ANTECEDENTS OF PROJECT SUCCESS IN CONSTITUENCY DEVELOPMENT FUND CONSTRUCTION PROJECTS IN KENYA

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Antecedents of Project Success in Constituency Development Fund Construction Projects in Kenya

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DECLARATION

This thesis is my original work and has not been submitted for a degree in any other University.

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DEDICATION

This thesis is dedicated to my parents Gilbert Mungania and Josephine Kajuju who introduced me to school at an early age and encouraged me to study with dedication. I also convey very special thanks to my husband Mutwiri Ikiao and the entire Ikiao family for creating an enabling environment that enabled me to realize my academic dreams.

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ACRONYMS AND ABBREVIATIONS

ANOVA	**:**	Analysis of Variance
CDF	**:**	Constituency Development Fund
CDFC	**:**	Constituency Development Fund Committee
CLRM	:	Classic Linear Regression Model
CFC	**:**	Constituency Fund Committee
CSF	**:**	Critical Success Factor
ERP	**:**	Enterprise Resource Planning
FLP	:	Fuel Levy Fund
GDP	**:**	Gross Domestic Product
ICT	**:**	Information and Communication Technology
JKUAT	**:**	Jomo Kenyatta University of Agriculture and Technology
KNBS	:	Kenya National Bureau of Statistics
KPLC	**:**	Kenya Power and Lighting Company
LATP	**:**	Local Authorities Transfer Fund
NACOSTI	:	The National Council for Science and Technology
OECD	**:**	Organization for Economic Co-operation and Development
OED	:	Operations Evaluation Development

PFI **:** Private Finance Initiative

PID **:** Project Initiation Document

PMI **:** Project Management Institute

PLS-SEM **:** Partial Least Squares Structural Equation Modeling

PM : Project Manager

PMBOK **:** Project Management Book of Knowledge

PPP **:** Public Private Partnership

R.A.C.I **:** Responsible, Accountable, Consulted, Informed

RMF **:** Roads Maintenance Fund

TQM **:** Total Quality Management

UNESCO **:** United Nations Educational, Scientific and Cultural Organization

USA **:** United States of America

VIF : Variance Inflation Factor

WBS : Work breakdown structure

OPERATIONAL DEFINITION OF TERMS

Antecedents: Something or someone existing or happening before, especially as the cause of or origin of something existing or happening later (Blackburn, 2005).

Charter: A project charter is a formal, typically short document that describes your project in its entirety including what the objectives are, how it will be carried out, and who the stakeholders are (Rowe, 2020).

Contingency Plan: A plan that covers possible identified project risks that may materialize over the life of a project (PMI, 2013)

Effectiveness: This is the extent to which the projects objectives were achieved, or are likely to be achieved and seeks to control the factors that influence accomplishment or non-achievement of the objectives (Ngacho, 2013)

Evaluation: **P**roject evaluation is a systematic and objective assessment of an ongoing or completed project whose aim is to determine the relevance and level of achievement of projects objectives, development, effectiveness, efficiency, impact and sustainability (Colombo, Romeo, Mattarolo, Barbieri, & Morazzo, 2018)

Feasibility Study: A feasibility study is an assessment of the practicality of a proposed project or system. A feasibility study aims to uncover the strengths and weaknesses of an existing business or proposed venture, opportunities and threats present objectively and rationally in the natural environment, the resources required to carry through, and ultimately the prospects for success (Chen, Huang, & Gao, 2020).

Objective: An end you seek to create or acquire. Should be specific measurable, realistic assignable, and include a time frame for accomplishment (PMI, 2013)

Performance: Performance can be viewed as the accomplishment of a given task measured against preset known standards of accuracy, completeness, cost and speed (Taiwo, 2016).

Practice: A specific type of professional or management activity that contributes to execution of a process and that may employ adoption of a plan, technique and tools (PMI, 2014)

Project Closure: The Project Closure Phase is last phase in the project life cycle where the project is formally closed and the overall level of success is reported to the sponsor (McLeod, Doolin, & MacDonell, 2012).

Project environment: The project environment is made up of internal and external factors that influence a project. When managing a project, the project manager must consider more than just the project itself (Toppinen, Sauru, Pätäri, Lähtinen, & Tuppura, 2019).

Project execution: The execution phase involves carrying out the details of your project charter to deliver your products or services to your clients or internal stakeholders (Sunder, 2016).

Project Implementation: Coordinating people and resources, managing stakeholder expectations, as well as integrating and performing the activities of the project in accordance with the project management plan (PMI, 2013)

Project Initiation: The initiation phase encompasses all the steps you have taken before a project is approved and any planning begins to define the project at a high level and tie it into the business case you wished solved (Kerzner, 2019).

Project Integration Management: Project Integration management knowledge area includes the processes and activities needed to identify, define, combine, unify and co-ordinate the various processes and project activities within the project management process group (PMI, 2013)

Project Management: Project management is defined as "the application of knowledge, skills, tools, and techniques to project activities to meet project requirements." (PMBOK, 2013).

Project Monitoring and Control: Monitoring and Controlling Project Work involves tracking the actual project performance with the planned project management activities (Tom, & Paul, 2013).

Project Planning: Project planning is the process of defining project objectives and scope, goals and milestones, deliverables, and assigning tasks and budgetary resources for each step (Burghate, 2018).

Project Success: A project is said to be successful if it is completed on time, within budget, achieves all project goals and end users are satisfied with the project (Müller & Jugdev, 2012)

Project Team: is a group of employees with interdependent interactions and mutually shared responsibilities (Khoshtale & Adeli, 2016).

Project: A project is a temporary endeavor undertaken to create a unique product, service, or result (Pirozzi, 2018)

Stakeholder: A stakeholder is any group or individual who can be affected or is affected by the implementation of the organization's objectives (Rajhans, 2018).

Success Criteria: The elements of a project which, when influenced, increase the likelihood of success; these are the independent Variables that make success more (PMI, 2018).

Unit of Observation: This is an object about which information is collected to help clarify the reasonable conclusions that can be drawn from the information collected (Sedgwick, 2014)

ABSTRACT

Project management aims at ensuring effective use of resources and eventual delivery of project objectives on time and within cost and quality constraints planned for. The success of any project depends on how effectively the project management cycle is managed form start to end.The Kenya government adapted the Constituency Development Fund (CDF) model as a strategy for implementing and managing devolution of resources. The main objective of this study was to examine the extent to which the discipline of adhering to project cycle phase activities is followed and assess their influence on CDF construction projects in Kenya. Specifically, the study aim was to: examine the influence of project identification and initiation, planning, implementation, monitoring and control, and closure processes on CDF construction projects in Kenya. The objectives were pegged to related theories: theory of constraints, stakeholder theory, program theory, project scheduling theory and open systems theory. The target population in this study comprised of 2,300 CDF staff, 1,610 CDF committee members, 3,450 public immediate to the project and 2,760 project consultants. The sample size was 381 respondents chosen randomly and others purposively. The counties were randomly selected to represent regional boundaries and a minimum of three constituencies were randomly picked from each county. CDF construction projects were taken as the unit of analysis and the unit of observation was the project team consisting of CDF staff and CDF committee members. Purposive sampling was used when getting information from the experts. The research instruments were validated by use of a pilot study, which was assessed by the supervisor. This study used primary data, which was collected by use of semi-structured questionnaires and key informant interview guides. Secondary data were obtained from reports available at government ministries and regulating bodies and published information. The study employed descriptive research design. Data collected was analyzed by use of Statistical Package for Social Sciences (SPSS version 22) computer package. Regression models were used to examine the strength and direction of influence of the independent variables on the dependent variable. Data was presented in tables, figures and charts. The study found that project identification and initiation activities, planning, execution, project monitoring and control and project closure activities explained 67.8% of the variations in the success of CDF construction projects in Kenya. The study found out that individually variables contributed to different extents: identification process 43.4%, planning 48%, execution 40%, monitoring 46% and closure activities contributed 39% to the success of CDF construction projects. The study concludes that all variables examined have significant positive influence on the success of CDF construction projects in Kenya. The study also found that project environment moderates positively and significantly the relationship between identification and initiation, planning activities, execution activities monitoring and control, project closure activities and the success of CDF construction projects in Kenya. The results of the study will benefit the government, policy makers, donors, researchers, and stakeholders in addition to adding knowledge on project management. The study recommends training of CDF staff on project risk management and use of external consultants' expertise for feasibility study.

CHAPTER ONE

INTRODUCTION

1.1 Introduction to the Study

In this chapter the researcher provides background information on antecedents of project success with reference to Constituency Development Fund (CDF) construction projects in Kenya. The global, regional, and local perspectives of project success are highlighted. The failure or success of a project is determined by a combination of factors both internal and external to the project. Consequently, an attempt has been made to study the influence of these factors knowing that the influence at the right time increases the probability of success of that project (Savolainen 2012).

The study endeavored to assess the influence of some activities that are practiced during the project life cycle and their influence on the success of the project. The independent variables in this study were project identification and initiation activities, project planning, project execution, project monitoring and control and project closure phases of the project. The dependent variable was project success while project environment was taken as the moderating variable with emphasis on the sub variables of organization structure, board composition, project manager competencies and regulatory bodies.

1.2 Background of the Study

Many organizations worldwide use projects in economic and non - economic fields as a way of organizing the activities that aim to achieve desired objectives in organizations. While implementing strategies in change management, projects have been used as the main way of dealing with change (Meredith, Shafer, & Mantel Jr, 2017). The success of the business is to some extent determined by the success of the projects undertaken (Meskendahl, 2010).

Meskendahl (2010) refers to projects as the central building block used in implementing strategies, therefore business success is determined by the success of the projects undertaken. In a different report (PMI 2013) emphasize that aligning projects with strategic objectives brings value to an organization and when projects succeed, they are known to generate positive effects to the organization and this influence is both short term and long-term development. The main aim of project management is to ensure effective use of resources and eventual delivery of the project objectives on time and within the cost constraints formally planned for (Kerzner, 2013).

Many scholars have discussed project success and generally the successful projects are those completed within the budget, on time, fulfills the required quality specifications, achieves all goals and end users are satisfied. When discussing project success, it is important to include two elements namely success criteria and success factors. Success criteria is identified at the start of the project and then success factors are determined in order to increase the chances of project success (Müller, Turner, 2007).

Success criteria is defined by Muller and Turner (2007) as a variable or multiple variable that measure project success. To allow for a common perception of what success criteria is in a project, there is a need for comprehensive determination at the planning stage (Davis, 2014). Stakeholder satisfaction is a main success criterion for determining project success in most projects, but this is in addition to the golden triangle of time, cost budget and scope.

Pinnington (2014), documents that establishing a set of success criteria applicable to every type of project is unrealistic. It is common to find a certain criterion that might be relevant in measuring the success of most projects but generally success criteria should be adapted to every project size, complexity, duration, type, and stakeholders' requirements.

Project managers find themselves in situations where they must deal with situations of implementing projects that do not have clearly defined success criteria. One of the success conditions mentioned by Davis (2014), based on a comprehensive literature

study, is that "success criteria should be agreed on with stakeholders before the start of the project, and repeatedly at configuration review points throughout the project".

Success factors on the other hand are main variables that contribute to the success of a project (Ahmed, & Abdullahi, 2017). Managers can manipulate the success factors in a manner that can increase the chances of achieving the desired outcomes of the project (Davis, 2014). According to Besteiro, de Souza Pinto, and Novaski, (2015), success factors on projects include project mission, top management support, schedule and plans, client consultation, personnel, technical tasks, client acceptance and communication.

Researchers, clients, contractors, and professionals are concerned about activities which results in delayed projects. Previous studies have identified project personnel, communication, site management, contactor competencies, stakeholder's involvement, supervision, top management support and project manager's experience as determinants of successful completion of various projects around the globe (Gudiene *et al*, 2013; Yong, 2013; Ondari, 2013). This study concerns itself with the project life cycle activities and their influence on the success of CDF construction projects in Kenya.

According to Leach (2014), project managers find it useful to use project life cycle as the cornerstone for managing projects. Every project must pass through five phases of project management: identification and initiation phase, planning phase, implementation phase, monitoring and control phase and project closure phase.

The first step is project identification and initiation phase that define the project objectives, define the project specifications, form teams, obtain authorization for its execution and if accepted, identify stakeholders, and assign major responsibilities (Kerzner, 2017). The second stage of the project life cycle is the planning stage which consists of processes performed to establish the total scope of the effort, define, and refine the objectives and develop the course of action required to attain those objectives (Parlani, 2017). The activities involved in planning stage includes resource planning, financial planning, quality planning, communication planning, and procurement planning (PMI, 2013).

The output of this stage is the project management plan and project documents that will be used to carry out the project (Chofreh, Goni, Klemeš, Malik, & Khan, 2020). In the planning stage, project scope, schedules and budgets are developed, resources are assigned, and staffing is established, communications, risks assessment, procurements, and subsequent actions to achieve the objectives for which the project is undertaken are developed (James, 2017). The third stage of the project life cycle is executing stage also referred to as the implementation stage, which consists of those activities that are performed to complete the work defined in the project management plan to satisfy the project specifications.

During this step there may be need for planning updates, re-baselining, making changes to expected activity durations, making changes in resource productivity, and addressing the unanticipated risks (Kerzner, 2017). A large portion of the budget is expended during the execution phase (PMI). At this stage, the project manager coordinates and directs the resources to meet the desired project objectives. The fourth phase of the project life cycle is that of monitoring and controlling.

West, and Blackman, (2015) argue that a central value of project cycle management is monitoring and evaluation of the project which is done throughout the project cycle to ensure that any changes which have occurred, or lessons learned are included in the project design and as a result, projects are more likely to be successful and sustainable.

This phase allows the tracking, review, identifying areas in which changes to the plan are required, and initiates corresponding changes. The key benefit of this phase in project management is the measurement of project performance through regular analysis of events, identification of variances from the project management plan and undertaking the necessary changes within the executing processes (Kerzner, 2018).

The final phase of the project life cycle according to Kerzner (2019) is the closing step which allows for completion of all activities in an orderly way and all contractual obligations are formally finalized. At project closure acceptance by the customer or sponsor is obtained, the deliverables identified are reviewed, supplier

contracts are terminated, and lessons learnt are documented and all project documents are archived for use as historic data.

The order of these five project phases discussed above may suggest a process which is conducted in a systematic sequence but in real practice, this is not usually the case. These activities may overlap, and frequently inter-link and many processes are repeated in an interactive manner. The project manager and the project team members are expected to have the know-how and skills of project management that determine the flow of the processes following this guide. The construction industry is one of the biggest industries in the world contributing to around 10% of the global GDP (Amoa-Abban & Allotey, 2014).

The resources utilized in the construction industry add up to 50% of the world resources. With such an impact on the world economy and resource utilization, it is prudent that activities within this industry are efficiently and effectively planned to ensure project success (Molusiwa & Verster, 2013). Construction industry contributes a noteworthy portion of Gross Domestic Product (GDP) nationally and internationally. As shown in the Kenya National Bureau of Statistics (KNBS, 2012), the construction industry in Kenya, for example, contributed 3.8%, 4.1%, 4.3% and 4.1% towards the GDP of the country, in the years 2008, 2009, 2010 and 2011, respectively.

These statistics imply that timely and realistic evaluations of the managerial effectiveness of construction projects and, by implication the construction industry, are actions that should improve the performance of the national economy of Kenya.

Establishment and Management of the Constituency Development Fund

To control development projects imbalances at the at the grassroots and constituency levels, the Kenya government established Constituency Development Fund (CDF) in 2003 through the CDF act. The fund comprises of an annual budgetary allocation equivalent to 2.5% of the government's ordinary revenue. Roxana (2009), reports that over the last ten years, the Kenya government has intensified the use of decentralized programs in its strategy to tackle poverty and reverse regional disparities.

Kenya's CDF program has been appraised for taking essential development programs and services to Kenyans at the grassroots level by ensuring equitable distribution of resources. The central government has shifted the responsibility of regional development to the locals themselves through the CDF initiatives (CDF Act 2003).

The management of the CDF has been controlled through the CDF Act 2003, which states that the expenses for running constituency project offices should not exceed 3% of annual constituency allocations. The act limits the usage of the funds in matters that support political bodies, political activities, and personal award projects. The act also does not allow the Member of Parliament (MP) to be a signatory to the CDF bank account but it retains the MP responsible for convening the CDF Committee in her/his constituency.

When starting the CDF, the government had the intention to ensure the existence of the most effective and efficient institution in the delivery and utilization of public resources. The main purpose was to address the areas of provision of water, health services, and education in all parts of the country particularly those that never benefited fully from funds allocation in national budgets.

According to Ochieng and Tubey (2013), the government vision of CDF as an organization is to redistribute national resources to the community to improve rural economy, alleviate poverty, create employment, and raise the standard of living of Kenyans. CDF was intended to compliment and work harmoniously with other existing funds like: Local Authorities Transfer Fund (LATF), Bursary Fund (BF), Fuel Levy Funds (FLF) and Roads Maintenance Fund (RMF) already in the government structure that are directed to the community level. Previous studies by Gikonyo (2008) points out that under the revised CDF Act 2007, the National Management Committee (NMC) was renamed the Board of Management of CDF. The Board of management is a corporate body comprising of 17 persons and owns all CDF property. It is responsible for national coordination of CDF projects while the DPC coordinates and harmonizes the development projects and is responsible for procurement where contracts exceed Ksh. 10 million.

Under the revised CDF Act 2007, the CDF committee ranks projects in order of priority and is also responsible for the management and implementation of CDF Projects at the Constituency level. The proposed projects in a constituency are submitted to the chairman of the CDF committee who then submits them to the parliamentary committee for approval. The projects should be submitted months before the annual government budget for each year. The projects proposed should be accompanied with cost estimates which are approved by the board if found consistent with the act. The committee is composed of representatives from national government officials, women, men, youth, active NGOs, and people living with disability.

According to the CDF Act (2007), the projects are supposed to be community based to ensure that the prospective benefits are available to a cross section of the inhabitants of a particular area. Basic services like health care, good roads and schooling are now availed through CDF. CDF initiatives are linked to vision 2030 key objectives that include enhanced economic growth and reduction of poverty at the grass root level. The CDF guidelines state that the funding of projects under this Act shall be for a complete project or a defined phase of a project and may include the acquisition of land and buildings.

Funds provided under this Act are not expected to be used for the purpose of supporting political bodies, political activities, religious bodies, or religious activities. Some of the benefits of CDF realized in the last few years include reduction in government bureaucracy, weakening of inefficiencies and ineffectiveness associated with central government and above all CDF has aligned development projects to local people priority needs.

Concerns have been raised regarding the separation of powers touching on members of parliament (MP) who double up as legislators and implementers of the development projects at the same time. To date the CDF Act, has not included any independent oversight authority that can provide adequate checks and balances, and this has made CDF projects more vulnerable to corruption and wastage of funds (Ongoya & Lumalla, 2005).

The Act (2007) however has put clauses on the expenditures and re-imbursements from the CDF fund. All monies received are required to be banked in the constituency bank accounts and records should be submitted to the Board within 30 days of closure of the financial year. The Act also has given guidelines on re allocation of funds where any reallocations from project to project should be approved by the Board.

Kairu and Ngugi, (2014) argued that CDF management faces various challenges like: the organization structure in managing CDF projects, project identification criteria, political interference and corruption. A continuation on CDF project management is of interest in this study where the researcher has endeavored to study antecedents of project success in CDF construction projects in Kenya with a view of finding out the focus areas on the life cycle activities that need to be addressed to ensure project success.

1.1.1 Global Perspective of Project Success

In Germany cost overruns and time delays in construction projects are already well-documented and the factors affecting cost and schedule have been studied for many years in many countries. According to the study of Sözüer, and Spang, (2014). 50% of construction projects exceed their budgeted costs by 40% - 200%. Cost overruns are illustrated as “normal” phenomenon of transport infrastructure projects.

Mehany (2014) collected and analyzed data for 258 transport infrastructure projects of 20 nations and found out that rail projects show the highest escalation rate of 44,7 % and road projects appear to be less predisposed for cost overruns with an average of 20.4 %. Data published by the German Federal Parliament show that 214 road construction projects from the requirement plan of 2004 have differences between the estimated and approved costs from 10 % up to 720 %.

In the UK for instance, the Eurotunnel project, finished with a debt burden of £2.05 Billion, an 80% cost overrun which made the project’s final account stand at £4.65 Billion against an original contract sum of £2.60 Billion (Oswald Gwaya, 2016). Another example is the new Webley Stadium project which finished late and costed

twice its original budget. In the United Kingdom, Larsen *et al.* (2015) found that public projects were experiencing an average cost overrun of 15% and time overrun of 25%. In Denmark, Flyvbjerg, Skamris and Buhl (2004) found that public projects such rails, tunnels, road projects and bridges were experiencing cost and time overruns. They also indicated that type of project, accountability, size of the project and length of project implementation phase were playing a major role in cost and time overrun.

In Malaysia, the construction industry derives economic growth and development but unfortunately, its projects often suffer from cost overruns where project costs exceed contract sum. This can lead to litigation and conflict or in the extreme projects can be abandoned. It is therefore important that a structured project management evaluation is undertaken. In Malaysia, public projects face cost overrun with an average amount ranging from 5% to 10% of the contract budget (Ong'ondo, Gwaya, & Masu, 2019).

According to Memon, Rahman and Aziz (2012), cost overrun in Malaysia results from fluctuation in materials price, cash flow and financial difficulties faced by contractors, delay in progress payment by owner, and frequent design changes. In Malaysia there is vision 2020 encompassing construction management and projects delivery improvements.

In Indian construction industry, studies by Doloi, sawyney and Rentala (2012) identified the key factors impacting delay in Indian construction industry as: inefficient site management, substandard contracts, poor site coordination, improper planning, lack of clarity in project scope, lack of commitment and lack of communication. Other factors that affect the overall delay of the project significantly include slow decision by project owners, poor labor productivity, architects' reluctance for change and rework due to mistakes in construction.

These findings may make significant contributions to Indian construction industry in controlling the time overruns in construction contracts. Due to a dramatic shift in the capacity and volume of the Indian construction sector over the last decade, the need of a systematic analysis of the reasons of delays and developing a clear

understanding among the industry professionals are highly crucial (Doloi, sawyney & Rentala, 2012).

In the United States (US), Sweis (2013) remarked that performance problems arise in large construction projects due to many reasons such as: incompetent designers/contractors, poor estimation and change management, social and technological issues, site related issues and improper techniques and tools. They determined that the most influential factor for time overrun was unsettled or lack of project funding. For cost overrun the influential factor was errors or omissions in consultant material while for poor quality the influential factor was errors or omissions in construction work.

In South Africa, Mukuka, Aigbavboa and Thwala (2015) argue that the main factors affecting project success include extension of time, cost overruns, disputes, poor quality of work due to hurrying the project and bad reputation with contraction team. This is supported by Molusiwa and Verster (2013) who found that the main factors affecting project success in public institutions were: terms of delivery time, contractual claims extension of time, lack of cost planning, additional works, quality change in scope of work on site and incomplete design at the time of tender.

1.1.2 Regional Perspective of Project Success

In Nigeria, public projects were experiencing failures that required reworking due to poor quality (Forcada, Gangolells, Casals, & Macarulla, 2017). Reworking of the projects was found to affect the final cost of the project and finishing time significantly. According to Obeng-Ahenkora, and Danso, (2020), the major underlying problems in projects success in Nigeria were the lack of prompt payment by agencies to contractors and fluctuations in material, labor, and plant costs.

In Ghana, it is reported that cost overruns leading to delays and project failures are common in building construction projects (Amoa-Abban & Allotey, 2014). The total cost of additional works not initially included in the total estimate in the bills of quantities was high in most projects and changes in the specifications and details of

materials or components and the non-prompt payment of the contractor led to construction delays and increase in fluctuation costs.

In Uganda, there is great concern for project failures, delays, and cost overruns because most of the construction projects in Uganda are implemented using taxpayers' money and donor funds. Apolot (2011) found that the main factors affecting project success in Uganda include change of work scope, poor communication, delayed payments, poor monitoring and control, political insecurity and instability, fuel shortage, corruption, poor planning, and political interference.

In Rwanda reports indicate that project delay has been an ongoing issue where proposed and ongoing projects are either delayed or postponed (Nyasetia *et al.*, 2016). The government of Rwanda in 2011 sought $600 million for the construction of a new airport Bugesera International Airport that was expected to be completed by 2016 but its inception has not even commenced to date. In Kigali, the $300 million Kigali Convention Centre, which was scheduled for completion in 2011 delayed up to 2016.

When African countries were rated by OED, Kenya attained an overall rating of 49 percent on completion of public projects funded during the period 2008 to 2011 as compared to Uganda's and Tanzania's rating of 59.5 percent and 70.1 percent respectively (World Bank, 2013).

Beyond East Africa, Ghana had a rating of 64.7 percent in the same period (World Bank, 2013). This shows that among the three East African countries rated by OED, Kenya was rated the poorest in public project completion.

1.1.3 Kenya Perspective on Antecedents of Project Success

In Kenya, the construction industry particularly housing is facing enormous challenges in quality assurance from cases of collapsing buildings to unfinished, substandard constructed and uninspected houses (Githenya & Ngugi, 2014). It is reported that many constituencies are faced with challenges in implementing their constituency development fund projects. The Auditor General's and National

Taxpayers' reports during the financial years 2006 to 2012, revealed irregularities in procurement procedures and possible embezzlement of millions of shillings by skewing resource allocation, project selection and oversight in Kangundo Constituency (Ngugi, 2014).

In Kenya, the adoption of modern project management methodologies has been linked with improved performance in the Kenyan banking sector. In the study by Kamau (2013) a marked improvement was observed in customer satisfaction, realization of business objectives as well as the project constraints of time, cost, and quality. Reports indicate that the cost of building the headquarters of the Kenya National Examination council (KNEC) shot up more than tenfold, from an initial 250,000,000 estimated at the groundbreaking in 1986 to 2.6 billion at the completion date in 2016 (Business Diary, 2016).

Kariungi (2014) in a study conducted on Kenya Power and Lighting Company (KPLC) found that: timely availability of funds, climatic factors and procurement delays were observed to be the main factors that influenced the timely completion or projects. In addition, KPLC had challenges in the external environment in its distribution line construction. Mwangi (2006) observed that 85% of the KPLC projects were late and incomplete leading to a conclusion that stakeholders, especially customers were dissatisfied.

Projects in Kenya were rated lowest on completion by the Operations Evaluation Department (OED) of the World Bank as compared to other East African countries. Kenya was given an overall rating of 49 percent on completion of public projects funded during the period 2008 to 2011 as compared to Uganda's and Tanzania's which were rated 59.5 percent and 70.1 percent respectively (World Bank, 2013).

Otonde and Yusuf (2015) study on Kenyan universities based in Kisumu found that management support, planning, human capital, communication, and monitoring evaluation had a positive and significant effect on project performance. In Egerton University, Saisi, Kalio and Ngahu (2015) established that there is a relationship between access to infrastructural capital and successful completion of construction projects in Egerton University. In recent years, there has been a tremendous increase

in the number of construction projects in Kenya. According to Gwayo *et al*. (2014), there is a growing concern regarding the reasons for failing to achieve the requisite objectives as per the projects' client's expectation.

Ondari and Gekara (2013) found that factors influencing successful completion of roads projects include financial resources and human resource capacity, design specifications, management support and contractors' capacity. However, they noted that public institutions lack the necessary human and financial capacity to implement projects in a timely manner. According to Ndiang'ui, Ombui and Kagiri (2015), road construction project success is greatly influenced by project equipment, project managers' competency, project funds and project technology. Kagendo (2013) carried out a study on the factors affecting successful implementation of projects in non-governmental organizations within urban slums.

The results indicated that funding, organizational structure, and stakeholder relationships have a significant positive influence on project success. According to Govender and Msani (2012), project managers determine the success of the project. They are expected to have the technical skills directly related to the project and soft skills that assist in managing teams and team relationships. A report by the Kenya Tax Payers Association (KTPA) for 2007/08 on Kangundo constituency indicated that 40% of the CDF could not be accounted for, 20% of the projects had not been successfully completed and only 5% had been completed successfully, and over 35% had been well utilized.

Other projects have been stopped due to various challenges such as repeated accusation of abuse of funds, patronage due to excessive powers of the Member of Parliament (MP), incomplete projects, lack of technical capacity, poor planning and a litany of other weaknesses which threaten to undermine the very success of the fund.

1.1.4 Performance of CDF Projects in Kenya

Performance can be viewed as the accomplishment of a given task measured against preset known standards of accuracy, completeness, cost, and speed (McLaughlin, King, S. E., & Jennings, 2009). Previous studies indicate that despite the existence of

the devolved funds, internal inefficiencies in the management have made them not to achieve the desired results. Owuor (2013) argued that CDF management faced various challenges, some of which included: the organization structure in managing CDF projects, project identification criteria, political interference, and corruption. (Ngugi, 2014).

Nyagah, and Mugambi, (2014) concluded in his study that the biggest challenge that faced CDF funded projects is that projects undertaken were not of the desired quality and the implementation was selective. He continued to state that contractors reap heavily from the shoddy jobs that they did without meeting the client's expectations. Wanjiru (2008) documents that poverty levels have increased from 56% in 2002 to 60% in 2008, public service delivery has failed, inequalities in resource distribution prevails and funds meant for community use have been looted by corrupt civil servants and politicians.

On aspects of risk management on projects, Wachuru and Amuhaya (2013) reported that the level of the application of risk management activities in CDF projects is minimal. A vast majority of the project managers attested to their ignorance to risk management levels of risk identification, risk quantification, risk responses and risk responses control to the full cycle of the project. The research recommended that project management committees be provided with basic training of risk management and be provided with templates and models of managing real and perceived risks in CDF projects and operations to enhance their success performance. Studies by Wachuru, and Amuhaya, (2013) revealed that the level of the application of risk management activities in CDF projects was minimal.

1.3 Statement of the Problem

In Kenya, the construction industry has experienced enormous challenges with rampant cases of substandard constructions, incomplete buildings, overruns in cost, schedule, and quality (Dokata, 2017). The impact of incomplete projects is loss of revenue, lack of facility utilization, poor resource utilization and inefficient management of resources (Hapompwe, Tembo, Kukano, & Siwale, 2020).

According to (Muchungu, 2012), about 48% of the building projects in Kenya show poor performance in terms of completion time, cost overruns and client satisfaction. Ochieng, and Tubey, (2013) research in Ainamoi Constituency notes that only 29.73% of projects had been completed and that 100% of the projects were not completed on schedule for the duration 2011 and 2012. In Kikuyu Constituency 83% of the education CDF projects initiated between 2012 and 2015 had been completed with only 17% behind schedule majority of which were initiated in 2014 and 2015 financial year.

The evidence of incomplete CDF construction projects in Kenya is indicative of poor management of projects and this is a major concern to the government, public and other stakeholders (Kithao, 2019). Project failures are estimated to cost hundreds of billions of euros yearly (McManus & Wood-Harper, 2008) and are not limited to any specific region or industry. It is documented that the construction industry is a major determinant of the economy of any country worldwide contributing to around 10% of the global GDP (Amoa-Abban & Allotey, 2014).

The resources utilized in this industry add to 50% of the world resources. Such an impact on the world economy and resources, it is important that activities within this industry be efficiently and effectively planned to ensure project success (Ramabodu & Verster, 2013). Project methodologies provide more predictable project success than projects that do not use one, (Lehtonen & Martinsuo, 2006; Wells, 2012). A successful solution to the problem of incomplete projects would be the use of project methodologies that provide more predictable project success. Adherence to project life cycle activities is one such project methodology that can contribute to project success.

Project management aims at ensuring effective use of resources and eventual delivery of project objectives on time and within cost and quality constraints formally planned for (Azanha, Argoud, de Camargo Junior, & Antoniolli, 2017). From the foregoing, limited research has been done on antecedents of project success with respect to the performance of CDF construction projects in Kenya. This study

seeks to examine the antecedents of project success by studying project life cycle activities and their influence on the success of CDF construction projects in Kenya.

1.4 Objectives of the Study

The general and specific objectives of the study are as indicated below:

1.4.1 General Objectives

The general objective of this study was to examine the antecedents of project life cycle activities on the success of CDF construction projects in Kenya.

