC Conditions of Contract. However, it would be inadequate to have a project schedule if it's not properly followed.

Regarding communication of the project schedule, the study showed that 21(25.1%) strongly disagreed while 28(33.3%) disagreed that the contractor effectively communicated the project schedule. This shows that on majority of the projects either the communication was not always done or it was improperly/in effectively done or was not communicated to all the parties. On the other hand, 28(33.3%) and 7(8.3%) agreed and strongly agreed respectively that there was proper communication of the time schedule. The schedule needs to be communicated to all the parties involved in the implementation of the project. This include the consultants, client, sub-contractors and contractor team personnel. This will ensure that the entire implementing team works harmoniously towards ensuring the schedule is followed and the anticipated milestones are achieved.

From the study, 39(46.4%) disagreed while 29(34.5%) strongly disagreed that the project schedule was being regularly maintained and updated. Contrary, 13(15.5%) agreed while only 3(3.6%) strongly agreed that the schedule was being regularly updated. This shows that in most projects the available schedule was rarely updated and did not reflect the actual status of the project. During project implementation, changes in design, work methodologies, and other external factors may affect the planned sequencing of activities. As such, the project schedules should be regularly maintained and updated so as to reflect the actual state of the project. As noted by Munyao (2017) proper preparation, implementation, maintenance and constant updating of the program of works enhances its efficiency.

Results from the respondents in table 4.5 showed that 33(39.3%) strongly disagreed, 41(48.8%) disagreed, while 10(11.9%) agreed that the contractor regularly monitored his activities and milestones against the schedule/planned tasks. None of the respondents strongly agreed to monitoring and evaluation of the contractor. Rómel, Gilberto & Aldo (2015) emphasized on the importance of using schedule monitoring and controlling process due to

their direct correlation with timely project completion. From the results it is therefore likely to have a poor performance of the projects with a total of 88.1% disagreeing or strongly disagreeing that the contractor regularly monitors and evaluates the project activities with the schedule. This is according to Maendo, James & Kamau (2018) who equally concluded that monitoring and evaluation has a substantial effect on the overall performance of road construction projects and recommended conducting regular monitoring and evaluation.

Further, in the table 4.5, the majority of respondents agreed that they had time schedules from the beginning of the project, they gave a mean response of 3.0119 which coincided with “agree” while the standard deviation of .97553 indicated that the responses were scattered away from the mean in such a way that a significant number of respondents gave contrary responses.

In another case, the majority of respondents gave a mean response of disagree, 2.3214 that the contractor followed a laid down schedule. This implied that despite most contractors having a developed time schedule, the majority did not follow it accordingly. However, there might be a situation where contractors followed the schedule but not accurately, this was evidenced by .97141 standard deviations.

Another group of respondents gave an average response of “disagree” (2.2500) such that they disagreed that the Contractor had properly communicated the time schedule to the construction team. A standard deviation of .92976 implied that some respondents gave different views/responses, which could mean that communication to the team regarding the time schedule might have been irregular.

In the same table, the majority of respondents gave a mean response of 1.8810 implying that they strongly disagreed that the contractor had constantly been updating the time schedule for the team. A standard deviation of .79766 meant that responses were scattered irregularly around the mean.

In another case, the majority of respondents gave an average response of 2.6190 indicating disagree to the fact that the contractor constantly checked actual progress against planned progress and took necessary corrective measures. A standard deviation of .79007 implied that the responses given were irregular and that some might have meant that the contractor either did incomplete monitoring the process was not periodically done.

#### **4.4.2 Contractor Management Capacity and Project Performance**

The project management team requires to be in possession of an array of technical, management, human and interpersonal skills to improve project delivery and enhance

performance. The study sought to examine the influence of the management capacity on the performance of the project with a number of indicators being used to show this objective.

**Table 4.6: Contractor Management Capacity Influences Performance**

<b>Contractor Management Capacity</b>		
<b>Influences Performance</b>	<b>Frequency</b>	<b>Percent Frequency (%)</b>
Yes	77	91.7
No	7	8.3
<b>Total</b>	<b>84</b>	<b>100.0</b>

From the responses, 77(91.7%) recognized that contractor management capacity greatly influenced the performance of the project while 7(8.3%) did not agree that the contractor management capacity influenced the performance of the projects. This shows that contractor management require to have the right combination of technical and management skills acquired through training and those developed through experience, constant updating of the knowledge and proper application of all this acquired knowledge. The importance of contractor management capacity in project performance is as highlighted by Kihoro & Waiganjo (2015) whose study showed a strong positive correlation between project management competence and project success.

