

FACTORS INFLUENCING COMPLETION OF BUILDING CONSTRUCTION PROJECTS IN KAJIADO COUNTY, KENYA

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**A Research Project Report Submitted in Partial Fulfillment of Requirement for Award
of the Degree of Master of Arts in Project Planning and Management, University of
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DECLARATION

I hereby declare that this project report is my work and has not been presented to any other university for the award of any degree.

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DEDICATION

To my lovely wife Magdalene Setia, and my daughters: Faith, Lyn and Sharon for their support during the entire period of my study.

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LIST OF ABBREVIATION AND ACRONYMS

B.S	Building Services
CETA	Construction Education and Training Authority
CIBD	Construction Industry Development Board
CPM	Construction Project Management
CSCS	Construction Skills Certification Scheme
GDP	Gross Domestic Product
GNP	Gross National Product
GOK	Government of Kenya
KNBS	Kenya National Bureau of Statistics
KPI	Key Performance Indicators
MTEF	Medium Term Expenditure Framework
NCA	National Construction Authority
NICs	Newly Industrialized Countries
ROK	Republic of Kenya
SLOTS	Singapore List of Trade Subcontractors
TOC	Theory of Complexity

ABSTRACT

The purpose of this study was to assess factors influencing completion of building construction projects in Kajiado County. The subject of completion of project is a universal concern that affects all parties to a construction project. Various studies show that construction industry accounts for an estimated 10% of the gross national product (GNP) of most developed economies, with reports indicating that the resources utilized in this industry add up to 50% of the world resources. It is thus in the interest of the project management as an emerging profession to address all the factors that affect completion of construction project. This is because contractors usually have limited ability to claim additional money which is limited to the circumstances where the project company has delayed the contractor or has ordered the variation of the works. Reports indicate that more than 50% of all public building construction projects started by the county government in the last two years have gone beyond the stipulated completion time. Although the government has been making efforts to address the issue by issuing directives and legislations aimed at improving the situation, indications are quite clear that cases of delays, cost overruns and below quality deliveries are still rampant. The study was therefore guided by the following objectives: Establishing the extent to which fund allocation influences completion of county government construction projects; finding the extent to which project identification process influences completion of County government construction projects; establishing the extent to which human resource factors influence completion of County government construction projects; as well as establishing the extent to which project management factors influence completion of County government construction projects in Kajiado County. The target population was 450 personnel comprising of 15 chief officers, 35 technical staff, 180 contractors, and 220 sub-county managers. Based on Yamane 1967 formula, a sample of 212 respondents was selected. Pilot testing was conducted on 21 randomly selected from personnel working in Kajiado North sub-county. Statistical Package for Social Studies (SPSS) to carry out analysis on the data collected with the findings being presented in form of tables and charts. The study found that fund allocation, project management factors, as well as human resource factors had a positive correlation with the completion of building construction projects in Kajiado County. Project identification process on the other hand displayed negative correlation with the completion of building construction projects in Kajiado County. A study concluded that compliance regulations aid fund allocation, project identification, human resource, and project management in ensuring successful completion of building construction projects in Kajiado County. The study recommended that all project managers in Kajiado County comply with the construction standards and regulations in place before embarking on project construction, ensure project funds are set aside for the same, and procure all the required materials before start of the project.

CHAPTER ONE

INTRODUCTION

1.1 Background Information

A project simply defined as a series of tasks arranged in a defined sequence or relationship that produces predefined output or effect, and always has a beginning and an end (Cleland and Gareis, 2006). Projects are used in all economic and non-economic fields as a means of organizing the activity and timing the achievement of desired objectives. Meskendahl (2010) defines projects as the central building blocks used in implementing strategies to deal with change.

Construction industry plays a major role in development and achievement in development and achievement of the societal goals. As Navon (2005) observed, the construction industry accounts for an estimated 10% of the gross national product (GNP) of most developed economies, with reports indicating that the resources utilized in this industry add up to 50% of the world resources. With such an impact on the world economy and resources, it is prudent that activities within this industry are efficiently and effectively planned (Economy Watch, 2010). Every country in the world including Kenya to some extent has an active construction industry as virtually every service requires facilitation from the construction industry. According to the Kenya Economic Survey reports, the construction industry is one of the major economic pillars, contributing a significant portion between 5% and 12% to the economic growth and development, as well as offering 10% of total employment opportunities in the country (Njuguna, 2008). This clearly underlines the significance of the Construction Project Management (CPM) industry, even though the provision of infrastructure consumes about 10% of the National Budget as indicated in various reports (Kenya National Bureau of Statistics, 2015)

Aon (2012) defines Construction Project Management (CPM) as an approach used in the construction industry with the aim to increase the efficiency and effectiveness in performance in the management and coordination of a project during its lifecycle. The completion of projects in a timely manner is often a critical factor and measure of project success. The success of any project is highly dependent on its completion time from start to delivery of results. This has a direct bearing on management decisions such as budgets,

targets and standards (Seddon, 2008). However, most construction projects usually suffer delay and surpass the outlined contract sum (World Bank, 2014). One of the most important problems in the construction industry is time and cost overruns. Construction delays play a key role in any project success. The delay factors are very crucial within a construction project and it is vital that all organizations have certain knowledge regarding this issue in order for the project to be completed effectively and satisfactorily (Wong and Vimonsatit, 2012). The result of such overrun can at time lead to abandonment of a project. Ideally projects are supposed to run continuously without delays and the responsibilities to keep this in check lies squarely with the project manager and other stakeholders who are linked directly with the projects. Within the project team there should be an outlined strict mechanism discouraging parties to the project from laxity that may lead to stalling or delays (Oyewobi, et al.2011).

Delays on construction projects are a universal phenomenon. Therefore, it is obvious that most of the projects are delayed (Brennan, 2002). Delay is generally acknowledged as the most common, costly, complex and risky problem encountered in construction projects. The construction industry is complex in its nature, owing to the large number of stakeholders including contractors, consultants, shareholders, regulators, land owners, and tenants (Yazici, 2009). The overriding importance of time for both the owner and the contractor, and the complexity of the industry is the source of frequent disputes and claims leading to lawsuits (Ahmad *et al*, 2003).Delays do not always result from a single catastrophic event rather they develop slowly during the course of work. To determine the critical delay, one has to compare as-planned and as-built schedules (Last, 1997). Delays can cause substantial damages to an owner. This has motivated the owners to devise contract provisions and project processes to anticipate, manage and compensate for such delays, so that they could be in safe position than the contractor (Brennan, 2002). The successful execution of construction projects and keeping them within estimated cost and prescribed schedules depend on a methodology that requires sound engineering judgment.

The completion of projects in a timely manner is often a critical factor and measure of project success. Generally, the basic objective of building is to construct with the aim of achieving the required quality within the stipulated time and the cost as well (Yazici,

2009). The universal construction industry is inundated with late delivery in project. According to Mbachu and Nkado (2004), these challenges have led to contractors losing their clients, increase in risk associated with investment and the inability to. In recent years, there has been an increasing interest in the use of projects as building blocks in the strategic management of organizations (Weiss and Potts, 2012).

1.2 Statement of the Problem

The subject of completion of project is a universal concern that affects all parties to a construction project. It is thus in the interest of the project management as an emerging profession to address all the factors that affect completion of construction project. This is because contractors usually have limited ability to claim additional money which is limited to the circumstances where the project company has delayed the contractor or has ordered the variation of the works. (McNair, 2011). Various reports across Africa have shown that construction projects like roads and other infrastructures have been faced with a major common problem of delays in delivery. According to Nyamwaro (2011) construction project delivery is affected by many factors. Every investor wants to be sure of the project time and cost. This is because challenges that may affect project completion have far reaching effects ultimately on the owners' interest.

In the recent past, the Kenyan government has invested heavily in infrastructural projects aimed at making Kenya industrialized by 2030. In line with the Vision 2030 blueprint, the government has seen the construction of Thika Superhighway and the Standard Gauge Railway (SGR) in a bid to improve on the transport network system in the country (KNBS, 2016). Various counties have also initiated their own projects to improve the livelihoods of Kenya. Kajiado County is not an exception, as numerous constructions projects have been commissioned by the county government since 2013. For instance, the Kajiado County government has undertaken various construction projects, key among them the Kitengela Bus Park, which was completed in 2017, and the Ngong stadium, still work in progress. The government has also in its 2013-2017 tenure completed construction of over 300 ECD classes, as well as 3 secondary schools, with some yet to be completed (Kajiado County, 2017). Kajiado West Sub-county headquarters marks another construction project undertaken by the county government. However, majority of

these projects face problems of delays, cost over-runs and failure to achieve the intended quality requirements. This for instance is the case with the Ngong Stadium, whose first phase meant for completion in 2015 is yet to be done. Indeed service delivery in the Department of Public Works and the construction industry has remained wanting with numerous cases of delayed or, in extreme cases, stalled projects spread throughout the county. Reports indicate that more than 50% of all public building construction projects started by the county government in the last two years have gone beyond the stipulated completion time (Department of public works – Kajiado County, 2014). Although the government has been making efforts to address the issue by issuing directives and legislations aimed at improving the situation, indications are quite clear that cases of delays, cost overruns and below quality deliveries are still rampant.

Although studies have been done on the factors influencing completion of construction projects in Kenya, not much has been done on projects in rural and sub-urban areas. More so, devolution of governance to county levels has disintegrated units of analysis to better understand problems facing initiation and completion of construction projects. Even though devolution of governance system has seen improvement in sanctioning and completion of construction projects, delay remains a key factor inhibiting successful completion of these projects. It is on this backdrop that the study seeks to establish factors affecting completion of building projects initiated by the county government in Kajiado County.

1.3 Purpose of the Study

The purpose of this study was to assess factors influencing completion of building construction projects in Kajiado County.

1.4 Objectives of the Study

The study aimed at achieving the following objectives:

- i) To establish the extent to which fund allocation influences completion of building construction projects in Kajiado County
- ii) To determine the extent to which project identification process influences completion of building construction projects in Kajiado County

- iii) To find out the extent to which human resource factors influences completion of building construction projects in Kajiado County
- iv) To assess the extent to which project management factors influences completion of building construction projects in Kajiado County

1.5 Research questions

The research questions of the study were:-

- i) How does fund allocation influence completion of construction projects in Kajiado County?
- ii) How does project identification influence completion of construction projects in Kajiado County?
- iii) To what extend does project management factors influence completion of building construction projects in Kajiado County?
- iv) To what extend dohuman resource factors influence completion of construction projects in Kajiado County?