1.4.2 Specific Objectives

The specific objectives of the study were:

i. To examine the influence of project identification and initiation activities on the success of CDF construction projects in Kenya
ii. To evaluate the influence of project planning activities as antecedents of project success in CDF construction projects in Kenya
iii. To assess the influence of project execution activities as antecedents of project success in CDF construction projects in Kenya.
iv. To examine the influence of project monitoring and control activities as antecedents of project success in CDF construction projects in Kenya
v. To examine the influence of project closure activities as antecedents of project success in CDF construction projects in Kenya
vi. To examine the influence of project environment as a moderator on the relationship between project life cycle activities and the success of CDF construction projects in Kenya

1.5 Research Hypotheses

A hypothesis is a statement that describes an unknown but tentatively reasonable outcome for the existing phenomenon (Kombo and Tromp 2006). It is a tentative answer to what the researcher considers to ought to be the possible outcome of an

existing problem or phenomenon. It is a likely solution to a problem being studied, which is advanced before the actual research is undertaken. The six research hypotheses stated below were tested in this study:

H_{01}: Project identification and initiation activities do not influence the success of CDF construction projects in Kenya.

H_{02}: Project planning activities do not influence the success of CDF construction projects in Kenya.

H_{03}: Project execution activities do not influence the success of CDF construction projects in Kenya.

H_{04}: Project monitoring and control activities do not influence the success of CDF construction projects in Kenya.

$H0_{5}$: Project closure activities do not the success of CDF construction projects in Kenya.

H_{06}: Project environment does not moderate the relationship between project life cycle activities and the success of CDF construction projects in Kenya.

1.6 Justification of the study

The studies by Wang and Gibson (2008), shows that time spent on project planning activities reduces risk and increases project success. Other researchers on the project planning activity such as Morris (1998), shows that inadequate project analysis and planning leads to a failed project but the more planning there is in a project, the more successful the project. The planning processes according to PMBOK (2004) is very important, and project execution without proper development of a project plan often causes delays, high costs and general execution problems in the project.

There was no evidence of any research that has been done in Kenya to show the extent to which the project life cycle activities are practiced at the CDF level construction projects. The findings of this study are expected to bring out the influence of various project activities carried out during project influence the success of CDF construction projects in Kenya. This knowledge gap has inspired the researcher to carry out exploratory research on identifying factors within the project

management activities that need to be addressed by CDF committees and project team members to ensure that their projects succeed.

1.6.1 Government of Kenya

The results of this study will benefit the government to improve the success of construction projects in future. The results of the study can be integrated into the entire project cycle processes to ensure that projects succeed in the counties. The findings of this study will help the government to understand the areas that need review of policies and the need to engage and train practitioners to reduce losses that may accrue from stalled projects. The government many also use the results of the study to improve or review the resource allocation to CDF projects.

1.6.2 Policy Makers

This study will provide additional information to the policy makers and the ministry of transport and infrastructure development that can be used to formulate policies to reduce cost and time overrun as well as improve the quality in construction and other projects in Kenya. The Government can use the information of this study to develop policies to improve the management of CDF projects.

1.6.3 General Public and Taxpayers

The findings of the study will be important for the development of the nation in planning and provision of manpower requirements to ensure that the CDF projects are efficiently managed and meet the set objectives. The findings will also ensure positive attitudes to meet the needs of economic development of the nation. This will support a visionary by the strategists to industrialize Kenya by the year 2015-2030.

1.6.4 Researchers and Scholars Community

Students pursuing professional courses like civil engineering, architecture, quantity surveying and construction management leading to the construction industry will benefit from the research findings not only in the academic line but also in the

industry by offering solutions to the impediments in the application of project management in the industry.

To the research community, the study will add more information to the body of knowledge on the antecedents of project success in county governments. The study will also outline other research gaps that can be used as basis for further studies on the success of projects in county governments in Kenya.

This is because it will add to their knowledge and enable them to be more informed in future research areas as concerning CDF project implementation. This is mainly so because the study aims at highlighting factors influencing effective implementation of CDF projects.

1.6.5 Constituency Development Fund Project Managers and Implementers

The findings will help in bringing out the value of project management in CDF especially in project implementation to ensure a desirable outcome to the end user. The findings will be important to the relevant stakeholders' who have the responsibility to ensure that the right measures are taken during the implementation phase of CDF projects. The leanings from this study will benefit the stakeholders by assuring them of the purposeful planning required for CDF projects if they must succeed and bring satisfaction to their clients.

1.6.6 Project Management Practitioners

The professionals in project management will benefit from the findings of this study due to the added knowledge on project management processes. This will enable them to take necessary action at all stages of the project to ensure that the projects succeed.

The clients, consultants and contractors will benefit from the research by understanding the role of project management in the construction industry in Kenya and by knowing areas in need of improvement to make the industry more competitive.

1.7 Scope of the Study

This study sought to understand the extent to which the project life cycle activities influenced the success of CDF construction projects in Kenya. This study focused on activities undertaken during various stages of the project cycle that needed to be monitored to ensure project success. The study variables include project identification and initiation, project planning, project implementation project monitoring and control and project closure and how they influence project success in CDF construction projects in Kenya.

The study was carried out in the following eight counties in Kenya: Nairobi, Kiambu, Meru, Isiolo, Kakamega, Nakuru, Kajiado, and Taita Taveta randomly picked as representatives of the old provinces in Kenya. The study was limited to three constituencies in each county. The unit of analysis constituted the CDF project team, and the unit of observation was the randomly completed and ongoing CDF construction projects in counties in Kenya. The counties chosen represents 17% of the counties in Kenya which is acceptable for generalization of results (Mugenda & Mugenda, 2012).

The unit of observation was the project team members in the construction projects who had a responsibility in any activity on projects management. The target population in this study comprised of 2,300 CDF staff, 1,610 CDF committee members, 3,450 public immediate to the project and 2,760 project consultants (electrical, mechanical, and structural engineers), environmental impact assessors, quantity surveyors, architects, and government officers. The target population was therefore 10,120. This study was conducted in randomly selected CDF projects that were started within two government cycles (2007-2018).

1.8 Limitations of the Study

Limitations are restrictions of the study due to theoretical or methodological reasons which may decrease the credibility and generalizability of research findings. The management at the construction sites were reluctant to grant permission to anyone carrying out the research. To counter this limitation, the researcher obtained a data

collection letter from the ministry of higher education to show that the study was meant for academic purposes only.

In addition, the researcher assured the management that they will be provided with a copy of the final report. Further, the respondents were reluctant in giving the required information due to fear of victimization. In addition, some respondents felt as if they were being investigated. The researcher however worked at winning their confidence by informing them that the study was only to be used for academic purposes and assured them of confidentiality of information given.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the theoretical and empirical literature from other researchers on the topic of projects success. It also covers the conceptual framework that visualizes the relationships of the independent and dependent variables used in this study. The chapter also comprises of critique of existing literature on projects, summary of the literature review and research gaps identified in previous studies on project management.

2.2 Theoretical Review

A theory is a set of statements or principles devised to explain a group of facts or phenomena especially one that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena. This study was anchored on five theories namely, theory of constraints, stakeholder's theory, program theory, project scheduling theory and open system theory. The five theories were used to support each independent variable under this study.

2.2.1 Theory of Constraints

According to Jacob and McClellard (2001), most projects are difficult to manage because they involve uncertainty and involve three different and opposing commitments namely due date, budget, and scope. Managing these triple constraints in project management has been accepted as a measure of project success. This theory has been applied to production planning, production control, project management, performance measurement as well as in not-for-profit facilities (Blackstone, 2010). Theory of constraints is based on the fact that there is most often only one aspect of that system that is limiting its ability to achieve more of its goals.

This theory is based on five steps which include identify the constraint of the system; decide how to exploit the system constraints; subordinate everything else to the

above decision; elevate the system constraints; and if in the previous steps a constraint has been broken, go back to the first step, and do not allow inertia to cause a system's constraint (Rand, 2000). To ensure project success, project managers need to be continually on the lookout for critical constraints and identify opportunities where constraints can be removed or mitigated. For any system to attain any significant improvement, the constraint must be identified and the whole system must be managed with the constraint in mind.

Theory of constraints helps in identifying the most important bottleneck in the processes and systems are developed for improving performance (Tulasi & Rao, 2012). Project managers should, therefore, identify and manage constraints in all phases of the project and aim to reduce the levels of complexity and uncertainty, to minimize the potential for delays, cost blowouts, scope creep and poor quality. The secret to success of the project lies in managing these constraints as well as the system as it interacts with these constraints, if one must get the best out of the whole system (Tulasi & Rao, 2012). This background explains why this theory was used to support this study.

Parker, Nixon, and Harrington (2012) suggest that removal of the key constraints frees up substantial capacity and removes wasteful costs. The theory of constraints as a process of continual improvement encourages project managers to identify constraints at each stage of the project and implement measures to address these constraints (Parker, Parsons, & Isharyanto, 2015). Theory of constraints supports all the variables initiation, planning, execution and closure and their influence on the success of the CDF construction projects in Kenya.

2.2.2 Stakeholder Theory

Stakeholder Theory by Freeman (2004), identifies and models the groups which are stakeholders of a corporation, and describes and recommends methods by which management can give due regard to the interests of those groups. The theory suggest that the success of a company lies in satisfying all its stakeholders not only those who might profit from its stock. The central idea is that an organization’s success is dependent on how well it manages the relationships with stakeholders. Stakeholders

may include customers, employees, suppliers, communities, financiers, and others that can affect the realization of the organization's goals (Freeman & Phillips, 2002).

Patton (2008) points out that the stakeholder model entails all people with legitimate interest to participate in an enterprise and many do so to obtain benefits of some kind. Agle *et al* (2008) argues that the theory has multiple distinct aspects that are mutually supportive: descriptive, instrumental, and normative. The descriptive approach is used in research to describe and explain the characteristics and behaviors of firms, including how companies are managed, how the board of directors considers corporate constituencies, the way that managers think about managing, and the nature of the firm itself significantly across firms in the implementation of projects.

Michell *et al* (2008) state that the exercise of stakeholder power is triggered by conditions that are manifest in the attributes of the relationship i.e. legitimacy and urgency. Power gains importance when it is legitimate and exercised through a sense of urgency. Highly important and powerful stakeholders are located where power, legitimacy and urgency intersect (Freeman & Phillips, 2002).

The overall purpose of stakeholder theory is to enable the managers to understand Stakeholder's role and contribution and strategically manage them (Patton, 2012). The theory puts a responsibility on the management to ensure efficiency in the use of resources, environmental protection, business morality and development of backward areas. The relationship of the stakeholder with the management is vital to ensure survival and success of the organization. This theory supports the variable project identification and initiation.

2.2.3 Program Theory

Program theory by Bickman (1987) deals with the assumptions that guide the way specific programs, treatments, or interventions are implemented and expected to bring about change. Program theory is concerned with how to practice evaluation; program theory focuses on the nature of the program, treatment, intervention, and policy being evaluated (Mertens, & Wilson, 2018). In evaluation practice today,

program theory is defined as the construction of a plausible and sensible model of how a program is supposed to work (Bickman, 1987).

Funnell and Rogers (2011) describe program theory as consisting of the organizational plan which deals with how to garner, configure, and deploy resources, and how to organize program activities so that the intended service system is developed and maintained. Finally, it looks at how the intended intervention for the specified target population brings about the desired social benefits (impacts). Rogers (2008) identified advantages of the theory-based framework to monitoring and evaluation to include being able to attribute projects outcomes to specific projects or activities and identify unanticipated and undesired program or project consequences.

According to Mertens Wilson (2018) program theory-based evaluations enable the evaluator to tell why and how the program is working. This theory supports project monitoring and control activities.

2.2.4 Project Scheduling Theory

According to Herroelen, and Leus (2005), project scheduling involves the scheduling of project activities subject to precedence and/or resource constraints. They identify and illuminate popular misconceptions about project scheduling in a resource-constrained environment. They argue that the above type of reasoning invites the reader to become trapped in the crucial misconception that looking for the best procedure for resolving resource conflicts does not pay off in practice and has a negligible impact on planned project duration.

Public projects may face schedule delays. Vanhoucke (2006) define delay in construction claims as “the time during which some part of the construction project has been extended or not executed owing to an unexpected event”. This may result in rescheduling the project which may lead to delays on the project completion date. In relation to this study, project planning activities about completion of public projects in Kenya has proven to be a difficult accomplishment regardless of organization type or sector implementing these projects (Lewis, Dugan, Winokur, & Cobb, 2005).

This theory supports the planning phase in this study and set out to explore whether the project planning phase had any influence on project success in CDF construction projects in Kenya.

2.2.5 Open System Theory

Open systems theory refers simply to the concept that organizations are strongly influenced by their environment. The organization environment consists of other factors that exert various forces that impact the efficiency of the organization. These factors may be of an economic, political, or social nature. A system is a set of objects of things that influence one another within an environment and form a larger pattern that is different from any of the parts (Puche *et al.,* 2016). A system can also be considered as a collection of entities that act together to perform a specific purpose. A system is separated from its environment by a boundary, which separates what is in the system and what is not.

A system can either be open or closed. The closed systems have hard boundaries through which little information is exchanged. Organizations that have closed boundaries often are unhealthy and these include bureaucracies, monopolies, and stagnating systems. An open system on the other hand can interact with its environment and it is characterized by exchanges of feedback, analyzing that feedback, adjusting the internal systems as needed to achieve the system objectives then transmit necessary information back to the environment.

The open system theory focuses on the relationships between various stakeholders in a an organization. In applying the concept open system theory, Kast and Rosenzweig (2011) indicate that an organization is a system built by an energetic input-output, where the energy coming from the output reactivates the system. Another part of the open system concept focuses on the impact of changes within an organization. The changes in one part of the organization affect all other parts of the organization.

Raulea and Raulea (2014) state that project managers are dealing with complex systems defined by numerous stakeholders, nonlinearities, multiple interdependencies and feedback systems. Typical nonlinearities often encountered

are unanticipated changes in the scope of the project, dismissal of key project members or termination of project funding. On the other hand interdependencies are the relationships between project team, stakeholders, clients, contractors and suppliers.

The feedback systems are rework cycles, progress updates and performance reviews. The success and performance of projects significantly depends on the interaction between various stakeholders (Raulea and Raulea (2014). This theory supports the moderating variable project environment and its effect on project success on CDF construction projects in Kenya.

2.3 Conceptual Framework

Conceptual framework is an intermediate theory in a diagram form that attempt to connect the variables under study. It is a map that gives coherence to empirical inquiry (Goldman *et al*., 2016). A conceptual framework provides an outline of the preferred approach in the research and outlines the relationships and the desired effects, forming independent and dependent variables, respectively.

Figure 2.1 shows the conceptual framework.

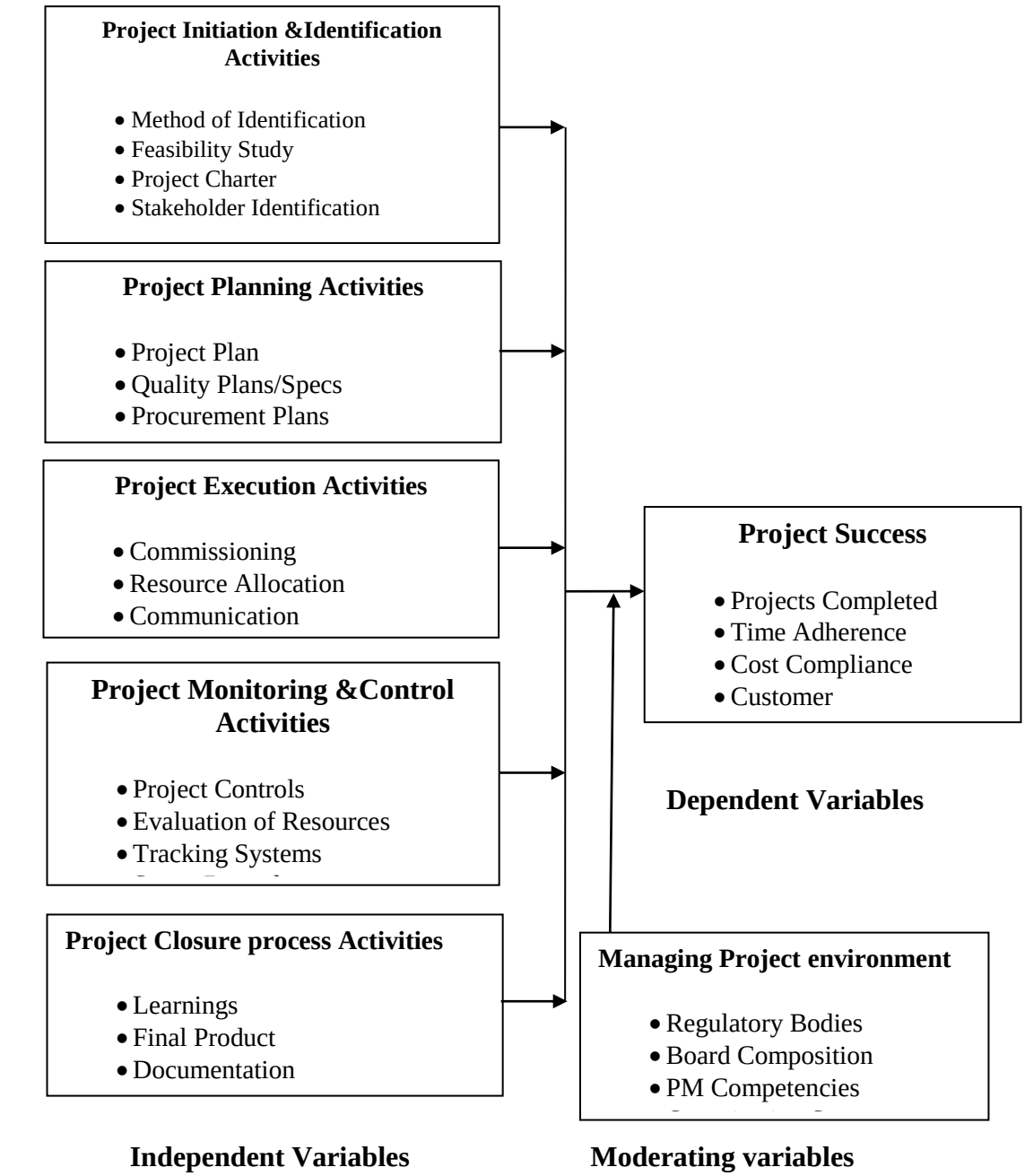

Figure 2.1: Conceptual Framework

2.3.1 Project Identification and Initiation Activities and Project Success

Project of identification and initiation is the first phase in any project management cycle and is a key step to the success of a project (PMI, 2006). Mwangi and Ravallion (2005) expressed that, a community development project starts with the identification of a need in the community or organization or the realization that there is a need. In this phase, the feasibility and the viability of project delivery takes place.

The activities in this phase includes evaluating a number of projects possible to address the needs of the organization or the public. identifying the project, determining the project goals and objectives, determining preliminary materials required for the project, conducting tests, conducting a survey, determining the level of equipment and personnel required, developing a budget and schedule, identifying the project team, and conducting an environmental impact assessment, among others (Ofori, 2014).

Successful project identification is key to the success of the project that eventually impacts the stakeholders and is sustainable. Project identification is a process of evaluating individual project or group of projects, and then choosing the one that meets the objectives of the organization (Meredith, Shafer, & Mantel Jr, 2017). Projects should be linked to the right goals and should impact at least one of the major stakeholders' issues like: growth acceleration, cost reduction, social impact or cash flow improvement (Kumar, Saranga, Nowicki & Rami´rez-Ma´rquez, 2007).

A good project identification is a process itself, if properly carried out, potential benefits to beneficiaries can improve substantially (Pande, Neuman, & Cavanagh, 2000). This concurs with the CDF policy on project identification, as section 23 (2, 3 &4) of the CDF Act, 2003 revised 2007 provide guidelines on how to identify a project.

The Act requires that location meetings be held, and the forum used to select projects to be submitted to the CDFC before onward transmission for funding. Smith, Merna, and Jobling (2014) stated that project identification and initiation will not only

confirm the need for change, but also clarify the scope of the problem at hand and the resource base available. This ascertains that the proposed project is viable and that there are adequate funds for the same.

Project initiation step is a critical phase in project management. It starts with a joint meeting of project stakeholders to clearly understand objectives, deliverables, and criteria of project success (Kloppenborg, Tesch, & Manolis, 2011). Project initiation is the creation of sound guideline for management of a project by identifying key elements and determining the steps to be followed to achieve objectives.

At initiation, the timelines are defined and the persons responsible for each action are identified, (UK Government, 2010). The result of initiation is a project proposal that acknowledges an existing problem, a proposed solution and how it will be executed. The output of this stage is a project charter whose purpose is to outline the business case, the approval and committed resources (PMI, 2013).

During the initiation stage, research is done on whether the project is feasible and if it should be undertaken (Turner, & Zolin, 2012). In project management the feasibility study is done after the business case has been presented. A feasibility study is used to determine the viability of a project and includes ensuring that the project is economically justifiable, the identification of required resources, if the project is worth the investment and if it enables the organization to earn back.

A well-designed feasibility study should offer historic background of the business including\: product description, operational details, marketing research, policies, financial data, resource requirements and tax obligations. Feasibility studies offer benefits such as identification of new opportunities, valuable information for decision making, improves project team focus, narrows business alternatives and identifies reasons to proceed or stop the project.

The project team and relevant stakeholders do their due diligence to help decide if the project should proceed or not. If a project is given the green light to proceed, a project charter or a project initiation document (PID) is created to outline the purpose and requirements of the project. A project charter authorizes the existence of a

project and provides the project manager with the authority to apply organization resources to project activities, explains what the project is all about and how the project will be approached. It serves as the reference document for the whole project life (PMI 2013). If the project is well identified and initiated then project success is expected.

2.3.2 Project Planning Activities and Project Success

The planning process for any project consists of those activities performed to establish the total scope of the effort, define, and refine the objectives, and develop the course of action required to attain the project objectives, PMI (2008). According to Young (2016), formal planning has a direct impact on project success. They considered that a rigorously prepared plan is a foundation for project success. Indeed, a clear and thoroughly defined project plan can reduce risks, failure, and the cost of the project (Lewis, 2010). According to (Kerzner, 2017), project planning on the other hand is the establishment of a predetermined course of action within a predicted environment.

Kerzner (2019) further asserts that the planning process must be systematic, flexible, disciplined, and capable of accommodating input from diverse functions. The planning process is most effective when it occurs throughout the life of the project. Consequently, time spent planning for the project is time well spent. All projects must have a plan with enough detail so that everyone involved knows where the project is going. A good plan provides the following benefits: clearly documented project milestones and deliverables, a valid and realistic timescale, accurate cost estimates and detailed resource requirements. Every phase of the project processes requires substantial planning.

Subsidiary plans for each stage are integrated into the overall project plan. The final comprehensive plan will define the project's execution, its monitoring and control and closure (PMI, 2013). Documents that are created by the project manager during this planning phase ensure that the project stay on track. These include scope statement, work breakdown schedule deliverables (milestones), communication plan, risk management plan and quality planning.

2.3.3 Project Execution Phase Activities and Project Success

Project execution is the stage where all the planned activities are put into action, the project is produced, and the performance capabilities are verified. It is the stage where the project objectives are completed to the required quality standards by application of the resources (human resources, project funds, infrastructure, and technology) and all major stakeholders are kept informed of the project status and the forecasts for project schedule and budget (PMBOK). The inputs for this process are project management plan, approved change requests while the outputs are the deliverable (product)-a unique verifiable product or service result.

Project execution includes both the pre-construction and construction processes. Pre-construction activities involve the procurement of supplies and financing, site preparation, and potentially the manufacture of construction supplies. The construction process itself must remain flexible to adjust for unanticipated circumstances regardless of action plan guidelines. Implementation also includes technical training and community education components (Jennifer *et al*., 2006). This phase involves implementing the plans created during the project planning phase. While each plan is being executed, a series of management processes are undertaken to monitor and control the deliverables being output by the project (Oberlender, 2014).

Tasks completed during the execution phase include develop team, assign resources execute project management plans, procurement management if needed, manages project execution, set up tracking systems, task assignments are executed, status meetings, update project schedule and modify project plans as needed. Moving from planning into execution can be a major obstacle in successful project delivery. A project kickoff meeting can facilitate the transition from planning activities and tasks to executing them (Jason, 2006). A kickoff meeting enhances execution by focusing the team on the project and by defining a starting point for beginning project execution.

Additionally, it is important to assemble and avail all resources needed to begin execution of the project to the team. The execution phase is typically the longest phase of the project in terms of duration. It is the phase within which the deliverables are physically constructed and presented to the customer for acceptance. To ensure that the customer's requirements are met, the project manager monitors and controls the activities, resources and expenditure required to build each deliverable (Liu, 2011).

2.3.4 Project Monitoring and Control Activities and Project Success

Project Monitoring and control is the fourth phase of the project cycle. According to PMBOK, (2009) project monitoring and control is defined as the work necessary to track, review and regulate the process to meet the performance objectives defined in the project management plan. Some activities during monitoring and control phase include monitoring deviation in budget or schedule, taking corrective action, evaluating potential impacts of the project, rescheduling the project activities, adapting resource levels, adjusting project goals and updating project documentation.

The deliverable for this phase is progress report. Project monitoring as a procedure tries to guarantee that the project goals are met by monitoring and measuring progress frequently to recognize differences from design with the goal that corrective actions are made as need be. Monitoring and evaluation of project improves overall efficiency of project planning, management, and implementation (Sánchez, 2015). Monitoring and evaluation are concerned with systematic measuring of variables and processes over time.

Management and evaluation are important instruments for the management of CDF projects and employs quantitative and qualitative measurement tools (World Bank, 2013). Monitoring ensures that implementation is moving according to plans and if not, the project manager takes corrective action. Monitoring and evaluation are a critical component of a management cycle which includes project planning, design, and implementation. Ehler (2017) notes that project planners ought to incorporate a well-defined monitoring and evaluation strategy within the overall project plan.

The monitoring and evaluation plan should include activities to be carried out to get feedback, people to be involved in carrying out these activities, frequency of carrying out the activities, budget expectations for activities and specific insights expected to be achieved from the monitoring and evaluation feedback. Evaluation is resourceful in building knowledge and enhancing favorable implementation. Ex-post evaluation is useful in impact assessment (Ehler, 2017)).

According to Osman and Kimutai (2019) monitoring enhances project management decision making during the implementation thereby increasing the chances of good project performance. It also facilitates transparency and accountability of the resources to the stakeholders including donors, project beneficiaries and the wider community in which the project is implemented. Evaluation assesses project effectiveness in achieving its goals and in determining the relevance and sustainability of an on-going project. It compares the project impact with what was set to be achieved in the project (Taiti, 2020).

2.3.5 Project Closure Activities and Project Success

Project closure is the final phase of the project management cycle. Project closure, or ‘close-out’, essentially involves winding up the project, releasing the final deliverables to the customer, handing over project documentation to the business, terminating supplier contracts, releasing project resources, and communicating the closure of the project to all stakeholders and interested parties (Roeder, 2013). The closure process is predetermined, and all parties must approve the project closure process and checklist. Project closure involves disbanding of the project team by reassigning the project team to new positions, recording lessons learnt, preparing a detailed status report of all the work and getting formal acceptance of the deliverables from the client or project sponsor (PMBOK, 2013).

A project is generally considered to be successfully implemented if it comes in on-schedule, comes in on budget, and achieves basically all the goals originally set for it and is accepted and used by the clients for whom it is intended (Mbaluku & Bwisa, 2013). When the customer accepts the project deliverables, the project is taken to have met its objectives and is ready for closure. Project closure must be conducted

formally so that the business benefits delivered by the project are fully realized by the customer.

2.3.6 Project Environment and Project Success

Work environment may be defined in its simplest form as the settings, situations, conditions, and circumstances under which people work. It is further elaborated by Yaghootkar and Gil (2012) as a very broad category that encompasses the physical setting (e.g., heat, equipment's.), characteristics of the job itself (e.g., workload, task complexity), broader organizational features (e.g., culture, history) and even aspects of the extra organizational setting like: local labor market conditions, industry sector and work-home relationships.

The analysis of the project environment is done at the beginning of the project mainly during the project initiation phase and continually during the project life cycle. This provides an opportunity to lobby and integrate the project stakeholders into the project group (Matinheikki, Artto, Peltokorpi, & Rajala, 2016). When classifying project stakeholders two groups are considered namely: the active group comprising of the project team and the project manager and the passive group that comprises of the authorities, competitors and persons affected by the project directly. In this study the project environment was taken as the moderator and sub-variables included organization structure, regulatory bodies, board composition and project manager competencies.

Previous studies have identified the factors within the project environment that influence project success: project personnel, communications, site management, supervision, client competencies, contractor competencies, top management support, project manager's experience amongst others as determinants of completion of various projects around the globe (Gudiene *et al*, 2013; Yong, 2013; Alexandrova *et al*, 2012; Ondari, 2013).

2.3.7 Project Success

A project is generally considered to be successfully implemented if it is completed on-schedule, within the budget estimated, and achieves basically all the goals originally set for it and is accepted by the customers and used by the clients for whom it is intended (Mbaluku & Bwisa, 2013). Previous studies show that projects fail to meet the budget and time constraints, or they fail to satisfy customer expectations and company objectives (Sauser, Reilly, & Shenhar, 2009).

Projects differ in nature, size, uniqueness, and complexity, thus the criteria for measuring success vary from project to project (Muller & Turner, 2007) making it unlikely that a universal set of project success criteria will be agreed (Davis, 2014). Musa *et al*., 2015; Nyasetia *et al*., 2016, argues that there has been no consensus among researchers regarding a standard definition of project success or standard criteria for measuring it.

Molusiwa and Verster (2013) assert that project success is a subject that has continuously been discussed but without reaching a significant agreement. Thus, the definition of project success remains vague because various stakeholders have different perceptions on its meaning, which may lead to disagreement when assessing whether a particular project is successful.

In the study the project was said to be successful if it was completed on time, within the budget estimated, met the desired quality specifications, had an impact and was satisfactory to the customer. Success factors can be perceived as main variables that contribute to projects' success (Ahmed, & Abdullahi, 2017), and are levers that can be operated by project managers to increase chances of obtaining the desired outcomes (Davis, 2014).

A combination of factors determines the success or failure of a project and influencing these factors at the right time makes success more probable (Savolainen, 2012).Besteiro, de Souza Pinto, and Novaski (2015) recognized a list of success factors that influence the success of projects: The same were recognized by other authors (Turner, Müller, 2005) as accurate. These were: project mission, top

management support, schedule and plans, client consultation, personnel, technical tasks, client acceptance, monitoring and feedback, communication, troubleshooting.

2.4 Empirical Literature Review

This section presents past studies (empirical review) conducted on the objectives of the study which include influence of project initiation and identification activities, project planning, project execution, project monitoring and control and project closure activities on project success in CDF construction projects in Kenya.

2.4.1 Influence of Project Initiation and Identification on Project Success

Kim Heldman (2007) classifies the project life cycle in five phases namely: project identification and initiating, project planning, project execution, project monitoring & controlling, and project closing. Among them the project initiation phases is taken with high consideration because in this phase major decisions regarding the project and the allocation of resource decision are made.

Mantel, Meredith, and Shafer, (2006) describes the importance of various activities of the project initiation phase in the accomplishment of a project. They cover the role of the project manager, the various ways the project can be organized, and the special requirements for managing a cross-cultural project. They have shown that the feasibility studies done by inexperienced firms tend to produce inaccurate data and the information of those feasibility studies do not provide good basis for making accurate information.

Hobbs (2008) also shows the influence of project initiation process in relation to the successful completion of a project. However, his association was related to cases in the environment of developed nations. Their finding suggests that, most of the projects fail because of miscommunication. However, their emphasis was not only the initiation process, but also on the overall process of the projects.

Project initiation is the step where sound guideline is created for management of the project by identifying key elements and determining the steps to be followed to achieve objectives. At initiation step, the timelines are defined and the persons

responsible for each action are identified. The result of initiation is a project proposal that acknowledges an existing problem, a proposed solution and how it will be executed.

The output of this stage is a project charter whose purpose is to outline the business case, the approval and committed resources (PMI, 2013). The project initiation stage is the step where stakeholders are identified; briefed on the scope and objectives and their expectations are considered. Ayuso, Rodríguez, Castro and Ariño, (2011) combined stakeholder engagement and knowledge management (KM) as elements of organizational capacity that deals with stakeholder-related innovation, in the context of sustainable community development.

One technique for dealing effectively with the project's external environment is to prioritize the required stakeholder linkages by conducting a stakeholder analysis at the start of the project. Such an analysis would be designed first to identify all the potential stakeholders who might have an impact on the project, and then to determine their relative ability to influence it.

According to studies by (Wysocki, 2011) project initiation is a critical phase in project management. It starts with a joint meeting of project stakeholders to clearly understand objectives, deliverables and criteria of project success during project selection, the need and viability for the project is defined and justified. At this stage, the desired outcomes and benefits are specifically outlined, quantified and agreed upon. The project plan is drafted detailing activities to be executed to meet the triple constraints as well as the expected goals and benefits (Harvard University School of Management, 2007).