**Table 4.7: Contractor Management Capacity and Project Performance**

<b>Indicator</b>	<b>Strongly Disagree</b>		<b>Disagree</b>		<b>Agree</b>		<b>Strongly Agree</b>		<b>mean</b>	<b>S.D</b>
	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>		
The Contractor Management had/has adequate and required qualifications for the job	0	0	17	20.2	43	51.2	24	28.6	3.0833	.69782
The Contractor Management had/has sufficient and relevant experience in undertaking similar projects	0	0.0	26	31.0	35	41.7	23	27.3	3.1071	.74475
The Contractor Management use/used proper and relevant management techniques and methods	15	17.9	27	32.1	35	41.7	7	8.3	2.4048	.87975
The Contractor Management are continually trained on new management trends and methods	28	33.3	47	56	9	10.7	0	0.0	1.7738	.62770

From the study, 0(0%) strongly disagree and 17(20.2%) disagree that the contractor had adequate qualification. This shows that a few respondents felt the contractor management did not have adequate qualifications or some felt short of the requirements required for the roles.

Different from that, 43(51.2%) agreed while 24(28.6%) strongly agreed that the contractors were highly qualified in regards to their technical background to undertake the projects. According to Atout (2014), an experienced construction manager who is well equipped with sufficient technical knowledge and aware of managerial procedures will most likely meet the project timelines and with the rendered resources.

Further, the study showed that 0(0%) strongly disagreed and 26(31.0%) disagreed that the contractor management had relevant experience to undertake the works. This shows that the contractor management may have had a wealth of experience in construction but were however not very familiar with the particular/similar projects. This is due to the nature of construction being wide with the varying sectors like water, energy, roads, and buildings. On the other hand, 35(41.7%) agreed and 23(27.3%) strongly agreed that the contractor management had required relevant experience to undertake the works. Most of the projects under study were large projects hence to efficiently manage them one is required to have a several years of experience of similar works done. Fotwe & McCaffer, 2000 notes that in addition to skills acquired during training, a managers require those developed through experience and proper application of acquired knowledge to become well vast and hence improve on their performance and the project performance in general.

From the study, 15(17.9%) strongly disagreed and 27(32.1%) disagreed that the management employed proper techniques for the projects they were undertaking. 35(41.7%) agreed while 7(8.3%) strongly agreed that the contractor management techniques to being efficient. This shows that the contractor's management was partly managing the project the projects efficiently and was partly not efficiently managing the projects. In line with Kamoona, Hares & Isik (2016), the study emphasizes on exploring the various managing and decision-making processes and using them interchangeably and all together to enhance project performance. Further, the work of Nyariranwge & Babatunde (2016) highlights that project management proficiency and competency through proper management techniques and leadership enhances successful and timely project delivery.

The study showed that 28(33.3%) strongly disagreed that the contractor continuously offered training activities to its management. 47(56.0%) disagreed and 9(10.7%) agreed that the contractor offered training to its management while 0(0.0%) strongly agreed. This shows that the contractor did little to offer trainings to its management. In line with Nyambura (2015), who noted that continuous training of management is fundamental in improving project

performance; It was paramount that training programs are offered so as to update management knowledge and ensure the management is always aware of the ever-evolving project management techniques and processes.

In the findings, the majority of respondents gave a mean response of agree (3.0833) such that the contractor management had adequate and required qualification for the job. This could be true because for contractors to be registered by the NCA and qualify for large project contracts, they must have attained a given level of qualification. A standard deviation of .69782 implied that other responses were fairly distributed around the mean such that it could also mean that some of the contractors could have lower qualification required to undertake given projects.

In another case, a significant number of respondents noted on average of 3.01071 that the contractor Management had sufficient and relevant experience in undertaking similar projects. While that was so, there was a standard deviation of 74475, this implied that other respondents gave irregular responses, which could not support the contractors had sufficient experience in executing their roles.

Regarding techniques and working methodology, the majority of respondents on average (2.4048) disagreed that the contractor management used proper and relevant management techniques and methods. This meant that the majority of contractors did not have basic equipment needed to execute their roles, they might have been relying on hiring or borrowing. A standard deviation of .87975 implied that other different responses given by respondents were irregularly distributed around the mean and could or influence the direction of the mean.

Another group of respondents strongly disagreed on average of 1.7738 that the contractor management were continually trained on new management trends and methods. This implied that most contractors performing large contracts rarely underwent in-service training to better their working capabilities. A standard deviation of .62770 implied that other responses were fairly distributed around the mean and the responses could be skewed towards the mean.

#### **4.4.3 Contractor Resources and Performance of Construction Projects**

In order to undertake large construction projects in Kenya, contractors require an array of available resources due to the complexity of this projects. This include an outlay of finances,

required key skilled and unskilled labor, availability of necessary and modern tools and equipment. As such, the study sought to examine the influence of the contractor resources on the performance of the construction projects.

**Table 4.8: Contractor Resources influences Project Performance**

<b>Contractor Resources Influences Project</b>			
<b>Performance</b>	<b>Frequency</b>		<b>Percent Frequency (%)</b>
Yes	82		97.8
No	2		2.2
<b>Total</b>	<b>84</b>		<b>100.0</b>

In the findings presented in table 4.10, 82 (97.8%) of the respondents indicated that contractors' resources largely influenced project performance while 2 (2.2%) of the respondents stated that contractors' resources did not influence project performance.