1.6 Significance of the Study

The government (both national and county level) and other stakeholders in the construction industry have for years been involved in formulation policies and procedures aimed at improving the completion rate of projects. However, this has not been the case and various studies continue to be carried out to find a lasting solution to the problem. This as delays continues to hamper building and construction projects in various parts of the country. Kajiado County has seen many building projects stall while others collapse due to various factors the study intends to establish. For instance, the Ngong Stadium and Sinet Secondary School projects have stalled, owing to various factors as will be discussed in this study. The findings of the study will help the Kajiado County Government and other stakeholders in the construction industry including contractors, project managers, engineers, architects, quantity surveyors, and the funding agents to effectively run the process of construction to achieve economical, timely and quality performance. In addition the county government can use the findings in formulating new

policies for the future projects in the construction industry. The public will benefit by getting value for their money and through improved economy. Private developers, planners and designers will benefit from the study by getting new methods of doing construction planning and implementation process which will guarantee profitability, the key purpose why entrepreneurs invest in any venture. The study will also help researchers in filling the literature gap by using the acquired findings to address similar problems in other areas.

1.7 Limitation of the study

The main limitation the study faces is time constraint. However the study intends to mitigate this by engaging a research assistant who will assist in data collection hence saving time. Access to some crucial financial information from contractors also stands to be another challenge since majority of the stakeholders i.e. contractors fear divulging such information from strangers. The study intends to address this challenge by having an identification card and introductory letter for the research assistant from the school department. This will notify the respondents that the information required is solely meant for academic purposes and will in no way be leaked to their competitors in the industry. Accessibility to construction sites also stands to be a major hindrance to the study. This is mainly due to the poor road network coverage within the area, coupled with the poor terrain.

1.8 Delimitation of the study

The study targets respondents from public buildings construction projects in Kajiado County. The targeted groups are staff members of the department of Public Works and other line ministries, experts in construction projects which include architects, structural engineers, civil engineers, mechanical engineers, electrical engineers, quantity surveyors, land surveyors, contractors, supervisors and project managers who are involved in projects undertaken by the county government of Kajiado. This will cover all building projects initiated by the Kajiado County government since its inception in 2013.

1.9 Assumption of the Study

One of the assumptions of the study is that key respondents in the industry will give correct and reliable information. Another assumption is that the selected sample of building projects in the county will be a statistically significant representation of the target population of all building projects in Kajiado County.

1.10 Definition of significant terms used in the study

Contractor – Refers to duly registered construction firm that firm that agrees to deploy materials and human resources inputs to execute specified construction project works at an agreed upon price and within a specified time frame to another independent entity called client or project owner.

Cost Overrun – These are costs incurred in excess of budgeted amounts due to an underestimation of the actual cost during budgeting.

Delay – In the context of this study, delay is the failure of construction project to meet the set standards and costs within the stipulated time.

Fund Allocation – This simply means scaling and allotment of funds from a single departmental budget to a complex and/or international financing of a joint venture. A project, programme or portfolio can be funded from one or more of these budgets.

Human Resource Factors – Human resource is the capability that resides in the knowledge, skills, and motivation of people. Human resource is the least mobile of the four factors of production, and (under right conditions) it improves with age and experience.

Project Identification – This is a repeatable process for documenting, validating, ranking and approving candidate projects within an organization. The purpose of project identification is to develop a preliminary proposal for the most appropriate set of interventions and course of action, within specific time and budget frames, to address a specific development goal in a particular region or setting.

Project Management Factors – These are components of the project that have to be put in place to ensure the completion of the project. In simple terms, they create an enabling platform for the project to exist in the first place.

Project Completion – Refers to execution of projects in accordance with planned project scope, specifications, work program, completion schedules and planned budget.

Time Overrun – These are delays beyond the date for completion specified by the project contract.

1.11 Organization of the study

The study is organized and arranged in the following manner: Chapter one lays the foundation of the study by explaining the origin of the study, statement of the problem, as well as the objectives of the study. Chapter two reviews concepts related to the construction industry and project completion in the built environment in Kenya and the rest of the world. Chapter three focuses on the methods and procedures used in the analysis of the study, properties of data to be used in the study, specification of the empirical model and variable measurements. Chapter four dealt with data analysis, presentation of findings and making inferences on the study findings. Chapter five was dedicated to summary of the study, conclusion, and policy recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature review on factors that influence completion of large construction projects. The literature discussed is a thematic review of other studies carried out in construction and planning industry, so as to provide a theoretical foundation underpinning the study variables. A discussion is made of the concept of project success criteria, a review of empirical studies on the various factors, conceptual framework and finally establishes the research gap from the reviewed literature.

2.2 Completion of Building Construction Projects

The completion of projects in a timely manner is often a critical factor and measure of project success. In recent years, there has been an increasing interest in the use of projects as building blocks in the strategic management of organizations (Weiss and Potts, 2012). The success of any project is highly dependent on its completion time from start to delivery of results. This has a direct bearing on management decisions such as budgets, targets and standards (Seddon, 2008). There is available evidence from literature on how to use projects for the management of organizational process to prepare the organization for its competitive future and survival (e.g. Cleland and Ireland, 2007). Today, project management techniques are used as the principal means by which operational and strategic issues are managed in both for-profit and not-for-profit organizations.

The period taken in executing construction projects is increasingly becoming an issue of major concern among stakeholders. This causes stress in the construction projects due to issues such as accumulated rate of interests by commercial banks, cost overrun, inflation, clients' (sponsor) pressures and the possibility of disputes and claims leading to litigations or arbitrations Osazuwad (2010). Delays in project completion are a common problem in the construction industry not only with an immeasurable cost to society but also with debilitating effects on the contracting parties. The concept of delay in the substantial completion of construction projects is a global phenomenon. The impact of delays is that funds committed on projects do not benefits intended recipients and

subsequently results in cost and time overrun. A study by United Nations Commission for Trade and Development (UNCTAD), (2001) on African construction industry's turmoil's and their implications for New Partnership for Africa's Development (NEPAD) identified costly project delays as a major problem and identifies poor project time, quality and cost performance as a major issue.

According to a report issued at Boston, Massachusetts in the United States of America by the chairman of Standish Group about how some projects (CHAOS summary 2009 report), construction projects have been failing to meet the owner's satisfaction. According to the report, 32% of projects were successful because they were able to be delivered on time, within budget and with expected performance of degree of quality, 44% of projects were delivered late, over budget and with less features and functions and a result were challenged and 24% of projects were also cancelled before they were delivered because they failed.

Long (2003) carried out a study on challenges facing the building and construction industry in Vietnam. The study found that problems mainly caused by designers, consultants and contractors had very high frequency and influence on large construction projects. Commitment to project and top management support are the other issues related to the commitment component grouping. It has been recognized as one of the most critical factors for the successful completion of projects in numerous studies (White and Fortune, 2002; Sanchez and Perez, 2002). Long (2003) therefore concluded that key participants in the construction industry play vital roles in running projects and directing them to success or failure. The responsibility of top management toward the project is important and its commitment and support is a crucial requirement for project success (Munns and Bjeirmi, 1996). It is noted that top management should be understood to mean top management of all concerned project parties. Top management support demonstrates visibly how strong the commitment to the project is. For example, project members usually do not see project management as something to help them but rather something which is mandatory, serving little useful purpose. As such, motivation is prerequisite to ensure comfortable working environment within and around project sites. This does not axiomatically exist without commitment from the top management of all project parties.

In Africa, the challenge of timely project delivery can take multiple dimensions depending on the project's environment. In Ghana, Frimpong et al., (2003) identified five factors as the major causes of delays to projects. These include monthly payment difficulties to contractors, poor contract management, material procurement difficulties, poor technical performance and material price escalations. Poor professional management, fluctuation of prices, rising cost of materials and poor site management have also been identified as factors causing a delay in project completion time. In order to forestall the challenge of timely project delivery, Samuel (2008) recommends that project time management be a key priority for the contractors and that the appointment of a registered project manager for each contract should be a mandatory condition of tender. According to Frimpong et al., (2003), major delay occur during project implementation phase, hence factors such as monthly payment difficulties, poor contractor management, material procurement, poor technical performances and escalation of material prices contributed during construction of groundwater projects in developing countries. Once the delay factors are identified, the opportunities for improving project performance within the donor sector delivery will be examined.

Kikwasi (2012) carried out a study on causes of project delays in Tanzania. During the analysis, the study classified causes of project delays as material related delays, design related delays, resource related delays, and equipment related delays, contractor-related delays, consultant-related delays, and external factor related delays. The study findings showed that contractor-related delays and consultant-related delays were the most common and highly rated factors influencing the construction industry in Tanzania, hence the major concern in addressing project completion delays in Tanzania.

Musa (2010) conducted a study on factors influencing delays in water projects in Kenya funded by the Government. Lack of capacity for contractors to execute projects diligently was found to be the cause of delay in his study. A similar study by Karimi (1998) focused on factors contributing to cost overruns in projects under the Ministry of Water and the observations in the study were that most projects experience delays due to the fact that the clients delayed in honoring progress payments towards contractors.

Gwaya et al., (2014) carried out a survey research critical analysis of the causes of project management failures in Kenya. In his findings, human resources, client's interference and risk management are seen to cause project management failures in Kenya. The study findings showed that over 90% of infrastructure projects in the study had time overruns. This, according to the study, is mainly due to rampant corruption and embezzlement of public funds, an observation shared with DFID (2013) who concluded that Kenya needs to seriously deal with endemic corruption and poor reporting structures in the public sector if it is to see any major gains in donor-funded construction projects.

Kagiri & Wainaina (2008) in their study on project cost overruns in Kenya identified contractor inabilities, improper project preparation, resource planning, and interpretation of requirements, works definitions, timeliness, government bureaucracy, and risk assessment as the important factors that influenced the overruns in the power projects in Kenya. In a similar study on cost overruns in high-rise building projects within Nairobi, Foster and Ageyo (2010) established that, land space availability, resource estimates and population explosion were the main contributing factors in construction delays, while environment regulations, cost data, and inflation were significant in determining the cost overrun.

2.3 Project Fund Allocation and Completion of Building Construction Projects

Various researchers support environment as a factor affecting the project success (Walker and Vines, 2000). Akinsola et. al. (1997) further describe 'environment' as all external influences on the construction process, including social, political, and technical systems. The attributes used to measure this factor are economic environment, social environment, political environment, physical environment, industrial relation environment, and level of technology advanced. The comfort component grouping comprises adequate funding through the project, comprehensive contract documentation, availability of resources, continuing involvement of all stakeholders in the project, and competent project manager. This component emphasizes that successful projects are implemented in comfort. That is, money, resources, efforts and leadership should always be available throughout the project's life. They ensure that construction projects run smoothly. Money and other resources in terms of adequate funding until project completion and availability of

resources are obvious imperatives to carry out projects. Availability of funds/resources has also been ranked highest in recent researches (Belassi and Tukel, 1996; White and Fortune, 2002). Efforts are needed to ensure the existence of general agreements and collective genius of professionals in concerned organizations as well as proper project control.