2.4.2 Influence of Project Planning Activities on Project Success

According to (Kerzner, 2017), project planning is the establishment of a predetermined course of action within a predicted environment. Kerzner further asserts that the planning process must be systematic, flexible, disciplined and capable of accommodating input from diverse functions. The planning process is most effective when it iterated and occurs throughout the life of the project. The final

comprehensive plan will define the project's execution, its monitoring and control and closure (PMI, 2013). Well prepared plans include subsets that explains the management of scope, requirements, schedule, cost, quality, risk, resources, process improvement and stakeholders. The final aspect of planning is the element of communication that ensures stakeholders remain informed and updated on the project progress to facilitate their effective participation.

The most significant tasks include planning, estimating, scheduling and executing the plan. These activities are iterative and continuous throughout the life of the project (Perminova, Gustafsson, & Wikstrom, 2008). Formal planning has a direct impact on project success (Young, 2016). He considered that a rigorously prepared plan is a foundation for project success. Indeed, a clear and thoroughly defined project plan can reduce risks, failure and the cost of the project.

2.4.3 Influence of Project Execution Activities on Project Success

According to Leach (2014), a project life cycle consists of several stages during which deliverables are created and end with approval of the deliverables. Every project must pass through the following five phases of project management: identification and initiation phase, planning phase, implementation phase, monitoring and control phase and project closure phase. Project execution is understood to be the stage where all the planned activities are put into action, the project is produced, and the performance capabilities are verified.

It is the stage where the project objectives are completed to the required quality standards by application of human resources, project funds, infrastructure, technology, and all major stakeholders are kept informed of the project status and the forecasts for project schedule and budget (Verzuh, 2015). The inputs for this process are project management plan, approved change requests while the outputs are the deliverable (product)-a unique verifiable product or service result. While each plan is being executed, a series of management processes are undertaken to monitor and control the deliverables being output by the project (Heravi, Coffey, & Trigunarsyah, 2015).

Tasks completed during the execution phase include develop team, assign resources execute project management plans, procurement management if needed, manage project execution, set up tracking systems, execute task assignments, status meetings, update project schedule and modify project plans as needed (Oberlender, 2014).

According to Heravi, Coffey and Trigunarsyah (2015) the execution phase is typically the longest phase of the project in terms of duration. It is the phase within which the deliverables are physically constructed and presented to the customer for acceptance. To ensure that the customer's requirements are met, the project manager monitors and controls the activities, resources and expenditure required to build each deliverable.

According to Cagliano, Grimaldi, and Rafele (2015) the execution stage involves the implementation of project activities. Thus, it is the process of leading and performing work as described in the management plan and effecting changes approved to realize the set objectives. This stage is characterized by continuous performance of project activities, change requests, monitoring and control, risk, quality, communication and stakeholder management. In a typical telecommunication environment, the execution involves signing of service contracts, down payment, holding internal and external kick off meetings, and initiating the procurement processes.

Studies by (Kerzner, 2017) indicate that the project team directs the project activities and manages the various organizational and technical interfaces existing within the project. Successful project execution is an organizational priority. Various researchers have shown that several project success factors can impact a project at all phases. In the execution phase, project success is related to the project's timely completion, on budget and within agreed quality.

The understanding of project success has been altered to include limitation to minimum changes in the scope of the activities, shift in the corporate culture and acceptance of project results by clients (Alexandrova, 2012).

2.2.4 Influence of Project Monitoring and Control Activities on Project Success

Project monitoring is the systematic and regular collection and analysis of data over a period to identify and measure changes. Monitoring involves the collection of data prior to and during project implementation (United Nations Environment Program, 2008). The primary purpose of monitoring is to document the implementation process, facilitate decision making, and provide feedback for plan review and lessons learnt.

Evaluation assesses project effectiveness in achieving its goals in determining the relevance and sustainability of an ongoing project. It compares the project impact with what was set to be achieved in the project plan. Evaluations are mainly of two types depending on when they take place (Taiti, 2020). These are formative and summative evaluations. Formative evaluation is concerned more with efficient use of resources to produce outputs and focuses on strengths, weakness, and challenges of the project and whether the continued project will be able to deliver the project objectives, or it needs redesigning. Summative evaluation on the other hand refers to the assessment of a program/project after delivery meaning that assessment is done at the end of the of the evaluation cycle (Mwangu, 2015).

Management of monitoring and evaluation phase of the project cycle is a continuous process where all the phases of the plan are reviewed and revised constantly. Good plans do not get finished but are updated based on research, new experience and changing vulnerabilities.

It is also understood that monitoring and evaluation of projects is fundamental if the project objectives and success is to be achieved. Previous studies by Serra and Kunc, (2015) monitoring tracks the project progress towards achieving the stated objectives within project constraints; identifies deviations; evaluates alternative courses of action and takes remedial action. Monitoring and control form the project control cycle of Action-Plan-Monitor Compare, and then re-plan, as necessary.

This task helps stakeholders to understand the current state of the project, activities undertaken, and the budget, schedule and scope forecasts. Monitoring and control cycle consist of: making a plan; implementing the plan; monitoring and recording the actual output; report the actual output, the planned parameters and the variations and finally; take corrective action on the variations (Shrenash, Pimplikar, & Sawant, 2013). This phase of the project provides an understanding of the project's progress so that appropriate corrective action can be taken when the project's performance deviates significantly from the plan.

In traditional project management, control would involve identification of deviations from the project plan and putting things back on track. However, the adaptive project management approach identifies changes in the business environment and adjusts the plans accordingly (American Society of Quality, 2015). This task is carried out throughout the life of the project by taking measurements that help the project team understand progress. This stage has an impact on the business objectives and acceptance of the eventual project outcome in terms of quality (Shrenash, Pimplikar, & Sawant, 2013).

By applying the Deming cycle that entails the Plan-Do-Check-Act cycle philosophy (American Society of Quality, 2015) to this project stage, the project team ensures project specifications and constraints are adhered to as closely as possible. Indeed, this philosophy is affirmed by the theory of constraints (TOC) as applied by organizations and project managers, who work towards continually improving their ability to meet project commitments of budget, time and quality through the nature of project planning, project scheduling, project visibility and control, resource behavior and multiple project synchronization (Austin, & Steyerberg, 2015).

2.4.5 Influence of Project Closure Activities on Project Success

Projects are temporary endeavors and must come to an end at some point. Projects may end normally after successful completion or maybe terminated pre-maturely. Normal project closure occurs when a project is completed and the aims have been met, perhaps with some modification of scope, budget, and schedule. If the project does not have a strong closure, then it has the potential to continue consuming the

resources. The project team is expected to be firm and agree with the customer that all critical success factors have been met (Nyakundi, 2015).

The project close stage involves activities such as closeout meetings, resource reallocation reports, compliance documents, supplier notifications, final payments and collection of receivables (Mantel, Meredith, Scott, & Sutton, 2006). There are several reasons that my lead to project termination and these include political, technical, force majeure or business reasons. Project termination can adversely damage an organization's reputation; lead to market devaluation, low employee productivity and possible litigations for breach of contractual obligations (Nyakundi, 2015).

Terminated projects may not only lead to direct loss of revenue, but can also attract contractual penalties for late delays, loss of market share and strategic advantage. However, in certain circumstances, termination of projects due to technology changes or changes in the competitive environment may cut down losses or ensure survival of an organization. Studies by Larson and Gray (2011) indicate that some projects may end prematurely due to insufficient funds, reduced scope, loss of senior management support, negative cost/benefit analysis, low return on investment (ROI), changed organizational priority or due to a natural calamity.

According to Ahmed and Abdullahi (2017), the project closure involves a number of steps that determine contractual and administrative closeout. Contractual closeout mainly involves the settling of the final terms of engagement. The parties confirm that work was done accurately and according to or beyond the client's satisfaction. The second dimension of project success centered on the impact of the project on customer. The level of customer satisfaction is determined by their observation, fulfilled performance measures, functional requirements, and technical specifications.

Documents prepared throughout the project life are filed for future reference. The administrative closure involves obtaining formal acceptance of the product or service from clients. An official sign-off is required as an acknowledgement by the customer and is filed as part of the project documentation. This is the stage where the project

team evaluates the outcome of the project against the project objectives and reviews benefits achieved (Toppinen, Sauru, Pätäri, Lähtinen, & Tuppura, 2019).

2.4.6 Influence of Project Environment on Project Success

Yusuf and Metiboba (2012) define workplace environment as composition of three major sub-environments which include the technical environment, the human environment and the organizational environment. It means that work environment is the sum of the interrelationship that exists among the employees and the employers and the environment in which the employees work.

According to Toppinen, Sauru, Pätäri, Lähtinen, and Tuppura (2019) technical environment refers to tools, equipment, technological infrastructure and other physical or technical elements of the workplace. The external environment includes a wide variety of needs and influences that can affect the organization but which the organization cannot directly control. Influences can be political, economic, ecological societal, technological and legal.

Institutions with open systems of management try to understand their environments through use of environmental scanning, market research and evaluations. The organizations try to influence the environment through public relations, advertising, promotions and educating the industry through their local leaders. Hypothetically, whatever affects morale on the job is likely to affect job commitment (Vecchiato, 2012).

According to Yusuf and Metiboba, (2012) the third type of work environment, organizational environment includes systems, procedures, activities, values and philosophies which operate under the control of management. In the words of Akintayo (2012) organizational environment refers to the immediate task and national environment where an organization draws its inputs, processes it and returns the outputs in form of products or services for public consumption.

The human environment includes the peers, others with whom employees relate, team and work groups, interactional issues, the leadership, and management. Such

interaction (especially the informal interaction), presumably, provides avenue for dissemination of information and knowledge as well as cross-fertilization of ideas among employees (Toppinen, Sauru, Pätäri, Lähtinen, & Tuppura, 2019). The project manager influences the project environment to some extent.

Today's project manager also needs to be attuned to the cultural, organizational, and social environments of the project. Understanding this environment includes identifying the project stakeholders and their ability to affect its successful outcome. This means working with people to achieve the best results, especially in the highly technical and complex environments such as those involving modern day construction projects (Vedung, 2017). It is essential that the project manager and his or her project team are comfortable with, and sympathetic towards, their cultural, organizational, and social surroundings (Sunder, 2016).

Peoples' typical resistance to change will no doubt be evident amongst some of the stakeholders. Others may have vested interests or personal or group agendas which are only indirectly related to the project. If these can be identified in good time, they may be dealt with proactively and in such a way that the corresponding risks, which are otherwise likely to undermine the success of the project, can be significantly reduced.

When discussing project environment, it is important to understand the role of stakeholders in the project. According to Pandi-Perumal, Akhter, Zizi, Jean-Louis, Ramasubramanian, Edward Freeman, and Narasimhan (2015) a stakeholder is any group or individual who can be affected or is affected by the implementation of the organization objectives.

According to the Project Management Institute (PMI) standards committee, project stakeholders are individuals and organizations who are actively involved in a project activity or whose interests may be affected by the execution of the project objectives or by successful project completion (PMI). Chinyio and Olomolaiye (2010) stated that stakeholders influence an organization’s goals, development, survival and sustainability. They also propose that stakeholders are beneficial to an organization when they help to achieve the goals while they are said to be antagonistic when they

oppose the mission and objectives of an organization. Stakeholders are vital to the successful completion of a project because their support to the mission, vision and organization objectives leads projects to succeed.

Bourne (2016) argues that successful engagement of stakeholders involves actively giving and getting their support and working together to devise, plan and develop new development initiatives in their respective areas of interest. Project stakeholders may be recognized in any of the following groupings: Those who are directly related to the project, for example suppliers of inputs, consumers of outputs, and managers of the project process, those who have influence over the physical, infra- structural, technological, commercial/financial/ socioeconomic, or political/legal conditions. Those who have a hierarchical relationship to the project such as government authorities at local, regional and national levels, and, those individuals, groups and associations, who have vested interests, sometimes quite unrelated to the project, but who see it as an opportunity to pursue their own ends.

According to Kloppenborg, Tesch and Manolis (2011)appropriate members of the project team can then prioritize their efforts accordingly to maintain the necessary stakeholder linkages, and thus give rise to the best chances of ultimate project success. On people management, research has confirmed that it is people who drive projects to success more than technical issues do. Despite this finding, there is very little research on soft project management which entails the people side of project management (Kloppenborg, Tesch, & Manolis, 2011).

Too, and Weaver (2014) argue that the project manager sets the environment for project success and a successful project manager is associated with listed skills and competencies. The skills are flexibility and adaptability, preference for significant initiative and leadership, verbal fluency, well organized and disciplined ,confidence, imagination, broad scope of personal interests ,persuasiveness, ,ambition, forcefulness, effectiveness as a communicator and integrator, enthusiasm, willing to make decisions ,able to balance technical solutions with time, cost, and human factors, a generalist rather than a specialist, able and willing to devote most of his or

her time to planning and controlling, able to identify problems, able to maintain a proper balance in use of time.

2.4.7 Project Success

Previous studies by Müller, and Jugdev (2012) argued that a project is said to be successful if it is completed on time, within budget, achieves all project goals and end users are satisfied with the project. The issues on life cycle management, time management, conflict resolution and management, networking, contracts management, project choice and project quality are key factors that contribute to project success (Idoro, 2014).

Project management is accomplished through the application and integration of the project management processes of initiating, planning, executing, monitoring, controlling, and closing. Every project differentiates itself by its uniqueness and the purpose of its existence. Davis (2014) studies project management success in literature from 1970s to present, classifying the evolution of success factors into decades. According to Davis (2014), success factors evolved from focusing on the operation level of a project in 1970s to embracing a stakeholder focused approached after 2000s.

As a result of the numerous studies that approached the topic of project success, several lists of success factors exist. Besteiro, de Souza Pinto, and Novaski (2015) represents a reference point by establishing a list of ten success factors, recognized by other authors as accurate (Turner & Müller, 2005). These success factors are client consultation, project mission, top management support, communication schedule and plans, personnel, technical tasks, client acceptance, monitoring and feedback and troubleshooting.

Davis (2014) adopted a set of nine themes that describe success factors of projects. These were: cooperation and communication, timing, agreeing objectives, identifying objectives, stakeholder satisfaction, budget aspects, acceptance and use of final products, cost, competencies of the project manager, strategic benefits of the project and top management support. Triple constraints (quality, scope, and cost) refer to

three most important elements that must be maintained to measure project success. They constrain to each other because the relationship between them is mutual in a sense that if there is any change on one of them, the rest will be affected (Shirazi, Kazemipoor and Tavakkoli-Moghaddam, 2017).

Studies on project success indicate that several factors are determinants of project success and these factors operate in matrix. Projects differ in nature, size, uniqueness and complexity, thus the criteria for measuring success vary from project to project (Muller & Turner, 2007) making it unlikely that a universal set of project success criteria will be agreed on (Davis, 2014).

Previous studies carried out on project success indicate that until now, there has been no consensus among researchers regarding a standard definition of project success or standard criteria for measuring it (McLeod, Doolin and MacDonell, 2012). For instance, a project may be considered successful by a client, whereas an end user or contractor may perceive it as unsuccessful (Toor & Ogunlana, 2010). However, there is general agreement that project success involves both efficiency and effectiveness.

Ashley, Laurie and Jaselskis (2011) defined project success as "results much better than expected or normally observed in terms of costs, schedule, quality, safety and participants satisfaction". Thus, from all of these definitions, there is agreement among researchers that project success involves participants' satisfaction and meeting the project goals.

Therefore, the criteria for measuring project success go beyond the traditional measures of time, cost, and quality. Other criteria have also been used: end user satisfaction, client satisfaction, environmental impact of the project, and so on. Toor and Ogunlana (2009) suggest the following criteria for measuring success should be adopted in most projects: project completion on time, within budget and to specified quality, efficiency, effectiveness, safety, free from defect, meets stakeholders' expectations, and minimal construction disputes and conflicts. (Mcleod *et al*., 2012) proposes that project success can be measured using the criteria of client satisfaction, product use and client benefits as well.

2.5 Critique of Existing Literature Related to the Study

Various studies have been conducted globally and locally on the factors influencing projects' success. In Romania, Beleiu, Crisan and Nistor (2015) carried out a study on the main factors influencing project success. The study reviewed empirical literature of other studies conducted on the subject. The results indicated that success factors of projects include cooperation and communication, timing, identifying objectives, agreeing objectives, stakeholder satisfaction, acceptance and use of final products, cost, budget aspects, competencies of the project manager, strategic benefits of the project and top management support. Having been conducted in Romania, the findings of this study cannot be generalized to CDF construction projects in Kenya.

Chan, Scott and Chan (2004) as cited by Adabre, and Chan (2019) carried out a study on the factors affecting the success of a construction project in Hong Kong. Seven major journals in the construction field were chosen to review the previous works on project success. Five major groups of independent variables, namely project-related factors, project procedures, project management actions, human related factors, and external environment were identified as crucial to project success. The study used empirical review of literature only and hence no primary data was used.

In Nigeria, Ogwueleka (2011) conducted a study on the critical success factors influencing project performance. Twenty-two success factors were selected from the literature for the research with sample size of 188 professionals. From the results objective management, technical factors, management of design, top management support and risk management were selected as the most critical success factors in project performance.

The study was limited Nigeria and hence its findings cannot be generalized to Kenya. In addition, the study focused on critical success factors, which is different from antecedents of project success. In Kenya, Kagendo (2013) carried out a study on the factors affecting successful implementation of projects in non-governmental organizations. The study was done within urban Slums in Kenya limited to one NGO

specifically Children of Kibera Foundation. As such the findings may not apply to CDF construction projects in Kenya.

This study adopted a descriptive research design. The results indicated that funding, organizational structure and stakeholder relationships had an influence on project success. In Bomet East Sub-County, Langat (2015) carried out a study on factors influencing completion of construction projects in public secondary schools. The study employed a descriptive study design with qualitative and quantitative methodologies used in data collection. The results indicated that inadequate funding, procurement bureaucracy, source of funding and misappropriations of project funds were found to lead to delay in construction completion of projects.

The study was conducted in secondary schools and due to difference in organizational structures and extent of the projects in terms of size, the findings of this study cannot be generalized to CDF construction projects in Kenya. In Egerton University, Saisi, Ngahu and Kalio (2015) conducted a study on the financial factors influencing successful completion of construction projects. Descriptive survey research design was employed. The study established that the relationship between access to infrastructure capital and successful completion of construction projects was positive and very strong. The study was limited to one public university and hence its findings cannot be generalized to all CDF construction projects in Kenya.

In addition, the study was limited to financial factors only, which are internal factors. Otonde and Yusuf (2015) conducted a study on the factors influencing project performance among Kenyan universities in Kisumu County. The study used a combination of cross-sectional and descriptive survey. In this particular study the population was made up of 12 project managers and 124 employees. The study found that human capital, planning, management support, communication and monitoring evaluation have a positive and significant effect on project performance. The study only focused on Kenya universities limited in Kisumu County and cannot be generalized to CDF projects in Kenya.

2.6 Summary of Literature Reviewed

After the reviews of the literature, it was noted that specific activities within the project cycle have a contribution to the project success. There isn't much literature on this with respect to CDF construction projects in Kenya.

According to Otonde and Yusuf (2015) who conducted a study on the factors influencing project performance among Kenyan universities in Kisumu County, the study found that planning, management support, human capital, communication, and monitoring evaluation have a positive and significant effect on project performance. The study only focused on Kenya universities within Kisumu County.

Kagendo (2013) carried out a study on the factors affecting successful implementation of projects in non-governmental organizations within urban Slums on Children of Kibera Foundation. This study adopted a descriptive research design. The results indicated that funding, organizational structure, stakeholder relationships. This study was limited to one NGO- the Children of Kibera Foundation. As such the findings may not apply to CDF construction projects in Kenya because of the uniqueness of projects and project duration.

2.7 Research Gaps

2.7.1 Geographical Gaps

Beleiu, Crisan and Nistor (2015) carried out a study on the main factors influencing project success in Romania; Chan, Scott and Chan (2004) carried out a study on the factors affecting the success of a construction project in Hong Kong; and Ogwueleka (2011) conducted a study on the critical success factors influencing project performance in Nigeria. Due to differences in economic environment, legal framework governing projects, the findings of these studies cannot be generalized to CDF construction projects in Kenya.

2.7.2 Contextual and Conceptual Gaps

Saisi, Ngahu and Kalio (2015) conducted a study on the financial factors influencing successful completion of construction projects in Egerton University. Kagendo (2013) carried out a study on the factors affecting successful implementation of projects in non-governmental organizations. Langat (2015) carried out a study on factors influencing completion of construction projects in public secondary schools. Otonde and Yusuf (2015) conducted a study on the factors influencing project performance among Kenyan universities in Kisumu County. These studies were limited to specific institutions and regions and hence their findings cannot be generalized to CDF construction projects in Kenya.

Given the existing gaps in the available studies, there was need to undertake the study to inform the antecedents of project life cycle activities on the success of CDF construction projects in Kenya.

2.8 Ethical Considerations

The participation in the research were purely voluntary. The participants who willingly decided to partake in the study were taken trough a systematic consent form for them to fully understand the implications before commencing with the questionnaire.

Respondents were explained the importance of the study and were assured of confidentiality of the information given. The identity of the CDF construction projects was concealed. Participants were encouraged to feel free with their responses and to provide information being sought for the study. They were also assured that the information being sought was for academic research purposes only.

2.9 Chapter Summary

The chapter reviewed the theoretical and empirical literature from other researchers on the topic of projects success. Conceptual framework that visualizes the relationships of the independent and dependent variables used in this study was presented. A critique of existing literature and research gaps identified in previous studies on project management was also highlighted.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the research philosophy and design, the target population, the sample size and sampling technique, data collection method, pilot testing and data analysis and presentation that were used during the study. This approach agrees with that proposed by Yüksel, and Yıldırım (2015) who states that methodology includes design, sampling, data collection and analysis of the study. Research methodology refers to a process of following the steps, procedures and strategies for gathering and analyzing the data in a research investigation.

3.2 Research Philosophy

According to Sunders *et al.* (2015), research philosophy is the foundation of knowledge and the nature of that knowledge contains important assumptions about the view of the world. In addition, Saunders *et al*. (2009) states that research philosophy considers the role of the assumptions we make about the way the world works; what different philosophies consider as being acceptable knowledge and the role of our own values and research paradigms. Research philosophy is categorized as: positivism, interpretivist, realism or pragmatism. The philosophy that guided this research is that of positivism.

This philosophy is based on theories that are used to generate hypothesis that are tested to give statistical justification of conclusions from the empirically testable hypothesis Bryman (2014). The basic affirmation of positivism is that all knowledge regarding matters of fact is based on the positive data of experience. Saunders *et al*. (2009) in his study affirms that through positivism the researcher is concerned with facts and not impressions.

In the positivism paradigm, the researcher works with observable social reality, rationale and experiences to reach on end results of the research. Positivists believe that reality is stable and can be observed and described from an objective viewpoint,

that is without interfering with the phenomena being studied (Saunders, Lewis, Thornhill, & Wang, 2009).

3.2.1 Research Design

Research design refers to the overall strategy chosen by researchers to integrate the different components of the study in a coherent and logical way, thereby, ensuring effective address of research problem; it constitutes the blueprint for the collection, measurement, and analysis of data (Hennink, Hutter & Bailey, 2020). Research design is the outline or a plan that is used to generate answers to research problems.

There are many research designs usually classified as either: exploratory, descriptive, correlational or causal but their distinctions are not absolute (Churchill & Lacobucci, 2005). This study used quantitative approach also known as the scientific method (Mugenda & Mugenda, 2012). This method has been considered as the traditional mode inquiry in both research and evaluation. In the quantitative research, the data concerned is analyzed in terms of numbers that give precise description.

This method helps in analyzing information in a systematic way in order to come out with useful conclusions and recommendations on the social setting and the individuals who portray those characteristics (Berg 2001). This approach is known to be reliable and it uses statistics to generalize the findings. This study also used qualitative research and integrated with quantitative surveys. In qualitative studies, description of events, persons and situations is done scientifically without the use of numerical data (Kothari, 2004).

Qualitative approach was used to gain a better understanding and possibly enable a better and more insightful interpretation of the results from the study.

3.3 Target Population

Target population refers to the entire group or elements or things of interest to the researcher that have at least one thing in common (Singh &Kultar, 2007). Hennink, Hutter and Bailey (2020) state that target population is a group of individual's objects or items from which samples are taken for measurements.

The study was carried out in the following eight counties in Kenya: Nairobi, Kiambu, Meru, Isiolo, Kakamega, Nakuru, Kajiado, and Taita Taveta randomly picked as representatives of the old provinces in Kenya. The study was limited to three constituencies in each county. The unit of analysis was the randomly completed and ongoing CDF construction projects in counties in Kenya. The counties chosen represents 17% of the counties in Kenya which is acceptable for generalization of results (Mugenda & Mugenda, 2012).

The unit of observation was the project team members in the construction projects who had a responsibility in any activity on projects management. These include CDF staff, CDF committee members, public immediate to the project, consultants (electrical, mechanical, and structural engineers), environmental impact assessors, quantity surveyors, architects, and government officers. This study was conducted in randomly selected CDF projects that were started within two government cycles (2007-2018)

The target population in this study comprised of 2,300 CDF staff, 1,610 CDF committee members, 3,450 public immediate to the project and 2,760 project consultants. The main aim of choosing this type of population was to be able to get current and past information from people who have participated in the implementation of CDF construction projects and thus have real experience on project management at the CDF level. The choice also enabled us to determine the level of professional involvement in the CDF projects. The target population was therefore 10,120 as show in Table 3.1.

Table 3.1: Target Population

Target Group	**Target population Size**
CDF Staff	2,300
CDF Committee Members	1,610
The Public	3,450
Project Consultants	2,760
Total (N)	**10,120**

3.4 Sampling Frame

A sampling frame comprises of the actual lists of individuals included in the population for the purpose of collecting representative sample data from the larger population and using the sample to infer attributes of the population (Hennink, Hutter & Bailey, 2020).

The sampling frame in this study included official lists of staff and committee members and construction stakeholders who due to their official positions participate in managing of projects. The list was derived from the staff employment list and registered professional list in the construction notification board and appointment letters for the CDF committee members.

3.5 Sample Size and Sampling Technique

3.5.1 Sample Size

According to Kothari (2012) sampling refers to the process of obtaining information about an entire population by examining a part of it. A sample is a subsection of people, items, or events from a bigger population that you collect and analyze to make inferences. To represent the population well, a sample should be randomly collected and adequately large (Saunders, 2011). According to Kothari (2004) sample size must be large enough to be representative of the universe population. Creswell (2006) stresses that sample size chosen by the researcher should be capable of giving enough information about the population and one which can be analyzed with ease.

Research samples can be described as either probability or nonprobability samples (Sauders, Lewis & Thornhill, 2003). Probability samples are either simple random sampling, stratified sampling or cluster sampling. Non probability samples are those based on convenient, purposeful sampling, judgement and quota sampling (Kothari, 2012).In this study probability sampling was used. When determining the size of the sample, one is guided by the level of precision, the level of confidence or risk and the degree of attributes being measured (Miaoulis and Michener, 1976).

The Slovans' formula also used later by Yamane (1967) was used to determine sample size in this study as it puts into consideration the population size. The confidence level chosen was 95% for this study giving a margin error is 0.05. The formula below was used to determine the sample size for the study:

$$n=\frac{N}{1+NE^2}$$

Whereby:

n = no. of samples

N = total population

e = error margin / margin of error (0.05)

In this study the sample size was 381 as derived from the formula above. To get the actual sample per strata you multiply the sample size obtained (n) by the target population and divide by the total population (N). Table 381 shows the sample size distribution.

Table 3.2: Sample Size

Sample Group	**Sample Size**
CDF Staff	87
CDF Committee Members	61
The Public	130
Project Consultants	104
n	**381**

3.5.2 Sampling Techniques

In this study stratified random sampling was adopted since the sample used reflects accurately the population based on the criterion used. In this technique the characteristics which a researcher wishes to use are equally or proportionately distributed amongst the sample (Greener, 2008). The sample size from the construction projects funded by CDF in three constituencies in the selected counties was determined.

Purposeful sampling was used to select the respondents (chief officers, directors, county executives and technical staff and regulators) in each of the construction target population identified since they had the necessary information for that project.

3.6 Data Collection Instruments

The importance of data collection is to promote decision making and response allocation that is based on solid evidence rather than isolated occurrences. According to Lawal (2013) data collection method is the process by which the researcher collects the information needed to answer the research problem. When collecting data, the researcher decides which data to collect, how to collect it, who to collect the data from and when to collect the data (Choy 2014). This study used both primary and secondary data. According to Greener (2008) primary data is the data collected directly from first-hand occurrence, which has not been exposed to processing or any other handling. Secondary data refers to the information a researcher obtains from research articles, books and publications (Mugenda & Mugenda, 2012).

Creswell (2006) contends that primary data can be collected by means of either qualitative data collection instruments (focus group discussions, interview guide and observations) or quantitative data collection instruments (questionnaires) or both. The primary data for this study was collected by use of semi-structured questionnaires and key informant interview guides. To interpret the results, a five-point Likert scale by Ojokuku and Sajuyigbe, (2014), was used in the questionnaire. Qualitative research is advantageous in that, the unstructured questions encourage the respondent to give an in-depth response without feeling held back in revealing any

information and it permits research to go beyond the statistical results usually reported in quantitative research (Mugenda & Mugenda, 2012).

Kothari (2004) indicates that a questionnaire is a cost-efficient method of collecting information particularly from a huge group of respondents and it facilitates anonymity. The questionnaire was divided into 8 sections.

The first section focused on the socio-demographic information of the respondents. The other sections focused on the independent variables and dependent variable (success of projects). Key informants in this study were the CDF project managers and they underwent interviews that were qualitative and in-depth. Secondary data was collected from publications, journals and acts of parliament.

3.7 Data Collection Procedures

The researcher upon getting approval by the university (JKUAT) to proceed to data collection and in conformity with the government policy, the researcher applied for a permit from the National Council for Science and Technology (NACOSTI). In addition the researcher consulted the relevant public construction site managers where the study was carried out. An introductory letter was prepared before proceeding to the field for data collection.

Equipped with these, the researcher then proceeded to administer the questionnaires that were dropped and picked later to give the respondents enough time to study the questions while interview schedules with the key informants was arranged and agreed upon with the participants. The researcher booked appointments with the consultants and project managers at the site and agreed on the meetings to answer the qualitative questions.

3.8 Pilot Study

A pilot survey is meant to eliminate, in advance, some of the problems that are likely to be encountered during the final survey (Hennink, Hutter & Bailey, 2020). The researcher conducted a pilot study to test the reliability and validity of the data collection instruments. According to Mugenda and Mugenda (2012), once a

questionnaire is finalized, it is imperative for the researcher to test it in the field before the actual data collection exercise. Kaifeng *et al.* (2008), explains that a pilot study should preferably be carried out using subjects that will not be recruited for the main study. This is because the experience gained by subjects in the pilot study may bias the results of the main study if the same subjects are included. Mugenda and Mugenda (2012) recommends a small number of about 1-10 % of the sample size as the pretest size. In this study, pretesting was done in Machakos county and involved 38 respondents. The area was selected because it was not involved in the main study and the distance was convenient to the researcher. According to Hertzog (2008) and Connelly (2008), 10% of the sample required for a full study should be sufficient for a sample size in pilot study.

3.8.1 Reliability of the Research Instruments

Reliability refers to the consistency of measurement, or the degree to which an instrument measures the same way each time it is used under the same condition with the same subject (Bryman 2003). The reliability of the questionnaire was statistically measured by measuring the internal consistency using Cronbach's alpha method that measures the internal consistency of the measurement instrument. The formula for calculating Cronbach alpha is:

$$\propto = \frac{N.\bar{c}}{\bar{v}+(N-1).\bar{c}}$$ Equation (Cronbach, 1951)

Where N is equal to the number of items, $\bar{c}$ is the average inter-item covariance among the items and $\bar{v}$ equals the average variance. The normal range measure of Cronbach alpha lies between zero and plus 1. The higher the score, the more reliable the generated scale is.

According to Adrian, *et al.* (2003) a Cronbach value of 0.7 is taken to be adequate proof of consistency while a value of 0.7-1 is considered optimal. Based on the feedback from the pilot test, the questionnaire was modified and a final one was developed.

Measurements are reliable to the extent that they are repeatable and that any random influence which tends to make measurements different from occasion to occasion or circumstance to circumstance is a source of measurement error. Errors of measurement that affect reliability are random errors and errors of measurement that affect validity are systematic or constant errors. If a scale is reliable, it will report the same weight for the same item measured successively (assuming the weight of the item has not changed).