**Table 4.9: Contractor Resources and Project Performance**

<b>Indicator</b>	<b>Strongly Disagree</b>		<b>Disagree</b>		<b>Agree</b>		<b>Strongly Agree</b>		<b>Mean</b>	<b>S.D</b>
	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>		
	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>		
The contractor had/has required equipment during entire project implementation stage	14	16.7	31	36.9	20	23.8	19	22.6	2.7024	.97905
The contractor had/has sufficient finances during entire project implementation stage	14	16.7	31	36.9	16	18.6	23	36.7	2.7857	.99540
The contractor had / has sufficient skilled	0	0.0	3	3.6	51	60.7	30	35.7		

personnel with relevant skills										3.3214	.54132
The contractor had / has required technology and appropriate construction method	8	9.6	20	24.1	35	42.2	20	24.1	3.0476	.79007	

From the responses presented in table 4.9, 31 (36.9%) disagreed while 14 (16.7%) strongly disagreed that the contractor had required equipment during entire project implementation stage. On the other hand, 20 (23.8%) and 19 (22.6%) agreed and strongly agreed respectively that the contractor had required equipment during entire project implementation stage. This shows that in some projects the machinery and equipment were sufficient to undertake the works while in others the contractors did not have adequate machinery and equipment. This can be explained by the fact that some of the projects were being done by international companies which had majority of the resources while some of the local companies did not have adequate resources.

Different from that was a group of 31 (36.9%) and 14 (16.7%) disagreed and strongly disagreed respectively that the contractor had sufficient finances during entire project implementation stage. Contrary to that, 23 (36.7%) and 16(18.6%) of the respondents strongly agreed and agreed respectively that that the contractor had sufficient finances during entire project implementation stage. This shows that some of the contractors undertaking the projects were financially stable while others struggled with finances to undertake the projects. This would be as a result of their being some international companies who had financial muscle as most of the local companies who were viewed as smaller could not boast of the same strength. Fugar & Agyakwah-Baah (2010) notes that a key contributor to poor project performance is the unavailability of sustained project resources by the contractor.

The responses showed that 0(0%) strongly disagreed and 3(3.6%) disagreed that there were sufficient skilled and unskilled personnel. 51(60.7%) agreed while 30(35.7%) strongly agreed that the contractor had availability of personnel. Due to the complexity of large construction projects, it is important that the contractor engages experienced skilled personnel as they play a major role in the project implementation. The responses showed that the contractor was



well equipped with majority of them importing the skilled labor from other areas and even from other countries.

In the findings presented in table 4.9, the majority of respondents gave a mean of 2.7024 implying that they disagreed that contractors had required equipment during entire project implementation stage. A standard deviation of .97905 implied that the responses given were sparsely distributed around the mean and that they contradicted the majority of responses.

In another case, a significant number of respondents gave disagreed (2.7857) that the contractor had sufficient finances during entire project implementation stage. A standard deviation of .99540 implied that the responses given were sparsely distributed around the mean and that they contradicted the majority of responses.

Apart from that, the majority of respondents agreed that the contractor had sufficient skilled personnel with relevant skills. A standard deviation of .54132 implied that the responses were fairly distributed around the mean. Further, a significant number of respondents disagreed (3.0476) that the contractor had required technology and appropriate construction method. A standard deviation of .79007 implied that the responses given were sparsely distributed around the mean and that they contradicted the majority of responses.

#### **4.4.4 Contractor- Sub Contractor Relationship and Project Performance**

This section presents findings related to indicators that test the influence of contractor-sub-contractor relationship on project performance. Relationship between contractor-sub-contractor features the frequency of change, control over sub-contractor, timely payment, facilitation and quality of work.

**Table 4.10: Contractor-Sub Contractor relationship and Project Performance**

<b>Contractor- Sub contractor relationship</b>		
<b>Influences Project Performance</b>	<b>Frequency</b>	<b>Percent Frequency (%)</b>
Yes	68	80.4
No	16	17.4
<b>Total</b>	<b>90</b>	<b>100.0</b>

From the findings presented in table 4.13, 68 (80.4%) stated that contractor-sub contractor relationship influenced project performance. On the other hand, 16 (17.4%) indicated that contractor-sub contractor relationship did not influence project performance.