2.4 Project Supervision and Completion of Building Construction Projects

Competence of the project manager during project implementation greatly affects the timely completion of a project (JHA and IYER, 2006). Positive attitude of project manager and project participants has emerged as the most important success attribute for quality compliances at project sites. The study noted that some of the attributes with high importance are all related to the project manager i.e. effective monitoring and feedback ability, project manager's technical capability, leadership quality, effective monitoring and feedback by the project team members. Furthermore, the success of a project hinges on the efficacy of the project team in managing the process (Olatunji, 2010). This indicates adequate capacity of the project manager as well as the project team to ensure proper inspection and investigation of work done on site. As Dainty et al (2003) observes, weak link in the process such as a lack of project management experience, could adversely affect timely execution of the projects. Lack of proper inspection and supervision of projects greatly compromises the quality of the building constructed, a clear indication that workman standards are a great pillar for quality construction (Chism and Armstrong, 2010). Fapohunda and Stephenson (2010) posit that project managers should have significant influence over cost, time, scope and quality of the construction in order to achieve the set project objectives. In their study on delays in project completion, Wambugu, (2013) observed that inadequate supervision and inspection is a recipe for poor workmanship. This also leads to project cost overrun and may result to project abandonment. It therefore goes without saying that inadequate site inspection is one of the key factors identified as causing delays in timely project completions (Jagboro and Aibinu, 2002).

Mojahed (2005) states that project reworks are mainly as a result of incompetent craftsmen because of insufficient working skills and knowledge of drawings. Project

reworking is also linked to incompetent supervisors because of lack of experience leading to deficient supervision. The study clearly emphasized the impact of management and supervision on the overall success of the construction project. If there is no proper supervision, workers will tend to take break whenever they desire and work will tend to delay. Timely inspection is of great importance to ensure effective operation, material quality, and timely progress of the project schedule. Subsequent activities on a construction schedule may not be carried out before the required inspection is carried out on the preceding activities. Chai and Yusuf (2013) identified poor site management and supervision as the two highest ranking causes of construction project delay

2.5 Project Management Factors and Completion of Building Construction Projects

Project management is the integral of the entire construction project functions which include coordination of subcontractors, scheduling, cost control, labor relation, billing, purchasing, expending, and other functions related to the project. In Construction Company, project manager is in charge of these functions. The use of project management techniques is very important in the construction industry, because the coordination and use of the many types of labor, skills, materials, and equipments which are used in construction require daily application of proper project management techniques (Phua and Rowlinson, 2004). The managerial system is primarily concerned with decision making for planning and controlling organizational endeavor. The managerial subsystem can be seen as spanning the entire organization by relating the organization to the environment, setting the goals, developing comprehensive strategic, and operational plans, designing the structure and establishing control processes (Kast and Rosenzweig, 1985). An integral element of the managerial task is organizational decision making – choosing an overall strategy, setting specific objectives, designing structures and processes, selecting people, delegating responsibility, evaluating results and initiating changes. Sidwell (1982) advocates for the degree of project management actions to be reflected in the range and type of control mechanisms set up for the particular problem. At one end of the range will be a very low control situation, where neither professional design team, drawings, specifications, documentation nor standard form of contract exist. Minor works may fall into this category. On the other hand a high control situation may exist if detailed documentation is administered through a system of

regular meeting, monitoring and inspections. Sidwell (1982) concluded that managerial control (classed as project management actions) is a key element in achieving project success, being significantly related to all measures of success. Ireland (1983) found similar results for managerial action. Rowlinson (1988) concluded that high level of administrative ability in the project team leads to reduced time overruns, which in turn leads to increased satisfaction.

Increased complexity, uncertainty, and time pressure in construction projects have increased the need for cooperation among different project actors (Anvuur and Kumaraswamy, 2007). Traditionally, relationships are, however, very competitive and adversarial in the construction industry, which to a large extent is due to the customary procurement procedures potentially causing many problems in all stages of the buying process. Therefore, in order to take advantage of collaboration, procurement procedures are one key improvement area and can contribute substantially to project success (Eriksson, 2007). Intensive communication is a central factor in leading and integrating people and taking decisions to create a successful project (Laufer et al., 1996). Thus, there is need to establish an effective information system for construction projects so that every right and concerned person can access and share ideas. More broadly speaking, —shared project vision is impossible when there is poor communication among project stakeholders. As people become better informed and more aware of what is happening in their project, they will become more involved and committed to project’s progress, and as a consequence, become better motivated (Clarke, 1999). Regardless of research scope and context, cooperation is consistently ascribed to be a vital determinant of construction project success (Phua and Rowlinson, 2004). Frequent progress meetings are, therefore, inevitable. —What is going on is communicated to the parties. Then, corrective and preventive actions are timely applied to ensure good project performance. Proper project monitoring and control system is impossible without effective progress meetings. A project has a chance to be completed successfully when the project plans are updated regularly. Moreover, in order to ensure project success, the plans need to be kept simple, with the right level of detail that can encourage a project to be reviewed readily (Clarke, 1999).

Community involvement is another factor in the communication component. It has been found to be an important factor in previous studies (Awakul and Ogunlana, 2002). Large-scale construction projects are usually fraught with controversy. Therefore, a supportive and understanding community is necessary for smooth implementation. This cannot be achieved unless the project information is shared adequately. Yeo (1995) noted that a large infrastructure project needs support and understanding from the community affected by the project, especially during the construction period. He added that managing public reactions and opinions and understanding public attitudes are an integral part of the project management's responsibility. It is then essential that the project participants should truthfully share the project information and obtain different public perspectives regarding their project.

2.6 Human Resource Factors and Completion of Building Construction Projects

Chua et al. (1999) defined project participants as the key players, including project manager, client, contractor, consultants, subcontractor, supplier, and manufacturers. Walker (1995) considered influence of client and client's professionalism as a significant factor on construction time performance. The human resource factors concerned with client characteristics, client type and experience, knowledge of construction project organization, project financing, client confidence in the construction team, owner's construction sophistication, well-defined scope, owner's risk aversion, client project management (Dissanayaka and Kumaraswamy, 1999). Designers play a vital role as their work involves from inception to completion on a project. Chan and Kumaraswamy (1997) considered that design team-related factors consist of design team experience, project design complexity, and mistakes/delays in producing design documents. The main contractor and subcontractors start their main duties when the project reaches the construction stage. The variables include contractor experience, site management, supervision and involvement of subcontracting, contractor's cash flow, effectiveness of cost control system, and speed of information flow (Dissanayaka and Kumaraswamy, 1999). The project manager is another key stakeholder in a construction project and his competence is a critical factor affecting project planning, scheduling, and communication (Belassi and Tukel 1996). Variables under this factor consist of the skills and

characteristics of project managers, their commitment, competence, experience, and authority (Chua et al. 1999). A construction project requires team spirit, therefore team building is important among different parties. Team efforts by all parties to a contract are crucial ingredient for the successful completion of a project (Hassan, 1995). Similarly, one of the four CSFs in Sanvido et al. (1992) were a series of contracts that allows and encourages the various specialists to behave as a team without conflicts of interest and differing goals. These contracts must allocate risk and reward in the correct proportions. Also, it has been stated that project goals and deliverables cannot be achieved without the customer or end user involvement in the project (Dvir et al., 2003). Leadership is also a crucial aspect in project management. Caudron (1999) noted three different kinds of competencies required in leadership: leadership competencies such as the ability to lead change, functional competencies such as technical and human resource management skills, and personal skills such as high achievement motivation and persistence. Zimmerer and Yasin (1998) in their study observed that the highest rated characteristics for effective project managers and for project success were team building, communicating, demonstrating trust, and focusing on results among others. Therefore, a competent project manager possesses not only technical and managerial skills but also good leadership to do the right thing in the right way and search suitable and intangible assets in today's knowledge-based economy.

Competence is another prerequisite for the success of construction projects. The component includes utilization of up-to-date technology, proper emphasis on past experience, multidisciplinary/competent project team, and awarding bids to the right designer/contractor. Large construction projects need certain kinds of technology, but selecting the right technology may be problematic, especially when the project team is incompetent. Technology transfer has often been the focus of discussions, yet developing countries still use obsolete technology (Eriksson, 2008). Possession of modern technology is a critical factor for success and sustenance in today's business environment. A serious challenge to construction industries in developing countries is their inability to adopt or adapt established best practices already working in other countries (Ngowi, 2002). Additionally, although public-sector clients in developing countries and some donor agencies support construction technology transfer, it faces

several problems. It is therefore, obvious that the right technology needs the right people to select, manage and utilize it. Proper emphasis on past experience and multidisciplinary/competent project team are success factors proposed in many textbooks and research works (Loo, 2002). Project teams themselves, not project managers, deliver projects and shape the implementation of the project. A team consisting of all necessary specialists, professionals and experts is able to make integrative decisions based on seeing the picture as a whole, and executes them later on with greater pace. Proper project planning and control require project teams to utilize appropriate project management techniques and tools. On large construction projects in developing countries, it is extremely difficult to assemble adequate and capable professionals to direct projects to success. Thus, it is not surprising that these factors are perceived as having high impact on project success. The involvement of many parties is a dominant characteristic of construction projects (Eriksson, 2008). If one of the parties is not capable to act within his/her role, the project is likely to fail. It is, therefore, essential to ensure that the bidding process can help single out the right designers, contractors and other parties to effectively transform project ideas into reality.

A recent study by Long (2003) conducted in Vietnam found that problems responsible by designers/consultants and contractors had very high frequency and influence on large construction projects. It can be concluded that these participants play vital roles in running projects and directing them to success or failure. Commitment to project and top management support are the other issues related to the commitment component grouping. It has been recognized as one of the most critical factors for the successful completion of projects in numerous studies (White and Fortune, 2002; Sanchez and Perez, 2002). The responsibility of top management toward the project is important and its commitment and support is a crucial requirement for project success (Munns and Bjeirmi, 1996). It is noted that top management should be understood to mean top management of all concerned project parties. Top management support demonstrates visibly how strong the commitment to the project is. For example, project members usually do not see project management as something to help them but rather something which is mandatory, serving little useful purpose. As such, motivation is prerequisite to ensure comfortable working

environment within and around project sites. This does not axiomatically exist without commitment from the top management of all project parties.

2.7 Theoretical Framework

A theory is a set of assumptions, propositions, or accepted facts that attempts to provide a plausible or rational explanation of cause-and-effect (causal) relationships among a group of observed phenomenon. A theoretical framework on the other hand is a group of related ideas that provides guidance to a research project or business endeavor. In this section, the focus is on various theories under which the study is underpinned. It specifically focuses on system theory, co-evolutionary theory and classical theory.

2.7.1 System Theory

The term system theory originates from the Bertalanffy (1993) general system theory. Margaret Mead was an influential figure in systems theory. Organizations are social systems. Real systems are open to and interact with their environments. The different parts/elements within and around the organization intermingle to affect the way organization operate and therefore strategy implementation. It can be argued from a system's approach to strategic management that many of the reasons for strategies failure may be attributed to the —successive dominance of different reductionism approaches to strategic management (Gregory, 2011). Such partial approaches to project management ignore the complex, embedded and dynamic nature of today's organization. Taking the system approach in project implementation helps managers of organizations to have to understand the customer, better predict environmental reaction, estimate resource competence, and coordinate strategic project activities, obtain management commitment, estimate time requirements, ability to follow the plan, manage the strategic change and ensure effective communication.