However, perfect reliability can be difficult, if not impossible, to achieve. In this regard, a Cronbach alpha coefficient is used to determine acceptable levels of reliability for a research tool. As per Hennink, Hutter and Bailey (2020) the respondents in a pilot test don't need to be factually chosen when testing the reliability of the instruments. In this study, the questionnaire which was the testing instrument was tested on 10% of the sample of the surveys to ensure that it was significant and powerful.

3.8.2 Validity of the Research Instruments

According to Creswell (2006) validity is the extent to which results acquired from process of analysis of the data embodies the phenomenon under study. Similarly (Mugenda & Mugenda, 2012) reports that validity is the degree to which results obtained from the analysis of the data represent the phenomenon under study.

Validity has to do with how accurately the data obtained in the study represents the variables of the study. If it is a true reflection of the study, then any deductions made on such data will be accurate and meaningful.

Validity is largely determined by the presence or absence of systematic errors (non - random error) in the study data. There are three types of validity: content validity, construct validity and face validity. Face validity helped the researcher in subjective evaluation of the measuring instrument and the extent to which the researcher believed the instrument was appropriate to undertake the study.

This study relied on modified instruments developed in other studies as well as concepts generated from a broad range of appropriate literature. Content validity was ensured by the questionnaire getting tested by subjecting it to double check. This also ensured that the questionnaire covered all the main areas of the study. On the other hand, construct validity was ensured through operationalization of terms to guarantee that the study variables reflect the theoretical assumptions that underpin the conceptual framework for the study.

Construct validity refers to a measure of the degree to which data obtained from an instrument meaningfully and accurately represents a theoretical concept. To assess a construct validity there must be a theoretical framework in place regarding the concept to be measured. On the other hand, content validity, also referred to as logical validity, and it refers to the degree to which a measure depicts all facets of a given social construct. In this study, the content and face validity were improved by seeking the opinions of experts in the field of study, particularly the research supervisors.

3.9 Data Analysis and Presentation

Data that has been collected from the field is in raw form and cannot be interpreted. To ensure correct data interpretation, data collected is edited, a process which involves correcting illegible, incomplete, inconsistent, and ambiguous answers (Ngechu, 2004). The next step is data coding which involves preparing a codebook for the different variables based on the numbering structure of the questionnaires.

The fourth step is data entry followed by data cleaning, which reviews data for consistencies. Inconsistencies may arise from several sources which include faulty logic, out of range data or extreme values. The sixth step involved carrying out diagnostic tests (Greener, 2008). Data analysis involves reduction of accumulated data to a manageable size, developing summaries, looking for patterns and applying statistical techniques (Ngechu, 2004).

Descriptive statistics were used for quantitative data analysis to enable the researcher describe distribution of scores and even measurements (Mugenda & Mugenda,

2012). The data analysis processes for quantitative items were done using various statistical tools including the Statistical Package for Social Science (SPSS) version 22 as a tool. Results from quantitative data were presented in tables since tables have the advantage of accommodating large amounts of information in a limited space.

Qualitative data collected through the unstructured section of the questionnaire were coded, and repeated themes (responses) or concepts recorded until saturation was achieved. Qualitative data analysis was primarily an inductive process of organizing data into categories and identifying patterns (Mugenda & Mugenda, 2012).

Cresswell *et al.* (2013) stated that, the most general guide to analyzing qualitative data involve looking for similarities and dissimilarities. The focus must be on those patterns of interactions and events that are generally common to what the researcher is studying (Saunders, 2011).

3.9.1 Statistical Modeling

Statistics are used to summarize the data collected through survey or investigations and to help in determining the associations between the variables. Inferential statistics was used to test several hypothesized relations to allow generalization of the findings to a larger population. To test the pattern of relationships between research variables as stated in the hypotheses, multiple regression equations were used. The relationship between the independent variables and dependent variable (project success) was determined using the regression model below (Schmidt-Catran, Fairbrother, & Andre, 2019).

Multiple linear regressions are models that helps in determining whether independent variables predict the given dependent variable hence increasing the accuracy of the estimate. The multiple linear regression models were used to measure the relationship between the independent variables and the dependent variable which are explained in the model. The regression model helped to explain the magnitude and direction of relationship between the variables of the study using coefficients like the correlation, coefficient of determination and the level of significance (Austin, & Steyerberg, 2015).

Multiple regression attempts to determine whether a group of variables together predict a given dependent variable. Since there are five independent variables in this study, the multiple regressions Model was as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Whereby:

Y = Success of projects in Kenya

β_0 = Constant

$\beta_1 X_1$-X_5 =Coefficients of determination

X_1 = Project Initiation and identification

X_2 = Project planning

X_3 = Project execution

X_4 = Project monitoring and control

X_5 = Project closure

ε = Error term

The regression analysis also provided other test statistics like Student t-tests, adjusted R^2 and F-test. The decision rule was tagged at 95% level of confidence at which the hypothesis is not accepted if the calculated p-value is less than 0.05 (Blume, D'Agostino McGowan, Dupont, & Greevy Jr, 2018). This implies that for an independent variable to have a significant influence on the dependent variable, the p-value ought to be below the alpha value (0.05).

Analysis of variance (ANOVA) was developed by statistician and evolutionary biologist Fisher (1993) and it is a collection of statistical models used to analyze the differences among group means and their associated procedures (such as "variation" among and between groups). When there are more than two groups for comparison then the Analysis of Variance (ANOVA) is the best method to use (Anderson, 2001).

F-test also referred to as Test statistic is normally used to test the significance of the variable and appropriate alpha computed for assessment at the selected significance level. This test is generally known as the variance ratio test and is mostly used in context of analysis of variance to test the hypothesis of equality among several sample means (i.e. to test the variance). F test was used to test the linearity assumption.

Beta coefficients are the estimates resulting from a regression analysis that have been standardized so that the variances of dependent and independent variables are measured. Therefore, standardized coefficients refer to how many standard deviations a dependent variable will change, per standard deviation increase in the predictor variable.

Standardization of the coefficient was done to answer the question: which of the independent variables have a greater effect on the dependent variable in a multiple regression analysis. Multiple regression yields standardized regression coefficients that show the change in the dependent variable measured in standard deviations.

3.9.2 Test for Moderation by Project Environment

Multiple linear regressions was used to test the moderating effect of project environment on the relationship between project life cycle activities and the success of CDF construction projects in Kenya. The multi- linear regression model used is indicated below;

$$Y= \alpha +\beta_1 X+\beta_2 X_6+\beta_3 X^* X_6+ \mathscr{E}$$

Where,

Y= Success of projects in Kenya

α = Constant

X= Composite of Factors (X_1, X_2, X_3, X_4 and X_5)

X_6 =Project environment

$\mathscr{E}$ = margin of error

The moderating effect was the joint effect of project environment and project life cycle activities in influencing the success of CDF construction projects in Kenya.

The significance of moderating effect was evaluated for significance at a p value of 0.05. If reported p value was less than 0.05, then the moderating effect was considered to be significant (Wasserstein, Schirm, & Lazar, 2019).

3.9.3 Statistical Tests

In this study, the researcher was expected to ensure that there are no non-violations of the assumptions of the classical linear regression model (CLRM) before attempting to estimate equation. Estimating these equations when the assumptions of the linear regression are violated runs the risk of obtaining biased, inefficient, and inconsistent parameter estimates (Brooks, 2008). Consequently, linearity test, the multicollinearity, autocorrelation, heteroscedasticity, and panel unit root tests were conducted to ensure proper specification of equations.

i. **Linearity Test**

Linearity means that two variables, "x" and "y," are related by a mathematical equation "y = cx," where "c" is any constant number. The importance of testing for linearity lies in the fact that many statistical methods require an assumption of linearity of data. This occurs when data is sampled from a population that relates the variables of interest in a linear fashion. This means that before using common methods like linear regression, tests for linearity must be performed (Jin, Parthasarathy, Kuyel, Geiger, & Chen, 2005). Linearity test was conducted for each

variable. Scatter graphs were used to observe with ease the possibility of the data arriving from a linear population.

ii. Normality Tests

Parametric tests such as correlation and multiple regression analysis require normal data. Tests of normality were used to determine if the data is well modelled and normally distributed (Gujarati, 2002). When data is not normally distributed it can distort the results of any further analysis. Preliminary analysis to assess if the data fits a normal distribution was performed. To assess the normality of the distribution of scores graphical method approach was used.

iii. Multicollinearity Tests

Multicollinearity is a statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated (Porter, 2009). (Field, 2009) adds that multicollinearity is tested among independent variables and poses a problem only for multiple regressions and not on simple regression Tests for multi-collinearity were carried out to assess the presence of undesirable situation where correlations among the independent variables is strong. In severe cases of perfect correlations between predictor variables, multi-collinearity can imply that a unique least squares solution to a regression analysis cannot be computed (Field, 2009).

Multi-collinearity inflates the standard errors and confidence intervals leading to unstable estimates of the coefficients for individual predictors. Multi-collinearity was assessed in this study using the Variance Inflation Factor (VIF) and tolerance. VIF was used to dragonize the collinearity of the data. The VIF indicates whether a predictor variable has a strong linear relationship with other predictors with concerns raised if VIF is 10 and above (Field, 2009).

VIF is an index of the amount that the variance of each regression coefficient is increased relative to a situation in which all of the predictor variables are uncorrelated. Cohen and Cleveland (2013) makes a different suggestion that VIF of 5 or more to be the rule of the thumb for concluding VIF to be too large hence not

suitable. According to Runkle *et.al*. (2013), if two or more variables have a VIF of 5 or greater than 5,then one of them must be removed from the regression analysis as this indicates presence of multicollinearity. The same argument was used in this study where a VIF of greater than 5 was encountered then the variable was removed.

iv. Heteroscedasticity

The variance of the residual terms is expected to be constant in the case of homoscedasticity. If the variances are very unequal then there is heteroscedasticity (Field, 2009). Since the data for this research is a cross-section of constituencies, this raises concerns about the existence of heteroscedasticity. The Classical Linear Regression Models (CLRM) assumes that the error term is homoscedastic, that is, it has constant variance. If the error variance is not constant, then there is heteroscedasticity in the data.

Running a regression model without accounting for heteroscedasticity would lead to biased parameter estimates. To test for heteroscedasticity, the Breusch-Pagan/Godfrey test (1979) was used. The null hypothesis of this study was that the error variance is homoscedastic. If the null hypothesis is rejected and a conclusion made that heteroscedasticity is present in the panel data, then this would be accounted for by running a Feasible Generalized Least Squares (FGLS) model.

3.9.4 Hypotheses Testing

The hypotheses were tested based on p value. The rule of thumb was that the null hypothesis of the beta was rejected and the alternative accepted if the p value is 0.05 or less. In other words, if the p-value is less than 0.05 then it will be concluded that the model is significant and has good predictors of the dependent variable and that the results are not based on chance. If the p-value is greater than 0.05 then the model is not significant and cannot be used to explain the variations in the dependent variable.

Table 3.3: Hypotheses Testing

Hypothesis	Type of Analysis	Interpretation of Results
Project Initiation has a positive significant influence on the success of construction projects in Kenya.	Correlation analysis Regression analysis	For $p < 0.05$, H0 will be rejected; and HA accepted
Project planning has a significantly Positive influence the success of construction projects in Kenya.	Correlation analysis Regression analysis	For $p < 0.05$, H0 will be rejected; and HA accepted
Project execution has a significant positive influence the success of construction projects in Kenya.	Correlation analysis Regression analysis	For $p < 0.05$, H0 will be rejected; and HA accepted
Project monitoring has significant positive influence the success of construction projects in Kenya.	Correlation analysis Regression analysis	For $p < 0.05$, H0 will be rejected; and HA accepted
Project closure activities have a significant positive influence the success of construction projects in Kenya.	Correlation analysis Regression analysis	For $p < 0.05$, H0 will be rejected; and HA accepted

3.10 Operationalization of Study Variables

Operationalization is the process of strictly defining variables into measurable factors. The process defines fuzzy concepts and allows them to be measured, empirically and quantitatively (Uher, 2021). The operationalization of the study variables are as shown in Table 3.4.

Table 3.4: Operationalization of Variables

Variable	Type of Variable	Operationalization Indicator
Project Initiation and Identification Activities	Independent Variables	Method of Identification Feasibility Study Project Charter Stakeholder Identification
Project Planning Activities	Independent Variables	Project Plan Quality Plans/Specs Procurement Plans Risk Management
Project Execution Activities	Independent Variables	Commissioning Resource Allocation Communication Procurement Management
Project Monitoring and Control Activities	Independent Variables	Project Controls Evaluation of Resources Tracking Systems Status Records
Project Closure Activities	Independent Variables	Learnings Final Product Documentation Contract Administration
Managing Project Environment	Moderating Variable	Regulatory Bodies Board Composition PM Competencies Organization Structure
Project Success	Dependent Variables	Projects Completed Time Adherence Cost Compliance Customer Satisfaction/Impact Sustainability

CHAPTER FOUR

RESEARCH FINDINGS, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presents the results of analysis of data collected from the field using questionnaires. The results were to cover the study on the antecedents of project success in CDF construction projects in Kenya. The discussion of the findings is guided by objectives of the study.

4.2 Response Rate

Response rate is the number of respondents who completed the questionnaire properly divided by the number of people chosen as samples (Fowler, 2004). The response rate results are shown in Table 4.1:

Table 4.1: Response Rate

Response	Frequency	Percent
Returned	306	80.31%
Unreturned	75	19.69%
Total	**381**	**100.00%**

The number of questionnaires that were administered was 381 and a total of 306 questionnaires were properly filled, returned and used for the study. The response rate was 80.31%. According to Mugenda and Mugenda (2012) and also Kothari (2004) a response rate of above 50% is adequate for a descriptive study. Hennink, Hutter and Bailey (2020) also argues that a response rate exceeding 30% of the total sample size provides enough data that can be used to generalize the characteristics of a study problem as expressed by the opinions of few respondents in the target population. Based on these assertions the response rate of, 80.31% was adequate for the study and considered good representative to provide information for analysis and derive conclusions on the study.

4.3 Pilot Testing Results

4.3.1 Reliability Test Results

Reliability denotes the repeatability, dependability and interior consistency of a questionnaire. Cronbach's alpha was utilized to test the reliability of the measures in the questionnaire. As per Hennink, Hutter and Bailey (2020) Cronbach's alpha has the most utility for multi-item scales at the interim level of estimation, it gives a one-of-a-kind, quantitative measure of the inner consistency of a scale. The results of reliability are presented in table 4.2.

Table 4.2: Reliability Coefficient of Variables

No.	Variable	Cronbach's Alpha	No. of Items	Comment
1.	Project Identification and Initiation Activities	0.875	14	Accepted
2.	Project Planning Activities	0.792	13	Accepted
3.	Project Execution Activities	0.735	15	Accepted
4.	Project Monitoring and Control Activities	0.862	13	Accepted
5.	Project Closure Activities	0.709	15	Accepted
6.	Project Environment	0.714	12	Accepted
7.	Success of CDF Construction Projects	0.715	5	Accepted

The questionnaire responses were input into statistical package for social sciences (SPSS) and Cronbach’s alpha coefficient generated to assess reliability. The nearer Cronbach's alpha coefficient is to 1, the higher the interior consistency reliability test (Sekaran, 2003). Results in table 4.2 shows that the Cronbach alpha for all the variables in this study was above the threshold of 0.7. From these results the measuring instrument for this study was taken to be reliable. This is in agreement with previous studies by (Sekeran, 2003).

4.3.2 Validity of the Research Instrument

Validity is the accuracy of the data and the extent to which the data collection instruments measure correctly what it purports to measure (Miller, 2009). Mouton (2009) put it in other words that validity is the extent to which empirical measure adequately reflects the real meaning of the concept under consideration. There are a number of ways to establish the validity of the measurement namely: content, construct and criterion related. Validity is concerned with whether the findings are really about what they appear to be about (Balta, 2008). In the current study, the study considered three types validity: face validity, content validity and construct validity.

4.4 Demographic Characteristics of Respondents

This section consists of information that describes basic characteristics of the respondents and projects. The focus responses in this study were respondent's level of education, gender, age, duration in constituency, position held, experience and their profession. The questions on projects were project type, project completion status and whether the project was new or a continuation. Each respondent's demographic characteristics were important for the study since it helped to understand the background of the respondents before embarking on obtaining the responses which aimed at achieving the specific objectives.

This study relied on modified instruments developed in other studies as well as concepts generated from a broad range of appropriate literature. Content validity was ensured by the questionnaire getting tested by subjecting it to double check. This also ensured that the questionnaire covered all the main areas of the study. On the other hand, construct validity was ensured through operationalization of terms to guarantee that the study variables reflect the theoretical assumptions that underpin the conceptual framework for the study.

4.4.1 Highest Level of Education

The respondents were requested to indicate their level of education. The aim was to find out if the level of education has an influence on response and overall results. The results are results are reported in figure 4.1.

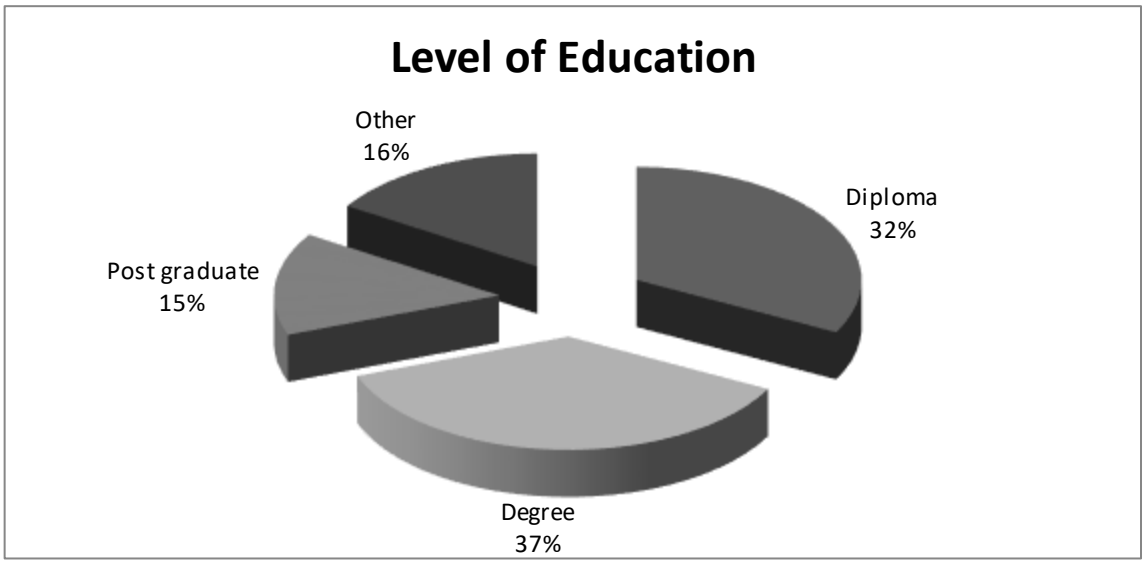

Figure 4.1: Level of Education

From the results in Figure 4.1, 37% of the respondents had degree level as their highest level of education, 32% had diploma level qualification, and 15% had a post graduate level qualification while only 16% had other education qualification which mainly were certificate qualification. The results imply that, the respondents understood the questionnaire and gave valid responses since they had a good understanding as guided by their level of education.

4.4.2 Gender of the Respondents

The gender representation numbers were arrived by inputting the data into the SPSS software then running the descriptive frequencies to generate the gender frequencies. Figure 4.2 shows the analysis of male and female who participated in the study.

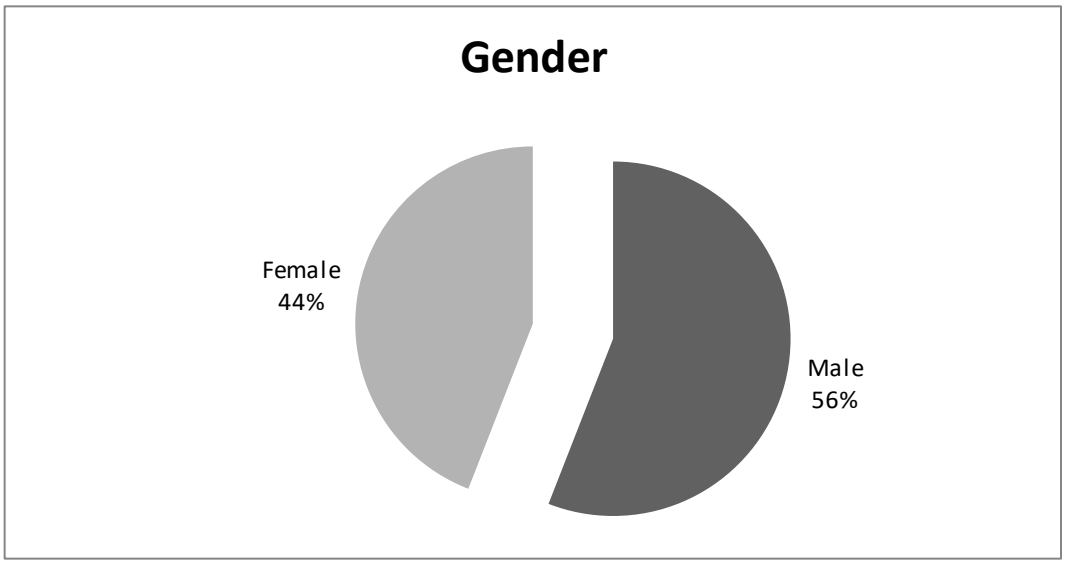

Figure 4.2: Gender of Respondents

According to the results in figure 4.2, 56% of the respondents were male while 44% were female. This shows that majority of the respondents were male. This analysis is consistent with that of Gakure (2003) studies that have identified male domination in the formal and informal sectors. In spite of women being major actors in Kenya's economy, men dominate in the formal sector in ratio of 74%:26% men to women in formal sector (Ellis, Cutura, Dione, Gillson, Manuel & Thongori, 2007).

4.4.3 Respondent Constituency

The respondents were asked to indicate the constituency in which they came from. Table 4.3 shows the responses received.

Table 4.3: Respondent Constituencies

County	Constituency	Key Informers	Respondents
Kakamega county	Matungu Constituency	2	15
	Shinyalu Constituency	1	13
	Ikolomani constituency	1	9
Meru county	Central Imenti	2	17
	North Imenti	2	13
	South Imenti	2	13
Kajiado County	Kajiado South Constituency	2	14
	Kajiado Central	1	13
	Kajiado North	1	8
Taita Taveta County	Mwatate Constituency	1	11
	Wundanyi Constituency	1	13
	Voi Constituency	1	9
Kiambu County	Kabete Constituency	2	13
	Juja Constituency	2	17
	Kikuyu Constituency	1	13
Isiolo County	Isiolo North	1	12
	Isiolo South	2	15
Nairobi County	Dagoretti South	2	14
	Embakasi West Constituency	1	16
	Starehe Constituency	1	12
Nakuru	Nakuru East	2	15
	Nakuru West	2	14
	Nakuru South	2	17
Total		**35**	**306**

4.4.4 Age of the respondents

The respondents were requested to indicate their age brackets. The aim was to find out if the age has an influence on response and overall results. The results are presented in Table 4.4.

Table 4.4: Age of Respondents

Age	Frequency	Percent (%)	Cumulative Percent (%)
Below 25	16	5.2	5.2
25-35	92	30.1	35.3
36-45	112	36.6	71.9
46-55	62	20.3	92.2
Over 56 years	24	7.8	100.0
Total	**306**	**100.0**	

From the results in Table 4.4, majority of the respondents (36.6%) were on age bracket of 36-45 years. 30.1% were of age between 25 and 35 years, 20.3% were of age between 46-55 years, 7.8% were of age over 56 years while 5.2% who were the least were of age below 25 years old. According to the Population Situation Analysis Report (2014) the trend of population growth for persons aged 25-45 years has increased from about 12% in 1999 to nearly 15% in the year 2009. Therefore, the finding of this study reflects the current trend of the Kenya population indices.

4.4.5 Duration in the Constituency

Respondents were asked to indicate the period of time that they had been in the constituency. The results are presented in the figure 4.3.

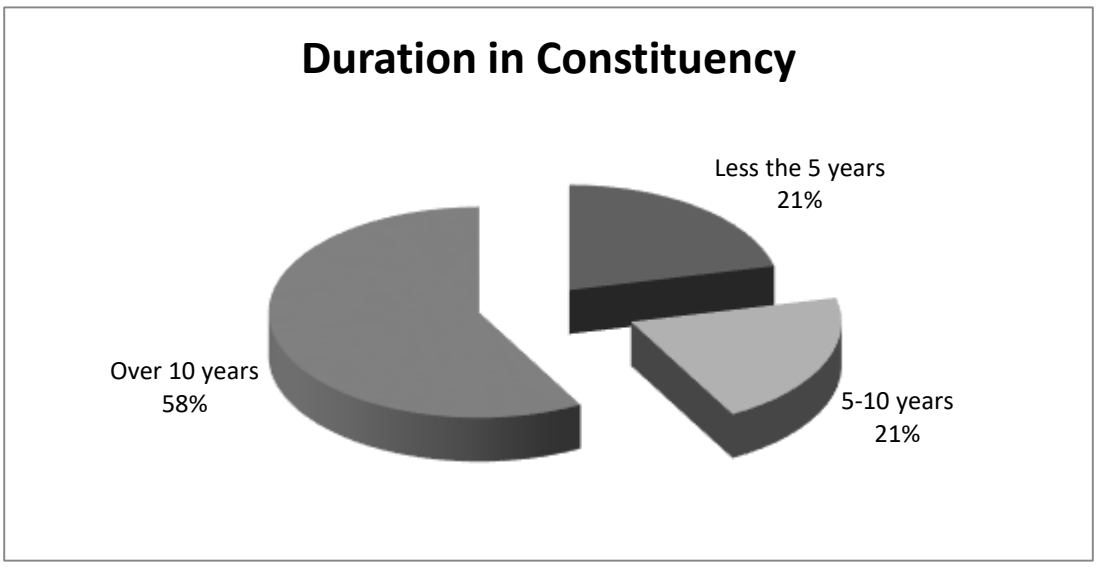

Figure 4.1: Duration in the Constituency

From figure 4.3, majority of the respondents (58%) had been in the constituency for over 10 years, 21% had had been for between 5-10 years while another 21% had had been in the constituency for less than 5 years. This implies that majority of the respondents had a good knowledge on projects in their constituency since they had lived for two parliamentary terms.

4.4.6 Position Held

The respondents were requested to indicate the position they held in the CDF project. They were required to indicate whether they were CDF staff, project team members, immediate public or other. The aim was to find out if the position held had an influence on response and overall results.

Table 4.5: Position Held

Position	Frequency	Percent (%)	Cumulative Percent (%)
CDF Staff	58	19.0	19.0
CDF Committee Members	54	17.6	36.6
The Public	118	38.6	75.2
Project Consultants	76	24.8	100.0
Total	**306**	**100.0**	

From the results in Table 4.5, 38.6% of the respondents were members of the public, 24.8% were project consultants, 19.0% were CDF staff while 17.6% were CDF committee members that included, chiefs, village elders and CDF location project chairpersons. This implies the respondents were aware of the main objective of the study and were in a position to give the required information.

4.4.7 Years of Job Experience

Respondents were asked to indicate the amount of experience in their field. Figure 4.4 presents the results of the analysis.

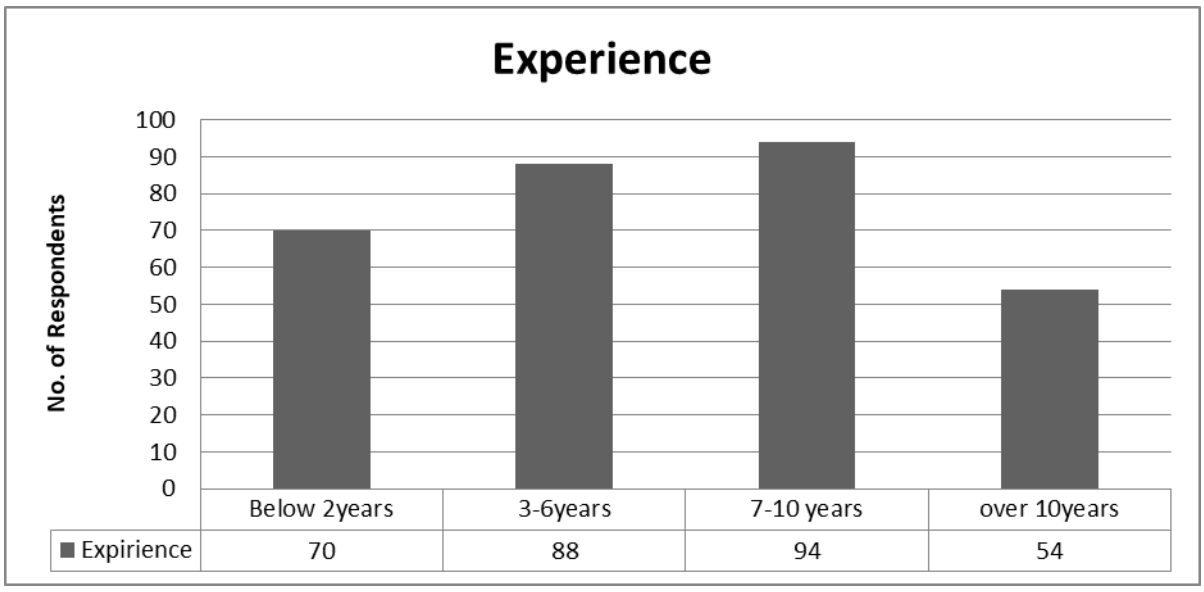

Figure 4.4: Years of Experience

From the results in figure 4.4, majority of the respondents (94%) had worked for 7-10 years, 88% had worked for between 3-6 years, 70% had worked for below 2 years while 54% had had worked for over 10 years. This implies that majority of the respondents had worked for a relatively long period of time .consequently they had better experience to answer the questions presented. The findings from Afande, (2013) point out that experience depends on the number of years of service in the sector involved. It is assumed that the longer one worked in a given position, the more they understand the roles and hence the higher the ability to articulate issues pertaining to the role.

4.4.8 Profession of Respondents

Respondents were asked to indicate their profession. Figure 4.5 presents the results of the analysis.

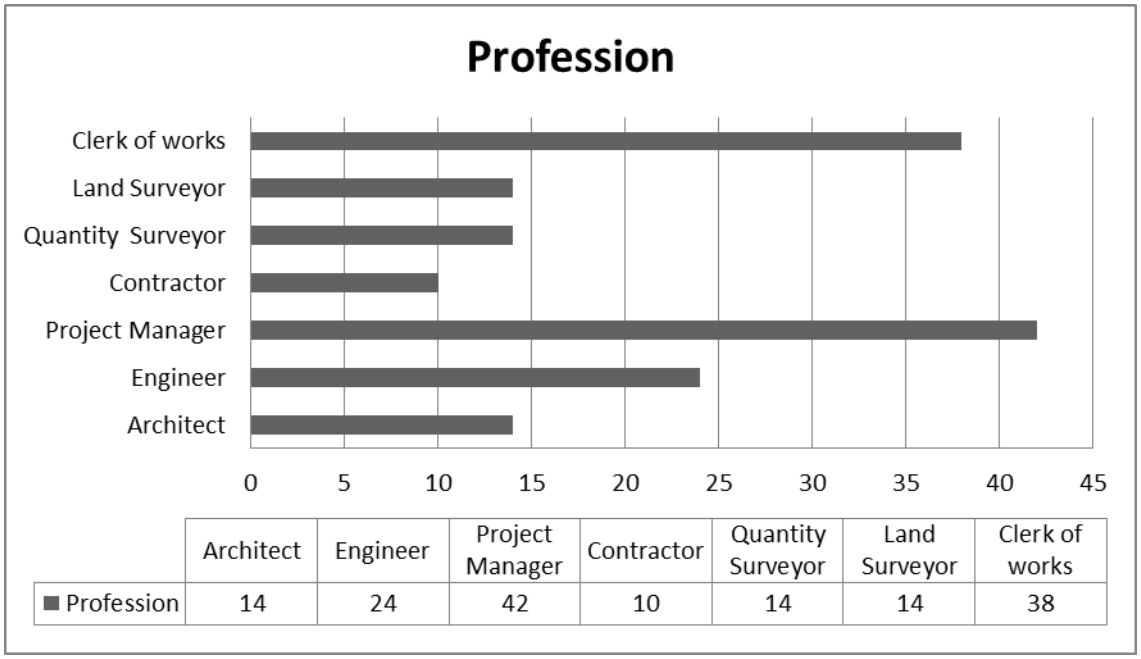

Figure 4.5: Profession of Respondents

From the results in figure 4.5, majority of the respondents were project managers taking up 42%, 38% were clerk of works, 24% were engineers, the categories of architects ,quantity surveyors, and land surveyors were 14% each while contractors were 10%. The assumption made from this result is that the overall finding was not in any way affected by the response difference in respondent profession.