**Table 4.11: Contractor- Sub Contractor Relationship and Project Performance**

<b>Indicator</b>	<b>Strongly Disagree</b>		<b>Disagree</b>		<b>Agree</b>		<b>Strongly Agree</b>		<b>Mean</b>	<b>S.D</b>
	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>	<b>f</b>	<b>(%)</b>		
The Contractor has been frequently changing engaged subcontractors	29	34.5	36	42.9	19	22.6	0	0.0	1.8810	.15337
The Contractor has full control of the Sub Contractor in regards to their work	0	0.0	6	7.1	37	44.0	41	18.8	3.5476	.50072
The Main Contractor had/has been paying the Sub contractor in a timely manner	11	13.1	12	14.3	34	40.5	27	32.1	3.2143	.71256
The Main Contractor had/has fully facilitated the Sub Contractor to undertake the works smoothly	6	7.1	12	14.3	28	33.3	38	45.2	3.5595	.56720
The Sub contractor delivers good materials and high-quality workmanship for	2	2.4	23	27.4	42	50.0	17	20.2		

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In the findings presented in table 4.11, 36 (42.9%) and 29 (34.5%) disagreed and strongly disagreed respectively that the contractor has been frequently changing engaged subcontractors. Contrary, 19 (22.6%) respondents agreed that the contractor has been frequently changing engaged subcontractors. Considering the cost of changing subcontractors and the associated time wastage, the main contractor may not consider initiating new agreement.

In another case, 41 (18.8%) and 37 (44.0%) strongly agreed and agreed respectively that the Contractor had full control of the Sub Contractor in regards to their work. On the other hand, 6 (7.1%) respondents disagreed that the Contractor had full control of the Sub Contractor in regards to their work. This imply that most large contractors were able to influence the performance of subcontractors.

Regarding payment, 34 (40.5%) and 27 (32.1%) agreed and strongly agreed respectively that the Main Contractor had been paying the Sub contractor in a timely manner. Ensuring the subcontractor by paying promptly ensures that work is done accordingly and in a motivated manner. Different from that, 12 (14.3%) and 11 (13.1%) disagreed and strongly disagreed respectively that the Main Contractor had been paying the Sub contractor in a timely manner. Another group of 38 (45.2%) and 28 (33.3%) strongly agreed and agreed respectively that the main contractor had fully facilitated the sub-contractor to undertake the works smoothly. Relative to paying subcontractors, main contractors who support by availing necessary advice, equipment and even technical support enhance working relationships and hence project performance. On the other hand, 12 (14.3%) and 6 (7.1%) disagreed and strongly disagreed respectively that the main contractor had fully facilitated the sub-contractor to undertake the works smoothly.

In another case, 42 (50.0%) and 17 (20.2%) and agreed and strongly agreed respectively that the sub-contractor delivered good materials and high-quality workmanship for works given. On the other hand, 23 (27.4%) and 2 (2.4%) disagreed and strongly disagreed respectively that the sub-contractor delivered good materials and high-quality workmanship for works given. In this case, it was evident that the majority of subcontractors were responsible with their work and adhered to work agreement with the contractors because of good working relationships.

The majority of respondents strongly disagreed (1.8810 as mean) that main contractors have been changing subcontractors, the rationale behind this could be increased associated cost and time wastage. A standard deviation of .15337 implied that the responses were closely distributed around the mean in that the majority of respondents have related responses. In another case, the majority of respondents gave a mean of 3.5476 where they agreed that the main contractor had full control of sub-contractor in regard to their work. Regarding this response, there was a standard deviation of .50072 implied that the responses were fairly distributed around the mean and that a significant number of respondents gave contradicting views. Apart from that, the majority of respondents gave a mean of 3.2143 implying that they agreed with the statement that the main contractor had been paying the sub-contractor in a timely manner. On the same note, there was a standard deviation of .71256 that implied that responses were sparsely distributed around the mean.

Regarding facilitation, the majority of respondents gave a mean of agree (3.5595) with the statement that the main contractor had fully facilitated the sub-contractor to undertake the works smoothly. This was true because it all started with the will to pay and therefore to supply or extent needed help when and where necessary. A standard deviation of .56720 implied that the responses given were fairly distributed around the mean.

Further from that, a significant number of respondents gave a mean of 2.8810 implying that they disagreed that the sub-contractor delivered good materials and high-quality workmanship for works given. A standard deviation of .75098 implied that the responses given were sparsely distributed around the mean and that the majority of the responses are contrary to that of the mean.

#### 4.5 Thematic analysis of Interview Responses

This section presents the analysis of the interview responses from the respondents.

**Table 4.12: Thematic Analysis of Interview Responses**

Themes	Sub-themes	Responses
Contractor planning	Having/following/updating time schedule	Contractors are not keen on updating and adhering to the set timeline per contract activity
	Monitoring/evaluating with schedule	Contract monitoring and evaluation based on time schedules are rarely done because of the associated cost and time
Contractor Management Capacity	Qualification	Contractors are qualified and experienced
	Experience	because it is a requirement by the regulator, but they do not undergo in-service training to enhance their skills
	Management techniques/methods Training	Management techniques and methods used are poor and leads to project delays
Contractor Resources	Equipment	Failure to have equipment encourages hiring/leasing, which takes time to acquire
	Finances	because sometimes they are usually leased elsewhere.
	Skilled personnel	Inadequate finances to fund project activities have always called for credit requisition from financial institutions, which take time to be approved
	Technology	
Contractor-Sub contractor relationship	Change/Control/Pay	Main contractors do not frequently change sub-contractors because it takes time to identify the right alternative entity for the project
	Facilitate sub-contractors	
	Delivering good materials	Due to delays caused by the financial system in acquiring credit, some contractors do not deliver materials on time, which make them fail to deliver high quality work.
	High quality workmanship	

## **4.6 Discussion**

This section presents a discussion of quantitative and qualitative findings. The two findings will then be compared with scholarly findings realized from researches of other scholars.