2.7.2 Co-evolutionary Theory

Co-evolutionary theory according to Lewin and Volberda (1999) indicates that as firms grow and evolve from small to larger and multidivisional organizations, the strategy implementation methods also evolve simultaneously. The various project implementation models are meant to meet the changing needs of firms as they evolve through various

stages of the organizational life cycle (Parsa, 1999). In contrast to the earlier descriptive models, this model is more prescriptive with an, albeit limited, empirical basis. The research highlights three of Bourgeois and Brodwin (1984) classifications of project implementation styles: change, collaborative, and cultural. Not all firms implement their projects in the same manner; nevertheless, research investigating the differing styles of implementation is scarce. Nutt (2008) utilizes Jungian theory (Jung, 1923) for his framework of implementation style. However, this is very much an analysis of the psychological style of individuals within the firm. A more recent study by Parsa (1999) utilized Bourgeois and Brodwin's (1984) classification of strategy implementation types.

Majority of existing classification models in project implementation tend to be normative in nature. They are normally developed from organizational observation, and as such, become context specific and frequently lack any broader theoretical grounding. In contrast, Bourgeois and Brodwin (1984) crafted a comprehensive based on specific theoretical assumptions, and has been used by authors such as Parsa (1999). Bourgeois and Brodwin (1984) refuted the traditional approach to project implementation as simply an addition to the strategy formulation phase of the strategy process. Rather, they contend that project implementation evolves either from a process of winning group commitment through a coalitional form of decision-making, or as a result of complete coalitional involvement of implementation staff through a strong corporate culture.

2.7.3 Classical Theory

According to this theory by Chandler (1962), two main approaches to strategy have emerged over time: the Design School and the Process School. Under the Design School of thought, strategy formulation is a formal process that is de-linked from strategy implementation. Strategy is carefully crafted by senior management and then implementation begins, with the aim of maximizing profits of the organization. Chandler (1962), a major proponent of the design school defines strategy as the determination of basic, long term goals of the enterprise, and the adoption of courses of action and allocation of resources necessary for those goals. This definition clearly shows strategy formulation as separate from strategy implementation.

The design school is consistent with the classical theory, which, according to Whittington (2008), sees strategy formulation as formulation of plans of attack by the general, and these preconceived plans are executed according to commands transmitted through obedient hierarchies to officers and their men at the front. This approach to strategy places great confidence in the readiness and capacity of managers to adopt profit maximization strategies through long term planning. It views strategy as an economic rational process and primarily restricted to issues related to market share and profitability. The process school lays less confidence in the ability of top management to plan and act rationally. It advocates that whatever methods managers adopt, it will only be the best performers that survive. According to Handerson (1989), competition is not a matter of detached calculation, but a constant struggle for survival. According to Mintzberg (1987), crafting strategy is a continuous and adaptive process, with formation and implementation inextricably entangled. Thus, process school advocates are inclined towards incremental adjustment of strategy and cultivating of core competences. The process school views strategy as an outcome of a process where the emphasis is not on construction of detailed plans but on organizational and social aspects of strategy formations. Capabilities of an organization in terms of structure, system, technology, and management styles restrict the range of options an organization can pursue.

2.8 Conceptual Framework

The various variables affecting the factors are identified in the previous section. Variables within each group are interrelated. A variable in one group can influence a variable in the others, and vice versa. To study how these factors affect project completion separately and collectively, it is hypothesized that Project completion is a function of business related factors, project procedures, project management actions and human-related factors and they are interrelated.

In relation to the literature review, the conceptual framework has underlined a number of factors that determine the rate at which the construction projects are completed. The conceptual framework is shown in figure 1:

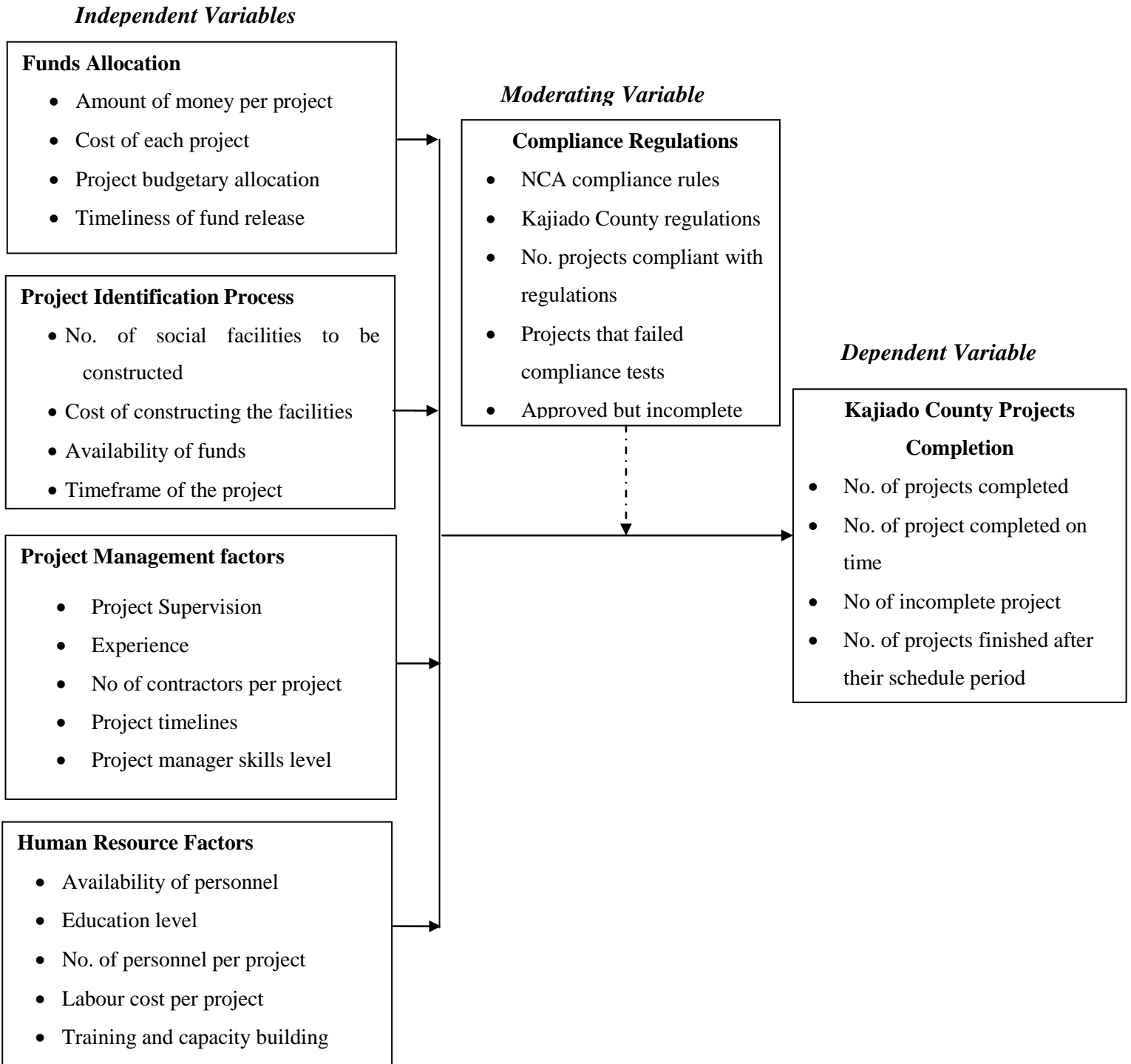


Figure 2. 1: Conceptual Framework

On the far right is the dependent variable that is manipulated/ that changes as the independent variables interact. The dependent variable in this case is the delay of construction projects implementation in the construction industry.

Factors that interact to bring this influence on the dependent variable are called independent variables and they include: Projects fund allocation, Project identification process, Personnel skills and training, and Contractors experience and supervision. The four factors have indicators that determine whether the projects delays are caused by their interaction or not. The framework also has a moderating variable, county government intervention. These are factors that have a direct impact on the performance of the projects or have it coming indirectly, but the final results felt in the rate at which these projects are implemented. For a building project to be complete, construction related factors such as funds, building materials, project supervision and leadership efforts. The project management team should be available throughout the project's life. In addition, project procedures comprising of procurement, method of tendering, selection of the most appropriate organization for the design and construction of the project requires early and particular attention. Also important are various project management actions which include coordination of subcontractors, scheduling, cost control, labor relation, billing, purchasing, expending, and other functions related to the project should be streamlined to ensure the project stick to the plan. Finally, human-related factors which touch on the project participants including project manager, client, contractor, consultants, subcontractor, supplier, and manufacturers are also important in project success.

2.9 Summary of Literature Review

The reviewed literature revealed various studies in different parts of the world that have largely touched on factors relating to project completion. The most notable ones include Chan and Kumaraswamy (1997) on factors causing delays for construction projects in Hong Kong; Kothari (1986) and Chan (1992) identified characteristics of the project manager in construction management in India; Iyer and Tha (2006) about commitment of participants and the owners' competence as the two most critical success factors of project completion in India; Ogunlana (2009) assessed critical success factors in large scale construction projects in Thailand; Adenikinju (2005) survey on graded construction

project productivity in Nigeria; Amaka (2011) study on critical success factors influencing construction project performance in Nigeria; Fugar and Agyankwah (2010), in a study for overruns on high-rise projects in Ghana established that plant usage, resource estimates and human resource shortage influenced delays. Relevant regional and local studies reviewed include: Wambugu (2013) analyzed factors affecting completion of road construction projects in Kenya and concluded inadequate supervision and inspection of work in construction project leads to reworking of projects; Hussin and Omran (2011) studied on 120 selected contractors in Kenya and Malaysia and concluded that contractors' experience is a significant factor in project completion in the construction industry; Kagiri and Wainaina (2008) identified the important factors that influenced the overruns in the power projects in Kenya.

Therefore, in relation to the above, the chapter has highlighted the literature that is existing in relation to the delay of projects in the construction industry. The chapter has reviewed the literature in relation to the four objectives and the factors have been looked at from the global perspective down to the study scope area. Among the highlighted factors include: Projects Financing, Project Planning, Contractors Experience and Supervision that are considered to be independent factors while delay in projects implementation in the construction industry is taken to be the dependent variable. The chapter also highlights the conceptual framework, relationship between variables and research gaps.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology to be used to carry out the survey, as well as the research design employed, the target population, sampling method to be used, data collection instrument and how data will be analyzed, interpreted and presented.

