

**PROJECT MANAGEMENT PRACTICES AND TIMELY COMPLETION OF
HOUSING PROJECTS IN KENYA: A CASE OF MACHAKOS COUNTY
HOUSING PROJECTS**

BY

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DECLARATION

Declaration by the Candidate

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DEDICATION

I dedicate this work to my family, class mates and friends. Thank you so much for your continuous encouragement which gave me the stamina to complete this project.

ABSTRACT

Many housing projects in developing countries like Kenya, do encounter delays in their completion due to cost overruns. Sometimes such projects are terminated or abandoned before their completion and such they fail to realize their objectives for which they were initiated. The main objective of this study was to establish how project management practices result to timely completion of housing projects in Machakos County, Kenya. The findings were then used to generalize the determinants of the timely completion of housing projects in Kenya. The specific objectives of the study were: (a) to assess the impact of project planning on the timely completion of housing projects in Machakos County; (b) To analyze the impact of stakeholders participation in housing projects in Machakos County and their timely completion; (c) To determine the impact of risk management in housing projects and the timely completion of housing projects in Machakos County; and (d) To assess the role project monitoring and evaluation played in housing projects in Machakos County and their timely completion. This study was anchored on the Stakeholders Theory by Freeman R.E (1984) and The Theory of Change by Carol, W. (1995). The Study adopted an explanatory research design approach. A target population of 330 comprised of managers, middle level and lower level workers of housing projects which were initiated in Machakos County. The data for the study were collected from both secondary and primary. A Sample size of 80 respondents were randomly selected and questionnaires were administered to them. The quantitative data generated was analyzed quantitatively using a Statistical Package for Social Sciences (SPSS) tool. Data was presented in form of tables and results revealed that project planning (Beta = 0.049, $p=0.029$); stakeholders participation (Beta=0.060, $p=0.083$); risk management (Beta=0.046, $p=0.007$) and monitoring and evaluation (Beta=0.168, $p=0.000$) were all significant except for the stakeholders participation and contributed to the timely completion of the housing projects. The study therefore recommends that for Kenyan housing projects to be completed in time, proper planning for housing projects should be undertaken. Stakeholders should take interest in those housing projects and participate fully from the time of initiation to completion. Proper risk management assessment should be undertaken to reduce uncertainties in projects. Lastly, monitoring and evaluation, during implementation (on going evaluation) and even after completion of the project (post evaluation) should be undertaken in order to make improvements where need arises.

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LIST OF ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
CPM	Critical Path Method
CVI	Content Validity Index
DFID	Department for International Development
EAWS	East African Wild Society
GDP	Gross Domestic Product
GOK	Government of Kenya
KNBS	Kenya National Bureau of Statistics
M & E	Monitoring and Evaluation
NHC	National Housing Corporation
PERT	Programme Evaluation Review Technique
PEs	Project Engineers
PMI	Project Management Institute
PMP	Project Management Professional
SPSS	Statistical Package for Social Science
TOC	Theory of Constraints
UK	United Kingdom

OPERATIONAL DEFINITION OF TERMS

Evaluation: Is a rigorous and independent assessment of an ongoing or completed project starting with its design, implementation and evaluation as well as results. It gives evidence as to whether targets and outcomes are being achieved or not achieved (Nynbuto, 2010).

Monitoring: It is the continuous routine in tracking key elements of project implementation performance using resource input to produce outputs (Naidoo, 2011).

Project management Practices: These are methods, procedures, processes and rules used in project management (Besner and Hobbs, 2013).

Project planning: In this study Project planning is the process of thinking about and organizing the activities required to achieve the desired goal. It involves the creation and maintenance of a plan (Lemma, 2014).

Risk management: It is the continuing process of identifying, analyzing evaluating, and treating loss exposures and monitoring risk control and financial resources to mitigate the adverse effects of loss (Kendrick, 2009).

Stakeholders Participation: Beneficiaries of the project/ constituents who participate in project activities (Adesina, 2010).

Timely Completion of Project: This is where projects are completed during the time scheduled, within the allocated budget, scope and quality (Majid, 2016).

CHAPTER ONE

INTRODUCTION

This chapter presents background of the study, statement of the problem, objectives, research hypotheses, scope, limitation, justification and significance of the study.

1.1. Background of the study

The use of project management practices is very important in the housing construction industry because of the coordination and use of the many types of labor, skills, materials, and equipment used in construction as required through the application project management practices. A project as a group of related work activities organized under the direction of a project manager which, carried out, will achieve specified objectives within a stated timeframe (Project Management Group, 2012).

Project management practices (PMP) refer to the science of planning, designing, and managing activities that help the project team to overcome the challenges throughout the project lifecycle processes ((Koitaba, 2013). PMP has become a management tool which is applied to achieve optimal performance in any project implementation. Some of the project management practices include: project planning, procurement, project monitoring and evaluation, risk management, Peoples participations, budget monitoring, project completion and commissioning, Technology used, User Training, and post-project monitoring (Kwak and Ibbs, 2012).

Timely Completion of projects within schedule is a contribution towards the competitive edge in organizations. This is based on the realization that the achievement of the targeted objectives is determined by the ability to deliver the targeted output within the stipulated time. Therefore, the success of any project is highly dependent on its completion time from start to delivery of results. This has a direct bearing on project management practices, management decisions such as budgets, targets and standards (Majid, 2016).

Housing projects are considered successful when delivered within a scheduled duration, allocated budget, and specified quality (Owolabi *et al.*, 2014). Delay in the completion of housing projects is a critical challenge. This is because it leads to increased costs, loss of productivity, disruption of work, loss of revenue and project abandonment (Owolabi *et al.*, 2014).

With the promulgation of Kenyan new Constitution in the year 2010, housing projects implementation functions were devolved to County Governments with the National Government tasked with policy functions only. Nevertheless, devolution itself does not mean that devolved policies deliver more or better housing for low-income households. The devolved administrations may have to make different choices about the priority afforded to housing within their devolved budgets, which in most cases is constrained (Wilcox & Fitzpatrick, 2010).

1.1.1 Global Perspective on Housing Projects

In Australia, several large scale social housing projects have experienced considerable delays in timely completion due to poor project governance and design errors (Love, (2011). More contemporary examples of this phenomenon include the Western Australian Perth Arena that had an original contract value of U\$168 million but is forecast to cost more than three times this amount, and be delivered at least three years later than expected.

According to a report published by PricewaterhouseCoopers (2013), world housing construction markets are at a tipping point already with 52% of all housing construction activity in emerging markets today. This is expected to increase to 63% by 2025, with China and India contributing most to growth in emerging markets. China overtook the US to become the world's largest housing construction market in 2010, and is expected to increase its global share from 18% today to 26% in 2025, despite an expected slowdown.

According to Harris (2013), the UK construction industry has turned around to become one of the fastest growing sectors in the economy. It further elaborates that the changes in the international economy are creating new opportunities for Britain. To help boost the economic recovery, the government is doing all it can to help British businesses grow and have the aspiration, confidence and drive to compete in the global race. This includes reforming the planning system, ensuring funding is available for key infrastructure projects and supporting the housing market through key initiatives such as the Help-to-Buy Equity Loan Scheme and the Funding for Lending Scheme (Harris, 2013).