### **4.6.1 Contractor Planning and Project Performance**

In the findings, over 98.8% of the respondents indicated that contractor planning influenced performance of large projects. In another case, 67.9% of respondents agreed that they had time schedules from the beginning of the project. In another case, over one half of the respondents disagreed that contractors follow, update and communicate time schedules accordingly to keep pace with projects. Further, over one half of the respondents disagreed that contractors checked the actual progress and planned progress of the work done. In this case, most contractors had time schedules, but the failure to update, follow, and communicate any changes on the time schedule had an influence of delaying the completion time of projects.

In the interviews, Clients, and Site Engineers said

*“.... Contractors are not keen on updating and adhering to the set timeline per contract activity.....Contract monitoring and evaluation based on time schedules are rarely done because of the associated cost and time....”*

Mwangu & Iravo (2015) notes that the structured process of effective and efficient planning and scheduling of resources is therefore very vital before project implementation and is a major component of project delay avoidance. Further, the plan should be well maintained and constantly updated to reflect the true status of the project and potential delays are identified and mitigated. Munyao (2017) conducted a study to investigate the how Program of Works has an influence in contractor performance during construction project implementation in Kenya. The significance of the Program of Works/Time schedule in project management as a vital component considered in meeting construction timeliness was highlighted. The study also found that there's need for proper preparation, implementation and constant updating of the program of works to enhance its efficiency.

Findings from the interview coincided with the quantitative findings in such a way that they all established that most contractors did not update, communicate and follow their plans hence wasted a lot of time redoing project activities. Scholarly findings were in line with

qualitative and qualitative findings because they all highlighted on the value of time schedules.

#### **4.6.2 Contractor Management Capacity and Project Performance**

In the findings, 91.7% of the respondents stated that contractor management capacity largely influenced project performance. Notably, 79.8% and 69.0% of the respondents agreed respectively that contractors had needed qualification and experience to undertake most of the projects. However, over one half of the respondents disagreed that contractors used proper and relevant management techniques and methods and that they were trained continually on new management trends and methods. The failure to use proper and relevant management techniques/methods meant that the majority were using outdated methods of project implementation, which took time to complete. Further, lack of enough in-service training meant that most of the contractors were not privy to new technological methods of project execution; they might be relying on consultants who charge them exorbitantly and take time to advise them promptly.

In the interviews, Clients, and Site Engineers stated,

*“.....Contractors are qualified and experienced because it is a requirement by the regulator, but they do not undergo in-service training to enhance their skills...”*

*“...Management techniques and methods used are poor and lead to project delays...”*

Findings from the interviews coincided with quantitative findings in such a way that they both noted that the majority of contractors were qualified and experienced but did not receive in-service training. Further, both findings identified that management techniques and methods adopted by most contractors were poor and always lead to project delays.

According to Atout (2014), an experienced construction manager should be equipped with sufficient technical knowledge and aware of managerial procedures will most likely meet the project timelines and with the rendered resources. Further, Shibani & Sukumar (2015) highlights the need for project managers to participate in all project phases and be in possession of an array of technical, management, human and interpersonal skills which will in turn improve project delivery.

In Mombasa County Kenya, Nyambura (2015) studied the influence that strategies adopted by management have on successful project delivery. From the study it was clear that a good

percentage of 40% of project officials did not clearly understand the project requirements. This showed that many project officials lack the expertise hence a need for proper training to improve project success. These training programs update management knowledge, ensure management is aware of the constantly evolving project management techniques and processes which in turn enhances performance (Saraf, 2015).

#### **4.6.3 Contractor Resources and Project Performance**

Findings presented in this study indicated that 97.8% of the respondents stated that contractor resources influenced project performance. Specifically, over one half of the respondents disagreed that the contractor had required equipment during entire project implementation stage. Such contractors relied on hiring/leasing equipment whose procedure to acquire took time, was not reliable and available when needed. Further, over one half of the respondents disagreed that the contractor had sufficient finances during entire project implementation stage. Failure to have necessary equipment during the project implementation stage and failure to acquire sufficient funds needed to facilitate the project meant that most of the project activities were not undertaken at their required scheduled time because of the delays associated with acquiring financial credit and hiring necessary equipment.