3.2 Research Design

A research design is termed as the structure of a research which shows how the major parts of the research jointly address the investigative questions. A research design is a blue print for collection, measurement and analysis of data. (Kothari 2003)

The study will use descriptive survey research method. Descriptive survey research involves gathering data and systematically treating it to present a comprehensive and intelligible inference. A descriptive study is concerned with determining the frequency with which something occurs or the relationship between variables (Cooper and Schindler, 2003). It also gives a causal relationship between dependent variable and the independent variables. The descriptive design is preferred because the aim of research is to get data from a construction project environment which is complex, interdisciplinary and involving a large number of people interacting in different aspects. Descriptive survey helps in comparing the quantitative reasoning of a sample, and is a better representation of the whole population making. This therefore makes a standardized measurement more precise by enforcing uniform definitions upon the respondents. This will ensure that similar data is collected from similar demographical groups then interpreted comparatively. Being a descriptive study, the researcher aims at finding out the extent of influence of fund allocation, project identification, human resource factors, and project management factors influence completion of construction projects in Kajiado County. Descriptive research studies are those studies which are concerned with describing the characteristics of a particular individual, or of a group, whereas diagnostic research studies determine the frequency with which something occurs or its association with something else (Settilez, et.al., 2004). A descriptive research design will be adopted

because the study is concerned with specific predictions, with narration of facts and characteristics concerning individual, group or situation.

3.3 Target population

Population is defined as an entire group of individuals, events or objects having common observable characteristics (Mugenda and Mugenda; 2003). Singleton and Straits (2010) define a target population as an entire aggregation of respondents that meet the designated set of criteria.

The target population of the study is 450 respondents which include experts in construction projects i.e. Architects, structural engineers, civil engineers, mechanical engineers, electrical engineers, quantity surveyors, land surveyors, contractors, supervisors and project managers involved in projects undertaken by the county government of Kajiado, as well as the National Housing Construction Authority.

3.4 Sample size and sampling procedure

Kothari (2004) describes a sample design as the definite plan for finding a sample from a specific population. It is the technique researchers employ while selecting items for their sample. Fricker (2008) explains that sampling is the selection of a subset of a larger population to the survey. A sample refers to a further subset of the target population which the researcher wants to include in their study i.e. it is a portion or a segment which represents the whole population (Kadam and Bhalerao, 2010). The sampling design outlines the sampling frame, sampling technique and sample size.

3.4.1 Sampling Size

The sampling frame for the study will comprise of personnel from all managements levels in stakeholders organization within the building and construction industry in Kajiado County. The target population for the study is therefore 450 employees from all the building and construction sector stakeholders listed above.

3.4.2 Sampling procedure

Kothari (2004) argues that a sample size is the number of items to be selected from the universe to make up a sample and it could pose a major problem to a researcher.

According to Kadam and Bhalerao (2010), the sample size for any research will depend on the acceptable level of significance, power of the study, expected effect size, underlying event rate in the population, and the standard deviation in the population.

The whole population included 35 technical officers (Engineers, Architects and quantity surveyors); 15 chief officers representing each department except 3 in health, 2 in education and 3 in public work; 180 contractors undertaking government-funded buildings construction projects under the County Works Officer as the project manager; as well as 220 sub county project manager assistants in all the five sub counties within Kajiado County.

Because of the multidimensional nature of the population involved, purposive sampling will be used in conjunction with simple random sampling to get the target population. Simple random sampling will employ the Yamane (1967) formula below to calculate the sample size since it is simple, scientific and it can be applied to large population.

$$n = \frac{N}{1+N(\epsilon^2)} \dots\dots\dots (1)$$

$$n = \frac{450}{[1 + 450(0.05^2)]} = 211.76 \cong 212$$

The sample size for each of the cluster will be as follows.

Table 3. 1: Cluster Sample Sizes

	Cluster/Category	Sample Frame	Sample Size
1	Chief Officers	15	7
2	Technical Officers	35	16
3	Contractors	180	85
4	Sub-county Project Managers	220	104
	Total	450	212

3.5 Research Instrument

The research instrument used in collecting primary data was a self-administered questionnaire comprising of both closed and open-ended questions. The self-administered questionnaires allowed the respondents to give free and reliable answers at their convenient time without the undue influence of the presence of the researcher. It also had the advantages of maintaining standard or similar questions to all the respondents thus

making it easier and cheaper to administer. According to Cargan, (2007) closed-ended questions provide objective quantitative data whereas the open-ended questions provide general subjective insight into the study subject. The close-ended questionnaires will solicit respondents' views on the factors affecting building and construction projects in Kajiado County, as weighted on liker scale. The respondents will be as deemed to be the most appropriate.

3.5.1 Piloting the Research Instrument

The questionnaires were reviewed and tested on a small pilot sample of respondents with similar characteristics as the study respondents. A pilot study was conducted on selected but similar respondents to pre-test the research instrument to ascertain whether it yields the required information and in an accurate manner. The pilot study was conducted on projects within Ongata Rongai Township with 21 respondents as the test sample. A pilot study facilitates improvement of the instrument through changing and modifying where necessary and eventually achieving the ultimate aim of obtaining reliable and valid survey data as averred by Fink (2006).

3.5.2 Validity of the Research Instrument

Validity is the degree to which the researcher has measured what he set out to measure. Creswell (2003) notes that validity is the accuracy and meaningfulness of inferences from scores on the instrument. Validity is therefore about the usefulness of the data and not the instrument. To ensure content validity, the instruments will be reviewed by the research supervisor and other research experts that include research firms. Content validity yields a logical judgment as to whether the instrument covers what it is supposed to cover. Content validity ensures that all respondents understand the items on the questionnaire similarly to avoid misunderstanding. Response options will be provided for most of the questions to ensure that the answers given are in line with the research questions they are meant to measure.

3.5.3 Reliability of Research Instrument

Reliability refers to the consistence of measurement or the extent to which the results are similar over different forms of the same instrument or occasions of data collection and

the extent to which measures are free from errors (McMillan and Schumacher, 2001). To ensure reliability, a pilot study will be conducted and results obtained from the pilot instruments to determine whether or not they capture the required data. A construct composite reliability co-efficient (Cronbach alpha) of 0.6 or above, for all the constructs, will be considered to be adequate for this study. The acceptable reliability coefficient is 0.6 and above (Rousson, et al., 2002). Cronbach Alpha will therefore be used to test the reliability of the research instrument.

3.6 Data Analysis

3.6.1 Regression Analysis and Model

Regression is a way of assessing the strength relationship between the dependant and independent variable. In a cause and effect relationship, the independent variable is the cause, and the dependent variable is the effect. Linear regression is a basic and commonly used type of predictive analysis. The overall idea of regression is to examine whether a set of predictor variables achieved their goal of predicting an outcome (dependent) variable; as well as specific variables that are significant predictors of the outcome variable.

Data collected will be used in regression analysis to estimate the magnitude and direction of factors affecting building and construction project in Kajiado County. Data obtained will be regressed using SPSS 20 statistical application, and inferences made on the findings. The five key elements of building and construction will form a multiple linear regression model specified as shown in equation 3.6 below.

$$Y_t = \beta_0 + \beta_1 Fn_t + \beta_2 Pip_t + \beta_3 Hrf_t + \beta_4 Pmf_t + \beta_5 Plt_t + \varepsilon_t \dots \dots \dots (2)$$

Where,

Y_t = Building Construction Projects completed in Kajiado County in year t

Fn_t = Fund allocation for year t

Pip_t = Project identification process during year t

Hrf_t = Human resource factors in year t

Pmf_t = Project management factors in year t

Plt_t = County Government moderating policy in year t

ϵ_t = Error term in year t

$\beta's$ = Parameters to be estimated

β_0 = The intercept/constant

3.6.2 Hypotheses Testing

For the hypotheses H_{01} , H_{02} , H_{03} , and H_{04} , simple linear regression models will be used to determine whether individual predictor variables predict the outcome for the dependent variable. The statistical regression model will be used to help determine the change in the outcome variable resulting from a unit change in the predictor. In the statistical model, the actual values represent the dependent variable (Y) while the predictor values represent the independent variable as shown in the following section.

$$Y_t = \beta_0 + \beta_1 Fn_t + \epsilon_t \dots \dots \dots (3)$$

Where:

Y_t = Building Construction Projects completed in Kajiado County in year t

Fn_t = Fund allocation for year t

ϵ_t = Error term in year t

Hypothesis H_{01} : There is no significant influence of fund allocation on the completion of building construction projects in Kajiado County.

$$Y_t = \beta_0 + \beta_2 Pip_t + \epsilon_t \dots \dots \dots$$

(4)

Where:

Y_t = Building Construction Projects completed in Kajiado County in year t

Pip_t = Project identification process during year t

ϵ_t = Error term during period t

Hypothesis H_{02} : There is no significant influence of project identification on the completion of building construction projects in Kajiado County.

$$Y_t = \beta_0 + \beta_3 Hrf_t + \varepsilon_t \dots\dots\dots (5)$$

Where:

Y_t = Building Construction Projects completed in Kajiado County in year t

Hrf_t = Human resource factors in year t

ε_t = Error term during period t

Hypothesis H₀₃: There is no significant influence of human resource factors on the completion of building construction projects in Kajiado County.

$$Y_t = \beta_0 + \beta_4 Pmf_t + \varepsilon_t \dots\dots\dots (6)$$

Where:

Y_t = Building Construction Projects completed in Kajiado County in year t

Pmf_t = Project management factors in year t

ε_t = Error term in year t

Hypothesis H₀₄: There is no significant influence of human resource factors on the completion of building construction projects in Kajiado County.

3.6.3 Correlation Analysis

Correlation is a way of assessing the relationship between variables. It measures the extent of correspondence between the ordering of two random variables. There is a large amount of resemblance between regression and correlation, with the only difference being their methods of interpretation of the relationships between variables. Correlation analysis studies the joint variation of two or more variables for determining the amount of correlation between two or more variables. The most common indices used in correlation analysis are Spearman Rank Correlation coefficient and Pearson Correlation coefficient.

3.7 Ethical Considerations

The study adhered to ethical by undertaking the following measures. A research permit was sought from the Ministry of Education Science and Technology (MoEST), National Commission for Science, Technology and Innovation (NACOSTI). It is only after the

approval is given that data collection process commenced. On top of this participation in the study by all participants was voluntary, confidential and anonymous. The respondents were informed about the objectives of the study and then requested to consider participating. The informed consent is aimed at protecting the research participants on issues of personal disclosure and personal privacy. The identities of the participants were not disclosed in the entire study process. Participants were accorded the liberty to respond to any questions or pull out of the process at any stage. The study ensured that the information obtained is solely used for research purposes.

This study will not at any point harass or offer inducement to participants, contact them at unreasonable time and place, subject them to any attempt to prolong the duration of interview or observation beyond the previously agreed duration unless the participants freely propose this as an option.