4.4.9 Project Type

Respondents were asked to indicate the project type they were involved in and also indicate project completion status. Table 4.6 presents the results of the analysis.

Table 4.6: Project Type

Project Type	Frequency	Percent (%)	Complete	Incomplete
Construction of dormitories	34	11.1%	57.6%	42.4%
Construction of water storage tanks	26	8.5%	34.2%	65.8%
Construction of additional dormitory	26	8.5%	25.2%	74.8%
Construction of a social hall	20	6.5%	47.6%	52.4%
Construction police unit	36	11.8%	70.6%	29.4%
Construction of classrooms	54	17.6%	63.5%	36.5%
Construction of dispensary	56	18.3%	50.5%	49.6%
Construction of chief's camp	28	9.2%	62.2%	37.8%
Other construction	26	8.5%	37.1%	62.9%
Total	**306**	**100.0%**		

From the results in Table 4.6, 11.1% indicated that they were involved in construction of dormitories of which 57.6% were complete, 8.5% indicated construction of water storage tanks and only 34.2% was complete. 8.5% of the respondents indicated construction of additional dormitory out of which 25.2% had been completed, 6.5% indicated construction of a social halls of which 47.6% had been completed.

11.8% indicated construction police unit where 70.6% had been completed, 17.6% indicated construction of classrooms where 63.5% had been completed, 18.3% indicated construction of dispensary whereby 50.5% had been completed, 9.2% indicated construction of chiefs' camp and 62.2% of it had been completed while 8.5% indicated other constructions of which 37.1% had been completed.

The other construction mentioned were used in the construction of secondary schools' laboratories, school play grounds, staff quarters and school storage rooms.

4.5 Descriptive Statistics

This section presents the descriptive results on statements on both dependent and independent variables. Descriptive analysis consists of frequency tables, diagrams, measure of central tendency (arithmetic mean, median and mode) and measure of dispersion (Hussain, 2012). Descriptive analysis was used to examine the relationships between variables by describing the direction and the association between them. Descriptive statistics were obtained through running the statements of each objective using descriptive custom table and presenting in percentages. The mean and the standard deviations were obtained through running the descriptive statistics.

4.5.1 Descriptive Statistics on Identification and Initiation Phase Activities on Project Success

The first objective of the study was to examine project identification and initiation activities and their influence on the success of CDF construction projects in Kenya. The constructs that were used to measure this objective were; method of identification, feasibility study, project charter and stakeholder involvement. Under each construct, statements were used to measure the responses and the results were as presented in Table 4.7.

Table 4.7: Identification and Initiation phase Activities

	Statements	Mean	Std. Dev	CV
Method of Project identification				
a	Analysis of community needs was done	4.13	0.87	21.14%
b	You were personally involved in the identification of the project	4.00	1.18	29.58%
c	Many proposals on projects were considered before settling on the project	3.89	1.12	28.82%
d	The project was approved by the stakeholders/community	4.21	0.95	22.61%
e	The project identified will address a specific need in the constituency	4.29	0.80	18.67%
Feasibility Study				
a.	A feasibility study was carried out to show the viability of the project	3.70	1.17	31.65%
b.	The feasibility study report was availed to the stakeholders	3.74	1.20	32.03%
c.	The feasibility study was carried out by an external consulting company	3.42	1.31	38.36%
Project Charter				
a.	A project charter was development involved the project manager and the team members	3.66	1.21	33.09%
b.	The project charter clearly stated the project objectives	3.73	1.19	31.85%
c.	The charter was clear on the deliverables of the project	3.68	1.18	31.93%
Stakeholder Involvement				
a.	The stakeholders of the project were identified and their roles in the project clearly spelt out	4.20	0.91	21.55%
b.	Stakeholders were involved at various stages of the project	4.06	1.03	25.37%
c.	Stakeholders needs and expectations were identified at the start of the project	4.09	1.06	25.82%
Average		**3.91**	**1.08**	**28.03%**

Majority of the respondents agreed that analysis of community needs was done (M=4.13, CV= 21.14%), Majority of the respondents agreed that they were personally involved in the identification of the project (M= 4.00, CV=29.58%). Majority of the respondents agreed that many proposals on projects were considered before settling on the project (M=3.89, CV= 28.82%). Majority of the respondents agreed that the project was approved by the stakeholders/community (M=4.21, CV=22.61%), majority of the respondents agreed that the project identified addressed a specific need in the constituency (M= 4.29, CV=18.67%).

Under feasibility study, three statements were used to measure the responses. Majority of the respondents agreed that feasibility study was carried out to show the viability of the project (M=3.70, CV= 31.65%). Majority of the respondents agreed that feasibility study reports were availed to the stakeholders (M=3.74, CV=32.03%),

majority of the respondents were neutral on the statement that feasibility study was carried out by an external consulting company (M= 3.42, CV=38.36%). Under the construct project charter, majority of the respondents agreed that project charter development involved the project manager and the team members (M=3.66, CV= 3.09%). Majority of the respondents agreed that project charter clearly stated the project objectives (M=3.73, CV= 31.85%), majority of the respondents agreed that the charter was clear on the deliverables of the project (M= 3.68, CV=31.93%).

Lastly under the construct on stakeholders' involvement, three statements were presented for responses. Majority of the respondents agreed that the stakeholders of the project were identified and their roles in the project clearly spelt out (M= 4.20, CV=21.55%). Majority of the respondents agreed that stakeholders were involved at various stages of the project (M= 4.06, CV= 25.37%) while majority of the respondents agreed that stakeholders needs and expectations were identified at the start of the project (M= 4.09, CV= 25.82%).

The overall mean of the responses was 3.91 which indicates that majority of the respondents agreed with the statements on identification and initiation activities. The standard deviation was 1.08 while CV was 28.03% indicating that the responses were however varied. The findings of this objective were consistent with Mwangi and Ravallion (2005) findings who reported that, a community development project starts with the identification of a need or the realization that there is a need.

4.5.2 Descriptive Statistics on Project Planning phase Activities and Project Success

The second objective of the study was to evaluate project planning activities and their influence on the success of CDF construction projects in Kenya. The constructs that were used to measure this objective were; project plan, quality plans/specifications, procurement plans and risk management. The results were as presented in Table 4.8

Table 4.8: Project Planning phase Activities

	Statements	Mean	Std. Dev	CV
Project Plan				
a	A work breakdown structure was documented to guide the project works	4.16	0.80	19.16%
b	Project planning meetings were held to ensure all project areas are covered during implementation.	4.28	0.74	17.22%
c	An estimated time plan of starting the project and end time was put in place	4.17	0.73	17.39%
d	The project plan included risk analysis	3.45	1.39	40.23%
e	Various plans(communication, procurement, quality, human resource) were discussed and officiated	4.15	0.74	17.83%
Procuring /Contracts				
a	The county has prequalified suppliers for various products and services	3.95	0.98	24.84%
b	The service providers were selected from the prequalified suppliers through a transparent tendering system	3.81	1.12	29.27%
c	All supplier contracts awarded were signed off by project manager after approval by committee	4.03	0.90	22.36%
Quality Plan				
a	A quality plan was drawn showing the specifications at various points of the process	3.99	0.90	22.51%
b	The specifications of the finished product were clearly spelt out	4.12	0.93	22.48%
c	Quality control mechanisms were in place and traceable at every step of the project	4.08	0.93	22.89%
Risk Management				
a	The impact of each risk was studied and mitigating factors identified	3.25	1.39	42.65%
b	Preventive and contingent actions were identified for each risk	3.23	1.35	41.89%
Average		**3.90**	**0.99**	**26.21%**

Project plan construct was measured using five statements, majority of the respondents agreed that work breakdown structure was documented to guide the project works (M=4.16, CV= 19.16%).

Majority of the respondents agreed that project plan meetings were held to ensure all project areas were covered during implementation (M= 4.28, CV=17.22%), majority of the respondents agreed that an estimated time plan of starting the project and end time was put in place (M= 4.17, CV= 17.39%).

Majority of the respondents were neutral on the statement that project plan included risk analysis (M= 3.45, CV= 40.23%) lastly, majority of the respondents agreed that various plans including communication, procurement, quality, human resource were discussed and officiated (M= 4.15, CV=17.83%).Under procuring /contracts, three statements were put for responses by the respondents.

Majority of the respondents agreed that the constituency had prequalified suppliers for various products and services (M=3.95, CV= 24.84%), majority of the respondents agreed that the service providers were selected from the prequalified suppliers through a transparent tendering system (M=3.81, CV= 29.27%). Lastly majority of the respondents agreed that all supplier contracts awarded were signed off by project manager after approval by committee (M= 4.03, CV= 22.36%).

On quality plan construct, majority of the respondents agreed that quality plan was drawn showing the specifications at various points of the process (M=3.99, CV=22.51%). Majority of the respondents agreed that the specifications of the finished product were clearly spelt out (M= 4.12, CV= 22.48%), and lastly majority of the respondents agreed that quality control mechanisms were in place and traceable at every step of the project (M= 4.08, CV=22.89%).

Under the construct risk management, two questions were reliable for responses by the respondents. Majority of the respondents were neutral on the statement that the impact of each risk was studied and mitigating factors identified (M= 3.25, CV= 42.65%) and majority of the respondents were neutral on the statement that preventive and contingent actions were identified for each risk (M= 3.23, CV= 41.89%).

The overall mean of the responses was 3.90 which indicates that majority of the respondents agreed with the statements on project planning activities. The standard deviation was 0.99 while CV was 26.21% indicating that the responses were however varied. The findings of this objective were consistent with Kerzner (2003) who asserted that the planning process must be systematic, disciplined, flexible and capable of accommodating input from diverse functions.

The planning process is most effective when it iterated and occurs throughout the life of the project. Earlier studies report that formal planning has a direct impact on project success (Young, 2016). He considered that a rigorously prepared plan is a foundation for project success. A clear and thoroughly defined project plan reduces risks, failure and the cost of the project (Lewis, 2010)

Table 4.9: CDF Project Planning Meetings and Achievement of Set Objectives

Statements	No Extent at All	Low Extent	Average	Large Extent	Very Large Extent	Mean	Std. Dev
Helps select the most appropriate approaches to delivering project objectives	0.7%	0.0%	12.5%	46.1%	40.8%	4.26	0.72
Helps come up with a good implementation plan	0.0%	0.7%	8.6%	43.4%	47.4%	4.38	0.67
Allows all stakeholders an opportunity to share their views on CDF projects	0.0%	2.0%	15.0%	45.8%	37.3%	4.18	0.76
Helps in dealing with corruption cases by making all decisions on awards of contracts transparent	1.3%	5.9%	12.4%	39.2%	41.2%	4.13	0.94
Helps minimize losses in time and resources due to better planning	0.7%	3.3%	11.8%	36.2%	48.0%	4.28	0.85
Facilitate better prioritizing of projects	0.0%	2.0%	9.9%	36.8%	51.3%	4.38	0.74
Average						**4.27**	**0.78**

Further, respondents were asked to state the extent to which CDF project planning meetings in their constituency achieved the set objectives. The findings were as shown in Table 4.8. 86.9% of the respondents indicated to a large extent that planning meetings helped select the most appropriate approaches to delivering project objectives, 90.8% indicated to a large extent that meetings come up with a good implementation plan, 83.1 indicated to a large extent that meetings allowed all stakeholders an opportunity to share their views on CDF projects.

The respondents, 80.4% indicated to a large extent that it helped in dealing with corruption cases by making all decisions on awards of contracts transparent, 84.2% indicated to a large extent that it helped minimize losses in time and resources due to better planning while 88.1% indicated to a large extent that planning meetings facilitated better prioritizing of projects.

4.5.3 Descriptive statistics on Project Execution Phase Activities and Project Success

The third objective of the study was to assess the project execution activities and their influence on the success of CDF construction projects in Kenya. The constructs that were used to measure this objective were commissioning, resource allocation, communication and procurement management. The results were as presented in Table 4.10.

Table 4.10: Project Execution Activities

	Statements	Mean	Std. Dev	CV
Commissioning				
a	The project was commissioned in presence of all team members	4.21	0.85	20.29%
b	Construction personnel were sourced in time of starting project	4.12	0.93	22.57%
Managing Communication				
a	Emails are considered as official communication channels	3.31	1.34	40.54%
b	There is a clear policy on reporting structure and Status reviews are communicated to stakeholders	4.06	0.78	19.19%
c	Joint meetings with stakeholders, project team members and project manager were held frequently	4.05	0.94	23.11%
d	Communication was limited to authorized recipients using RACI model approach	3.20	1.42	44.28%
Project Resource Allocation				
a	The materials for construction were availed just in time	4.08	0.86	21.10%
b	The Human resource manager availed staff as required and on time	4.25	0.82	19.29%
c	The funding was allocated and specific to the project	4.17	0.83	19.83%
d	Reference was made to the budget estimates before any expenditures were approved	4.17	0.92	22.11%
Managing Changes				
a	Changes on the project plan were done in a transparent manner	3.07	1.32	43.13%
b	Changes on staff were communicated officially and planned for	3.65	1.19	32.66%
c	The project started on the date set in the plan	3.65	1.15	31.42%
d	Project activities were running concurrently where possible	4.28	0.78	18.11%
e	An agenda for meetings was developed and often followed to ensure guided discussions	3.61	1.16	32.24%
Average		**3.86**	**1.02**	**27.33 %**

Commissioning construct had two statement whereby majority of the respondents agreed that the project was commissioned in presence of all team members (M=4.21, CV= 20.29%) and majority of the respondents agreed that construction personnel were sourced in time of starting project (M=4.12, CV= 22.57%). Under the construct managing communication, majority of the respondents were indifferent with the statement that emails were considered as official communication channels (M=3.31, CV= 40.54%).

Majority of the respondents agreed that there was a clear policy on reporting structure and status reviews were communicated to stakeholders (M= 4.06, CV= 9.19%), majority of the respondents agreed that joint meetings with stakeholders, project team members and project manager were held frequently (M= 4.05, CV= 23.11%). Majority of the respondents were neutral on the statement that communication was limited to authorized recipients using RACI model approach (M= 3.20, CV= 44.28%).

Under the construct project resource allocation, majority of the respondents agreed that the materials for construction were availed just in time (M=4.08, CV= 21.10%). Majority of the respondents agreed that the human resource manager availed staff as required and on time (M= 4.25, CV= 19.29%).

Majority of the respondents agreed that the funding was allocated and specific to the project (M=4.17, CV=19.83%). Majority of the respondents agreed that reference was made to the budget estimates before any expenditures were approved (M= 4.17, CV= 22.11%). Managing changes construct had five statements, on the first statement, majority of the respondents were indifferent with the statement that changes on the project plan were done in a transparent manner (M=3.07, CV=43.13%).

Secondly, majority of the respondents agreed that changes on staff were communicated officially and planned for (M= 3.65, CV= 32.66%). Thirdly majority of the respondents agreed that the project started on the date set in the plan (M= 3.65, CV=31.42%). Fourthly majority of the respondents agreed that project activities were running concurrently where possible (M= 4.28, CV=18.11%) and lastly

majority of the respondents agreed that an agenda for meetings was developed and often followed to ensure guided discussions (M=3.61, CV= 32.24%).

The overall mean of the responses was 3.86 which indicates that majority of the respondents agreed with the statements on project execution activities. The standard deviation was 1.02 while CV was 27.33% indicating that the responses were however varied. The findings of this objective were consistent with that of Oberlender (2014) that execution phase involves implementing the plans created during the project planning phase of the project.

Tasks completed during the execution phase include: develop team, assign resources, execute project management plans, manage procurement, execute the project, manage status meetings set up tracking systems, execute task assignments, update project schedule and modify project plans as needed. The project manager should monitor and control the activities, resources and expenditure required to build each deliverable to ensure that the customer's requirements are fully met (Winsock, 2007).

4.5.4 Descriptive Statistics on Project Monitoring and Control Phase Activities and Project Success

The fourth objective of the study was to examine the project monitoring and control activities and their influence on the success of CDF construction project in Kenya.

The constructs that were used to measure this objective were project controls, evaluation of resources, tracking systems and status meetings. The results were as presented in Table 4.11.

Table 4.11: Project Monitoring and Control phase Activities

	Statements	Mean	Std. Dev	CV
Controls				
a	There is a procedure for receiving and issuing project materials	4.11	0.74	17.96%
b	Project activities are monitored against set targets and results documented	4.18	0.85	20.22%
c	Work progression is signed off before next phase in started	4.03	0.83	20.57%
Evaluation				
a	There is a documented process of evaluating overall project performance	4.03	0.83	20.67%
b	Out of control situations are managed through documented corrective actions	3.87	0.98	25.40%
c	A frame work log for evaluation is used	3.82	0.90	23.64%
Tracking systems /Inspection				
a	There are policies for tracking performance	3.85	0.90	23.38%
b	All managers have signed quarterly appraisals to keep track of their performance	3.78	0.94	24.97%
c	There is a log for project monitoring activities	3.82	0.85	22.25%
Status Meetings				
a	Status meetings are scheduled	4.14	0.82	19.76%
b	Minutes taken during the meetings are reviewed to ensure follow up	4.20	0.78	18.50%
c	Items not actioned on are addressed first before progressing to next action	4.11	0.89	21.68%
d	Minutes form part of official project documents	4.11	0.85	20.58%
Average		**4.00**	**0.86**	**21.51%**

The first construct under this objective was controls where three statements forwarded to respondents giving the following responses. Majority of the respondents agreed that there was a procedure for receiving and issuing project materials (M=4.11,CV=17.96%). Majority of the respondents agreed that project activities were monitored against set targets and results documented (M= 4.18, CV= 20.22%).

Majority of the respondents agreed that work progression was signed off before the following phase was started (M=4.03, CV= 20.57%). The second construct was evaluation with three statements being presented to the respondents. Their response was majority of the respondents agreed that there was a documented process of evaluating overall project performance (M= 4.03, CV= 20.67%). Majority of the respondents agreed that out of control situations were managed through documented

corrective actions (M= 3.87, CV= 25.40%), majority of the respondents agreed that a frame work log for evaluation was used (M= 3.82, CV= 23.64%).

Tracking systems /Inspection was the third construct under this objectives, majority of the respondents agreed that there were policies for tracking performance (M= 3.85, CV= 23.38%). Majority of the respondents agreed that all managers had signed quarterly appraisals to keep track of their performance (M= 3.78, CV=24.97%), majority of the respondents agreed that there was a log for project monitoring activities (M=3.82, CV= 22.25%).

Lastly, status meeting was the last construct under this objective, majority of the respondents agreed that status meetings were scheduled (M= 4.14, CV=19.76%). Majority of the respondents agreed that minutes taken during the meetings were reviewed to ensure follow up (M= 4.20, CV= 18.50%). Majority of the respondents agreed that items not actioned on were addressed first before progressing to next action (M= 4.11, CV= 21.68%), majority of the respondents agreed that minutes formed part of official project documents (4.11, CV = 20.58%).

The overall mean of the responses was 4.00 which indicate that majority of the respondents agreed with the statements on project monitoring and control activities. The standard deviation was 0.86 while CV was 21.51% indicating that the responses were however slightly varied.

The findings of this objective was consistent with that of Ehler (2017) who proposed that project planners ought to incorporate a well-defined monitoring and evaluation strategy. This plan should include activities carried out to get feedback, involve people to carry out these activities, design the frequency of carrying out the activities, budget expectations for activities and specific insights expected to be achieved from the monitoring and evaluation feedback. Osman and Kimutai (2019) observe that monitoring enhances project management decision making during the implementation thereby increasing the chances of good project performance.

4.5.5 Descriptive statistics on Project Closure Phase Activities and Project Success

The fifth objective of the study was to examine the project closure activities and their influence on the success of CDF construction projects in Kenya. The constructs that were used to measure this objective were; quality assurance, learnings, documentation and contract administration. The results were as presented in Table 4.12.

Table 4.12: Project Closure Phase Activities

	Statements	Mean	Std. Dev	CV
Quality assurance				
a	The project met the objectives set at the initiation phase	4.15	0.75	18.10%
b	The quality aspects are traceable for every step of the project cycle	4.01	1.05	26.18%
c	The works by external service providers is verifiable and acceptable	3.93	1.11	28.14%
d	Updating records, final payments and records are kept with reference to contractual engagements	4.28	0.83	19.44%
Learning's				
a	Future projects may need a different approach to planning	3.32	1.22	36.72%
b	Future projects may require outsources feasibility study	3.76	1.10	29.18%
c	Future projects may call for diversity in experience on the part of team embers	3.56	1.12	31.35%
d	The position of project manager is key to project success	4.07	0.94	23.05%
Project closure administration				
a	Contracts of team members are ended officially within the set timelines	3.57	1.16	32.44%
b	Some team members were deployed to other stations to await end of contract	3.22	1.30	40.34%
c	The suppliers were paid at the end of the contract	3.74	1.13	30.16%
d	Litigations were handled before final sign off.	4.00	0.97	24.25%
Documentation				
a	Projects documents were availed to the organization at the end of the project	4.05	0.83	20.47%
b	Most of the documents were availed as soft copies	3.44	1.30	37.88%
c	Retrieval of first documents was a challenge	3.29	1.28	38.94%
Average		**3.76**	**1.07**	**29.11%**

Quality assurance was tested using four statements, majority of the respondents agreed that the project met the objectives set at the initiation phase (M=4.15, CV=18.10%). Majority of the respondents agreed that the quality aspects were traceable for every step of the project cycle (M= 4.01, CV=26.18%). Majority of the respondents agreed that the works by external service providers were verifiable and acceptable (M=3.93, CV= 28.14%) and majority of the respondents agreed that updating records, final payments and records are kept with reference to contractual engagements (M= 4.28, CV=19.44%).

Under learning's measure, majority of the respondents were neutral on the statement that future projects may need a different approach to planning (M=3.32, CV= 36.72%), majority of the respondents agreed that future projects may require outsourced feasibility study (M=3.76, CV= 29.18%). Majority of the respondents agreed that future projects may call for diversity in experience on the part of team embers (M=3.56,CV= 31.35%) and majority of the respondents agreed that the position of project manager was key to project success (M= 4.07, CV= 23.05%).

Project closure administration was examined using four statements, majority of the respondents agreed that contracts of team members were ended officially within the set timelines (M= 3.57, CV=32.44%). Majority of the respondents were neutral on the statement that some team members were deployed to other stations to await end of contract (M= 3.22, CV=40.34%). Majority of the respondents agreed that the suppliers were paid at the end of the contract (M=3.74, CV= 30.16%) and majority of the respondents agreed that litigations were handled before final sign off (M=4.00, CV=24.25%).

On documentation construct, majority of the respondents agreed that projects documents were availed to the organization at the end of the project (M= 4.05, CV=20.47%). Majority of the respondents were neutral on the statement that most of the documents were availed as soft copies (M=3.44, CV=37.88%), and majority of the respondents were neutral on the statement that retrieval of first documents was a challenge (M=3.29, CV= 38.94%.

The overall mean of the responses was 3.76 which indicates that majority of the respondents agreed with the statements on project closure activities. The standard deviation was 1.07 while CV was 29.11% indicating that the responses were however varied.

The findings of this objective was consistent with that of Mbaluku and Bwisa, (2013) who observed that project is generally considered to be successfully implemented if it comes in on set budget, is on-schedule, achieves basically all the goals originally set for it and is accepted and used by the clients for whom it is intended. Following the acceptance of all project deliverables by the customer, the project will have met its objectives and be ready for closure. Project closure must be conducted formally so that the business benefits delivered by the project are fully realized by the customer (Heldmann, 2011).

4.5.6 Descriptive Statistics on Project Environment and Project Success

The sixth objective was to establish the moderating influence of project environment on the relationship between project life cycle activities and the success of CDF construction projects in Kenya. This moderating variable was measured on regulatory bodies, board composition, project manager (PM) competencies and organization structure. The results were as presented in Table: 4.13.

Table 4.13: Project Environment

	Statements	Mean	Std. Dev	CV
Board composition				
a	The composition of the board was inclusive (experienced professionals and locals)	3.71	1.22	32.91%
b	Members of parliament operated only at advisory level only	3.65	1.24	33.86%
c	The County board has a policy on ethical approach to all project activities	3.73	1.09	29.17%
Project manager Leadership style				
a	The PM uses participative management style when managing project team	3.99	1.00	24.94%
b	The PM has the required experience and qualifications for the job	3.92	0.94	23.90%
c	The PM made a major positive contribution to the success of the project	4.08	0.88	21.54%
Regulatory environment				
a	Regulatory bodies like NEMA were consulted during the project	3.56	1.28	37.68%
b	Regulatory bodies stopped the construction at certain stages to ensure compliance to set policies and regulations.	2.36	1.20	41.78%
c	Regulatory bodies have a positive influence on project success	3.72	1.37	36.80%
Organization Structure				
a	The CDF team and the local MP agreed on major areas of project execution	3.87	1.08	27.91%
b	The project manager was the spokesperson on project matters	3.99	0.93	23.18%
c	The appointment of committees was by vetting	3.70	1.22	32.86%
Average		**3.72**	**1.12**	**30.55%**

Board composition was examined using three questions majority of the respondents agreed that the composition of the board was inclusive of experienced professionals and locals (M= 3.71, CV= 32.91%).

Majority of the respondents agreed that members of parliament operated only at advisory level only (M=3.65, CV= 33.86%), majority of the respondents agreed that the county board had a policy on ethical approach to all project activities (M= 3.73, CV= 29.17%).

Project manager leadership style was also examined on three statements, majority of the respondents agreed that the PM used participative management style when managing project team (M=3.99, CV= 24.94%).

Majority of the respondents agreed that the PM had the required experience and qualifications for the job (M= 3.92, CV= 23.90%), majority of the respondents agreed that the PM made a major positive contribution to the success of the project (M= 4.08, CV= 21.54%).

Similarly, regulatory environment was measured on three statements, majority of the respondents agreed that regulatory bodies like NEMA were consulted during the project life (M= 3.56, CV= 37.68%). Majority of the respondents disagreed that regulatory bodies stopped the construction at certain stages to ensure compliance to set policies and regulations (M=2.26, CV= 41.78%). Majority of the respondents agreed that regulatory bodies have a positive influence on project success (M=3.72, CV= 36.80%).

Further, organization structure was measured on three questions, majority of the respondents agreed that the CDF team and the local MP agreed on major areas of project execution (M=3.87, CV= 27.91%). Majority of the respondents agreed that the project manager was the spokesperson on project matters (M=3.99, CV= 23.18%) and majority of the respondents agreed that the appointment of committees was by vetting (M=3.70, CV= 32.86%).

The overall mean of the responses was 3.72 which indicates that majority of the respondents agreed with the statements on project environment. The standard deviation was 1.12 while CV was 30.55% indicating that the responses were however varied. The findings of this objective were consistent with that of Akintayo (2012) who observed that organizational environment refers to the immediate task and national environment where an organization draws its inputs, processes it and returns the outputs in form of products or services for public consumption.

The human environment includes the peers, others with whom employees relate, team and work groups, interactional issues, the leadership and management. Such interaction (especially the informal interaction), presumably, provides avenue for dissemination of information and knowledge as well as cross-fertilization of ideas among employees.

4.5.7 Descriptive Statistics of Project Success

Project success was the dependent variable measured in this study by examining projects completed, time adherence, cost/budget compliance and acceptance-customer satisfaction. The results are presented in table 4.14.

Table 4.14: Project Success

Statements	Very low	Low	Average	High	Very High	Mean	Std. Dev
The project resources were managed efficiently with minimal losses	7.3%	6.7%	18.0%	40.7%	27.3%	3.74	1.15
The project will add value to the community for many years	0.0%	2.7%	8.7%	34.0%	54.7%	4.41	0.76
The project had an impact to the public because it addressed their needs.	2.0%	2.7%	7.4%	34.2%	53.7%	4.35	0.88
The project upon completion has met estimated time, cost and quality elements	6.2%	7.5%	17.1%	27.4%	41.8%	3.91	1.20
The end users were satisfied with the quality of the end product.	3.4%	0.0%	7.5%	30.8%	58.2%	4.40	0.90
Average						**4.16**	**0.98**

According to results in Table 4.14, 68.0% of the respondents indicated on a high extent that the project resources were managed efficiently with minimal losses, 88.7% of the respondents indicated on a high extent that the project will add value to the community for many years.

87.9% of the respondents indicated on a high extent that the project had an impact to the public because it addressed their needs, 69.2% of the respondents indicated on a high extent that the project upon completion had met estimated time, cost and quality elements. 89.0% of the respondents indicated on a high extent that the end users were satisfied with the quality of the product.

The overall mean of the responses was 4.16 which indicates that majority of the respondents agreed with the statements on project success, however, standard deviation was 0.98 indicating that the responses were varied. The findings of this

objective was consistent with that of Mbaluku and Bwisa (2013) that a project is considered to be successfully implemented if it comes in on-schedule, comes in on budget, and achieves basically all the goals originally set for it and is accepted and used by the clients for whom it is intended.

Project Cost

Respondents were asked to indicate whether the project cost went up substantially when compared to the estimated cost. The responses were as presented in figure 4.6.

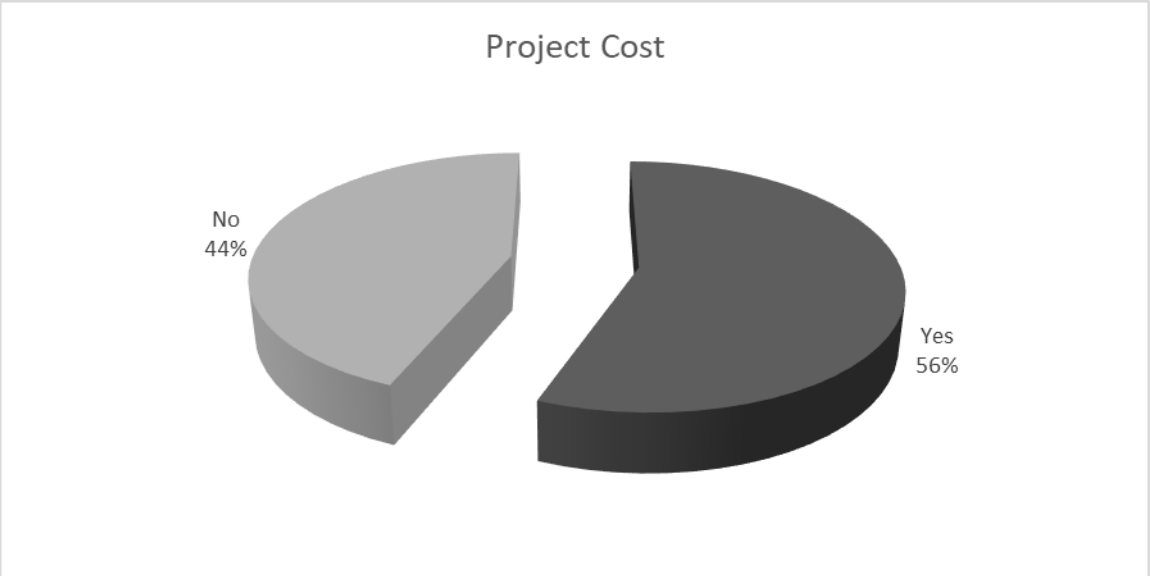

Figure 4.6: Project Cost Went Up Substantially

According to the figure, 56% indicated that the project cost had gone up substantially while 44% indicated that the project cost did not go up substantially.

Reason for Increase in Project Cost

Those who indicated that the cost went up substantially were further asked to state the reason for increase in project cost. The results were as shown in Figure 4.7.