In the interviews, Clients, and Site Engineers said,

*“.....Failure to have equipment encourages hiring/leasing, which takes time to acquire because sometimes they are usually leased elsewhere....”*

*“....Inadequate finances to fund project activities have always called for credit requisition from financial institutions, which take time to be approved.....”*

Qualitative findings were in line with quantitative findings in such a way that in both, the failure to have necessary equipment meant that contractors resorted for hiring, wasted time because most of the construction equipment were relied upon by many contractors. In another case, insufficient funds to facilitate contractual activities meant that many contractors relied on loans from financial institutions for smooth project implementation.

Okeyo, Rambo & Odundo (2015), further conducted a study in Kisumu County to examine the impact delay in mobilization of project resources had on the completion time of Sondu-Miriu Hydropower Project (SMHP). This was due to the project completion date being delayed by six years from the initial completion date of 2005 to 2011. Hence, the study



intended to examine the relative importance of contractor mobilization among other components of contractual delays and the alleged effect of this delayed contractor mobilization was studied. Periodical reports showed the delay was mainly as result of delayed mobilization of resources. From the results of the study, it was evident that the delay on mobilization of resources required to undertake the project led to a 92.3% re-scheduling and re-sequencing of tasks, productivity losses and inefficiency (82.1%), increased costs related to time (79.5%), late completion (76.9%), in addition to extended time and speeding up of works (74.4%). A perfect start is a key factor for project completion on time. Therefore, lack of required resources and/or insufficient mobilization of resources have a significant negative influence on project success (Mutairi, 2017).

#### **4.6.4 Contractor-Sub Contractor Relationship and Project Performance**

In the findings presented in this study, 80.4% of the respondents stated that contractor-sub contractor relationship influenced project performance of large projects. Notably, 77.4% of the respondents strongly disagreed that main contractors changed subcontractors. The rationale behind it was that time taken to identify and engage another subcontractor was considerably long hence influencing negatively project performance. In another case, 62.8%, 72.6%, and 78.5% of the respondents all agreed that the main contractor paid, controlled, and fully facilitated subcontractors respectively. This was a move by the main contractor to create good working environment with subcontractors in order to ensure timely execution of projects. Different from that, 70.2% of the respondents disagreed that sub-contractor delivered good materials and high-quality workmanship for works given. The move to fail to deliver good quality materials emanated from the failure to secure funds at the right time, and therefore resorted to a desperate decision of acquiring low quality/sub-standard materials in order save on time. Low quality work produced by contractors is as a result of the failure to have a good working relationship between the contractor and the subcontractor, which is caused by delays in payments, change in project design, and failure to communicate promptly about project activities among others.

From the interviews Client Engineers & Site Engineers stated,

*“...Main contractors do not frequently change sub-contractors because it takes time to identify the right and alternative entity for the project....”*

*“.....Due to delays caused by the financial system in acquiring credit, some contractors do not deliver materials on time, which make them fail to deliver high quality work.....”*

According to Muinde (2008), 90% of the Contractors depend on subcontractors for the execution of their works as they provide skilled labor, minimize work, financial pressure and overheard costs. Hence the need for a cooperative relationship and integration of subcontractors into a partnering approach hence improved relationship and effective project performance.

In Gaza Strip, Enshassi, Arain & Tayeh (2012), conducted a study aimed at identifying and evaluating the main problems that affect the performance of contractors and subcontractors in the construction projects. The study highlighted the main contractor's financial constraints, untimely payment of contract progress amounts, improper observance to the contract and project specifications, delays in execution of works, poor quality standards by Sub contractor as the most prominent causes of poor relationships among the contractor and the subcontractor.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATION AND SUGGESTIONS FOR FURTHER RESEARCH**

#### **5.1 Introduction**

This chapter presents summary of key findings that relate to research objectives. Conclusions made from the presented findings, recommendations for policy and suggestions for further research.

#### **5.2 Summary of Findings**

This study sought to investigate influence of Contractor related factors on the performance of large projects. The following findings were made.

##### **5.2.1 Contractor Planning and Project Performance**

In the findings, it was established that over 98.8% of the respondents indicated that contractor planning influenced performance of large projects. In another case, 67.9% of respondents agreed that they had time schedules from the beginning of the project. In another case, over one half of the respondents disagreed that contractors follow, update and communicate time schedules accordingly to keep pace with projects. Further, over one half of the respondents disagreed that contractors checked the actual progress and planned progress of the work done. Qualitative findings coincided with qualitative findings.

##### **5.2.2 Contractor Management Capacity and Project Performance**

From the findings presented in this study, 91.7% of the respondents stated that contractor management capacity largely influenced project performance. Specifically, 79.8% and 69.0% of the respondents agreed respectively that contractors had needed qualification and experience to undertake most of the projects. Nevertheless, over one half of the respondents disagreed that contractors used proper and relevant management techniques and methods and that they were trained continually on new management trends and methods. Qualitative findings related to quantitative findings.