According to Canada's National Economic Accounts statistics, (CNEA, 2013) the construction industry accounted for 7.8% of Alberta's Gross Domestic Product in 2011. This industry had the third largest employment and its share of Alberta's total employment increased from 8.4% in 2002 to 10.5% in 2012. The U.S. Department of Labor perceives that the demand for residential housing construction is expected to continue to grow. The demand for larger homes with more amenities, as well as for second homes, will continue to rise, especially as the baby boomers reach their peak earning years and can afford to spend more on housing.

The Housing construction industry plays significant role in the economy of developing countries. For example, in many developing countries, major housing construction activities account for about 80% of the total capital assets, 10 % of their GDP, and more than 50% of the wealth invested in fixed assets. In addition, the industry provides high employment opportunity, probably next after agriculture (Ofori, 2016). Despite the housing construction industry's significant contribution to the economy of developing countries and the critical role it plays in that country's development, the performance of the industry still remains generally low. (Deloitte, 2013) noted, many housing projects in developing countries encounter considerable time and cost overruns, fail to realize their intended benefit or even totally terminated and abandoned before or after their completion.

In the developing countries context, especially in Africa, project management in the housing construction sector is an amorphous affair faced with higher levels of risk as compared to the developed countries. The level of adoption of formal project management

practices is not widely studied either. In Ghana for instance, Boadua, Fianko and Chileshe (2015) observed a limited level of adoption of formal risk management strategies among construction oriented firms, with low levels of procedural documentation. One reason that was forwarded for this state of affairs was the low levels of awareness regarding appropriate tools and techniques to effectively manage construction risk. Consequently, the construction sector in Ghana faces many problems related to frequent cost and time overruns (Fugar and Agyakwah-Baah, 2010).

From a regional forefront, a report published by Deloitte, titled 'African housing Construction Trends Report 2013' states that East Africa is fast becoming a leading African region and a strategic hub of continental growth. Though historically one of the world's poorest and least developed regions, it is fast tracking housing development with countries such as Ethiopia having shown annual growth of over 10% per annum in recent years (Deloitte, 2013).

According to Deloitte report, (2013) The report expounds the East African region is turning the heads of investors, housing construction firms and multi-national corporations. As aggressive development gains momentum, investors will rely on local governments to develop basic infrastructure such as rail, roads, healthcare facilities, housing, real estate and retail space. The Kenya National Bureau of Statistics shows that the housing construction industry in Kenya, emerged among the top performing sectors in the period alongside financial services and transport and communication. The sector grew by 10.7% compared to the dismal performance of 0.3% in the same period in 2010 and contributed

Sh12.6 billion to the Gross domestic product (GDP) in the period supported by massive Housing projects currently in progress across the country (KNBS, 2011).

In Kenya like any other countries housing construction industry is considered one of principal industry contributing notably to the socio-financial improvement growth. Achieving project completion on time, within budget, at particular excellent requirements, and most importantly without unheard of price escalations is primary criterion of achievement of undertaking (Doloi, 2011).

According to the statistics derived from the Kenya National Bureau of Statistics' website, it is adept to reiterate that the housing construction sector in Kenya contributes to 7% of the country's gross domestic product (GDP). Among the challenges facing the housing construction industry in the country is capital. (Carter & Fortune, 2012) restated that capital is a major challenge that most of the entrepreneurs in the housing construction sector encounter together with dissatisfaction as the constructors tend to settle for whatever little they have attained. She adds that in Kenya, housing construction sector has limited capacity and the corresponding gains that the contractors count on are reaped by corruption.

According to Ahamed and Ayman, (2015), it is prudent to admit that there are myriad financial issues that need to be resolved in order for the housing construction companies to be able to accomplish their work accordingly. Financial securities demanded by the banks are huge that not every company is able to avail to the banks. Inflation and high rate of

interest charged are making the contractors poorer instead of enhancing their construction process. It is needful that the government of Kenya to review the laws governing housing construction sector so that then respective contractors would access financial support with ease. Lack of understanding between the contractors and financial institutions has encouraged the housing construction of poor quality buildings which are unsafe for use. Most of the contractors are striving to reduce the quantity of materials in order to gain from the same instead of delivering quality work as per the structural designers' perception. This often compromises on the timely completion of such housing projects.

1.1.2 Project Management Practices

Project management practices refer to an optimal way currently recognized by project management industry to achieve a stated goal or objective; is an idea that asserts that there is a technique, method or process - through research and application - that is more effective at delivering a particular outcome than any other technique, method or process when executing a project (PMI, 2014).

When properly applied, best project management practices allow improving efficiency and productivity (Kerzner, Harold, 2014). According to Pinto and Kharbanda (2008), project management practices have become crucial for many organizations; being applied, they promote better development of their projects in order to ensure better management of the resources, within time, cost, and quality constraints. However, organizations should

confirm the strategic alignment of their projects with the organization, before applying better practices (Cooke-Davies, 2009).

According to Barriere (2003) project management practices have become a universal tool for optimal performance for any organization that seeks professionalism. Ibbs (2002) Identified project management practices as the skills and science of planning, designing, and managing activities throughout the project lifecycle processes. Professional project management concept has been found to be in practice before the Second World War. Its emergence can be traced back to the early fifties, when it was implemented on a large scale project (Peters 1981).

The current state of project management practices in developing African countries remain very critical due to the advancement of technology, the increasing complexity of projects and the scarcity of human capital (Crawford *et al.*, 2008). According to Birkhead, *et al.*, (2000) there have been urgent needs for the development of project management practices in developing countries due to the changing nature and emergence of new technologies and the relaxation of trade regulations, which have resulted in a highly competitive marketplace.

1.1.4 Machakos County Government

The functions of County governments in Kenya came into existence in 2013 when the country elected its leaders under the new dispensation of devolution. Machakos County Government, being one of the 47 counties have 8 sub counties, which are, Kathiani,

Matungulu, Machakos Township, Masinga, Yatta, Kangundo, Mwala, and Mavoko. The county is in the lime light because of proposed Konza Technology city project. Due to the availability of land and space and also its close proximity to Nairobi (GOK, 2013).

According to Machakos County Government Report, (2013) Machakos County with a population of 1,084,129 people has seen unprecedented upsurge in public building construction projects occasioned by the need to create enough office space as well as improvement of existing public buildings infrastructure to cater for the new devolved governments. This has made the county to commit up to 30% of its budget to the development of new buildings. According to the Governor of Machakos, the County Government has an ambitious master-plan that will see the face of the County lifted by the envisioned plan to elevate Machakos City and provide attractive lease terms to develop housing project to cater for Nairobi and Konza technology cities which are 66.23 kilometers from Machakos town (Machakos County Report, 2013).

Like any other part of the world Machakos County has had its own share of challenges in meeting the time deadlines of its housing projects. Indeed most of the currently on-going housing projects have not been performing to expectations of the stakeholders in line with timely completion. Indeed most of the projects which were started in the last two years are still a way behind the set time schedules they were meant to be completed (Department of Public Works and Housing, 2014). Olatunji, (2010) notes that most projects are eventually completed more or less to specification, although they are seldom on time. (Cokins, 2016), while stressing the importance of completion housing projects on time and within budget

line, argue that time is essential in generating revenue. This means that any delay in meeting project completion in time undoubtedly interprets to loss of revenue. However there are certain factors which limits completion of housing projects in time how this factors affect timely completion of projects in Machakos County is unknown.