3.8 Operationalization of variables

Table 3. 2: Operationalization of Variables

Objective	Variable	Indicator(s)	Measurement Scale	Data Collection Method	Data Analysis
To establish the extent to which fund allocation influences completion of county government building construction projects in Kajiado County	Fund allocation (Independent Variable)	<ul style="list-style-type: none"> • Adequacy of funds • Timeliness 	Nominal	Questionnaire	Descriptive
To find the extent to which project identification process influences completion of public building construction projects in Kajiado County	Project identification (Independent Variable)	<ul style="list-style-type: none"> • Community needs • Stakeholder involvement 	Nominal	Questionnaire	Descriptive
To establish the extent to which personnel human resource factors influence completion of Kajiado County government building construction projects	Project Management Factors (Independent Variable)	<ul style="list-style-type: none"> • Personnel skills • M and E skills among personnel 	Nominal	Questionnaire	Descriptive
To determine the extent to which human resource factors influences completion of Kajiado County government building construction projects.	Human Resource Factors (Independent Variable)	<ul style="list-style-type: none"> • Academic qualifications • Training and capacity building 	Nominal	Questionnaire	Descriptive

To establish the extent to which compliance regulations influences completion of Kajiado County government building construction projects	Compliance Regulations (Moderating variable)	<ul style="list-style-type: none"> • NCA Compliance rules • Kajiado County regulations 	Nominal	Questionnaire	Descriptive
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CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents findings, analysis, presentation and interpretation of data obtained on the factors influencing completion of building construction projects in Kajiado County. The data is analyzed and presented in the form of tables, graphs as well as charts.

4.2 Response Rate

This study targeted projects from all the 5 sub-counties within Kajiado County, which gave a sample size of 212 respondents. Data was obtained from all the 4 clusters namely chief officers, technical officers, contractors, and sub-county project managers. Of the 212 respondents, 160 successfully filled and returned their questionnaires, which represents a response rate of 75% which according to the study was statistically significant response rate. The study used structured questionnaires as the main data collection instrument for primary data. The questionnaires had both open and close-ended questions for respondents, with the questionnaire either being dropped in hardcopy, or sent via email to at least each of the departments dealing with a project within the county, be it completed or ongoing project. The close-ended questions provided more structured responses to facilitate tangible recommendations. The open-ended questions provided additional information that may not have been captured in the close-ended questions. Secondary data sources were also employed through the use of previous documents or materials to supplement the data received from questionnaires. Secondary data was collected from KNBS, Kajiado County Planning offices, World Bank reports and publications, among other bulletins.

4.3 Demographic Information

The study sought to enquire on the respondents' general information including gender, age and level of educational. This general information is presented in subsequent sections.

4.3.1 Age of the Respondents

The respondents were also requested to indicate their respective ages. The results are as shown in Table 4.1.

Table 4. 1: Age of the Respondent

	Frequency	Percent
Below 30 years	4	4.3
30- 50 years	31	65.6
Above 50 years	15	30.1
Total	50	100

According to the study findings, 65.6% of the respondents were aged between 30-50 years, with 30.1% being aged above 50 years, with only a paltry 4.31% aged below 30 years. This clearly shows that majority of respondents in project management positions within the Kajiado County are mature enough to have amassed sufficient experience to enable them provide good leadership in their various capacities.

With more than 95% of respondents being 30 years and older, it is imperative to conclude that the response had enough expertise to oversee construction projects initiated by the county, as well as ensuring compliance policies are fully adhered, to ensure the organizations meet their set targets and objectives. The study therefore concludes that most of the respondents were mature enough to understand the subject of the study and give reliable and relevant information concerning the subject matter.

4.3.2 Gender of the Respondent

The respondents were also asked to indicate their gender. The results are as shown in the Table 4.2:

Table 4. 2: Gender of the Respondents

	Frequency	Percent
Male	98	61
Female	62	39
Total	160	100

As per the results, 61% of the respondents were male while 39% were female. This shows that all the study was gender sensitive and did not show bias to any particular gender when selecting respondents for the survey.

4.3.3 Education Level

The respondents were also requested to indicate their education level. The results were as shown in Table 4.3:

Table 4. 3: Education level

	Frequency	Percent
Diploma	58	36
Certificate	35	22
PhD	5	3
Master Degree	18	11
Bachelor's degree	45	28
Total	160	100

From the findings in Table 4.3, it is observed that more than 42% of the respondents have university degree and above, a clear indicator of high literacy levels in the area. This shows that majority of the respondents are well learned enough to comprehend the subject matter of the study. The results show that 28% of the respondents had a Bachelor Degree, 11% had a Master's Degree, while further 3% had a PhD. A majority of 58% had either a diploma or a certificate though majority reported to being members of professional bodies like ICPAK, ICPSK, Kenya Institute of Human Resource Management, Kenya Institute of Management among others. These results show that the

respondents were well informed on the subject of study and thus appropriate for the study and offered the answers to the questionnaires as appropriate as possible. This also implies that most of the project management personnel in Kajiado County are literate. It therefore goes without saying that Kajiado County attracts very highly educated individuals occupy project managerial positions, with other assistant personnel attracting candidates with basic academic knowledge, making it easier to train them in their different areas of specialization. It is presumed that persons with such qualifications are intellectually able to handle the complex processes that are building construction stages, as well as ensuring the structure under construction is compliant with the regulatory policies put in place.

4.4 Factors influencing Completion of Building Construction Projects

This section presents the findings on factors influencing completion of building construction projects in Kajiado County. These include fund allocation, project identification process, project management factors, as well as human resource management factors.

4.4.1 Fund Allocation

This was first factor influencing completion of building construction projects as established by the findings in response to the first objective of the study. The study sought to know from the respondents if the funds allocated to each project are adequate to ensure the project is completed within the stipulated without any financial hitches. The study also wanted to know if the funds are always released on time to ensure the required materials are procured on time. The responses were as shown in table 4.4.

Table 4. 4: Rating adequacy of disbursed funds

Response	Frequency	Percentage
Strongly Disagree	48	30
Disagree	34	21.3
Not sure	28	17.5
Agree	15	9.3
Strongly Agree	35	21.9

Total	160	100
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The findings in Table 4.4 indicate majority of the respondents strongly disagree with the assertion that their departments have fully automated their operations. More than 50 % of the respondents were of the contrary opinion that funds allocated are adequate to ensure initiated projects by the Kajiado County government are built to completion without any financial hitches. A relative percentage of 17.5% on the other hand expressed their reservation on the adequacy of funds allocated for completion of building construction projects within the entire Kajiado County, while 38% of the respondents were satisfied with the adequacy of funds allocated for completion of the projects.

On the issue of timeliness of allocation of funds; 38% of the respondents strongly disagreed that allocated funds are disbursed to their respective projects on time to ensure required materials are procured within time as shown on Table 4.5.

Table 4. 5: Timeliness of disbursement of allocated funds

Response	Frequency	Percentage
Strongly Disagree	60	37.5
Disagree	26	16.3
Not sure	19	11.9
Agree	31	19.4
Strongly Agree	24	15
Total	160	100

A further 16% disagreed with this assertion, instead saying that delays in disbursement of building project funds is a norm in Kajiado County, ensuring that no project is completed in time. However, 11.9% respondents expressed reservation on the timeliness of disbursement of project funds, indicating that they are not sure if funds reach project managers and other project personnel on time. More than 35% of the respondents however agreed with the assertion that the project funds are normally disbursed in good time to enable project managers procure the required materials for construction.

4.5.2 Project Identification Process

The study sought to know the respondents’ opinions on the project identification process for building construction projects in Kajiado County. The respondents were asked to

indicate their agreement with the opinion that the local community is heavily involved in carrying out feasibility studies for projects to be constructed. The study also sought to know the respondents opinion on priority given to projects constructed in Kajiado County. Responses were as shown in table 4.6.

Table 4. 6: Community participation in project identification

Response	Frequency	Percentage
Strongly Disagree	59	38
Disagree	27	16
Not sure	19	12
Agree	30	19
Strongly Agree	25	15
Total	160	100

The study findings in Table 4.6 show that 38% of the respondents strongly disagreed with the assertion that the local community is actively involved in carrying out feasibility study for the projects. A further 16% are of the contrary opinion to this assertion, instead arguing that most of the time the county government imposes projects they deem fit on the locals without any consultation, and only listen to donors and foreign funding organizations. This they say sometimes waste resources because much is channeled into the project yet their needs are not addressed. More than 35% of the respondents however agreed with the assertion that the county government involves local communities in carrying out feasibility studies to identify their needs before embarking on any project.

To verify if the needs of the local people were considered while selecting a project in the area, the respondents were asked to give their views on the prioritization level, the responses are shown in Table 4.7.

Table 4. 7: Locals’ needs are prioritized in selecting a project in an area

Variable	Frequency	Percentage
Strongly Disagree	48	30
Disagree	44	28
Not sure	28	17
Agree	15	9

Strongly Agree	25	15
Total	160	100

From table 4.7, it is seen that 30% of the respondents strongly disagreed with the assertion that the local community needs were considered when choosing the kind of project to initiate in an area. Instead, the locals maintained that the county government embarks on projects that portray them to be working, while this was not the scenario on the ground. A further 28% were of the contrary opinion to this assertion, arguing that most of the time the county government imposes projects they deem fit without any consultation, and only listen to donors and foreign funding organizations. More than 24% of the respondents however agreed with the assertion that the county government establishes the locals’ needs before embarking on any building construction project.

4.5.3 Project Management Factors

The study sought to know the respondents’ opinion on the influence of project management factors on completion of building construction projects in Kajiado County. Respondents were asked to indicate if they agreed with an assertion that project supervision by the project manager and his/her staff ensures the project is completed on time. Their responses are seen on table 4.8.

Table 4. 8: Regular M&E influences the completion of building and construction projects

Variable	Frequency	Percentage
Strongly Disagree	28	17
Disagree	24	15
Not sure	33	21
Agree	50	31
Strongly Agree	25	16
Total	160	100

The results indicate that more than 45% of the respondents agreed with the assertion that monitoring the progress of building construction projects influences their rate of completion. Majority of the respondents argued that monitoring the project progress enabled the management to know which areas need more funding, hence reducing construction delays and necessitating successful completion of all initiated projects.

4.5.4 Human Resource Factors

The study sought to know the respondents' opinion on the influence of human resource factors on the rate of completion of building construction projects in Kajiado County. Respondents were asked to indicate if they agreed with an assertion that the skills and academic qualification of the project management team played a significant role in ensuring that all initiated projects in the county are constructed to completion. Their responses are seen in table 4.9.

Table 4. 9: Project managers' skills and qualification influence project completion rate

Variable	Frequency	Percentage
Strongly Disagree	28	17
Disagree	24	15
Not sure	21	13
Agree	34	22
Strongly Agree	53	33
Total	160	100

The findings show that more than 55% of the respondents agreed with the assertion that project managers' skills and academic qualification play a significant role in ensuring completion of the projects. This they argued is because most skilled managers have the technical know-how on mitigating challenges that may arise due to the nature of the project. It was noted that managers with low qualifications normally lack creativity in handling challenging situations at work, slowing down the progress of the project, hence affecting its completion rate.