##### **5.2.3 Contractor Resources and Project Performance**

Findings presented in this study indicated that 97.8% of the respondents stated that contractor resources influenced project performance. Notably, over one half of the respondents disagreed that the contractor had required equipment during entire project implementation

stage. Further, over one half of the respondents disagreed that the contractor had sufficient finances during entire project implementation stage. Findings from the interview were portrayed the picture of findings realized from questionnaires.

#### **5.2.4 Contractor-Sub Contractor Relationship and Project Performance**

In the findings presented in this study, 80.4% of the respondents stated that contractor-sub contractor relationship influenced project performance of large projects. Markedly, 77.4% of the respondents strongly disagreed that main contractors changed subcontractors. In another case, 62.8%, 72.6%, and 78.5% of the respondents all agreed that the main contractor paid, controlled, and fully facilitated subcontractors respectively. Different from that, 70.2% of the respondents disagreed that sub-contractor delivered good materials and high-quality workmanship for works given. Findings from interviews were in line with findings from questionnaires.

### **5.3 Conclusions**

The failure to follow, update and communicate time schedules accordingly to project team largely influenced the time of project completion, most projects delayed because of such problems. Contractors develop schedules and other project implementation documents as a formality but they do not adhere to the outlined principles underlying such documents and for reason, project fail to be completed on the expected time. The follow, update and communicate time schedules also contribute to irregular project checks, monitoring and evaluation, which resort to accumulated problems or challenges that could have been mitigated early and for that reason projects take too long to complete.

Most contractors are qualified and possess relevant working experience, but the majority have never been trained on job to enhance their skills. Contractors are not privy to modern ways of construction or those that incorporate modern technology in implementation and for that reason, it takes long for projects to be complete. In addition to Contractor management, the regulators that includes NCA, Engineering bodies, Public Health and Ministry of Public Works & Housing have not been organizing regular trainings for contractors meant to enhance their skills.

Most contractors do not own large and modern construction equipment, they rely on hiring/leasing, which takes time because of the unavailability. Financial institutions take time in processing loans for contractors, they might not even be giving credit to contractors whose

credit worthiness is questionable. For that reason, some contractors acquire substandard equipment, which when evaluated after work force the contractor to either repeat the work or redo some sections to ensure quality.

In spite of the move by contractors to pay, facilitate and support sub-contractors, most of them use low quality materials in implementation of project activities. Sub-contractors take advantage of irregular project checks to fail to undertake project activities according to the scheduled time hence influencing the time of completion. Changing subcontractors is costly take time to identify and engage an alternative entity for this reason, main contractors stick to the engaged subcontractor despite challenges that influence actual time of completion of projects.

#### **5.4 Recommendations for Policy and Practice**

The National Construction Authority and the Ministry of Roads, Public Works & Public Housing should formulate policies aimed at compelling contractors to develop, follow, update and communicate time schedules accordingly failure to adhere to the policy should attract a punitive fine and even suspension.

The Government through the Ministry of Roads, Public Works & Public Housing should collaborate with the NCA in organizing for training of contractors meant to enhance their skills and equip them with modern techniques of construction using contemporary technology. Contractors should be encouraged to further their studies as a way to improve their capacity to handle complex projects.

The Clients ought to properly vet contractors prior to awarding them projects to ensure that they are well equipped with financial, modern machinery and proper management experience. The government should also formulate interest capping laws to allow financial institutions to increase credit lending to local contractors. In such a way, contractors will be able to acquire construction equipment and good quality materials in order to reduce time wasted on leasing unavailable equipment or equipment that are relied upon by many contractors

Contractors should sign written contractual agreements with subcontractors and agree even on the materials used, their quantity to avoid situation where the subcontractor will use poor quality materials because it will waste time to redo the project using quality or standard

materials. In addition, these sub-contractors should be properly vetted prior to signing of such contracts to minimize on using sub-contractor with poor records of delivery.

### **5.5 Suggestions for Further Research**

This study investigated the influence contractor related factors had on project performance of large projects in West Pokot County. Notably, the researcher focused on contractor planning, contractor management capabilities, contractor resources and contractor-sub contractor relationship. Scholars should consider investigating other factors influencing the performance of large projects. Client and consultant related factors influencing performance of large projects and Socio-economic factors influencing performance of large projects.

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## APPENDICES

### Appendix 1: Letter of Introduction

MARUGA JOB WAMUI

P.O BOX 2153-10100,

NYERI.

#### RE: REQUEST FOR RESEARCH INFORMATION

I am a student carrying out a research project on the **Influence of Contractor Capability on Performance of Large Construction Projects, Case of West Pokot County, Kenya** in partial fulfillment of the requirement for the award of a Master of Arts degree in Planning and Project Management.

I request you to kindly assist me with the necessary information needed for this research by responding to all questions in this questionnaire and interview guide frankly and accurately. Note that the information obtained will be kept confidential and will only be used for academic purposes. I appreciate your positive consideration.

Yours Sincerely,



Maruga Job Wamui.