1.2. Statement of the problem

Housing construction sector is faced with low levels of infrastructural development, and poor project management practices . Further, political instability, is a common phenomenon in developing countries and fraudulent project practices inherent in this sector hinder the timely completion of housing projects. Provision of adequate, affordable and decent housing is clearly in short supply. These challenges present difficulties in timely completion of construction projects such that if not properly managed, the construction of the housing projects may lead to colossal financial loss instead of desired economic outcome.

Many housing projects in developing countries encounter time delays in completion and cost overruns, this housing projects fail to realize their intended benefit or even totally terminated and abandoned before or after their completion Moreover, the development of the housing construction projects in developing countries generally lags far behind from other developed nations. The completion of housing projects in time is a real challenge to any government or organization this is because many projects are initiated and are either completed in time or not. The reasons underlying this is unknown. In the fiscal year 2017/2018 the County Government of Machakos initiated 2360 housing projects units. It

is not known whether this projects were completed in time or not but the statement of problem is that project management practices has a bearing on timely completion of Machakos County projects. This study therefore sought to establish how project management practices leads to timely completion of housing projects of Machakos County.

1.3. Objectives of the study

The main objective of this study was to establish project management practices on timely completion of housing projects of Machakos County.

1.3.1. The specific objectives of this study was to:

- i.** To examine the extent to which project planning contributes to timely completion of housing projects in Machakos County.
- ii.** To assess the effect of stakeholders` participation on Machakos housing projects and their timely completion.
- iii.** To evaluate the effect of risk management on timely completion of housing projects in Machakos County.
- iv.** To determine the effect of monitoring and evaluation on timely completion of housing projects in Machakos County

1.4 Research hypotheses

H_{01} : There is no significant relationship between project planning and the timely completion of housing projects in Machakos County.

H₀₂: There is no significant relationship between stakeholder participation and the timely completion of housing projects in Machakos County.

H₀₃: There is no significant relationship between risk management and the timely completion of housing projects in Machakos County.

H₀₄: There is no significant relationship between monitoring and evaluation on timely completion of housing projects in Machakos County.

1.5 The Scope of the Study

The study looked at the project management practices and timely completion of housing projects in Kenya: A case of Machakos county housing projects. The specific objectives of this study was to: To examine the extent to which project planning; stakeholders` participation; risk management; and monitoring & evaluation contributes to timely completion of housing projects in Machakos County. The study was undertaken in in Machakos Eight sub Counties. The total target population was Project management team and stakeholders who comprised of Community leaders, County Project Monitoring Officers, Project Engineers (PEs), Financial officers and auditors, Contractors, Government architects, Structural engineers and Procurement Team.

1.6 Justification of the Study

This Study will be justified because the information obtained after conducting it will assist Machakos County Government, the National Government, financial institutions, real estate developers and real estate investors identify the project management practices, which affect the timely completion of housing projects. The findings will provide

information to the government on where to intervene in order to provide assistance and contribute to the growth of housing development in Kenya. The study will also provide an insight to potential investors who would want to venture in housing projects particularly on raising of initial capital, cost minimization during project implementation. Lastly this research is expected to be important because the knowledge that was generated from it will assist in policy formulation by relevant authorities in project planning and implementation process.

1.7 Significance of the Study

This research study will be of great importance to all the stakeholders in housing projects management in Kenya who include construction companies, the government of Kenya and donors. This is because the study provides information on timely completion of housing projects.

The study will provide information on the successful project management practices on timely completion of housing projects. This information will be used as a base upon which regulations on housing projects can be revised. The information could also be used to formulate more policies in relation to successful project management practices on timely completion of housing projects.

The study will enhance the work of other scholars on Project management. The study will also provide a base upon which further studies can be conducted on how successful project management practices on timely completion of housing projects.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

In this chapter, discussions of the theoretical, and empirical literature relating to the timely completion of housing projects have been undertaken. The Chapter dealt extensively with some of the project management theories relevant to this study whereas, the empirical literature on the factors that lead to timely completion of housing projects is also discussed. The chapter also discusses the missing gap finally the chapter also outlines the conceptual frame work that was undertaken in this study.

2.1. Theoretical Review

This section brings out the overview of the theories upon which this study is anchored. 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 Mugenda and Mugenda, (2013). The theories found relevant to this study were stakeholder's theory, and Critical chain project management theory.

2.1.1 Stakeholder Theory

The stakeholder's theory was propounded by Freeman (1984), and improved by Friedman (2006). According to Freeman (1984), stakeholder is "any group or individual who can affect or is affected by the achievement of the organization's objectives". The general idea

of the Stakeholder concept is a redefinition of the organization. Friedman (2006) states that the organization itself should be thought of as grouping of stakeholders and the purpose of the organization should be to manage their interests, needs and viewpoints. This stakeholder management is thought to be fulfilled by the managers of firm.

Freeman (2004) defines stakeholders as those individuals or group of individuals who have a claim or interest in a project and its activities. The theory underscores the fact that the creation and the ongoing operations of each project/programme is as a result of several actors' activities, who are the stakeholders. The central idea therefore is that a programme/project's success depends on how well the organization manages relate with the stakeholders such as customers, employees, suppliers, communities, financiers, and others that can affect the realization of a project objectives.

In any government projects, stakeholder's decisions play a key role in any projects success or failure and therefore identification of stakeholders and their involvement should be part of the projects planning process (Bourne & Walker, 2015). Yescombe, (2017) point out that the management of government housing projects is not very easy. This is because such projects comprise of different stakeholders with diversified interests. Therefore it is prudent to identify a large number of the stakeholders and their vested interests so as to ensure the timely completion of those projects. Thus the stakeholders in the planning, making strategy choices, implementing and monitoring of housing projects is critical in the timely completion of such projects.

2.1.2 Critical Chain Project Management Theory

According to Newbold (2012) Critical chain project management theory is a relatively new way of project scheduling and management. The reason for introducing this new theory approach is that there are perceived deficiencies in a traditional project scheduling technique approach. This is because to cope with uncertainty and contingencies, estimated durations in traditional project scheduling approach typically includes a safety time for each task. However, the safety time is often wasted because starting a task is left to the last minute or sometimes the project work is expanded to fill the time available. Because of this, the critical chain approach is introduced in order to reallocate the safety times in the form of buffers and strategically places them in the project network schedule to protect the whole project from delays (Steyn, 2012).

Secondly, the Critical chain project management approach, allows for randomness in task duration times. Task duration times are then modeled as stochastic variables with an appropriate beta distribution, to enable simple approximation methods in calculating task durations. For each task, Programme Evaluation Review Technique (PERT) includes three time estimates: (a) the shortest possible time the task will take, (b) the most likely length of time (most pessimistic); and lastly (c) the longest time that might be taken if the task takes longer than expected. For a beta distribution, the expected duration for each task can be approximated as the weighted average of the above three variable, that is, most optimistic, the most pessimistic, and the most likely time estimates. PERT deals with uncertainty in the same way for all tasks, whether or not they are on the critical path (Rand, 2010).