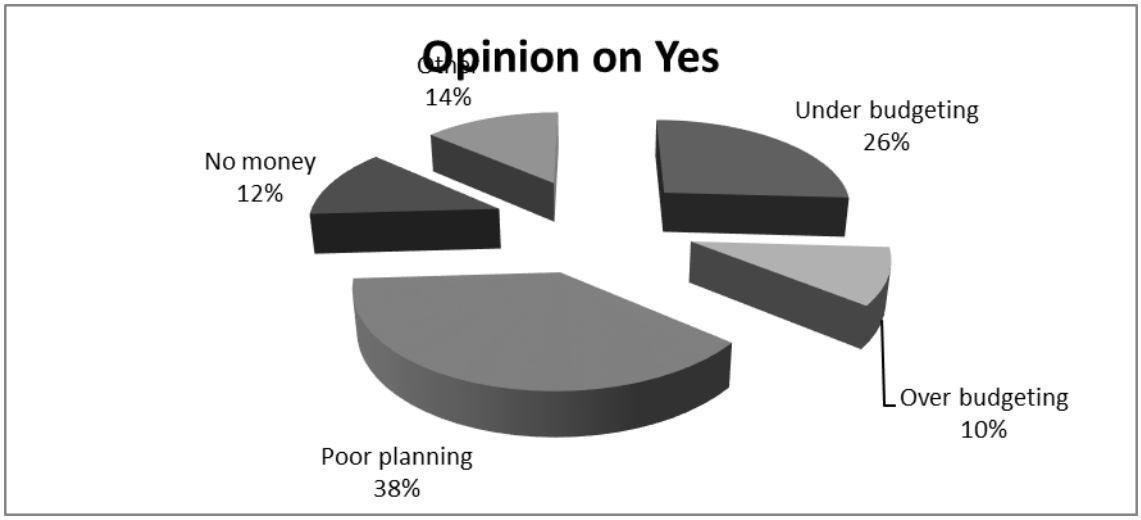

Figure 4.7: Reason for Increase in Project Cost

According to the figure, 38% indicated that increase in cost was because of poor planning, 26% indicated under budgeting, 12% indicated lack of money, 10% indicated over budgeting while 14% indicated other reasons that included poor management of funds.

Completing Projects on time

Respondents were also asked to indicate if the projects were completed on time. The findings were as shown in figure 4.8.

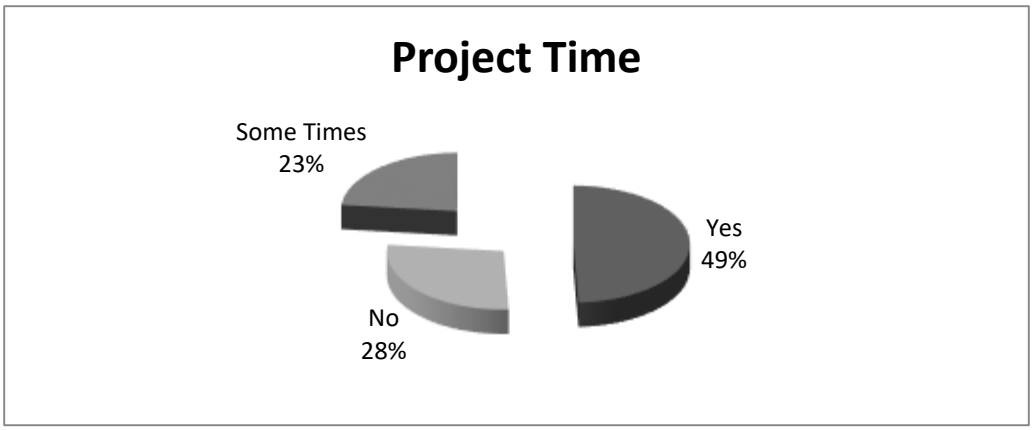

Figure 4.8: Project Completion Time

The findings show that 49% indicated that the project was completed on time, 28% indicated that it was not completed on time while 23% indicated that sometimes the project was completed in time.

Change on Project time

The respondents were asked if the project time changed substantially. The results are shown in figure 4.9.

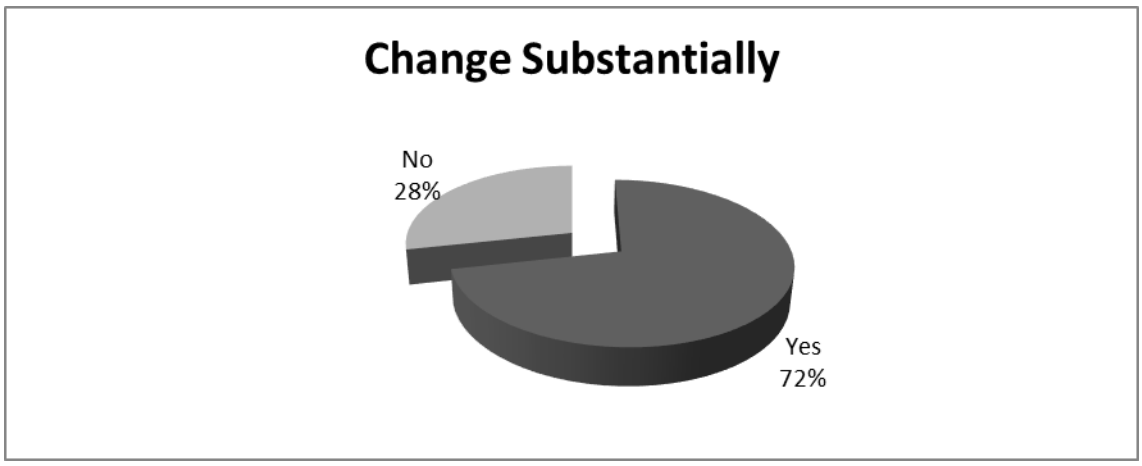

Figure 4.9: Project Time Changed Substantially

When asked whether the project time changed substantially, 72% indicated that the project time changed substantially while 28% indicated that the change was not substantial.

Factors Affecting Timely Completion of Projects

Those who indicated that project time changed substantially were further asked to indicate factors that affected timely completion of projects. The results were as shown in Table 15.

Table 4.15: Factors Affecting Timely Completion

Factors	Frequency	Percent (%)	Cumulative Percent (%)
Lack of construction materials	32	15.5	15.5
Lack of human capital	4	1.9	17.5
Lack of sufficient funds	76	36.9	54.4
Conflicts within the team	26	12.6	67.0
Poor implementation strategy	28	13.6	80.6
Weather conditions	22	10.7	91.3
Policy Changes	8	3.9	95.1
Inefficient Contractors	10	4.9	100.0
Total	206	100.0	

According to the results, 15.5% indicated lack of construction materials, 1.9% indicated lack of human capital, 36.9% indicated lack of sufficient funds, 12.6% indicated conflicts within the team, 13.6% indicated poor implementation strategy, 10.7% indicated weather conditions, and 3.9% indicated policy changes while 4.9% indicated inefficient contractors.

Customer satisfaction

Respondents were asked to indicate whether they were pleased with the final product of the project. The responses were as shown in figure 4.10.

Figure 4.10: Customer Satisfaction

According to the results 92% of the respondents indicated that they were pleased while only 8% indicated that they were not satisfied with the project outcome.

Why customers were not satisfied with final product

Those who indicated that they were not satisfied with the final product were asked to indicate the reasons why they were not pleased and the results were as presented in Table 16.

Table 4.16: Reasons for Non-Satisfaction

Reasons	Frequency	Percent (%)	Cumulative Percent (%)
Poor quality	4	14.3	14.3
Delayed completion	12	42.9	57.1
Did not solve the problem	2	7.1	64.3
Outsourced labor	10	35.7	100.0
Total	**28**	**100.0**	

According to the findings, 14.3% indicated poor quality, 42.9% indicated delayed completion, and 7.1% indicated that the final project did not solve the problem while 35.7% indicated that outsourced labor was the reason why they were not satisfied with the final product.

Quality of Final Product

Respondents were further asked to indicate whether the end product was of the quality desired by the end user. The findings were as shown in figure 4.11.

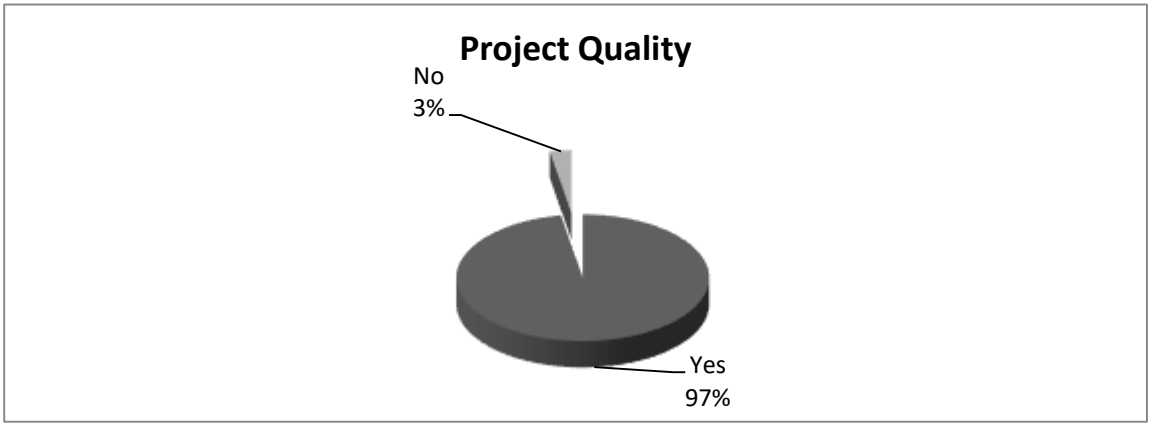

Figure 4.11: Project Quality

According to the results, 97% indicated the projects were of good quality while only 3% indicated the project were not of good quality.

Rating factors that Influence Project success

Respondents were asked to rate factors that influenced successful completion of CDF projects in their constituency. The findings were as shown in Table 4.17.

Table 4.17: Factors That Influenced Successful Completion of CDF Projects

Statements	Very Low	Low	Average	High	Very High	Mean	Std. Dev
Community involvement	0.7%	4.6%	12.5%	29.6%	52.6%	4.29	0.90
Planning	0.0%	0.7%	6.6%	25.0%	67.8%	4.60	0.64
Controls on expenditure	4.0%	5.3%	11.3%	29.8%	49.7%	4.16	1.08
Monitoring	3.3%	2.6%	11.3%	20.5%	62.3%	4.36	1.01
MPs	14.8%	6.7%	23.5%	24.8%	30.2%	3.49	1.37
Funds	3.3%	3.3%	8.6%	25.0%	59.9%	4.35	1.00
Corruption	27.3%	12.7%	18.7%	11.3%	30.0%	3.04	1.59
Professionalism	4.1%	6.1%	21.6%	29.1%	39.2%	3.93	1.10
Designers	3.3%	8.0%	23.3%	28.0%	37.3%	3.88	1.10
Delayed payments	18.7%	12.0%	10.7%	26.0%	32.7%	3.42	1.51
Politicians	25.8%	6.0%	19.9%	20.5%	27.8%	3.19	1.54
Communication	3.3%	2.0%	15.3%	26.7%	52.0%	4.57	4.26
Planning	1.3%	2.0%	9.2%	19.1%	68.4%	4.51	0.84
Procurement processes	0.0%	2.6%	9.9%	25.0%	62.5%	4.47	0.78
Labour	1.3%	3.3%	4.6%	21.7%	69.1%	4.54	0.84
Average						**4.05**	**1.30**

According to the findings, 82.2% indicated to a high extent that community involvement factor influenced successful completion of CDF projects in their constituency, 92.8% indicated planning, 79.5% indicated controls on expenditure, 82.8% indicated monitoring. 55.0% indicated MPs, 84.9% indicated funds, 41.3% indicated corruption, 68.3% indicated professionalism, 65.3% indicated designers, delayed payments 58.7% indicated politicians, 48.3% indicated communication, 78.7% indicated planning, 87.5% indicated procurement processes and lastly, 90.8% indicated labor.

4.5.8 Content Analysis

The responses from interview guide were analyzed using content analysis. The responses were received from clerk of works, engineers, project managers, quantity surveyors, land surveyors and architects. They respondents were confident that their qualifications matched the role played in the CDF Projects assigned.

The notable major factors affecting project success in constituencies from these responses were challenges to do with financial cash flow from the government, the lack of enough stakeholder participation due to few attendance by the members of public once called to contribute and give suggestions on priority project that were beneficial to them and the delays in project completion.

Majority of these respondents indicated that they were involved during the project design level within their constituency. They noted that stakeholders by a large extend influenced the success of projects. The stakeholders can influence the project quality, time and value for money.

The respondents indicated that project leaders and stakeholder's involvement allocated project resources according to need and list of preference. This was continuously reviewed and altered depending on the cash flows, arising urgent needs and emergencies facing the constituency members. Allocation was purely based on the prioritization of needs and solutions.

The most highlighted competencies lacking with respect to the success of the projects were project management skills. The personnel involved in the project were limited in terms of good understanding of the entire project cycle. The limited appreciation of the need of having good synergies and building teams with all the project staff and the lack of good communication skills that hindered information flow.

The respondents recommended a holistic review when composing project team members. The team should be diverse to enable then complement each other. They should be committed and completely understands the need for project initiation and its delivery.

Stakeholders contribute in several ways to project management, they identify the need, the initial required steps and foresee the project delivery and acts as the final consumers of these projects. The major obstacles encountered as a project manager in the constituency were clash in the conflict of interest by the stakeholders followed by cash flow challenges.

To ensure project success in future projects, more attention should be put in all the processes cycle way before execution. The cycle should be clearly understood and well communicated with all the deliverables. Planning phases of the project took more of the time comparative to other phases. Planning required a lot of studies and comparisons to ensure project success. The project cycle involved the initiation, planning, control, execution and finally closure for most of the respondents which was in line with the study order.

4.6 Sampling Adequacy and Factor Analysis

Sampling Adequacy

To examine whether the data collected was adequate and appropriate for inferential statistical tests such as the factor analysis, regression analysis and other statistical tests, require two main tests to be performed namely: Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity. For a data set to be regarded as adequate and appropriate for statistical analysis, the value of KMO should be greater than 0.5 (Field, 2000).

Kaiser-Meyer-Olkin (KMO) test measures sampling adequacy for each variable in the model and for the complete model. The statistic is a measure of the proportion of variance among variables that might be common variance. The KMO statistics vary between 0 and 1 (Argyrols, 2005). A value of zero indicates that the sum of partial

correlation is large relative to the sum of correlations indicating diffusions in the patterns of correlations, and hence, factor analysis is likely to be inappropriate (Costello & Osborne, 2005). A value close to 1 indicates that the patterns of correlations are relatively compact and so factor analysis should yield distinct and reliable factors (Cooper & Schindler, 2011). KMO values between 0.8 and 1 indicate the sampling is adequate. KMO values less than 0.5 indicate the sampling is not adequate and that remedial action should be taken. In addition to the KMO test, the Bartlett's Test of Sphericity with a significant result provide an excellent justification for further statistical analysis to be conducted.

Factor Analysis

Factor analysis is a technique used for specific computational technique used in development, refinement and evaluation of tests scales and measures (Cooper & Schindler 2011). According to Field (2009) these factors are also called latent variables and aim at measuring things that would have otherwise been hard to measure directly, such as attitudes and feelings. Factor analysis is therefore a way of explaining the relationship among variables by combining them into smaller set of factors (Coakes & Steed, 2001; Zikmund, 2003). There are three main reasons for using factor analysis according to Field (2009) that include: develop a scale to measure the variables, reduce the variables to a manageable size and to have a better understanding of the variables.

Factor analysis was used to summarize data to be more manageable without losing any important information and therefore making it easier to test hypothesis (Field, 2009; Tabachnick & Fidell, 2007). The scales usually start with many questions, and then by using factor analysis are reduced to smaller number (Pallant, 2007). The reduced results are then used for other analysis such as multiple regression analysis. Factors are a smaller set of underlying composite dimensions of all the variables in the data set while loadings are the correlation coefficients between the variables and the factors (Mugenda & Mugenda, 2012). Factor loading assume values between zero and one of which loadings of below 0.30 are considered weak and unacceptable (Nachmias & Nachmias, 2008).

The essence of conducting factor analysis per variable is to generate factor loadings for every statement. All the fourteen factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis. According to Rahn (2010) and Zandi (2006) a factor loading equal to or greater than 0.4 is considered adequate.

This is further supported by Black (2002) who asserts that a factor loading of 0.4 has good factor stability and deemed to lead to desirable and acceptable solutions. According to Kaiser (1974), factor loading values that are greater than 0.4 should be accepted and values below 0.4 should lead to collection of more data to help researcher to determine the values to include. Values between 0.5 and 0.7 are satisfactory, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great, and values above 0.9 are very good.

4.6.1 Factor Analysis on Identification and Initiation Phase Activities

Sampling Adequacy

Findings in Table 4.18 showed that the Kaiser-Mayer Olkin(KMO) statistic was 0.812 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5 (Field, 2000). KMO value of between 0.8 and 1 indicate that the sampling is adequate.The Bartlett's Test of Sphericity was also highly significant (Chi-square = 3206.395 with 91 degree of freedom, at $p=0.000 < 0.05$). These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.18: KMO and Bartlett's Test for Identification and Initiation Phase Activities

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.812
Bartlett's Test of Sphericity	Approx. Chi-Square	3206.395
	Df	91
	Sig.	.000

Table 4.19: Factor Loading for Identification and Initiation Phase Activities

	Statements	Extraction
Method of Project identification		
a	Analysis of community needs was done	0.709
b	You were personally involved in the identification of the project	0.484
c	Many proposals on projects were considered before settling on the project	0.679
d	The project was approved by the stakeholders/community	0.768
e	The project identified will address a specific need in the constituency	0.602
Feasibility Study		
a	A feasibility study was carried out to show the viability of the project	0.732
b	The feasibility study report was availed to the stakeholders	0.785
c	The feasibility study was carried out by an external consulting company	0.710
Project Charter		
a	A project charter was development involved the project manager and the team members	0.900
b	The project charter clearly stated the project objectives	0.900
c	The charter was clear on the deliverables of the project	0.896
Stakeholder Involvement		
a	The stakeholders of the project were identified and their roles in the project clearly spelt out	0.539
b	Stakeholders were involved at various stages of the project	0.704
c	Stakeholders needs and expectations were identified at the start of the project	0.597
Extraction Method: Principal Component Analysis.		

The Kaiser-Mayor-Olkin measures of sampling adequacy in Table 4.19 showed the value of test statistic of 0.812 which showed a high partial correlation and that factor analysis was appropriate.

4.6.2 Sampling Adequacy -Project Planning Activities

Findings in Table 4.20 showed that the KMO statistic was 0.830 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5.

The Bartlett's Test of Sphericity was also highly significant (Chi-square = 2524.717 with 78 degree of freedom, at $p=0.000 < 0.05$). These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.20: KMO and Bartlett's Test for Project Planning Activities

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.830
Bartlett's Test of Sphericity	Approx. Chi-Square	2524.717
	Df	78
	Sig.	.000

Factor Analysis

The results in Table 4.21 show that all the thirteen factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis.

Table 4.21: Factor Loading for Project Planning Activities

	Statements	Extraction
Project Plan		
a	A work breakdown structure was documented to guide the project works	0.747
b	Project planning meetings were held to ensure all project areas are covered during implementation.	0.708
c	An estimated time plan of starting the project and end time was put in place	0.623
d	The project plan included risk analysis	0.626
e	Various plans(communication, procurement, quality, human resource) were discussed and officiated	0.451
Procuring /Contracts		
a	The county has prequalified suppliers for various products and services	0.736
b	The service providers were selected from the prequalified suppliers through a transparent tendering system	0.664
c	All supplier contracts awarded were signed off by project manager after approval by committee	0.674
Quality Plan		
a	A quality plan was drawn showing the specifications at various points of the process	0.723
b	The specifications of the finished product were clearly spelt out	0.677
c	Quality control mechanisms were in place and traceable at every step of the project	0.599
Risk Management		
a	The impact of each risk was studied and mitigating factors identified	0.889
b	Preventive and contingent actions were identified for each risk	0.902
Extraction Method: Principal Component Analysis.		

4.6.3 Project Execution Activities

Sampling Adequacy

Findings in Table 4.22 showed that the KMO statistic was 0.813 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5. The Bartlett's Test of Sphericity was also highly significant (Chi-square = 2763.558 with 105 degree of freedom, at p=0.000 < 0.05). These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.22: KMO and Bartlett's Test for Project Execution Activities

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.813
Bartlett's Test of Sphericity	Approx. Chi-Square	2763.558
	Df	105
	Sig.	.000

Factor Analysis

The results in Table 4.23 show that all the fifteen factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis.

Table 4.23: Factor Loading for Project Execution Activities

	Statements	Extraction
Commissioning		
a	The project was commissioned in presence of all team members	0.653
b	Construction personnel were sourced in time of starting project	0.764
Managing Communication		
a	Emails are considered as official communication channels	0.847
b	There is a clear policy on reporting structure and Status reviews are communicated to stakeholders	0.539
c	Joint meetings with stakeholders, project team members and project manager were held frequently	0.561
d	Communication was limited to authorized recipients using RACI model approach	0.820
Project Resource Allocation		
a	The materials for construction were availed just in time	0.821
b	The Human resource manager availed staff as required and on time	0.829
c	The funding was allocated and specific to the project	0.766
d	Reference was made to the budget estimates before any expenditures were approved	0.719
Managing Changes		
a	Changes on the project plan were done in a transparent manner	0.737
b	Changes on staff were communicated officially and planned for	0.886
c	The project started on the date set in the plan	0.854
d	Project activities were running concurrently where possible	0.518
e	An agenda for meetings was developed and often followed to ensure guided discussions	0.728

Extraction Method: Principal Component Analysis.

4.6.4 Sampling Adequacy-Project Monitoring and Control Activities

Findings in Table 4.24 showed that the KMO statistic was 0.833 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5. The Bartlett's Test of Sphericity was also highly significant (Chi-square = 2088.271 with 78 degree of freedom, at $p=0.000 < 0.05$). These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.24: KMO and Bartlett's Test for Monitoring and Control Activities

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.833
Bartlett's Test of Sphericity	Approx. Chi-Square	2088.271
	Df	78
	Sig.	.000

Factor Analysis

The results in Table 4.25 show that all the thirteen factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis.

Table 4.25: Factor Loading for Monitoring and Control Activities

Statements	Extraction
Controls	
a There is a procedure for receiving and issuing project materials	0.520
b Project activities are monitored against set targets and results documented	0.578
c Work progression is signed off before next phase in started	0.569
Evaluation	
a There is a documented process of evaluating overall project performance	0.620
b Out of control situations are managed through documented corrective actions	0.656
c A frame work log for evaluation is used	0.639
Tracking systems /Inspection	
a There are policies for tracking performance	0.445
b All managers have signed quarterly appraisal's to keep track of their performance	0.582
c There is a log for project monitoring activities	0.545
Status Meetings	
a Status meetings are scheduled	0.703
b Minutes taken during the meetings are reviewed to ensure follow up	0.661
c Items not actioned on are addressed first before progressing to next action	0.576
d Minutes form part of official project documents	0.598
Extraction Method: Principal Component Analysis.	

4.6.5 Project Closure Activities

Sampling Adequacy

Findings in Table 4.26 showed that the KMO statistic was 0.720 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5. The Bartlett's Test of Sphericity was also highly significant (Chi-square = 2000.941 with 105 degree of freedom, at p=0.000 < 0.05). These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.26: KMO and Bartlett's Test for Closure Activities

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.720
Bartlett's Test of Sphericity	Approx. Chi-Square	2000.941
	Df	105
	Sig.	.000

Factor Analysis

The results in Table 4.27 show that all the thirteen factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis.

Table 4.27: Factor Loading for Closure Activities

	Statements	Extraction
Quality assurance		
a	The project met the objectives set at the initiation phase	0.534
b	The quality aspects are traceable for every step of the project cycle	0.752
c	The works by external service providers is verifiable and acceptable	0.775
d	Updating records, final payments and records are kept with reference to contractual engagements	0.524
Learning's		
a	Future projects may need a different approach to planning	0.706
b	Future projects may require outsources feasibility study	0.585
c	Future projects may call for diversity in experience on the part of team embers	0.715
d	The position of project manager is key to project success	0.606
Project closure administration		
a	Contracts of team members are ended officially within the set timelines	0.772
b	Some team members were deployed to other stations to await end of contract	0.564
c	The suppliers were paid at the end of the contract	0.784
d	Litigations were handled before final sign off.	0.619
Documentation		
a	Projects documents were availed to the organization at the end of the project	0.525
b	Most of the documents were availed as soft copies	0.779
c	Retrieval of first documents was a challenge	0.815
Extraction Method: Principal Component Analysis.		

4.6.6 Sampling Adequacy- Project Environment

Findings in Table 4.28 showed that the KMO statistic was 0.728 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5. The Bartlett's Test of Sphericity was also highly significant (Chi-square = 995.877 with 66 degree of freedom, at $p=0.000 < 0.05$). These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.28: KMO and Bartlett's Test for Project Environment

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.728
Bartlett's Test of Sphericity	Approx. Chi-Square	995.877
	Df	66
	Sig.	.000

Factor Analysis

The results in Table 4.29 show that all the twelve factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis.

Table 4.29: Factor Loading for Project Environment

	Statements	Extraction
Board composition		
a	The composition of the board was inclusive(experienced professionals and locals)	0.624
b	Members of parliament operated only at advisory level only	0.608
c	The County board has a policy on ethical approach to all project activities	0.538
Project manager Leadership style		
a	The PM uses participative management style when managing project team	0.704
b	The PM has the required experience and qualifications for the job	0.640
c	The PM made a major positive contribution to the success of the project	0.710
Regulatory environment		
a	Regulatory bodies like NEMA were consulted during the project	0.514
b	Regulatory bodies stopped the construction at certain stages to ensure compliance to set policies and regulations.	0.707
c	Regulatory bodies have a positive influence on project success	0.569
Organization Structure		
a	The CDF team and the local MP agreed on major areas of project execution	0.587
b	The project manager was the spokesperson on project matters	0.739
c	The appointment of committees was by vetting	0.800
Extraction Method: Principal Component Analysis.		

4.6.7 Sampling Adequacy-Project Success

Findings in Table 4.30 showed that the KMO statistic was 0.664 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5. The Bartlett's Test of Sphericity was also highly significant (Chi-square = 379.541 with 10 degree of freedom, at p=0.000 < 0.05). These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.30: KMO and Bartlett's Test for Project Success

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.664
Bartlett's Test of Sphericity	Approx. Chi-Square	379.541
	Df	10
	Sig.	.000

Factor Analysis

The results in Table 4.31 show that all the factors attracted coefficients of more than 0.4 hence all the statements were retained for analysis.

Table 4.31: Factor Loading for Project Success

Statements	Extraction
The project resources were managed efficiently with minimal losses	.811
The project will add value to the community for many years	.699
The project had an impact to the public because it addressed their needs.	.596
The project upon completion has met estimated time, cost and quality elements	.821
The end users were satisfied with the quality of the end product.	.680
Extraction Method: Principal Component Analysis.	

4.7 Diagnostic Tests of sample variables

Linear regression makes assumptions about the data used including that it is normally distributed, there is linearity, and there is no multi-collinearity and no heteroscedasticity. If these assumptions are not met by the data used, statistical results may yield inappropriate results. Use of data which does not conform to these assumptions may lead to type I or type II errors or may lead to over or underestimation of statistical significance (Osborne and Waters, 2002). The results of the tests for normality, linearity, heteroscedasticity and multi-collinearity are presented.

4.7.1 Linearity Test

Scatter plots were used to test for linearity and to visually show whether there was a linear or curvilinear relationship between two continuous variables before carrying out regression analysis. Regression models can only accurately estimate the relationship between dependent and independent variables if the relationship is linear (Osborne and Waters, 2002).

The scatter plot of the relationship between the dependent and independent variables indicate, there was a positive relationship between all the independent variables and success of CDF construction projects.