4.5.5 Moderating effect of Compliance regulations on project completion

The study sought to know the moderating effect of regulating policies on the completion of building construction projects in Kajiado County. Respondents were asked to indicate if they agreed with an assertion that adherence to compliance policies set by regulating bodies enhance the completion of building construction projects in Kajiado County. Their responses are seen in table 4.10:

Table 4. 10: Complying with the set policies enhance project completion in Kajiado County

Variable	Frequency	Percentage
Strongly Disagree	24	17
Disagree	18	11
Not sure	28	16
Agree	33	22
Strongly Agree	54	33
Total	160	100

The study findings in table 11 show more than 50% of the respondents agreed with the assumption that adhering to the regulations set by regulating bodies such as NCA, NEMA, and the Kajiado County Government allowed one to progress faster in their construction. It is therefore upon the project managers to ensure all documentations for their respective projects are ready and compliant with all the authorities in place, to avoid being stopped midway for not doing work as per the rules. This also ensures safety standards are observed to avoid collapse of building structures that normally lead to loss of lives and property.

4.6 Regression Analysis

4.6.1 Analysis of Variance (ANOVA)

Analysis of Variance (ANOVA) was carried out to verify if the independent variables had a statistical relationship with the dependent variable. The test results are shown in Table 4.11.

Table 4. 11: ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	0.404	4	0.101	5.325	0.002 ^b
Residual	0.664	35	0.019		
Total	1.068	39			

a. Dependent Variable: Completion of building construction projects in Kajiado County; Predictors: (Constant), Fund allocation, Project Identification, Project Management factors, and Human Resource Factors

The results in Table 4.11 show that the F value of 5.325 was statistically significant at 5% significance level since the P-value of 0.002 was less than the standard value of 0.05. This was an indication that all the independent variables were important explanatory variables for the dependent variable. Particularly; funds allocation, project identification, project management factors, and human resource factors were important explanatory variables of completion of building construction projects in Kajiado County.

4.6.2 Hypothesis testing

To test the hypotheses of this study, a regression analysis was carried out. The regression analysis was to check the magnitude of the effect of each independent variable on the dependent variables, and if each variable was statistically significant. The results for each independent variables are shown in table 4.12.

Table 4. 12: Regression Coefficients

Model	Unstandardized Coefficient		Standardized Coefficients	t-Statistic	P-value
	B	Std. Error	Beta		
(Constant)	5.653	0.740		8.852	0.000
Fund Allocation	.608	0.621	0.618	-.847	0.013
Project Identification	-0.146	0.012	-0.148	-2.288	0.028
Project management factors	0.535	0.060	0.538	2.708	0.010
Human Resource factors	0.436	0.016	0.440	2.880	0.007

a. Dependent Variable: Completion of building construction projects in Kajiado County

b. Independent Variables: Fund allocation, project identification, project management and human resource.

Each of the independent variables in table 4.12 formed the four main hypothesis of this study. The null hypothesis of were rejected in that the variable was statistically significant, implying the t-statistics was higher than 1.96 and the p-value is less than either 0.01, 0.05 or 0.1.

Hypothesis H₀₁: There is no significant influence of fund allocation on the completion of building construction projects in Kajiado County.

From the results on Table 4.12 the resultant regression model 1 is

$$Y_1 = 5.653 + 0.608X_1$$

The findings show that a unit increase in fund allocation (X_1) would result in a 5.653 increase in the completion of building construction projects in Kajiado County. We therefore reject the null hypothesis H_{01} in favor of the alternative hypothesis and conclude that there is a significant influence of fund allocation on completion of building construction projects in Kajiado County.

Hypothesis H₀₂: There is no significant influence of project identification process on the completion of building construction projects in Kajiado County.

From the results on Table 4.16 the resultant regression model 2 is

$$Y_1 = 5.653 - 0.146X_2$$

The findings show that a unit increase in project identification process (X_2) would result in a 5.653 decrease in the completion of building construction projects in Kajiado County. We therefore fail to reject the null hypothesis H_{02} in favor of the alternative hypothesis and conclude that project identification process does not have a significant influence on completion of building construction projects in Kajiado County.

Hypothesis H_{03} : There is no significant influence of project management factors on the completion of building construction projects in Kajiado County.

From the results on Table 4.16 the resultant regression model 3 is

$$Y_1 = 5.653 + 0.535X_3$$

The findings show that a unit increase in project management factors (X_1) would result in a 5.653 increase in the completion of building construction projects in Kajiado County. We therefore reject the null hypothesis H_{03} in favor of the alternative hypothesis and conclude that project management factors have significant influence on the completion of building construction projects in Kajiado County.

Hypothesis H_{04} : There is no significant influence of human resource factors on the completion of building construction projects in Kajiado County.

From the results on Table 4.16 the resultant regression model 4 is

$$Y_1 = 5.653 + 0.436X_4$$

The findings show that a unit increase in human resource factors (X_4) would result in a 5.653 increase in the completion of building construction projects in Kajiado County. We therefore reject the null hypothesis H_{04} in favour of the alternative hypothesis and conclude that human resource factors have significant influence on the completion of building construction projects in Kajiado County.

The results from the hypothesis testing above show that show that fund allocation (X_1), project management factors (X_3), and Human resource factors (X_4), have a significantly positive influence on the completion of building construction projects in Kajiado County. On the contrary, project identification process (X_2) portrayed an insignificant inverse influence on the completion of building construction projects in Kajiado County.

4.7 Correlation Analysis

Correlation analysis is useful in testing the relationship strength between given variables. The values of correlation coefficient varies between -1 and 1 with values close to one (in absolute terms) suggesting perfect correlation. On the other hand, a correlation coefficient close to zero suggests absence of correlation. In this study, Pearson correlation coefficient was used to examine the relationship between building construction project completion and explanatory variables. Correlation analysis was employed to establish the nature and the degree of the interaction between the lead variables in the research. Table 4.13 shows the results obtained.

Table 4. 13: Correlation Matrix

	Completion of Building Projects	Fund Allocation	Project Identification Process	Project Management factors	Human Resource factors
Completion of Building Projects	1				
Fund Allocation	0.681**	1			
Project Identification Process	-0.216	-0.247	1		
Project Management factors	0.567	0.515	0.669**	1	
Human Resource factors	0.506	0.506	0.598**	0.671**	1

Source: Author (2018)

The results of table 4.13 show that a significantly positive relationship exists between building construction project completion and fund allocation, with a correlation coefficient of 0.681. There is also a positive relationship between building construction project completion and project management factors, as well as human resource management factors with correlation coefficients of 0.567 and 0.506 respectively. The results also show an inverse correlation between building construction project completion and project identification process with a correlation coefficient of -0.216.

4.8 Interpretation of Findings

The study examined the influence of fund allocation, project identification process, project management factors, and human resource factors on completion of building construction projects in Kajiado County. The study found that there is a positive relationship between the building construction project completion, fund allocation, project management factors, and human resource factors which means that a reduction in any of the three factors will negatively affect the completion of construction building projects. These findings conform to those of Shaharudin, Samad and Bhat (2009), which found that there exists a direct correlation between fund availability and the completion of construction project. Saharudin et al (2009) also found that lack of management skills by project managers erodes the quality of work done, which would ultimately lead to the collapse or stalling of the project, since the project cannot meet the quality standards as well as standing the test of time.

The study also shows an adverse effect of project identification and completion of building construction projects, which means that there is need for thorough work to be done. These findings concur with those of Rahman, et al. (2009), which posits that lack of sufficient feasibility work results in wrong projects being implementing, leading to lose of resources and time.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSION AND RECOMENDATIONS

5.1 Introduction

This chapter provides the summary of the findings from chapter four and gives conclusions and recommendations based on the objectives of the study. The purpose of the study was to establish the extent to which fund allocation, project identification, project management factors, as well as human resource factors influence completion of building construction projects in Kajiado County. The chapter further makes recommendations for further research.

5.2 Summary of the Findings

The study population comprised of all building construction projects in the five sub-counties of Kajiado County, across the four clusters. Questionnaires were used to collect primary data from the project management including chief officers, technical officers, contractors, and sub-county project managers, with 160 questionnaires completed and duly returned, representing a response rate of 75%. The study found that of the 160 respondents, 61% were male, while the remaining 39% were female, implying that the study was gender sensitive, even though the industry seems to be male dominated especially in areas involving hard labour. Similarly, majority of the respondents were aged between 30 -50, followed by those aged above 50 years, with very few respondents below 30 years. This could have been influenced by the fact that majority of those in management position are in their prime ages between 30 and 50 years owing to the academic requirement to occupy senior positions.

The study found that there is a positive relationship between the project completion, fund allocation, project management factors, and human resource factors, which means that a decrease in any of the three determinants would negatively affect the completion of building construction projects in Kajiado County. These findings conform to those of

Saharudin et al (2009), which found that there exists a direct correlation between availability of funds and completion of construction projects. Saharudin et al (2009) also found that poor project management skills and expertise erodes the quality of structures constructed, which may lead to loss of lives and property once they collapse. Poor management skills means the project personnel lacks competency, making it more likely that the project will collapse before completion.

The study also shows an adverse effect of project identification and completion of building construction projects, which means that there is need for thorough work to be done. These findings concur with those of Rahman, et al. (2009), which posits that lack of sufficient feasibility work results in wrong projects being implementing, leading to lose of resources and time.

The study found out that most project managers in Kajiado County, Kenya ensure they have complied with all set regulations and standards before embarking on constructing any structure. This is evident in the small number of collapsed buildings and structures in Kajiado County as compared to other counties in the country. Most contractors ensured they completed obligated projects within the project schedule provided by the county and national government, so as to be awarded more construction assignments in the future. They therefore do their work with due diligence to avoid losing the contracts. In this regard, respondents indicated that compliance regulations significantly and positively influenced project planning and execution, operations, marketing strategy, financial planning and budgeting, human resource management, expansion strategy, and procurement of project materials. They further indicated that complying with the set quality standards enabled project managers to achieve the set strategic goals of constructing long lasting structures that do not need regular repairs.

5.2.1 Fund Allocation and Completion of Building Construction Projects

The study examined the influence of fund allocation on completion of building construction projects in Kajiado County. It was found that there is a positive relationship between allocation of funds and completion of construction projects. This simply implies that any alterations in the allocation of funds for the project would greatly influence the rate of completion for the project.

5.2.2 Project Identification Process and Completion of Building Construction Projects

Carrying out a good project identification process enables the project management team to construct projects that benefit the general population as well as optimizing on the resources available. Most project managers reported carrying out exhaustive feasibility studies and preparing impact analysis reports for organizational management before starting the actual construction of the projects. This gave them deeper understanding of the impact the projects have on the locals within the construction site. However, the study findings showed a negative relationship between project identification process and completion of building construction projects. This could be due to the fact that many consider project identification process a waste of time saying that spending so much time on the feasibility studies and impact analysis leaves them with little time to construct and implement the project diligently. Therefore an increase in the project planning process had an inverse effect on the completion of building construction projects in Kajiado County.