2.2 Concept of Timely Completion of Housing

Timely Completion is where projects are completed within the time scheduled, within the allocated budget, scope and quality. On time delivery and completion within budget are common requirements for all housing construction projects. Unfortunately, in reality many projects suffer from delays and budget overrun which are becoming issues among stakeholders in the housing construction industry. Various sources indicate that most construction projects suffer from time overrun (Muller and Turner, 2007).

Once a project starts, certain aspects can easily deviate. This deviation can be overspending, a schedule slippage, and departure from the objective/scope, (Mubarak, 2010). Time management is required on planning and exercising conscious control over the amount of time spent on specific activities, especially to increase effectiveness, efficiency or productivity. Time control is one of the keys to effective project management as weaknesses in the time management will cause delays in project completion (Kerzner, 2009). Hence, time in construction projects need to be controlled from the beginning of the construction process until the project is totally completed.

2.2.1 Concept of Project Planning

Also, referred to as work breakdown plan, (WBP) Project Planning involves an arrangement of stages, duties and tasks hierarchically arranged to be executed in projects as explained by (Kerzner, 2009) on project planning techniques and system approach on projects planning. After the work breakdown plan is completed, the duties and activities are evaluated, arranged accordingly and allocated resources and the establishment of a project blueprint and ensure sustainability of housing construction project. Thus, Project

planning involves implementation of skills, practices, and comprehension of tools to the activities of a project to outlive the expectations and needs of the stakeholders in a project and ensure sustainability.

Project planning deals more with project cost management that involves cost control, cost budgeting, resource planning and cost estimation. The contribution of the Project planning guarantees success and long-term sustainability as expounded by (Filicetti, 2009). Project planning compacts with project timely management that has the following instruments in the following procedure; determining project statement, creation of work breakdown structure, then break each package to tasks, identifying resource availability, identifying total time needed, determining dependences of Tasks, identifying all milestones, establishing project measuring flow chart and building a project timeline management. The project timeline management can be achieved through the following steps; Clear actions; Order; Estimate activity resources; Plan schedule management and Estimate activity durations; Develop timetable and Control timetable as explained in the Project Management Body of Knowledge.

2.2.2 Concept of Stakeholders` Participation

Stakeholder participation in a project is a set of methods that harnesses the positive influences and minimizes the effect of negative influences. It comprises four main steps: identifying stakeholders; assess their interest and influence; develop communication management plans; and engage, influence them (Chan, 2011). Identifying project stakeholders is usually done through research, interviews, brainstorming, checklists,

lessons learned or any other method that the project team may be useful. The stakeholders and their areas of interests are shown in a stakeholder map.

Typical types of stakeholders in a project would include individuals and groups implementing the project, individuals and groups affected by the project, owners, shareholders and customers and statutory and regulatory bodies (Wysocki, 2014). Each stakeholder is then classified according to potential impact. This is usually shown in a matrix that estimates interest and influence on a scale such as low/medium/high. Those with the ability to directly affect outputs or benefits of the project are called key stakeholders. Effective management of stakeholders enhances chances that the project will be successful.

Johnson and Whittington (2008) defined stakeholders as the people or small groups who depend on the organization to fulfil their own goals and on whom, in turn, the organization depends. They may be actively involved in the project and may have an interest on the total performance or completion of the project. They have the power to exert positive or negative influence over the project, its deliverables and its team members (Bourne, 2009).

Stakeholder participation is increasingly becoming a part of mainstream business and is being used to improve communications, obtain wider community support or buy-in for projects, gather useful data and ideas enhance public sector or corporate reputation and encourages more sustainable decision making (Chan, 2011). Without proper engagement of the stakeholders, it is impossible to have a common abiding agreement, ownership and

support for a particular project. Any company or organization is likely to benefit if it takes care of the environment in which it is operating and aiming to meet the needs of its stakeholders (Chan, 2011).

Stakeholder participation gives the impression of corporate responsibility. It appears evident that if an organization shows commitment, through policy and practice and stakeholder involvement, it is acting responsibly towards these stakeholders: the more an organization engages with its stakeholders, the more accountable and responsible that organization is towards these stakeholders (Greenwood, 2007).

Lerbinger (2006) stated that organizations that engage with their stakeholders' activity are more likely to succeed. Furthermore, there is a high degree of consensus among development actors and project managers on the need for active participation of stakeholders in project design and implementation in order to ensure high project implementation success.

2.2.3 Concept of Risk Management

A risk is an event or occurrence that may negatively impact the project. Royer, (2002) defines risk as the potential events or circumstances that threaten the planned execution of the project. Having the best people execute the plan does not guarantee success. There are many external factors which may play a role in determining the outcome regarding whether a project has been successful and able to meet the objectives or not. Risks can be

mitigated and even prevented. However this risk mitigation and prevention require a good amount of understanding of the risks and advance planning.

Kendrick, (2009) states that “to avoid a project doomed to failure, you must consistently use the best practices available. Royer, (2002), classifies risk into the following nine categories; customer associated, contract, project requirements, business practice expertise, work estimates, project constraints, complexity and scale deliverables, and contractors. Risk management planning is the process of identifying risks and developing mitigation strategies and contingency plans to minimize their impact (Royer, 2002). Managing project risk depends upon the project team understanding the sources of variation in projects, and then working to minimize threats and to maximize opportunities wherever it is feasible Kendrick, (2009).

Cooper, et al, (2005) say that project risk management process is needed to ensure that; all significant risks to the success of the project are identified, identified risks are understood, with both the range of potential consequences they represent and the likelihood of values in that being determined as far is necessary for decision making, assessment is undertaken of individual risks relative to other risks to support priority setting and resource allocation, strategies for treating the risks take into account of opportunities to address more than one risk, and the process itself and the risk treatment strategies are implemented cost-effectively.

2.2.4 Concept of Monitoring and Evaluation

The concepts of monitoring are usually approached together, as a function of project management, which provides a real perspective upon the stage of the financed project, in order to make all the adjustments necessary in the project implementation process. Monitoring is an ongoing function that employs the systematic collection of data related to specified indicators in Public projects. Monitoring is described as a process that assists project managers in improving performance and achieving results. The goal of monitoring is to improve current and future management of outputs, outcomes and impact (United Nations Development Programme, 2002).

Project monitoring is the continuous assessment of project implementation in relation to design schedules, and the use of inputs, infrastructure, and services by project beneficiaries (Simon, 1996). Project evaluation is the periodic assessment of a project's relevance, performance, efficiency, and impact both expected and unexpected in relation to stated objectives. Projects monitoring provide managers and stakeholders with continuous feedback on implementation, interim and terminal evaluations. These are conducted on projects as ways to identify necessary adjustments in project design and to assess the projects' effects and their potential completion (Paul, 2005).

Monitoring puts an emphasis on transparency and accountability in the use of resources to the stakeholders such as donors, beneficiaries and the wider community where the project is implemented. Paul, (2005) argue that the starting point in politics as an element of

evaluation involves asking who would gain lose and how. This also involves how the results make a difference to the various stakeholders.