## Appendix 2: Questionnaire to the Construction Project Implementation Team

The aim of this questionnaire is to gather information about the **Influence of Contractor Capability on the Performance of Large Construction Projects, Case of West Pokot County, Kenya**. Time in this research has been used as the indicator for project performance. This questionnaire is required to be filled with exact relevant facts. After all questionnaires have been collected and analyzed, interested participants of this study will be given feedback on the overall research results.

Please respond to each question by adding a tick in the appropriate response or filling in the relevant information.

### Part A: General Information:

(Please tick your answers in the boxes provided)

1. Indicate Role of your Organization in the Project:

Client  Consultant  Contractor

2. Indicate your Position:

Project Engineer (Client)   
Resident Engineer (Consultant)   
Site Agent (Contractor)   
Ass. Project Engineer (Client)   
Ass. Resident Engineer (Consultant)   
Ass. Site Agent (Contractor)

3. Indicate Number of years of experience:

1 – 5 Years   
6 – 10 Years   
11 – 15 Years   
16 – 20 Years   
21 – 25 Years

**Part B: Influence of Contractor Capability on Time Performance of Large Construction Projects**

**Category I: Contractor Planning and Performance of Large Construction Projects**

Please tick the number that represents your level of agreement on the statement. Use the scale provided: **1= Strongly Disagree, 2=Disagree, 3= Agree, 4= Strongly Agree.**

<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
The Contractor has/had a Program of Works/Time Schedule from the project start				
The Contractor follows the Time Schedule				
The Contractor has/had properly communicated the Time Schedule to the construction team.				
The Contractor has constantly been updating the Time Schedule				
The Contractor appropriately schedules necessary resources for all activities to be undertaken				
The Contractor constantly checks actual progress against planned progress and takes necessary corrective measures				

The Contractor planning generally influences/influenced the performance of this project

Yes  No

**Category II: Contractor Management Capacity and Performance of Large Construction Projects**

Please tick the number that represents your level of agreement on the statement. Use the scale provided: **1= Strongly Disagree, 2=Disagree, 3= Agree, 4= Strongly Agree.**

<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
The Contractor Management had/has adequate and required academic qualifications for the job				
The Contractor Management had/has adequate and relevant experience in undertaking similar projects				
The Contractor Management use/used proper and relevant management techniques and methods				
The Contractor Management are continually trained on new management trends and methods				

The Contractor Management Capacity have generally influenced the time performance of this project

Yes  No

### Category III: Contractor Resources and Performance of Large Construction Projects

Please tick the number that represents your level of agreement on the statement. Use the scale provided: **1= Strongly Disagree, 2=Disagree, 3= Agree, 4= Strongly Agree.**

Statement	1	2	3	4
The contractor had/has required equipment during entire project implementation stage				
The contractor had/has adequate/enough equipment during entire project implementation stage				
The contractor had/has sufficient finances during entire project implementation stage				
The contractor had / has sufficient skilled personnel with relevant skills				
The contractor had / has required technology and appropriate construction method				

The Contractor Resources generally influences/influenced performance of this project

Yes  No

### Category IV: Contractor- Sub Contractor Relationship and Performance of Large Construction Projects

Please tick the number that represents your level of agreement on the statement. Use the scale provided: **1= Strongly Disagree, 2=Disagree, 3= Agree, 4= Strongly Agree.**

Statement	1	2	3	4
The Contractor has been frequently changing engaged subcontractors/suppliers				
The Contractor has full control of the Sub Contractor in regards to their work				
There is effective communication between the Contractor and the Sub Contractor/supplier				
The Main Contractor had/has been paying the Sub contractor in a timely manner				
The Main Contractor had/has fully facilitated the Sub Contractor to undertake the works smoothly				
The Sub contractor delivers good materials and high quality workmanship for works given.				

The Contractor- Sub Contractor Relationship generally influences/ influenced the performance of this project

Yes  No

**\*\*Thank You\*\***







### **Appendix 3: Interview Schedule**

1. In your own view how does Contractor planning influence the performance of large construction projects in West Pokot County?
2. How do you think Contractor management capacity influence the performance of large construction projects in West Pokot County?
3. In your own understanding, how does Contractor resources influence the performance of large construction projects in West Pokot County?
4. How does contractor – Sub contractor relationship influence the performance of large construction projects in West Pokot County?

**\*\*Thank You\*\***

## Appendix 4: Research Permit

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 695241	Date of Issue: 22/November/2019
<b>RESEARCH LICENSE</b>	
	
<p>This is to Certify that Mr.. JOB MARUGA of University of Nairobi, has been licensed to conduct research in Transzoia on the topic: <b>INFLUENCE OF CONTRACTOR CAPABILITY ON THE PERFORMANCE OF LARGE CONSTRUCTION PROJECTS; A CASE OF WEST POKOT COUNTY, KENYA</b> for the period ending : 22/November/2020.</p>	
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