5.2.3 Project Management Factors and Completion of Building Construction Project

The study assessed the influence of project management factors on the completion of building construction projects. It was found that there is a positive relationship between project management factors and completion of building construction projects in Kajiado County. This implies that the county government and other organizations should insist on qualified personnel with the required skills for project construction and management. This ensures the project meets its set goals and objectives.

5.2.4 Human Resource Factors and Completion of Building Construction Projects

The study established a correlation between human resource factors and completion of building construction projects in Kajiado County. The findings show that there is a positive relationship between the human resource factors and completion of building construction projects. This simply means that the organizations should ensure the project management team is given sufficient training to equip them with necessary skills to

ensure they build structures that meet quality standards. This would also call on the organizations' management to empower the project team by giving them the required facilities so they can deliver on their mandate of constructing quality structures.

5.2.5 Construction Compliance Regulations and Completion of Building Construction Projects

The study findings shows that compliance policies set by the regulating authorities influence the completion of building construction projects in Kajiado County. These findings concur with those of Roy & Seth (2009), which avers that all building and construction projects should be regulated to some extent to ensure safety measures and standard are met by the construction team. The regulations also ensure building owners do not incur costs of collapsed structures as a result of shoddy construction work by the project team.

5.3 Discussion

The first objective of the study sought to establish the influence of fund allocation on completion of building construction projects in Kajiado. The findings for hypothesis H_{01} conclude that indeed there is a significant influence of fund allocation on completion of building construction projects in Kajiado County. These concur with those of Saharudin, Samad and Bhat (2009), which found that there exists a direct correlation between fund availability and the completion of construction project. As White and Fortune (2002) observed, availability of money and other resources in terms of adequate funding until project completion and availability of resources are obvious imperatives to carry out projects. This ensures that construction projects run smoothly. Various studies therefore rank fund availability high among factors affecting completion of building construction projects.

In the second objective, the study sought to examine the influence of project identification process on completion of building construction projects in Kajiado County. The findings for tests on hypothesis H_{02} conclude that project identification process does not have a significant influence on completion of building construction projects in

Kajiado County. These findings agree with those of Rahman, et al. (2009), which posit that lack of sufficient feasibility work results in wrong projects being implemented, leading to loss of resources and time. The study shows adverse effect of project identification and completion of building construction projects, which means that there is need for thorough work to be done at the initiation stage before the actual construction work starts.

The third objective was geared towards assessing the influence of project management factors on the completion of building construction projects. The findings for hypothesis H₀₃ conclude that project management factors have significant influence on the completion of building construction projects in Kajiado County. The most significant project management factor in this case is monitoring and evaluation. These findings concur with those of Saharudin et al (2009) which found that lack of sufficient monitoring and evaluation by project managers makes it difficult to identify errors at early stages. This leads to construction of substandard structures that easily collapse before even their completion, leading to losses in property and time.

The fourth and final objective of the study focused on examining the influence human resource factors on the completion of building construction projects in Kajiado County. The findings for hypothesis H₀₄ indicate that human resource factors such have a significant influence on the completion of building construction projects in Kajiado County. These findings concur with those of Saharudin et al (2009), which found that lack of management skills by project managers erodes the quality of work done,. This ultimately leads to the collapse or stalling of the project, since the project cannot meet the quality standards as well as standing the test of time. The findings also echo sentiments by Zimmerer and Yasin (1998), who observed that the highest rated characteristics for effective project managers and for project success were team building, communicating, demonstrating trust, and focusing on results among others. Therefore, a competent project manager possesses not only technical and managerial skills but also good leadership to do the right thing in the right way and search suitable and intangible assets in today's knowledge-based economy.

5.3 Conclusion of the Study

From the research findings, it is evident that adhering to compliance regulatory measures enables fund allocation, project identification process, project management factors, as well as human resource factors to influence the completion of building construction projects in Kajiado County. The research found that project managers who sought for compliance documentation early enough, mobilized funds from the county government and other funding agencies, and procured the required materials for the project always ended up having their projects completed and implemented within the time schedule set by their respective organizations. This study therefore concludes timely and adequate allocation of project funds, thorough project identification process, equipping the project staff with project management skills, as well as assembling a qualified project management team is a sure way of having successful building construction project that will always be completed within the required schedule.

5.4 Recommendations of the Study

From the study findings discussed above, it is evident that the successful completion of a building construction project is dependent on so many factors. Ensuring that the project team adheres to the set safety rules and regulations before embarking on the construction process gives the whole project a better chance of being completed on time. This ensures the project team avoids the embarrassment of having the construction stopped because the contractors have not adhered to the set rules and regulations. This reduces delays in project completion, as well as ensuring quality structures are constructed that will give the general public a good value for their money. The study therefore recommends that all project managers working on building construction projects in Kajiado County adhere to the safety regulation measures set by NCA, NEMA, and the county government of Kajiado. The team should also ensure the county budgetary allocation team sets aside funds for the project before embarking on any planning process for the same. The project identification process should also involve all stakeholders within the county, to ensure that the project once completed will benefit the whole community at large. The organization should also consider qualified personnel for construction jobs, as well as

availing the right facilities for the project construction team to carry out the tasks of construction.

5.5 Suggestions for Further Research

This study was examining the factors influencing completion of building construction projects in Kajiado County. The study therefore recommends that more studies should be done on the same in all the 47 counties to improve productivity and ensure uniform development of projects across the country.

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APPENDICES

Appendix I: Letter of Transmittal

Jeremiah Nairowua
P.O Box 6464-00100
Nairobi, Kenya.

Dear Respondent,

FACTORS INFLUENCING COMPLETION OF BUILDING CONSTRUCTION PROJECTS IN KAJIADO COUNTY, KENYA.

I am a student at the University of Nairobi and currently pursuing a course of study for the Master of Arts Degree in Project Planning and Management. Pursuant to the pre-requisite course work, I am currently carrying out a study on factors influencing completion of building construction projects in Kajiado County. The focus of my research will be building construction projects in Kajiado County, and this will involve use of questionnaires administered to Architects, structural engineers, civil engineers, mechanical engineers, electrical engineers, quantity surveyors, land surveyors, contractors, supervisors and project managers involved in projects undertaken by the county government of Kajiado, as well as the National Housing Construction Authority. Statements in the research questionnaire are just guides through which you are requested to provide your opinions on the topic under study. Kindly note the data you provide will be used for research purpose only and your identity will be held confidential.

Thank you.

Yours Faithfully,

Jeremiah Nairowua

L50/69691/2011.

Appendix II: Questionnaire for Project Management Team

INSTRUCTIONS:

1. The questionnaire has six sections and you are kindly requested to respond to all questions.
2. Please tick () in the appropriate box.
3. Where explanation is requested, kindly be brief and to the point.
4. All information will be treated with utmost confidentiality.

SECTION 1: General Information

1. What sector do you work in? Public Private
2. How many years of experience do you have in construction industry?

3. Please indicate your gender. Male Female
4. Please indicate by a tick () the construction profession you are in

Architect	<input type="checkbox"/>	Builder	<input type="checkbox"/>	Contractor	<input type="checkbox"/>
Engineer	<input type="checkbox"/>	Project Surveyor	<input type="checkbox"/>	Chief Officer	<input type="checkbox"/>
QS	<input type="checkbox"/>	Land Surveyor	<input type="checkbox"/>	Sub-County Project Manager	<input type="checkbox"/>

SECTION II: Fund Allocation and Kajiado County Project Completion

1. To what extent do the following attributes of project fund allocation influence the completion of building projects in Kajiado County?

Where 1. Very great extent, 2. Great extent, 3. Moderate extent, 4. Low extent, 5. No extent.

Attribute	Rating				
	1	2	3	4	5
i. Adequacy of funds					
ii. Timely allocation of funds					
iii. Efficient financial management team					
iv. Political goodwill					
v. Transparency and accountability during project costing					

SECTION III: Project Identification Process and Kajiado County Project Completion

2. To what extent do the following attributes of project identification process influence the completion of building projects in Kajiado County?

Where 1. Very great extent, 2. Great extent, 3. Moderate extent, 4. Low extent, 5. No extent.

Attribute	Rating				
	1	2	3	4	5
i. Community needs					

ii. Stakeholder involvement					
iii. Geographical location					
iv. Population					
v. Already existing infrastructure					

SECTION IV: Project Management Factors and Kajiado County Project Completion

3. To what extent do the following attributes of project management factors influence the completion of building projects?

Where 1. Very great extent, 2. Great extent, 3. Moderate extent, 4. Low extent, 5. No extent.

Attribute	Rating				
	1	2	3	4	5
i. Communication systems					
ii. Supervision					
iii. Developing an appropriate structure					
iv. Monitoring and updating plans					
v. Control of subcontractor work					

SECTION V: Human Resource Factors and Kajiado County Project Completion

4. To what extent do the following attributes of human resource factors influence the completion of building projects in Kajiado County?

Where 1. Very great extent, 2. Great extent, 3. Moderate extent, 4. Low extent, 5. No extent.

Attribute	Rating				
	1	2	3	4	5
i. Academic qualification					
ii. Training capacity					
iii. Competency					
iv. Salaries and remuneration					
v. Availability of labour force					

SECTION VI: Compliance Regulations and Kajiado County Project Completion

5. To what extent do the following compliance regulations and their attributes influence the completion of building projects in Kajiado County?

Where 1. Very great extent, 2. Great extent, 3. Moderate extent, 4. Low extent, 5. No extent.

Attribute	Rating				
	1	2	3	4	5
i. NCA construction permits					
ii. Kajiado County government permits					
iii. NEMA clearance certificates					
iv. Penalties for defaulting					
v. Timely inspection and clearance					

SECTION VII: Completion of Kajiado County Building Construction Projects

6. To what extent do the following attributes of project completion hold for the case of building projects in Kajiado County?

Where 1. Very great extent, 2. Great extent, 3. Moderate extent, 4. Low extent, 5. No extent.

Attribute	Rating				
	1	2	3	4	5
i. Project schedule					
ii. Cost overruns					
iii. Resource availability					
iv. Labour force					
v. Project budget					

7. In your opinion what is the single most important reason that you can attribute to timely completion of public buildings construction projects?

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Appendix III: Plagiarism Report

FACTORS INFLUENCING COMPLETION OF BUILDING CONSTRUCTION PROJECTS IN KAJIADO COUNTY, KENYA

ORIGINALITY REPORT

12%	10%	4%	13%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to University of Queensland Student Paper	4%
2	Submitted to Saint Paul University Student Paper	2%
3	issuu.com Internet Source	2%
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5	Submitted to London School of Business and Finance Student Paper	2%