According to Gaba (2013) there is need for effective monitoring of projects as this is increasingly recognized as an indispensable tool of both project and portfolio management. This acknowledged need to improve the performance of development assistance calls for close attention to the provision of management information, both to support the implementation of projects and programs and to feed back into the design of new initiatives.

At all stages of the project cycle, monitoring tools can help to strengthen project design and implementation and stimulate partnership with project stakeholders. This is because it can influence sector assistance strategy. Relevant analysis from project and policy evaluation can highlight the outcomes of previous interventions, and the strengths and weaknesses of their implementation It can also improve project design and use of project design tools such as the logical framework results in systematic selection of indicators for monitoring oject performance (Fapohunda & Stephenson, 2010).

2.3 Empirical Literature

2.3.1 Timely Completion of Housing Projects

Timely completion of project is the projected completion time as in the contract for the construction of the project (Munano, 2012). Construction time has always been used as a benchmark for assessing the performance of a project and the efficiency of the

implementing organization. It is very important to the stakeholders especially the users because they are waiting to use the product as soon as possible. Timely completion therefore in this study is a success factor. Project success is stated in terms of meeting the following objectives: completed within planned time, planned budget and the required quality level (Kerzner 1998).

According to Conchuir (2011) there are six key time management processes, five of which are in the planning process group and one in the monitoring and controlling (PMI 2010). The first process is to identify each activity that has to be carried out, then base the time estimates on these components of work. This helps to communicate with the stakeholders objectively, to ensure that all activities are included and to bring understanding of what has to be done. Once the activities have been defined, the next step is to define their order. This uses the complete list of activities together with enough detail about each to work out relationships between them. Sequencing process sorts the various activities into the order in which they will be implemented (PMI, 2010; Conchuir, 2011). Failure to follow the sequence may be too costly. The major tools and techniques used at this level are the schedule network diagrams like the CPM diagrams.

The issue of timely completion of housing projects in Kenya is increasingly becoming an issue of concern among the stakeholders in the construction industry. The most important factor influencing timely completion of housing construction projects in Kenya is financing by the contractor, during the project, changes in designs by the owner or his

agent during the construction, delays in contractor's payment and non-utilization of professional construction management (Chikati, 2009).

Hasseb *et al.*, (2011) noted that preparation and approvals of drawings also contribute to the delays to a significant extent. This is because of the increasing rates of interests, commercial pressure, inflation and the potential of a construction project to result in disputed and claims leading to litigation or arbitration. Others are cash flow problems during the housing construction process. Owners on their part cause delays when they face labor shortages or engage inadequate labor skills. In a country like Kenya, housing construction workers are relatively unskilled and lack of adequate planning at the early stages of the project results in time and cost overruns.

As a result many major projects fail to meet schedule deadlines. In a housing construction project where time truly equals money, the management of time is critical (Duran, 2006), thus predicting the likelihood of schedule delay may play a key role towards project success (Luu, *et al.*, 2009). A project's success is not always determined by its duration.

2.3.2 Project Planning and Timely Completion of Housing Projects

There is a strong correlation between the success of a project and proper project planning as per the perspective of the stakeholders (Dvir and Lechler, 2004). The two scholars also indicated that through clear definition of technical and functional specifications in project planning there are higher chances of efficient and effective setting up of projects. Further, they found out that successful implementation of procedures of planning is directly

proportional to benefits of project stakeholders. This means that the success of a project can be equated to the amount of planning that has been laid down, Dvier and Lechler (2004) further inferred that poor planning causal for alteration in a variable of time, quality, and cost. Benefits of good planning include the ability to forecast requirement of resources, to create more realistic schedules under clear deadlines, the ability to provide reliable information for opportunity and risk assessment, the ability to communicate with clarity about the project to the stakeholders, provides information for control and monitoring with waste minimization and further providing a basis for strong team coordination.

Lemma (2014) asserts that proper planning and culture of the people have a significant effects on the performance of any project. This view is supported by Ahmed (2012) who also point out that for timely completion of projects, organizations should implement the best management practices such as: Planning, risk management and culture that encourages good management practices.

Simerson, (2011) States that good project planning allows an organization to bring collective intelligence together in order to encounter external forces. It also allows an organization to use its internal forces to identify opportunities available to it and use its strength to and opportunities likely to impede or support the organizations attaining its vision and capitalize on those opportunities in order to achieve its mission, vision, objectives and core values. Therefore participatory planning and strengthening of the role and objectives and core values authority of an organizations are essential in the completion

of projects in time Serageldin (2017) also argues that the essence of project planning is to increase the likelihood of successful completion of any project in time. This is because project planning can enable an organization to devise new items administrations, inside operations, hierarchical strategies (Nutt, 2014).

2.3.3 Stakeholder Participation and Timely Completion of Housing Projects

Stakeholder participation can be defined as a social process through which groups sharing living needs in a specified geographical area identify similar and necessary needs, go through a decision making process and set up ways in which to achieve set goals and objectives (Adesina, 2010). Nonetheless, in heterogeneous groups and individuals may become a community and thence may take collective action to attain specific and shared goals and objectives. Stakeholder participation in one of the most fundamental factors that influences sustainability and project implementation. The determinants of whether a project is established, quickly and successfully and whether it responds and adapts to changes and needs is the level of stakeholder support. In consequence, stakeholder participation is a vital component of community development which further reflects a grassroots approach to problem-solving.

Ferreira (2010) argued that influence of stakeholder participation on timely completion of housing construction projects in line with the project management practices provides opportunities for public participation. The extent to which stakeholder participate ensures people decision-making processes and decision-making capacity of governments at different levels. To engage with civil society and other economic stimulus projects

stakeholders on stimulus projects policy decision-making and implementation, existence and effectiveness of conflict resolution and grievance mechanisms is important.

Adan (2012) states that timely completion of housing construction projects in line with the project management practices, involves a variety of players. Project managers, resource managers, staff members, volunteers, participants, and community members all have a stake in the overall success of the project. Each plays a different role and sees the project through a different lens. These stakeholders should be tapped when planning. To ensure that ideas and their perspectives are represented; members of stakeholder groups should be invited to participate in timely completion of housing construction projects.

Macfarlane (2013) conceptualizes two levels of participation these levels are weak and strong participation. According to his views, weak participation involves informing and consulting while strong participation means partnership and control. They argue that, in practice agencies managing complex projects find it hard to move from the weak end of the continuum and tend to assume that, intended beneficiaries will be consulted during the project design to take into account their felt needs and aspirations. Skinner (1997) cautions that, information giving and consultation are often presented as participation leading to disillusionment among community interests.

2.3.4 Risk Management and Timely Completion of Housing Projects

Kishk and Ukaga (2008) note that the degree of risk management undertaken during the project lifecycle impacts directly on the project success. Failure to manage construction

risks in a systematic way makes the project suffer in cost overruns, delayed completion, non-completion or may fail to meet the quality specifications and the benefits they were intended for.