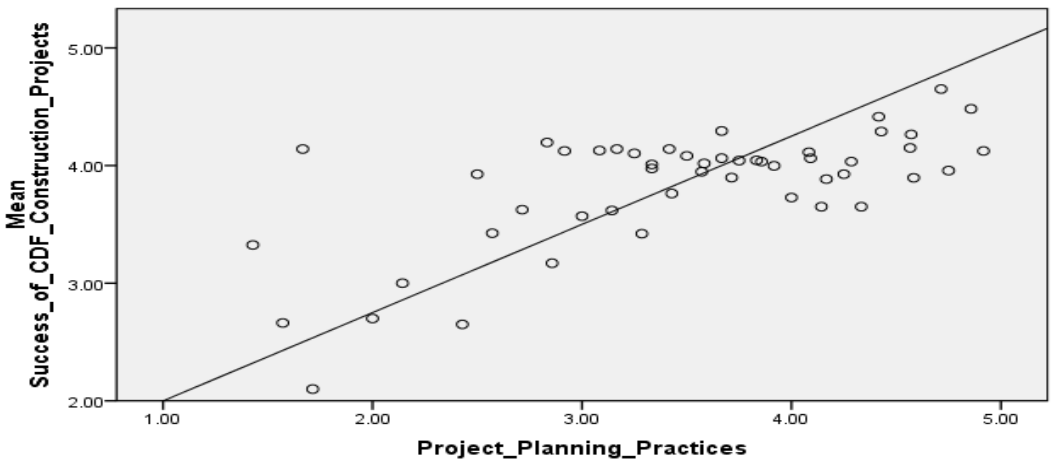

Figure 4.12: Project Planning Linearity Test

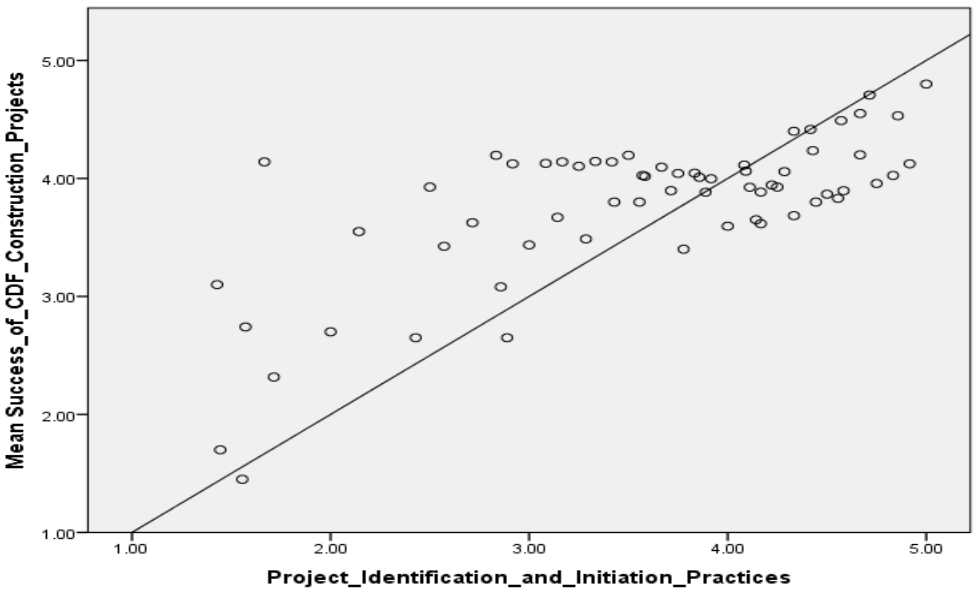

Figure 4.13: Project Identification and initiation Linearity Test

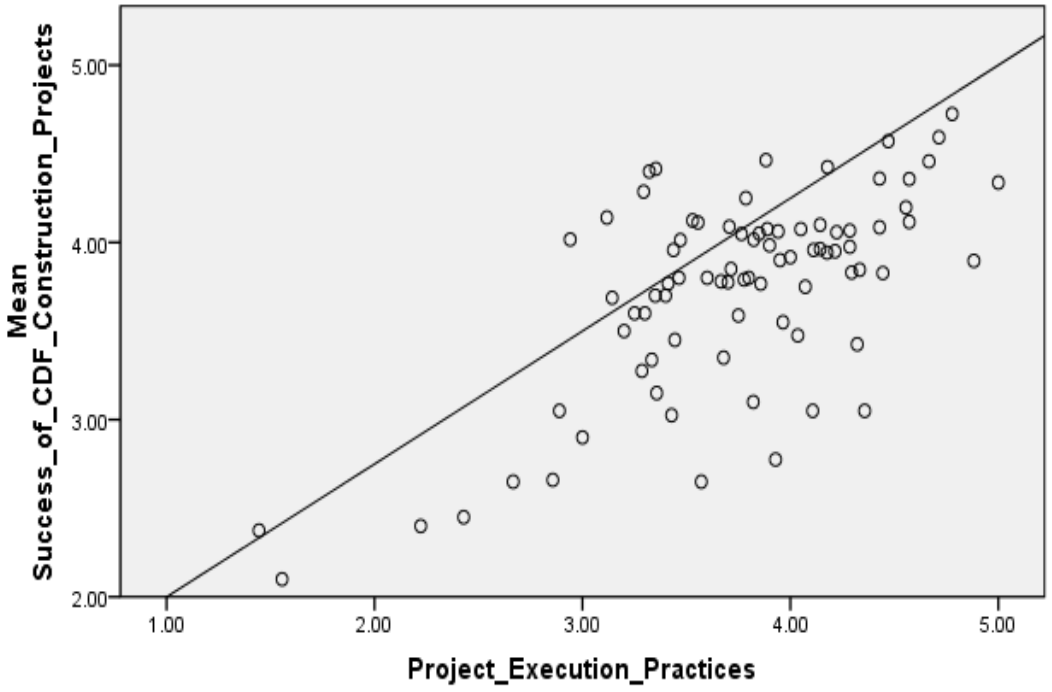

Figure 4.14: Project Execution Linearity Test

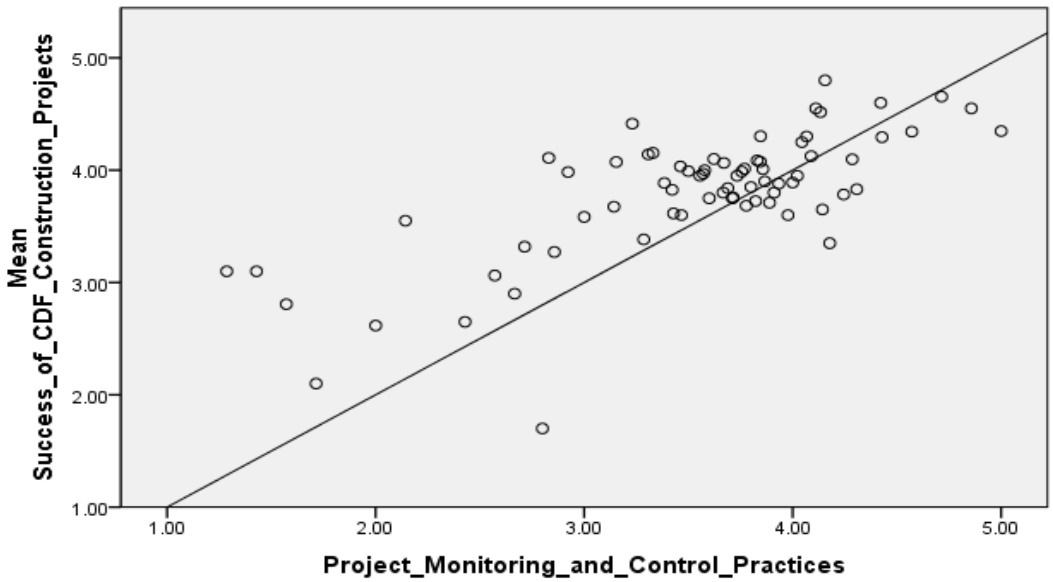

Figure 4.15: Project Monitoring and Control Linearity Test

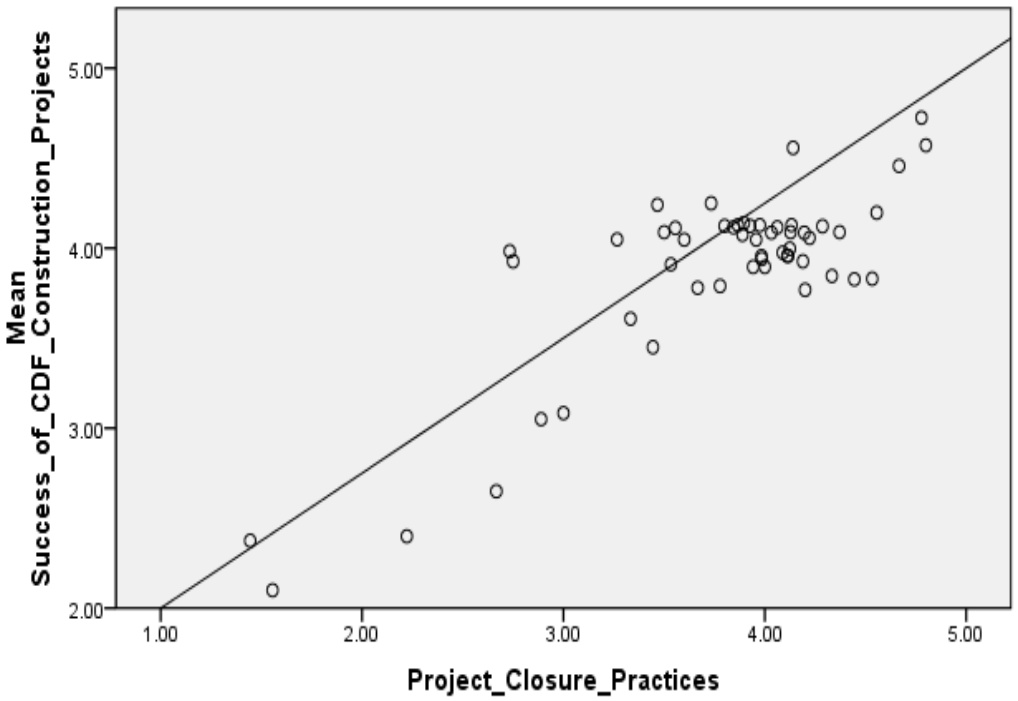

Figure 4.16: Project Closure Linearity Test

4.7.2 Test for Normality

Normality is used to determine if the data set is well modelled by a normal distribution. The assumption of normality is a prerequisite for many inferential statistical techniques (Coakes, Steed &Org, 2010). Parametric tests such as correlation and multiple regression analysis require normal data.

When data is not normally distributed it can distort the results of any further analysis. Preliminary analysis to assess if the data fits a normal distribution was performed. To assess the normality of the distribution of scores, graphical method approach was used. Graphical method results are shown in figure 4.17. The results indicate that the residuals are normally distributed.

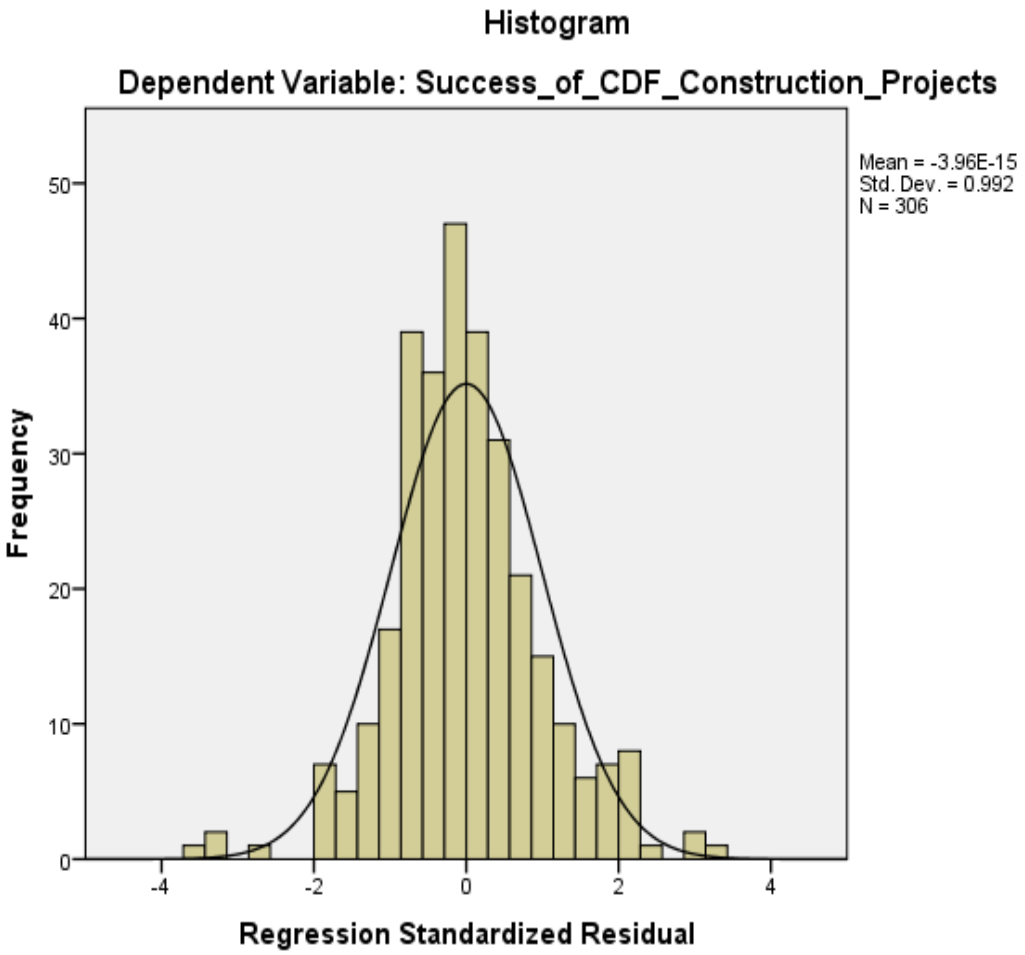

Figure 4.17: Normality Test Histogram

4.7.3 Multi-collinearity Test

Multi-collinearity is a statistical phenomenon in which two or more predictor variables in a model are highly correlated (Gujarat & Porter, 2009). Tests for multi-collinearity were carried out because in severe cases of perfect correlations between predictor variables, multi-collinearity can imply that a unique least squares solution to a regression analysis cannot be computed (Field, 2009). Multi-collinearity inflates the standard errors and confidence intervals leading to unstable estimates of the coefficients for individual predictors.

Multi-collinearity was assessed in this study using the Variance Inflation Factor and tolerance. The results of the tests of multi-collinearity are presented in Table 4.32. Collinearity statistics indicated a Variance Inflation Factor (VIF) < 5 and Tolerance > 0.2, an indication that the variables were not highly correlated, hence no existence of Multi-collinearity. This is an indication of the suitability of the variables for multiple regression.

Table 4.32: Multi-Collinearity Test Results For study variables

	Collinearity Statistics	
Variable	**Tolerance**	**VIF**
Project Identification and Initiation Activities	0.466	2.147
Project Planning Activities	0.343	2.913
Project Execution Activities	0.448	2.234
Project Monitoring and Control Activities	0.435	2.300
Project Closure Activities	0.553	1.808
Dependent Variable: Success of CDF Construction Projects		

4.7.4 Test for Heteroscedasticity

Since the data for this research is obtained from a cross-section of constituencies, it could raise concerns about the existence of heteroscedasticity. The Breusch-Pagan/Cook-Weisberg test was carried out to confirm if the error variance was not constant in which case there could have been heteroscedasticity in the data. Running a regression model without accounting for heteroscedasticity may lead to biased parameter estimates. To test for heteroscedasticity, it was necessary to make a hypothesis in respect to the error variance and test the error variances to confirm or reject the hypothesis.

For the purposes of applying the Breusch-Pagan/Cook-Weisberg test, a null hypothesis (H_0) of this was formulated that the error variance is not heteroscedastic while the alternative hypothesis (H_1) was that the error variance is heteroscedastic.

The Breusch-Pagan/Cook-Weisberg test models the error variance as $\sigma 2i=\sigma 2h\ (z'i\alpha)$ where zi is a vector of the independent variables. It tests $H_0:\alpha=0$ versus $H_1:\alpha\neq 0$. Table 4.33 shows the results obtained when the Breusch-Pagan/Cook-Weisberg test was run. The results indicate that the p value is greater than 0.05 (0.186) and so the null hypothesis set up for this test is supported. It was found that the variables under this study did not suffer from heteroscedasticity and so the required regression analysis for this study could be carried out the results being distorted.

Table 4.33: Results of Breusch-Pagan / Cook-Weisberg Test for Heteroscedasticity

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity
chi2(1) = 2.47
Prob > chi2 = 0.186

4.8 Inferential Analysis of Variables

Inferential analysis is used to generalize the results obtained from a random probability sample back to the population from which the sample was drawn.

4.8.1 Correlational Analysis of Variables

Preliminary analysis was carried out to determine whether there were significant associations between variables. In this study, Pearson's product-moment correlation coefficient (r) was used to explore relationships between the variables, specifically to assess both the direction and strength. This was crucial to assess the nature of relationships existing between the variables before carrying out further analysis. Pearson's product-moment correlation coefficient (r) was used to examine the extent of correlation between the variables of study and to show the strength of the linear relationships between the variables in the regression.

r ranges between ±1. Where r= +0.7 and above it indicates a very strong positive relationship; r=+0.5 to below 0.7 is a strong positive relationship; r=0.3-0.49 is a moderate positive relationship while r=0.29 and below indicates a weak positive relationship. Where r=0 it indicates that there is no relationship and if less than 0 then a negative correlation between variables exists. (Esther- Smith, Thorge & Love, 1999). The results of correlation analysis are presented in table 4.34.

The correlation analysis results revealed that there was a positive and a significant relationship between project identification and initiation and success of CDF projects ($r=0.659$, $p<0.001$). The results indicated that there was a positive and a significant relationship between project planning activities and success of CDF projects ($r=0.693$, $p<0.001$).

The results also indicated that there was a positive and a significant relationship between project execution activities and success of CDF projects ($r=0.631$, $p<0.001$). Results further indicate that there was a positive and a significant relationship between project monitoring and control and success of CDF projects ($r=0.679$, $p<0.001$).

Lastly, the results indicated that there was a positive and a significant relationship between project closure activities and success of CDF projects ($r=0.625$, $p<0.001$). All the correlation coefficients presented in the table 4.33 fell below 0.7.

The correlations between the predictor variables and success of CDF projects were strong ($r<0.07$), the variables were therefore suitable for further analysis using regression.

Table 4.34: Correlation Coefficients Matrix

		Success of CDF Projects	Identification and Initiation_	Planning Activities	Execution Activities	Monitoring and Control Activities	Closure Activities	Environment
Success of CDF Projects	Pearson Correlation	1.000						
	Sig. (2-tailed)							
Identification and Initiation	Pearson Correlation	.659**	1.000					
	Sig. (2-tailed)	0.000						
Planning Activities	Pearson Correlation	.693**	.168**	1.000				
	Sig. (2-tailed)	0.000	0.006					
Execution Activities	Pearson Correlation	.631**	.189**	.152**	1.000			
	Sig. (2-tailed)	0.000	0.008	0.000				
Monitoring and Control Activities	Pearson Correlation	.679**	.125**	.173**	.120**	1.000		
	Sig. (2-tailed)	0.000	0.033	0.037	0.030			
Closure Activities	Pearson Correlation	.625**	.129**	.142**	.164**	.145**	1.000	
	Sig. (2-tailed)	0.000	0.014	0.023	0.017	0.032		
Environment	Pearson Correlation	.757**	.170**	.113**	.174**	.180**	.147**	1.000
	Sig. (2-tailed)	0.000	0.036	0.008	0.032	0.011	0.020	

** Correlation is significant at the 0.01 level (2-tailed).

4.8.2 Regression Analysis of Variables before Moderation

In this study, regression analysis has one dependent variable (project success) that is presumed to be a function of four independent variables (initiation, planning, implementation, monitoring and control and closure activities). Regression is a set of statistical techniques that allow one to assess the relationship between more than one independent variable and one dependent variable (Barbara & Linda, 2007).

Pharm (2008) states that the objective of the multiple regression analysis is to make a prediction about the dependent variable based on its covariance with all the concerned independent variables. Regression is often used when the intent of the analysis is prediction. The goal of regression is to arrive at the set of regression coefficients (B values), for the independent variables that bring the Y values predicted from the equation as close as possible to the Y values obtained by measurement. The regression coefficients that are computed minimize the sum of the squared deviations between predicted and obtained Y values and they optimize the correlation between the predicted and obtained Y values for the data set (Barbara & Linda, 2007).

Julie (2011) notes that, though multiple regression technique is used to assess the impact of a set of predictors on a dependent variable, unfortunately, multiple regression is not suitable when you have categorical dependent variables. In such cases Logistic regression allows test of models to predict categorical outcomes with two or more categories. The independent variables can be either categorical or continuous, or a mix of both in the model (Barbara & Linda, 2007). For this study logistic regression was used as the results from the dependent variable were categorical.

The predictive power of the set of variables and assessment of the relative contribution of each individual variable was done. The results for every predictor variable are presented below. Regression analysis aids in generating equation that describes the statistics relationship between one or more predictor variables and the response variable. The results of the regression were presented using regression

model summary tables, Analysis of Variance (ANOVA) table and beta coefficients tables.

4.8.2.1 Regression Analysis for Project Identification and Initiation and Project Success

The regression analysis for all variables are presented in a systematic manner starting with model summary then followed by ANOVA and lastly by Beta coefficients respectively. The results are summarized below. The results in Table 4.35 present the model summary used in explaining the relationship between project identification and initiation activities and success of CDF projects.

Model Summary for Project Identification and Initiation and Project Success

Table 4.35: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.659	**.434**	.432	.43355

The results show that the coefficient of determination also known as the R-square has a value of 0.434, which means that project identification and initiation activities explain 43.4% of success of CDF projects. The R square (R^2) is a statistical measure of how close the data are to the fitted regression line. 100% value indicates that the model explains all the variability of the response data around its mean.

Analysis of Variance (ANOVA) for Project Initiation and Identification

The results of ANOVA for project planning and project success are shown in Table 4.36.

Table 4.36: Analysis of Variance (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	43.787	1	43.787	**232.948**	**.000**
Residual	57.143	304	.188		
Total	**100.930**	**305**			

Table 4.36 above provides the results on the analysis of the variance (ANOVA) for the initiation and identification phase. The results of F calculated statistic is 232.948 which was greater than f critical (3.48) implying that the model was statistically significant and with goodness of fit of the model. This was also supported by the reported p=0.00 which was less than 0.05 significance level.

Beta Coefficients for Project Identification and Initiation and Project Success

Table 4.37: Beta Coefficients for project Identification and initiation

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.818	.137		13.235	.000
Project Identification and Initiation Activities	.519	.034	.659	15.263	.000

Dependent Variable: Success of CDF Construction Projects

The finding in table 4.37 on Beta coefficients indicate that given no identification and initiation activities, success of CDF construction projects is fixed at 1.818 units. The table shows that a unit increase in identification and initiation activities leads to an increase of 0.519 in success of CDF construction projects. This relationship is significant since p is 0.000 which is less than 0.05.

4.8.2.2 Regression Analysis for Project Planning Activities and Project Success

The result in Table 4.38 shows the regression analysis for project planning and project success.

Model Summary for Project Planning Activities and Project Success

Table 4.38: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.693	.480	.478	.41564

The results show a R-square value of 0.480 which means that project planning activities explain 48.0% of success of CDF projects.

Analysis of Variance (ANOVA) for Project Planning Activities and Project Success

The results for Analysis of Variance (ANOVA) for Project Planning Activities and Project Success are shown in Table 4.39:

Table 4.39: Analysis of Variance (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	48.412	1	48.412	**280.229**	**.000**
Residual	52.518	304	.173		
Total	**100.930**	**305**			

Table 4.39 indicate F calculated statistic of 280.229 which was greater than f critical (3.48) implying that the model was statistically significant and with goodness of fit of the model. This was also supported by the reported p=0.00 which was less than of 0.05 significance level.

Beta Coefficients for Project Planning and Project Success

The results of Beta coefficients for project planning and project success are shown in Table 4.40.

Table 4.40: Beta Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.049	.112		18.301	.000
Project Planning Activities	.497	.030	.693	16.740	.000
Dependent Variable: Success of CDF Construction Projects					

The finding in table 4.40 on Beta coefficients indicate given no project planning activities, success of CDF construction projects is fixed at 2.049 units. The table shows that a unit increase in project planning activities leads to an increase of 0.497 in success of CDF Construction Projects. This relationship is significant since p is 0.000, which is less than 0.05**.**

4.8.2.3 Regression Analysis for Project Execution Activities and Project Success

The results in Table 4.41 shows R-square of 0.398, which means that project execution, activities explain 39.8% of success of CDF projects.

Table 4.41: Model Summary for Project Execution

R	R Square	Adjusted R Square	Std. Error of the Estimate
.631	**.398**	.396	.44708

Analysis of Variance (ANOVA for Project Execution and Project Success

Table 4.42: Analysis of Variance (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	40.165	1	40.165	**200.940**	**.000**
Residual	60.765	304	.200		
Total	**100.930**	**305**			

Table 4.42 indicate F calculated statistic of 200.940 which was greater than f critical (3.48) implying that the model was statistically significant and with goodness of fit of the model. This was also supported by the reported p=0.00 which was less than of 0.05 significance level.

Beta Coefficients and Project Execution and Project Success

Table 4.43: Beta Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.386	.178		7.790	.000
Project Execution Activities	.625	.044	.631	14.175	.000
Dependent Variable: Success of CDF Construction Projects					

The finding in table 4.43 on Beta coefficients indicate given no project execution activities, success of CDF construction projects is fixed at 1.386 units. The table shows that a unit increase in project execution activities leads to an increase of 0.625 in Success of CDF Construction Projects. This relationship is significant since p is 0.000, which is less than 0.05.

4.8.2.4 Regression Analysis for Monitoring and Control and Success of CDF Construction Projects

Regression analysis results on project monitoring and control are reported in Table 4.44.

Table 4.44: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.679	.462	.460	.42276

The results indicate R-square value of 0.462, which means that monitoring and control activities explain 46.2% of success of CDF construction projects.

Analysis of Variance (ANOVA) for Monitoring and Control Activities

Table 4.45: Analysis of Variance (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	46.598	1	46.598	260.728	.000
Residual	54.332	304	.179		
Total	**100.930**	**305**			

Results on ANOVA reported in Table 4.45 indicate F calculated statistic of 200.940 which was greater than f critical (3.48) implying that the model was statistically significant and with goodness of fit of the model. This was also supported by the reported p=0.00 which was less than of 0.05 significance level.

Beta Coefficient Analysis for Monitoring and Control Activities

Table 4.46: Beta Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.896	.125		15.133	.000
Monitoring and Control Activities	.537	.033	.679	16.147	.000
Dependent Variable: Success of CDF Construction Projects					

The finding in table 4.46 on Beta coefficients indicate given no monitoring and control, success of CDF construction projects is fixed at 1.896 units. The table shows that a unit increase in monitoring and control leads to an increase of 0.537 in Success of CDF Construction Projects. This relationship is significant since p is 0.000 which is less than 0.05.

4.8.2.5 Regression Analysis for Project Closure Activities and Project Success

Regression analysis for project closure activities on project success are shown in Table 4.47.

Table 4.47: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.625	.390	.388	.44989

The results on the model summary in Table 4.47 shows R-square value of 0. 390 which means that project closure activities explain 39.0% of success of CDF construction projects.

Analysis of Variance (ANOVA) on Project Closure Activities.

The ANOVA results are as indicated in table 4.47

Table 4.48: Analysis of Variance (ANOVA)

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	39.401	1	39.401	194.670	.000
Residual	61.529	304	.202		
Total	**100.930**	**305**			

Table 4.48 indicate F calculated statistic of 194.670 which was greater than f critical (3.48) implying that the model was statistically significant and with goodness of fit of the model. This was also supported by the reported p=0.00 which was less than of 0.05 significance level.

Beta Coefficient Analysis for Project Closure Activities

The results of Beta coefficient analysis are shown in table 4.49**.**

Table 4.49: Beta Coefficients for Project Closure

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.838	.149		12.362	.000
Project Closure Activities	.518	.037	.625	13.952	.000

Dependent Variable: Success of CDF Construction Projects

The finding in table 4.49 on Beta coefficients indicate given no project closure activities, success of CDF construction projects is fixed at 1.838 units. The table shows that a unit increase in project closure activities leads to an increase of .518 in Success of CDF Construction Projects. This relationship is significant since p is 0.000 which is less than 0.05.

4.8.3 Joint Regression Analysis before Moderation

Table 4.50: Model Summary for Joint Independent variables

R	R Square	Adjusted R Square	Std. Error of the Estimate
.823	.678	.672	.32924

The results in Table 4.50 present the fitness of model used in explaining the relationship between project identification and initiation activities, project planning activities, project execution activities, project monitoring and control, project closure activities and the success of CDF construction projects in Kenya. The independent variables were found to be satisfactory variables in determining the success of CDF construction projects in Kenya.

This was supported by the coefficient of determination also known as the R-square of 0.678. This means that the independent variables (identification and initiation activities, project planning activities, project execution activities, project monitoring and control, project closure activities) explain 67.8% of the variations in the dependent variable which is the success of CDF construction projects in Kenya. This therefore means that other factors not studied in this research contribute 32.2% of the role other variables play in the success of CDF construction projects in Kenya. These results further mean that the model applied to link the relationship of the variables was satisfactory.

Table 4.51: Analysis of Variance (ANOVA)

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	68.411	5	13.682	126.221	.000
Residual	32.519	300	.108		
Total	100.930	305			

Table 4.52 provides the results on the analysis of the variance (ANOVA). The results indicate F calculated statistic of 126.221 which was greater than f critical (8.72) implying that the model was statistically significant and with goodness of fit of the model. Further, the results imply that the independent variables, identification and initiation activities, project planning activities, project execution activities, project monitoring and control, project closure activities, were good predictors of CDF construction projects success in Kenya. This was also supported by the reported p=0.00 which was less than the probability of 0.05 significance level. The model is statistically significant in predicting the influence of project initiation, identification, planning, execution, monitoring and control, and project closure in the success of CDF construction projects in Kenya.

Table 4.52: Beta Coefficients

	Unstandardized Coefficients		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	.667	.140		4.771	.000
Identification and Initiation	.214	.037	.259	5.871	.001
Planning Activities	.115	.040	.161	2.873	.004
Execution Activities	.188	.038	.238	4.954	.002
Monitoring and Control Activities	.211	.039	.268	5.383	.000
Closure Activities	.104	.049	.105	2.147	.033

Dependent Variable: Success of CDF Construction Projects

The finding in table 4.52 on Beta coefficients indicate given no variable under the study, success of CDF construction projects if fixed at 0.667 units. It also shows that a unit increase in identification and initiation activities leads to an increase of 0.214 in success of CDF construction projects. This relationship is significant since p is 0.001 which is less than 0.05.

A unit increase in project planning activities leads to a significant increase of 0.115 in success of CDF construction projects (p= 0.004). A unit increase in project

execution activities leads to a significant increase of 0.188 in success of CDF construction projects (p=0.002). A unit increase in project monitoring and control leads to a significant increase of 0.211 in success of CDF construction projects (p=0.000). Further, the findings show that a unit increase in project closure activities leads to a significant increase of 0.104 in success of CDF construction projects (p=0.033).

Success of CDF Construction Projects = $0.667+ 0.214X_1 + 0. 115X_2 + 0.188X_3 + 0.211X_4+ 0.104X_5$

Where; X_1= Identification and Initiation

X_2= Planning Activities

X_3= Execution Activities

X_4= Monitoring and Control Activities

X_5= Closure Activities

4.8.3 Hypotheses Testing

Multiple linear regressions were used to test the hypothesis. The criteria used in hypothesis testing was that research hypothesis was to be accepted if the p value was 0.05 or less. The research hypothesis was to be rejected if the p value was greater than 0.05.

Hypothesis on the Influence of Project Identification and Initiation Activities on Project Success

The first objective of the study was to examine the influence of project identification and initiation activities on the success of CDF construction projects in Kenya. The objective was hypothesized as: project initiation and identification activities significantly and positively influence the success of CDF construction projects in Kenya.

Table 4.52 show a that the p= 0.001 which is less than 0.05, the research hypothesis was therefore accepted leading to the deduction that project initiation activities significantly influence the success of CDF construction projects in Kenya. This finding is consistent with that of Mwangi (2005); Ravallion (2005) findings who expressed that, a community development project starts with the identification of a need or the realization that there is a need. Identification of a need ascertains that the proposed project is a viable and will impact the community hence the need to avail adequate funds for the project.

Project initiation is therefore critical phase in project management. It starts with a joint meeting of project stakeholders to clearly understand objectives, deliverables and criteria of project success (Rosenau, & Githens, 2011). During the initiation stage, research is done to determine whether the project is feasible and if it should be undertaken (McClelland, 2001).

Feasibility tests and due diligence help decide if the project is a worth the start. If the project is given the green light to start, then the creation of a project charter or a project initiation document (PID) that outlines the purpose and requirements of the project is started.

Hypothesis on the Influence of Project Planning Activities on Project Success

The second objective of the study was to evaluate the influence of project planning activities on the success of CDF construction projects in Kenya. The research hypothesis for this objective was that project planning activities significantly and positively influence the success of CDF construction projects in Kenya.

According to results in table 4.52 show a that the p= 0.004 which is less than 0.05, therefore the prediction that project planning activities significantly influence the success of CDF construction projects in Kenya was accepted. This finding agrees with that of Kerzner (2003) who asserted that the planning process must be systematic, flexible, disciplined and capable of accommodating input from diverse functions. The planning process is most effective when it occurs throughout the life of the project. Formal planning has a direct impact on project success (Young, 2016).

They considered that a rigorously prepared plan is a foundation for project success. A clear and thoroughly defined project plan reduces risks, failure and the cost of the project (Lewis, 2010).

Hypothesis on the Influence of Project Execution Activities on Project Success

The third objective was to assess the influence of project execution activities and their influence on the success of CDF construction projects in Kenya. The research hypothesis framed that project execution activities significantly and positively influence the success of CDF construction projects in Kenya.

The research hypothesis was accepted according to the results in table 4.52. where the results show a p-value of 0.002 which was less than 0.05 significance level. This finding is in agreement with that of Oberlender (2014) that this phase involves implementing the plans created during the project planning phase by undertaking to monitor and control the deliverables being output by the project. To ensure that the customer's requirements are met, the project manager should monitor and control the activities, resources and expenditure required to build each deliverable (Winsock, 2007).

Hypothesis on the Influence of Project Monitoring and Control Activities on Project Success

The fourth specific objective examined the influence of project monitoring and control activities on the success of CDF construction projects in Kenya. The study predicted that project monitoring and control activities significantly and positively influence the success of CDF construction projects in Kenya.

The finding in table 4.52 supports the prediction since p-value=0.000 hence project monitoring and control activities significantly influence the success of CDF construction projects in Kenya. The finding is in consistence with that of Ehler (2017) who notes that project planners ought to incorporate a well-defined monitoring and evaluation strategy and should include activities to be carried out to get feedback, people to be involved in carrying out these activities, frequency of

carrying out the activities, budget expectations for activities and specific insights expected to be achieved from the monitoring and evaluation feedback. Osman and Kimutai (2019) observes that monitoring enhances project management decision making during the implementation thereby increasing the chances of good project performance.

Hypothesis on the Influence of Project Closure Activities on Project Success

The fourth specific objective which was hypothesized as: project closure activities significantly and positively influence the success of CDF construction projects in Kenya.

Table 4.52 shows that the hypothesis was accepted since the p-value was 0.033 which is less than 0.05 significance level. The findings agree with that of Mbaluku and Bwisa, (2013) who observed that project is generally considered to be successfully implemented if it comes in on-schedule, comes in on budget, and achieves basically all the goals originally set for it and is accepted and used by the clients for whom it is intended. Following the acceptance of all project deliverables by the customer, the project will have met its objectives and be ready for closure. Project closure must be conducted formally so that the business benefits delivered by the project are fully realized by the customer (Heldmann, 2011).

4.8.4 Hypothesis on the Influence of Project Environment on Project Success

In order to establish interaction effects between the independent variables and the dependent variable, influence of project environment was used as a moderating variable. The hierarchical linear regression analysis was used to test the moderating influence. This test was appropriate since this study had multiple independent variables (Cauvery *et al*., 2010). The regression analysis was done for each independent variable and the dependent variable to determine the individual moderating effect of each element on the success of CDF construction projects in Kenya.

I. Moderation effect of Project Environment on Project Identification and Initiation Activities

Regression of coefficients results after moderation in table 4.53 shows that the interaction between project identification and initiation activities and moderating variable (project environment) significantly and positively influenced the success of CDF construction projects, therefore project environment moderates the relationship between project identification and initiation activities and success of CDF construction projects in Kenya.

Table 4.53: Project Environment on Project Identification and Initiation Activities

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.211	.099		22.249	.000
X_1X_6	.076	.010	.605	7.555	.000
Project Environment	.149	.057	.211	2.636	.009

Dependent Variable: Success of CDF Construction Projects

II. Moderation effect of Project Environment on Project Planning Activities

Regression of coefficients results after moderation in table 4.54 shows that the interaction between project planning activities and project environment significantly influenced the success of CDF construction projects (p-value=0.026), therefore project environment positively and significantly moderates the relationship between project planning activities and success of CDF construction projects in Kenya.