Risk management practices in construction projects are associated with contexts of the projects as well as personnel involved. Al-Kharashi and Skitmore (2008) point out that the main cause of delay in construction sector for public projects is the lack of qualified and experienced personnel. A study by Ahmed, *et. al*, (2002) identified ten most critical causes as building permits approval, change order, changes in drawings, incomplete documents, inspections, changes in specifications, decision during development stage and shop drawings and approval.

Sambasivan and Soon (2007) identify ten most important causes of risks in the construction industry to be contractor's improper planning, contractor's poor site management, inadequate contractor experience, inadequate client's finance and payments for completed work, problems with subcontractors, shortage in material, labor supply, equipment availability and failure, lack of communication between parties, and mistakes during the construction stage.

Odeyinka, Lowe and Kaka (2012) carried out a descriptive cross-sectional survey whose objective was to identify and assess the impact of risk factors attributed for causing critical variations between forecasted and actual cash flows among construction firms in the UK. The research tool was a structured questionnaire while respondents were drawn from firms

categorized into small, medium and large, based on annual turnover. Statistical analysis entailed mean value Analysis and Univariate Analysis of Variance (ANOVA) techniques. This permitted determination of significant risk factors as well as an investigation of differences in opinions among the three categories. The findings identified eight significant risk factors isolated from a total of twenty six risk parameters. These risk factors included undervaluation of the scope of work, payment delays, underestimating the complexity of the project, shortage of skilled labour, variations to planned work activities, production target slippage, adverse and unpredictable weather conditions, and unforeseen changes to initial designs.

Chen, Hao, Poon (2014) investigated the issue of cost risk management in the West Rail Project of Hong Kong. This was a case study where the researchers proposed fifteen risks that were thought to affect project costs and which were divided into three clusters, resource factors, management factors and parent factors. The findings indicated that the most significant factors that led to cost escalation in this project included resource factors such as price escalation of materials, management factors such as inaccurate cost budget and supplier or subcontractors' default. Parent factors included excessive interface on project management.

Isensi (2016) did a study on the factors responsible for failure of building construction projects, their causes and mitigating measures put in place. The sampling frame was drawn from active construction firms registered in categories A and B by the Ministry of Transport, Infrastructure, and Housing and Urban Development. This classification was

mainly based on the firms' annual turnover. Isensi (2016) identified 36 variables, categorized into cost, time and quality related themes, and which had a statistically significant attribution to project failure.

2.3.5 Monitoring & Evaluation and Timely Completion of Housing Projects

Ling, (2013) study, the process of evaluation and monitoring is taken seriously if it is associated with significant powers of decision making. The study further deduces that units of monitoring and evaluation want to be viewed as value additions and for their sake be able to justify their efforts, for this case, the credibility of monitoring and evaluation managers is bolstered by success factors. This means that the monitoring team needs a lot of support and strengthening in order to effectively carry out its mandate with power and authority, other than these the teams need frequency of scope monitoring in order to identify changes, big personnel capacity for project scheduling and to monitor the cost overruns (Ling et al., 2013).

A study by Naidoo, (2011) on role monitoring and evaluation to promote good governance found that deliverables such as project plan, policies communication matrix and feedback are very significant in good governance and successful project implementation. The stakeholders rely on information submitted from monitoring and evaluation process to reveal project accountability and decision making. The study suggest more routing to the particular connection amongst observing and assessment in connection to effective project administration practices and implementation.

Mogaku (2010) while assessing the influence of monitoring and evaluation methods on performance of Women Enterprise Funded Projects in Kisii Central District argued that the project performance was poor due to weak Monitoring and Evaluation systems. The survey was done on 54 women groups and looked at the effect of Inspection, Focus Groups and Progress Reports as Monitoring and Evaluation methods on the projects. He found out that mostly monitoring and evaluation was done by group members and their leaders who were ill-informed due to lack of training in the subject and there was no monitoring and evaluation system for Women Enterprise Funded Projects from the respective Ministry.

Nynbuto (2010) while assessing the factor influencing the monitoring and evaluation of projects in NGOs, a case of East Africa wildlife society looked at subgroups of EAWS and their donor funded projects. He sought to understand how monitoring and evaluation budget, level of stakeholder's participation, monitoring and evaluation skills of project officers and staff availability affected the implementation of M&E. The survey was conducted on 69 respondents. It showed that 94% of the project officers had University level education but majority had an average level of monitoring and evaluation skills with a small %age having excellent skills. Most of the project officers (53%) have not undertaken professional monitoring and evaluation courses. Further 82% of the financial allocation was not enough for monitoring and evaluation during implementation period while almost all the projects didn't have allocation for post project evaluation. Most of the stakeholders (90%) were not involved in the monitoring and evaluation and where they were involved it was mostly during the project closure. Most of the projects (98.5%) did

not have department dedicated to monitoring and evaluation while 85% did not have enough monitoring and evaluation officers.

According to Pinto & Slevin (2007), the project control processes are monitoring and feedback, which at each stage of implementation, there ought to be a team to receive feedback as per how the project is fairing in relation to initial projections. Feedback is also given to the donors, sponsors, implementers, and beneficiaries of the project which is also a practice of monitoring. The feedback is thus used for decision making in order to improve the performance of the project (Bartle, 2007). Allowing for sufficient monitoring and feedback mechanisms gives the project manager the capacity to predict challenges, oversee counteractive actions and to ensure that no weaknesses are overlooked.

2.4 Research Gap

Timely completion of housing project is fundamental if the projects mission, vision, objectives and core values have to be achieved. This is because a project that is completed in time exhibits overall efficiency of project planning, management and implementation and effective tracking project progress.

According to researcher knowledge no study have been carried on timely completion of housing projects in line with the project management practices in Machakos County. This study sought to fill this research gap by investigating of project management practices and timely completion of housing construction projects. A case of Machakos County. Project management practices and timely completion of housing construction projects was not

well documented and therefore lacks clarity. As a result, the literature review looked into the role played by various factors in determining completion of construction projects. Project management practices and timely completion of housing construction projects is fundamental if the project objectives and success is to be achieved. A project that is completed in time exhibits overall efficiency of project planning, management and implementation and effective tracking project progress

2.5 Conceptual Frame Work

In this study, the dependent variable was timely completion of housing construction projects while the independent variables are project management practices which encompass Project planning, stakeholder participation, risk management and Monitoring and evaluation as illustrated in figure 2.1 below.

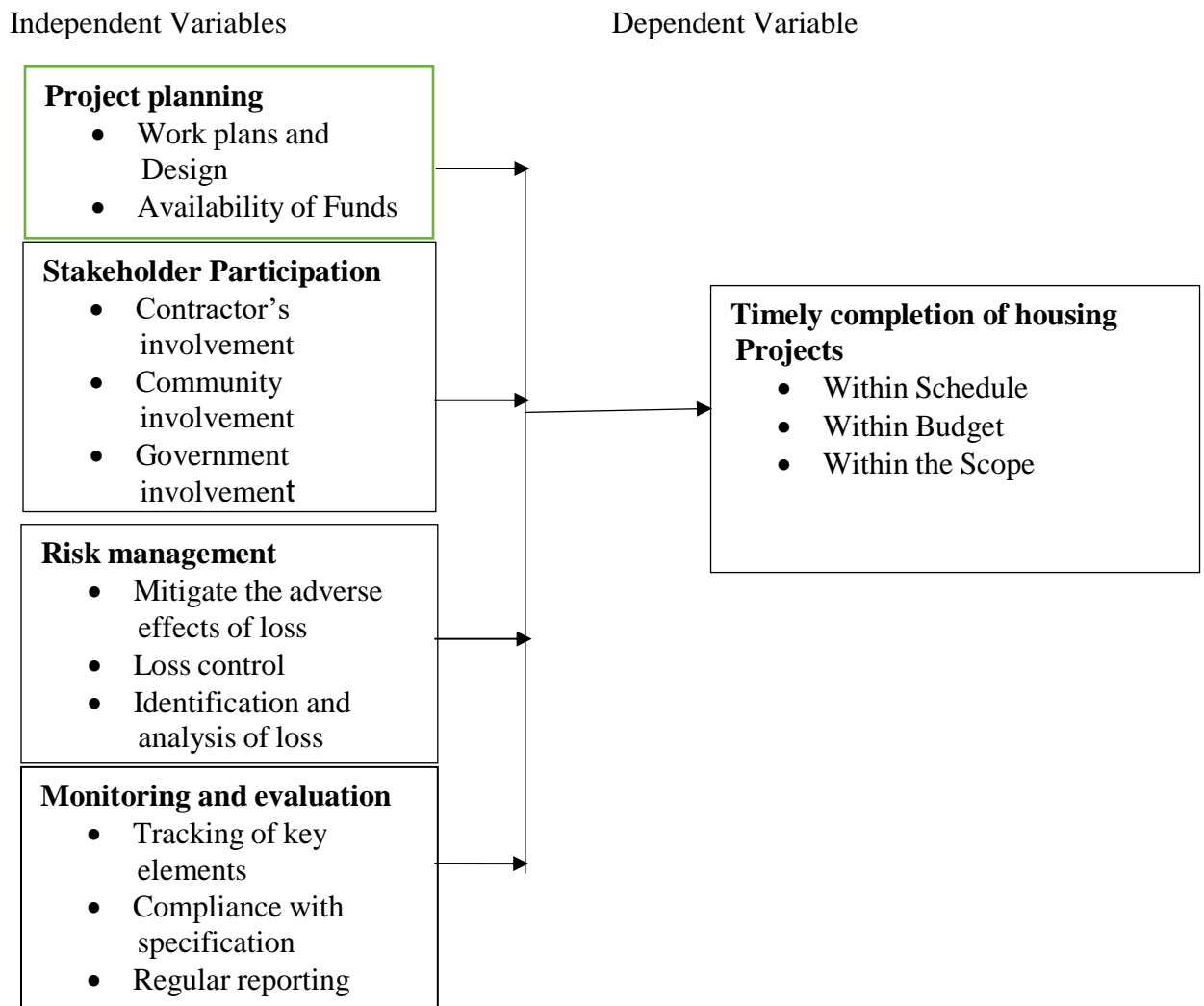


Figure 2. 1: Conceptual Frame Work

Source: Author, 2019

Conceptual framework provides a snapshot of the objectives of this study. It considers the theoretical and conceptual issues surrounding research work and forms a coherent and consistent foundation that underpin the identification and development of existing variables (Kothari 2004).

The conceptual framework attempts to bring into focus the following variables; the independent variables are namely; Project Planning, Stakeholders participation, Risk management and Monitoring and evaluation. These independent variables affect the dependent variable of the study which in this case was the timely Completion of Housing Projects.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter outlines the research methodology that was adopted in this study. Specifically, it discusses the research design, research area, target population, sample size determination, sampling procedure, data collection process, data collection, data analysis and presentation, validity, reliability of the research instrument and ethical considerations

3.1 Research Design

This study adopted an explanatory research design. Lesage (2009) defines a research design as a presentation of the plan, structure, or strategy of investigation, which seeks to obtain or answer various research questions. Explanatory research is concerned with answering why and how questions establish the truth. It is directed towards exploring the relationships between concepts and phenomena and explaining the causality and/or interdependency between these (Riley *et al.*, 2001). It develops explanations about why certain phenomena occur and how solutions can be found. Answering the 'why' questions involves developing causal explanations.

According to Maxwell and Mittapalli (2008) explanatory research implies that the research in question is intended to explain, rather than simply to describe, the phenomena studied. This approach yields data that is used to examine relationships and dispositions as well as describe patterns of relationships before making causal inference (Nachmias & Nachmias, 2002). The advantage of using the explanatory approach was that it allowed the researcher to carry out the study in the natural and real life setting.

An explanatory study was adopted in this study. This is because data required for the conduct of this study was sourced from both sources using a survey method that is through the administration of questionnaires. Secondly, the design was deductive in nature because some questions were answered in order to uncover the relationship between the independent variables and the dependent variable. From this some hypothesis were empirically examined in order to reveal insights into those hypotheses whether to reject or accept them. Therefore, the design started with theories on the best project management practices and then subsequent shift towards empirics.

3.2 The Study area

The research was conducted in Machakos County to the North the County borders Embu, Murang'a and Kiambu Counties, to the west Nairobi and Kajiado Counties; to the south Makueni County; and to the East Kitui county. The County has area of 6208.2 Km² most of which is semi-arid. The county is divided into eight Sub Counties/Constituencies namely; Masinga, Yatta, Kangundo, Matungulu, Kathiani, Mavoko, Machakos Town and Mwala. The County has a total of 40 wards and 75 Locations. It lies between latitudes 0°45' South and 1°31' South and longitudes 36°45' East and 37°45' East. (Ethnic and Diversity Audit of the County Public Service Report, 2016).

3.3 Target Population

A population refers to an entire group of individuals, events or objects having a common observable characteristic (Mugenda & Mugenda, 2013). Target population is identified by the research objectives and one needs to specify the unit being sampled, the geographical

location, and the temporal boundaries of the population (Neuman, 2009).The total target population was 80 Project management team and stakeholders who comprised of 10 Community leaders, 10 County Project Monitoring Officers, 10 Project Engineers (PEs), 10 Financial officers and auditors, 10 Contractors, 10 Government architects, 10 Structural engineers and 10 Procurement Team. The initiated projects were 2360 housing projects which were initiated during the fiscal year 2017/2018 as indicated as follows: Mavoko (500), Machakos (400), Yatta, (350) Kangundo (300), Matungulu (270), Masinga (200), Kathiani (190) and Mwala (150) As shown table 3.1 below:

Table 3 1Target Population

Machakos Sub Counties	No of House Units Projects initiated	Target respondents	No of Respondents
Mavoko	500	Community Leaders	10
Machakos	400	County Project team	10
Yatta	350	Project Engineers	10
Kangundo	300	Contractors	10
Matungulu	270	Financial officers and auditors	10
Masinga	200	Government architects	10
Kathiani	190	Structural engineers	10
Mwala	150	Procurement Team	10
TOTAL	2360	Total	80

Source: Field Data, 2019

3.4 Sampling Procedure and Sample Size

According to Mugenda and Mugenda (2013), a sample is a smaller group obtained from the accessible population. Sampling is a procedure, process or technique of choosing a subgroup from a population to participate in a study (Ogula, 2015).