Table 4.54: Project Environment on Project Planning Activities

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.807	.190		9.500	.000
X_2X_6	.211	.197	.208	6.481	.026
Project Environment	.609	.112	.862	5.438	.000

Dependent Variable: Success of CDF Construction Projects

III. Moderation effect of Project Environment on Project Execution Activities

Regression of coefficients results in table 4.55 shows that the interaction between project execution activities and project environment significantly influenced the success of CDF construction projects (p-value=0.000), therefore project environment positively and significantly moderates the relationship between project execution activities and success of CDF construction projects in Kenya

Table 4.55: Project Environment on Project Execution Activities

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.285	.125		18.224	.000
X_3X_6	.060	.013	.514	4.586	.000
Project Environment	.191	.079	.271	2.417	.016

Dependent Variable: Success of CDF Construction Projects

IV. Moderation effect of Project Environment on Project Monitoring and Control Activities

Regression of coefficients results in table 4.56 shows that the interaction between project monitoring and control activities and project environment significantly influenced the success of CDF construction projects (p-value=0.000), therefore

project environment positively and significantly moderates the relationship between project monitoring and control activities and success of CDF construction projects in Kenya.

Table 4.56: Project Environment on Project Monitoring and Control Activities

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.257	.110		20.497	.000
X_4X_6	.078	.013	.617	5.972	.000
Project Environment	.125	.073	.177	1.716	.087
a. Dependent Variable: Success of CDF Construction Projects					

Moderation effect of Project Environment on Project Closure Activities

Regression of coefficients results in table 4.57 shows that the interaction between project closure activities and project environment significantly influenced the success of CDF construction projects (p-value=0.016), therefore project environment positively and significantly moderates the relationship between project closure activities and success of CDF construction projects in Kenya.

Table 4.57: Project Environment on Project Monitoring and Control Activities

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	1.565	.289		5.419	.000
X_5X_6	.033	.026	.321	2.297	.016
Project Environment	.759	.175	1.074	4.340	.000
a. Dependent Variable: Success of CDF Construction Projects					

Joint Regression analysis after Moderation

Multiple regression analysis was performed determine joint regression after moderation. The results presented in Table 4.58. Regression of coefficients results after moderation in shows that the interaction between the independent variables and moderating variable (project environment) significantly influenced the success of CDF construction projects in Kenya, therefore project environment moderates the relationship between identification and initiation, planning activities, execution activities monitoring and control, project closer activities and the success of CDF construction projects in Kenya.

Table 4.58: Joint Regression Model after Moderation

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.717	0.257		6.681	0.001
X_1X_6	0.061	0.012	0.484	5.083	0.001
X_2X_6	-0.047	0.020	-0.162	-2.350	0.037
X_3X_6	0.051	0.013	0.440	3.923	0.000
X_4X_6	0.041	0.016	0.249	2.563	0.044
X_5X_6	-0.068	0.031	-0.658	-2.194	0.028
Project Environment	0.338	0.161	0.478	2.099	0.036

Dependent Variable: Success of CDF Construction Projects

4.9 Summary of Hypotheses Testing

Table 4.59 shows the summary of Hypotheses testing

Table 4.59: Hypotheses Testing Summary

Hypotheses	Results	Findings
H_{a1}: Project identification and initiation activities influence the success of CDF construction projects in Kenya.	p= 0.001 < 0.05 Ha1 accepted	Project initiation activities significantly influence the success of CDF construction projects in Kenya.
H_{a2}: Project planning activities influence the success of CDF construction projects in Kenya.	p= 0.004 < 0.05 Ha2 accepted	Project planning activities influence the success of CDF construction projects in Kenya
H_{a3}: Project execution activities influence the success of CDF construction projects in Kenya.	p= 0.002 < 0.05 Ha3 accepted	Project execution activities influence the success of CDF construction projects in Kenya
H_{a4}: Project monitoring and control activities influence the success of CDF construction projects in Kenya.	p= 0.000 < 0.05 Ha4 accepted	Project monitoring and control activities influence the success of CDF construction projects in Kenya.
H_{a5}: Project closure activities the success of CDF construction projects in Kenya.	p= 0.033 < 0.05 Ha5 accepted	Project closure activities the success of CDF construction projects in Kenya.
H_{a6}: Project environment moderates the relationship between project life cycle activities and the success of CDF construction projects in Kenya.	p= 0.036 < 0.05 Ha5 accepted	Project environment moderates the relationship between identification and initiation, planning activities, execution activities monitoring and control, project closer activities and the success of CDF construction projects in Kenya.

CHAPTER FIVE

SUMMARY CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter is a summary of major findings of the study, conclusions and recommendations. The structure of the chapter is guided by the research objectives and hypotheses. Recommendations on future project activities and suggestions of further research areas are discussed.

5.2 Summary of the Findings

The main purpose of this study was to examine the antecedents of project life cycle activities on the success of CDF construction projects in Kenya. The study established that all the five project objectives had significant and positive influence on project success.

5.2.1 Identification and Initiation Activities

The first objective of the study was to examine project identification and initiation activities and their influence on the success of CDF construction projects in Kenya. The constructs that were used to measure this objective were; method of identification, feasibility study, project charter and stakeholder involvement. The correlation analysis results revealed that there was a positive and a significant relationship between project identification and initiation and success of CDF projects. The coefficient of determination showed that project identification and initiation have a major contribution to the success of CDF construction projects. The study also established that risk management is one area that is not well covered to substantial levels at the constituency.

5.2.2 Project Planning Activities

The second objective of the study was to evaluate project planning activities and their influence on the success of CDF construction projects in Kenya.

The constructs that were used to measure this objective were; project plan, quality plans/specs, procurement plans and risk management. The results indicate that the majority of respondents agree that there is a substantial level of planning during CDF construction projects in Kenya. However, it is important to note that there were variances in this opinion.

The study establishes that planning activities explain a good contribution to the success of CDF construction projects and that the contribution is positive and significant relationship between project planning activities and success of CDF construction projects.

5.2.3 Project Execution Activities

The third objective of the study was to assess the project execution activities and their influence on the success of CDF construction projects in Kenya. The constructs that were used to measure this objective were; commissioning, resource allocation, communication and procurement management. The study established that the execution activities of commissioning, resource allocation, communication and procurement management contribute positively and significantly to the success of CDF construction projects in Kenya. The results showed that a unit increase in project execution activities leads to an increase in success of CDF construction projects.

5.2.4 Project Monitoring and Control Activities

The fourth objective of the study was to examine the project monitoring and control activities and their influence on the success of CDF construction project in Kenya. The constructs that were used to measure this objective were; project controls, evaluation of resources, tracking systems and status meetings. The overall mean of the responses was 4.00 which indicates that majority of the respondents agreed with the statements on project monitoring and control activities studied.

The results of correlation analysis indicated that there was a positive and a significant relationship between project monitoring and control and success of CDF projects. The results establish that monitoring and control explain a high contribution to the success of CDF construction projects in Kenya.

5.2.5 Project Closure Activities

The fifth objective of the study was to examine the project closure activities and their influence on the success of CDF construction projects in Kenya. The constructs that were used to measure this objective were; quality assurance, learnings, documentation and contract administration. The study establishes that the closure process activities contribute positively and significantly to the success of CDF construction projects in Kenya.

5.2.6 Moderating Effect of Project Environment

The sixth objective was to establish the moderating influence of project environment on the relationship between project life cycle and the success of CDF construction projects in Kenya. This moderating variable constructs measured were regulatory bodies, board composition, project manager competencies and organization structure. The project environment positively and significantly influenced the success of CDF construction projects in Kenya. The deduction made is that project environment moderates the relationship between identification and initiation, planning activities, execution activities monitoring and control, project closer activities and the success of CDF construction projects in Kenya.

5.3 Conclusion

The purpose of the study was to examine the contribution of project cycle activities on success of CDF construction projects in Kenya. The conclusion of the whole study was made through a comparison of the study objectives and the end results.

5.3.1 Conclusion on Project Initiation and Identification

From the results, the study concludes that there was significant positive relationship between project identification and initiation activities and the success of CDF construction projects in Kenya.

5.3.2 Conclusion on Project planning and project Success

There is sufficient evidence from the study to show that each of the project cycle phase activities contribute in different percentages to the success of CDF construction projects in Kenya.

5.3.3 Conclusion on Project Execution

From the results, the study concludes that there is significant positive relationship between project execution activities and project success in CDF construction projects in Kenya.

5.3.4 Conclusion on Project monitoring and control

From the results, the study concludes that there was significant positive relationship between project monitoring and control and project success in CDF construction projects in Kenya.

5.3.5 Conclusion on Project Closure

From the results, the study concludes that there was significant positive relationship between project closure activities and project success in CDF construction projects in Kenya**.**

5.3.6 Conclusion on Project Environment

The study also concludes that project environment positively and significantly moderates the relationship between identification and initiation, planning activities, execution activities monitoring and control, project closer activities and the success of CDF construction projects in Kenya.

5.3.6 Main Project Success Constraints

The study concludes that lack of sufficient funds and lack of construction materials seems to be the main constraint which prevents CDF construction projects from succeeding in Kenya. The study also concludes that the activities that lead to customer nonsatisfaction include delayed completion of projects, outsourced labor and poor quality of finished project. Poor quality of product was due to poor project implementation, lack of good governance, and interference by members of parliament.

5.4. Contribution to Knowledge

Given the high rate of projects that fail to reach their objectives or creating the wanted effects, research that approach the topic of successful projects bring positive inputs both to literature and to practice. This study adds knowledge to students pursuing professional courses like civil engineering, architecture, and quantity surveying and construction management leading to the construction industry both in the academic line and also in the industry by offering solutions to the impediments in the application of project management in the industry.

5.4.1 Contribution to Research Community

This finding of this study adds to the knowledge of the professionals in project management who benefit from the findings of this study by getting added knowledge on project management processes. This enables them to take necessary action at all stages of the project to ensure that the projects succeed. The clients, consultants and contractors benefit from the research by understanding the role of project management in the construction industry in Kenya and by knowing areas that need improvement to make the industry more competitive.

5.4.2 Contribution to Theory

This study contributes to theory of constraints as it helps in identifying the most important bottleneck in the processes and systems for the purpose of improving performance. Theory of constraints is based on the fact that there is most often only one aspect of that system that is limiting its ability to achieve more of its goals.

For any system to attain any significant improvement that constraint must be identified and the whole system must be managed with it in mind. Theory of constraints is based on five steps which include identify the system constraints; decide how to exploit the system constraints; subordinate everything else to the above decision; elevate the system constraints; and if in the previous steps a constraint has been broken, go back to the first step, and do not allow inertia to cause a system's constraint (Rand, 2000).

The finding of this study guides the way specific programs, treatments, or interventions are implemented and expected to bring about change hence contributing to Program Theory which is concerned with how to practice evaluation; program theory focuses on the nature of the program, treatment, intervention and policy being evaluated.

This study contributes to Open System Theory. Importance of planning has been justified by the findings of this study. The planning processes according to PMBOK (2004)) is highly important, and project execution without proper development of a project plan often causes delays, high costs and general execution problems in the project. The studies by Wang and Gibson (2008), shows that time spent on project planning activities reduces risk and increase project success. Other researchers on the project planning activity such as Morris (1998), shows that inadequate analysis and planning leads to a failed project but the more planning there is in a project, the more successful the project.

5.4.3 Contribution to Policy

The findings of this study help the government to understand the areas that need review of policies and the need to engage and train practitioners to reduce losses that may accrue from stalled projects. The study will aid in coming up with informed decision on whether there is need to improve or review the resource allocation to CDF.

The Government will use the information of this study to develop strategies to improve the management of CDF projects. This study provides additional information to the policy makers and the ministry of transport and infrastructure development that can be used to formulate policies to reduce cost and time overrun as well as improve the quality in construction and other projects in Kenya. The findings of the study allow development of the nation policy in planning and provision of manpower requirements to ensure that the CDF projects are efficiently managed and meet the set objectives.

5.5 Recommendations

This section gives recommendation for policy and practice, and for further research based on the study findings and conclusions. The following recommendations were proposed in relation to each objective of the study.

5.5.1 Identification and Initiation Activities as an Antecedent of project success

The study recommends that feasibility study be carried out by an external consulting company. The study also recommends that stakeholders of the project be identified early and their roles in the project clearly spelt out. Stakeholders should be involved at various stages of the project and their needs and expectations identified at the start of the project.

5.5.2 Project Planning Activities as an Antecedent of project success

Project planning activities were studied as antecedent of project success. According to the results, the study recommends that work breakdown structure be documented to guide the project works. Project planning meetings should be held to ensure all project areas are covered during implementation including estimated time plan of starting and ending the project. The study recommends that constituencies should have prequalified suppliers for various products and services and the service providers be selected from the prequalified suppliers through a transparent tendering system. Quality plan be drawn showing the specifications at various points of the process. The specifications of the finished product be clearly spelt out and a quality control mechanism be in place and traceable at every step of the project.

5.5.3 Project Execution Activities as an Antecedent of Project Success

The project execution is an antecedent of project success. The study recommends that during commissioning of the project, an integrated project team be identified, briefed and released to start the project.

The project to be commissioned in presence of all team members and construction personnel be sourced in time of starting project. Emails should be considered as official communication channels with clear policy on reporting structure and status reviews be communicated to stakeholders. Project team members and project manager meetings to be held frequently to ensure all project team members are on the same page of the project.

The study recommends that materials for construction be availed just in time and the human resource manager to avail staff as required and on time. The funding is allocated and specific to the project reference be made to the budget estimates before any expenditures are approved while changes on the project plan should be done in a transparent manner. Changes of staff should be communicated officially and planned for.

5.5.4 Project Monitoring and Control Activities as an Antecedent of Project Success

From the findings, the study recommends that there should be a procedure for receiving and issuing project materials. Project activities should be monitored against set targets and results documented. Work progression should be signed off before next phase in started.

The study further recommends that there should be a well-documented process of evaluating overall project performance and out of control situations are managed through documented corrective actions. A frame work log for evaluation be used in tracking systems and all managers should sign quarterly appraisals to keep track of their performance. The study also recommends that minutes taken during the meetings be reviewed to ensure follow up and items not actioned on are addressed first before progressing to next action.

5.5.5 Project Closure Activities as Antecedent of project success

One project closure practice, this study recommends that the project should meet the objectives and specifications set at the initiation phase before the project is closed. The quality aspects should be traceable for every step of the project cycle. The works by external service providers should be verifiable and acceptable by updating records, making final payments, and release of records. The study also recommends that contracts of team members be ended officially within the set timelines and projects documents be availed to the organization at the end of the project.

5.5.6 Project Environment as a Moderator of Independent Variables for Project Success

The study recommends that composition of the board should be all inclusive of both experienced professionals and locals. Members of parliament should operate only at advisory level and the constituency board should have a policy on ethical approach to all project activities. The study also recommends that the project manager should use participative management style when managing project team, should have all

required experience and qualifications for the job and should make major positive contribution to the success of the project. Lastly, regulatory bodies like NEMA be consulted during the project to avoid stoppage of construction at any stage due to non- compliance to set policies and regulations.

5.5.7 Recommendation on Policy Matters

This study identified the significance of CDF Funding to the stakeholder's wellbeing. The study recommends more elaborate policies on identification of projects by enhancing stakeholder's participation. Stakeholders play a critical role in the identification of suitable projects.

The policy recommends increased experts to analyses the projects significance once identified to increase high impact chances. Further, the study recommends increase awareness policy that will ensure cash flow challenges are minimized for project success. Finally, The policy recommendation for penalizing contributors of project failures to minimize instances of project funds and time misuse.

5.6 Areas of Further Research

In this section, suggestions for further areas of research related to this study are given. This study is a milestone for future research in the area of project management. The areas of emphasis include:

i. This study considered constituencies in few selected counties in Kenya, future researchers could consider carrying out a similar study in other constituencies to assess any variation in responses. It would be interesting to explore how the results obtained when the methods applied in this study are applied in other contexts for example in other countries at higher or lower stages of development.
ii. Future researchers could also investigate the level of technical skills of the project teams available at constituency level with a view of improving capacity building.

iii. Future researchers could also investigate risk management initiatives in CDF construction project in Kenya.

iv. Future researchers could investigate on the requirements for legislation of project manager's body and its impact on projects success in Kenya.

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APPENDICES

Appendix I: Letter of Introduction/Permission to conduct Research

To Whom It May Concern

Dear Sir/Madam,

Re: Antecedents of Project Success in Constituency Development Fund Construction Projects in Kenya.

I wish to introduce myself as a PhD student at Jomo Kenyatta University of Agriculture and Technology, Department of Entrepreneurship and Procurement. The title of my study is: ***Antecedents of Project Success in Constituency Development Fund Construction Projects in Kenya***.

As part of the PhD program requirement, the researcher is supposed to collect data from the identified population. It is my humble request that you agree to participate in this survey, through filling the questionnaire provided. The questionnaire issued to you is purely for academic purposes. Kindly complete it as honestly as possible to enable the researcher to obtain your sincere view for feedback. Kindly do not indicate your name anywhere on the questionnaire, and be assured that the information you give will be treated with confidentiality. Your cooperation will be highly appreciated since this will enable the researcher obtain data needed to answer to the research questions.The information provided will only be used for academic purposes and will be treated with a high level of confidentiality. Thank you for taking your valuable time to complete this questionnaire.

Yours faithfully,

Faith Ruguru Mutwiri

Appendix II: Questionnaire

Introduction:

The questionnaire is structured to collect information on CDF construction projects with an objective of studying antecedents of project success in CDF construction projects in Kenya. The study intends to examine the project life cycle activities that include project identification and initiation, planning, execution, monitoring and control and project closure and their contribution to project success. The information gathered is for research only and will be kept confidential.

As one of the management team/consultant/committee member in the CDF construction project, I request you to take time and give your honest answers to the questions below. Thank you for agreeing to participate in this research. My contact is frmutwiri@gmail.com or 0788250191 should you require to contact me.

PART A – RESPONDENTS GENERAL INFORMATION

Tick [ ] the correct answer as it applies to you

1. Indicate your level of education: Diploma[ ] Degree[ ] Post graduate[ ]Other[ ]
2. Please indicate your gender: Male [ ] Female[ ]
3. Indicate the constituency you are engaged in----------
4. Indicate your age: Below 25 [ ] 25-35[ ] 36-45 [ ] 46-55[ ] Over 56 years[ ]
5. How many years have you lived in this constituency: Less the 5 years[ ] 5-10 years[ ] more than 10 years [ ]
6. Indicate your position in the project task: CDF Staff [ ] Project team member [ ]

Public [ ] Other [ ]

7. Indicate years of experience in the construction industry/CDF project team. Below 2 years [ ] 3-6 years[ ] 7-10 years[ ] over 10 years[ ]

8. Please indicate by a tick (√) the profession you are in:

Architect [ ] Engineer [ ] Project Manager [ ] Contractor [ ] Quantity Surveyor [ ] Land Surveyor [ ] Clerk of works [ ]Other[ ]

9. PROJECT INFORMATION

Please indicate the type of project [ ] and status of construction you are involved in.

Construction	Type	Complete	Incomplete	Comments
Construction of dormitories				
Construction of water storage tanks				
Construction of additional dormitory				
Construction of a social Hall				
Construction police unit				
Construction of classrooms				
Construction of dispensary				
Construction of chiefs camp				
Other construction				

If other construction, Please mention the type……..

PART B: PROJECT CYCLE ACTIVITIES

SECTION I: PROJECT INITIATION PHASE

Please respond to the following statements by ticking the appropriate answer. Indicate if you **Strongly agree[5] Agree [4] Neutral[3] Disagree[2] Strongly disagree[1]**

	Statement	1	2	3	4	5	
1	**Method of Project identification**						
a	Analysis of community needs was done						
b	You were personally involved in the identification of the project						
c	Many proposals on projects were considered before settling on the project						
d	The project was approved by the stakeholders/community						

e	The project identified will address a specific need in the constituency						
2	**Feasibility Study**						
a	A feasibility study was carried out to show the viability of the project						
b	The feasibility study report was availed to the stakeholders						
c	The feasibility study was carried out by an external consulting company						
3	**Project Charter**						
a	A project charter was development involved the project manager and the team members						
b	The project charter clearly stated the project objectives						
c	The charter was clear on the deliverables of the project						
4	**Stakeholder Involvement**						
a	The stakeholders of the project were identified and their roles in the project clearly spelt out						
b	Stakeholders were involved at various stages of the project						
c	Stakeholders needs and expectations were identified at the start of the project						

SECTION II: MANAGING PROJECT PLANNING PROCESS ACTIVITIES

Please respond to the following statements by ticking the appropriate answer. Indicate if you **Strongly Agree [5], Agree [4], Neutral [3], disagree [2] strongly disagree [ ]**

	Statement	**1**	**2**	**3**	**4**	**5**
1	**Project Plan**					
a	A work breakdown structure was documented to guide the project works					
b	Project planning meetings were held to ensure all project areas are covered during implementation.					
c	An estimated time plan of starting the project and end time was put in place					
d	The project plan included risk analysis					
e	Various plans (communication, procurement, quality, human resource) were discussed and officiated					
2	**Procuring /contracts**					

a	The county has prequalified suppliers for various products and services					
b	The service providers were selected from the prequalified suppliers through a transparent tendering system					
c	All supplier contracts awarded were signed off by project manager after approval by committee					
3	**Quality Plan**					
a	A quality plan was drawn showing the specifications at various points of the process					
b	The specifications of the finished product were clearly spelt out					
c	Quality control mechanisms were in place and traceable at every step of the project					
4	**Risk management**					
a	The potential risks likely to be encountered were studied and documented					
b	The impact of each risk was studied and mitigating factors identified					
c	Preventive and contingent actions were identified for each risk					

12. Kindly state the extent to which CDF project planning meetings in your constituency achieve the set objectives. **Tick (√) very Large extent[5] Large extent[4]Average[3] Low extent[2]No extent at all [1]**
13.

	Statement	**1**	**2**	**3**	**4**	**5**
a	Helps select the most appropriate approaches to delivering project objectives					
b	Helps come up with a good implementation plan					
c	Allows all stakeholders an opportunity to share their views on CDF projects					
d	Helps in dealing with corruption cases by making all decisions on awards of contracts transparent					
e	Helps minimize losses in time and resources due to better planning					
f	Facilitate better prioritizing of projects					

SECTION III: PROJECT EXECUTION PROCESS

To what extent do you agree with the following statements on project execution related to CDF projects in your County?

Tick as appropriate using the key: Indicate if you

Strongly agree [5] Agree [4] Neutral [3] Disagree[2] Strongly disagree[1]

		1	2	3	4	5
1	**Commissioning**					
a	An integrated Project team was identified, briefed and released to start the project					
b	The project was commissioned in presence of all team members					
c	Construction personnel were sourced in time of starting project					
2	**Managing communication**					
a	Emails are considered as official communication channels					
b	There is a clear policy on reporting structure and Status reviews are communicated to stakeholders					
c	Joint meetings with stakeholders, project team members and project manager were held frequently					
d	Communication was limited to authorized recipients using RACI model approach					
3	**Project Resource Allocation**					
a	The materials for construction were availed just in time					
b	The Human resource manager availed staff as required and on time					
c	The funding was allocated and specific to the project					
d	Reference was made to the budget estimates before any expenditures were approved					
4	**Managing Changes**					
a	Changes on the project plan were done in a transparent manner					
b	Changes on staff were communicated officially an planned for					
c	The project started on the date set in the plan					
d	Project activities were running concurrently where possible					
e	An agenda for meetings was developed and often followed to ensure guided discussions					

Section IV: PROJECT MONITORING AND CONTROL

To what extent do you agree with the following statements on project monitoring and Control as relates to projects in your University. Tick as appropriate using the key: Indicate if you **Strongly agree [5] Agree [4] Neutral [3]Disagree[2]Strongly disagree[1]**

	Statements	**1**	**2**	**3**	**4**	**5**
1	**Controls**					
a	There is a procedure for receiving and issuing project materials					
b	Project activities are monitored against set targets and results documented					
c	Work progression is signed off before next phase in started					
2	**Evaluation**					
a	There is a documented process of evaluating overall project performance					
b	Out of control situations are managed through documented corrective actions					
c	A frame work log for evaluation is used					
3	**Tracking systems /Inspection**					
a	There are policies for tracking performance					
b	All managers have signed quarterly appraisal's to keep track of their performance					
c	There is a log for project monitoring activities					
4	**Status Meetings**					
a	Status meetings are scheduled					
b	Minutes taken during the meetings are reviewed to ensure follow up					
c	Items not actioned on are addressed first before progressing to next action					
c	Minutes from part of official project documents					

SECTION V: CLOSURE PROCESS ACTIVITIES

To what extent do you agree with the following statements relating to project closure phase in your County? Tick as appropriate using the key: Indicate if you **Strongly agree [5] Agree [4] Neutral[3] Disagree[2] Strongly disagree[1]**

		1	**2**	**3**	**4**	**5**
1	**Quality assurance**					
a	The project met the objectives set at the initiation phase					
b	The quality aspects are traceable for every step of the project cycle					

c	The works by external service providers is verifiable and acceptable					
d	Updating records, final payments and records are kept with reference to contractual engagements					
2	**Learning's**					
a	Future projects may need a different approach to planning					
b	Future projects may require outsources feasibility study					
c	Future projects may call for diversity in experience on the part of team embers					
d	The position of project manager is key to project success					
3	**Project closure administration**					
a	Contracts of team members are ended officially within the set timelines					
b	Some team members were deployed to other stations to await end of contract					
c	The suppliers were paid at the end of the contract					
d	Litigations were handled before final sign off.					
4	**Documentation**					
a	Projects documents were availed to the organization at the end of the project					
b	Most of the documents were availed as soft copies					
c	Retrieval of first documents was a challenge					

SECTION VI: PROJECT ENVIRONMENT

To what extent do you agree with the following statements on work environment relate to CDF projects in your County. Tick as appropriate using the key:

Indicate if you **Strongly agree [5] Agree [4] Neutral[3] Disagree[2] Strongly disagree[1]**

	Statement	**1**	**2**	**3**	**4**	**5**
1	**Board composition**					
a	The composition of the board was inclusive(experienced professionals and locals)					
b	Members of parliament operated only at advisory level only					
c	The County board has a policy on ethical approach to all project activities					
2	**Project manager Leadership style**					
a	The PM uses participative management style when managing project team					
b	The PM has the required experience and qualifications for the job					
c	The PM made a major positive contribution to the success of the project					
3	**Regulatory environment**					
a	Regulatory bodies like NEMA were consulted during the project					
a	Regulatory bodies stopped the construction at certain stages to ensure compliance to set policies and regulations.					
c	Regulatory bodies have a positive influence on project success					
4	**Organization Structure**					
a	The CDF team and the local MP agreed on major areas of project execution					
b	The project manager was the spokesperson on project matters					
c	The appointment of committees was by vetting					

5. Rate the following factors on their contribution to project success using the key below: **Very High [5], High [4] Average [3] Low [2] very low[1]**

Board composition [ ]
PM competency [ ]
Regulatory authorities [ ]
Organizational structure [ ]
Stakeholder participation [ ]

SECTION VII: PROJECT SUCCESS

Rate th**e** following statements on their contribution to project success using the key below**: Very High [5], High [4] Average[3]Low [2] very low[1]**

		1	**2**	**3**	**4**	**5**
1	The project resources were managed efficiently with minimal losses					
2	The project will add value to the community for many years					
3	The project had an impact to the public because it addressed their needs.					
4	The project upon completion has met estimated time, cost and quality elements					
5	The end users were satisfied with the quality of the end product.					

6. Explain your understanding of a successful project:----------
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7. Please indicate in your view what needs to be done to ensure projects succeed in future----------
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8**. Project Cost:** Did the project cost go up substantiary when compared to the estimated cost: **Yes [ ] No** [ ]

9. If the answer to the above question 8 is **yes** could you give the reason of increase in project cost? ----------
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Under budgeting [ ]

Under budgeting [ ]

Poor planning [ ]

No money [ ]

Other [ ]

Reasons (please specify)

……**……**

10. **Project time:** Indicate if the projects were completed on time Yes [ ] No [ ] Sometimes [ ]

11. Did the project time change substantially? **Yes [ ] No [ ]**

12 Which Factors affected timely completion of projects?

Lack of construction materials [ ]

Lack of human capital [ ]

Lack of sufficient funds [ ]

Conflicts within the team [ ]

Poor implementation strategy [ ]

Weather conditions [ ]

Policy Changes [ ]

Inefficient Contractors [ ]

Other challenges

……
……

13. **Customer Satisfaction**: The public were pleased with the final product of the project **Yes [ ] No** [ ]

14. If you answer No to the question 13 above, why were they unsatisfied with the final product?----------
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Poor quality [ ]

Delayed completion [ ]

Did not solve the problem [ ]

Many hazards associated with it [ ]

Outsourced labor [ ]

No impact [ ]

15. Project Quality: The end product was of the quality desired by the end user Yes[ ] No[ ] if you answer No to the above question what was the problem----------

Project specifications not met [ ]

Many litigations [ ]

Many hazards during construction [ ]

Poor documentation other [ ]

Other [ ]

16. You are required to rate from the list below factors that influence successful completion of the CDF projects in your constituency using the key:**1 Very low: 2 Low: 3 Average: 4 High: 5 Very high**

	1	2	3	4	5
Community involvement					
Planning					
Controls on expenditure					
Monitoring					
MPs					
Funds					
Corruption					
Professionalism					
Designers					
Politicians					
Communication					
Planning					
Procurement processes					

Appendix III: Key Informants Interview Guide

1. What was your role in this project?
2. Are you confident that your qualifications match the role you are undertaking?
3. Which are the main factors affecting project success in your Constituency?
4. To what extent are you involved at the design level of the projects in your Constituency?
5. What measures do you use to rate the success of projects in your Constituency?
6. How do stakeholders influence the success of projects in Constituency?
7. How are project resources allocated in your constituency?
8. Which competencies were lacking with respect to the success of the projects?
9. What recommendations would you propose when composing project team members?
10. What is the contribution of stakeholders on project management and at what process steps do you involve them?
11. Which obstacles have you encountered in your delivery as a project manager in the constituency?
12. What proposals do you recommend to ensure success in future projects in your Constituency?
13. Which phase of the project took more of your time comparative to other phases?
14. Indicate the sequence of processes in the projects handled? Which process came first etc.? Initiation [] planning [ ] control[ ] closure[ ]execution[ ]
15. Explain why the sequence was different from that recommended in project management

Appendix IV: Map of Kenya

Appendix V: Approval of Research Proposal by Supervisors

JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY
DIRECTOR, BOARD OF POSTGRADUATE STUDIES

P.O. BOX 62000
NAIROBI – 00200
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TEL: 254-067-52711/52181(6114)
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REF JKU/6/1/ BPS/HD417-C004-5031/2015 **11TH MAY, 2018**

MUTWIRI FAITH RUGURU M.
C/O NCBD
JKUAT

Dear Ms. Ruguru,

RE: APPROVAL OF RESEARCH PROPOSAL AND SUPERVISORS

Kindly note that your PhD. research proposal entitled: **"Antecedents of Project success in Constituency Development fund Construction Project in Kenya."** has been approved. The following are your approved supervisors:-

3. Dr. Susan Were
4. Prof. Romanus Odhiambo

PROF. MATHEW KINYANJUI
DIRECTOR, BOARD OF POSTGRADUATE STUDIES

Copy to: Director, Nairobi CBD Campus

Appendix VI: Data Collection Letter

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

P.O. BOX 62000-00200 NAIROBI. KENYA. TELEPHONE: (020) – 221306

Nairobi CBD Campus

Entrepreneurship & Procurement Department

Ref:JKU/6/EPD/17a **DATE 23/05/2018**

To Whom It May Concern;

SUBJECT: FAITH RUGURU MUTWIRI – HD417-C004-5031/2015

This is to introduce to you Miss Faith Ruguru Mutwiri who is a student pursuing Doctor of Philosophy Project Management Programme at Jomo Kenyatta University of Agriculture and Technology, Nairobi CBD Campus. The student is currently undertaking a thesis entitled: ***Antecedents of Project Success in Constituency Development Fund Construction Projects in Kenya*** in partial fulfillment of the requirement for the degree program.

The purpose of this letter is to request you to give the student the necessary support and assistance to enable her obtain necessary data for the project. Please note that the information given is purely for academic purpose and will be treated with strict confidence.

Thank you

Yours faithfully,

Mary Kamaara (PhD)

ASSOCIATE CHAIRMAN, EPD

/mn

Appendix VII: Photos of CDF Projects

Figure 1. Matungu CDF Projects Matungu Constituency Classrooms Bulingo Girls Sec.

Figure 2. Kiru Divisional Headquarters Imenti North Constituency

Figure 3. Kambi Ya juu Police post Isiolo Nort Constituency

Figure 4. Voi Chiefs Camp, Voi CDF Project