The Sample size of the housing project was determined using sample size formula 'return sample size method' for categorical data as propounded by Bertlett, Kotrilik and Higgins,

(2001) and emphasized by Mugenda and Mugenda (2013):

$$n = \frac{z^2 p(1-p)}{d^2}$$

Where:

n -: the desired sample size.

Z -: was the corresponding standard score with the probability of error at 0.05 and a confidence level of 95%, which is 1.96

p -: was the occurrence level of the phenomenon under study and is equal to 0.5 where the occurrence level was not known

d -: was the selected probability of error of the study corresponding with 95% confidence level in this case 0.05

Substituting for the values:

$$n = \frac{1.96^2 \times 0.5(1-0.5)}{0.05^2}$$

$$n = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2}$$

$$n = 384$$

However since the target population to the study (2360) is less than 10,000, the final sample size estimate could be adjusted as recommended by Mugenda (2003)

$$fn = \frac{n}{1 + n/N}$$

Where:

fn = is the sample size when population is less than 10,000

n = the sample size when the population is above 10,000

N = the population of the target sub-population

Substituted for the values:

$$n = \frac{384}{384/2360}$$

$$n = 330$$

Table 3 2 Sample Size

Machakos Sub Counties	No of House Units Projects initiated	Method used To get Sampled Projects	Sampled Projects	Target Population As Unit of Observation	Sampled Population Through Census
MAVOKO	500	500/2360*330	70	Community Leaders	10
MACHAKOS	400	400/2360*330	56	County Project team	10
YATTA	350	350/2360*330	49	Project Engineers	10
KANGUNDO	300	300/2360*330	42	Contractors	10
MATUNGULU	270	270/2360*330	38	Financial officers	10
MASINGA	200	200/2360*330	28	Government architects	10
KATHIANI	190	190/2360*330	26	Structural engineers	10
MWALA	150	150/2360*330	21	Procurement Team	10
TOTAL	2360		330	Total	80

Source: Field Data, 2019

A census of the 80 respondents was carried out. The census technique was more appropriate because Project management team and stakeholders were relatively few and therefore, it was possible to include all of them in the study. The technique was suitable for the study because if sampling was to be used and there could have poor responses from the respondents, it would have greatly affected data analysis. Project management team and stakeholders who comprised of Ten Community leaders from each sub county, Ten County Project officers from each Sub County, Ten Project Engineers from each Sub County, Ten Financial officers from each Sub County, Ten Contractors from each Sub

County, Ten Government architects from each sub county, Ten Structural engineers from each sub county and Ten Procurement Team from each sub county formed part of the respondents giving a total population size of 80 respondents. These respondents were considered to have a better understanding of the variables under study in their respective area of expertise.

3.5 Data Collection Procedure and instruments

The researcher used primary sources. Primary data was collected using questionnaire. The researcher designed the questionnaire and distributed it over to the respondents on a one to one basis and ensured that all the questionnaires were fully filled to get clear information and to enhance quality data for the research.

The data collection instrument for this study was an open ended questionnaires. A questionnaire refers to a list of carefully identified research questions arrived at after a considerable assessment. The questionnaire aims at eliciting specific responses from study respondents to help at meeting the research objectives. The questionnaires contained open-ended questions to enable respondents give comprehensive responses for an in-depth analysis. The questionnaires was structured based on the study objectives.

3.6 Pilot Study

According to Sekaran (2006) a pilot study is conducted when a questionnaire is given to just a few people with an intention of pre-testing the questions. Pilot test is conducted to detect weaknesses in design and instrumentation and to provide proxy data for selection of a probability sample (Cooper & Schindler, 2011). It assists the research in determining if

there are flaws, limitations, or other weaknesses within the questionnaire design and allows him or her to make necessary revisions to the questionnaire prior to the implementation of the study (Kvale, 2003). A pilot study constituted 10 per cent of sample of sample size. This satisfied the provision that the size of the pilot group may range from 10 to 20 subjects depending on the method to be tested but the respondents do not have to be statistically selected (Cooper & Schindler, 2011). The pilot study was done in Kitui County since is the County which neighbours Machakos County and it was also more convenient for the researcher. The aim was to test the reliability and validity of the questionnaire. It also aimed at determining if there are flaws, limitations, or other weaknesses within the questionnaire design and therefore allow for revisions to be made to the questionnaire prior to the implementation of the study.

3.6.1 Validity Tests

Validity can be described as the extent to which instrument measures what it purports to measure (Jankowicz, 2005). Validity concerns the accuracy and meaningfulness of inferences which are based on the research results (Bryman & Cramer, 2005). There are three kinds of validity relevant for this research are criterion related validity, content validity and construct validity. Criterion related validity also referred as instrumental validity, is used to demonstrate the accuracy of a measure or procedure by comparing it with another measure or procedure which has been demonstrated to be valid. This study used content validity to examine whether the content of the research instrument covers representative sample of construct domain to be measured. The researcher used

professional experts to assess what the instrument tried to measure and also determine whether the set of items or the checklist accurately represented the concepts of the study.

3.6.2 Reliability Test

Reliability is the consistency of a set of measurement items or the degree to which an instrument measures the same way each time it is used under the same condition with the same subjects (Cronbach, 1951). It is the extent to which a questionnaire tests observation or any measurement procedure and produces the same results. That is, the stability or consistency of scores over time or across raters (McNeill, 2005). A measure is considered reliable if a person's score the same test given twice similar test.

Testing reliability internal consistency test was used. Internal consistency of the research instrument was tested using Cronbach's Alpha. Cronbach's Alpha is a reliability coefficient that indicates how well items in a set are positively correlated to one another (Sekaran, 2003). According to Bryman and Cramer, (2005), generally reliability of 0.7 to 1.0 is considered acceptable. For this study an alpha coefficient of 0.7 and above was considered reliable.

3.7 Data Analysis and Presentation

Research questions was analyzed using descriptive statistics, which enabled the researcher to reduce a large mass of data to simpler, more understandable terms hence making it easier to understand the data that was used. The researcher used content analysis to analyze the data through describing phenomena, classifying it and seeing how the concepts

interconnected as indicated by the respondents. This approach of analysis was preferred because it gave results that are predictable, direct, and comprehensive. Content analysis was also to enable the researcher to shift through large volumes of data with relative ease in a systematic fashion.

Descriptive statistics such as aggregate scores and standard deviations was computed to describe the characteristics of study variables. Descriptive statistics provided the basic features of the data collected on the variables under study and provided the base for conducting further statistical analysis on the data (Mugenda and Mugenda 2013). The data from the completed questionnaires was cleaned, screened, coded and entered into a spreadsheet and was analyzed using the statistical packages for social sciences (SPSS version 20). After analysis, the data was then presented in tables.

A multiple regression model was applied to determine the relative importance of each of the four variables with respect to project management practices and timely completion of housing construction projects.

The chi square was used to test hypothesis. Whereas the regression model that was applied is shown below:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon,$$

Where: Y_i = The number of housing projects completed in time

β_0 = Constant Term

β_i = Beta coefficients to be estimated

X_i = are the independent variables such that

X_1 = Project Planning

X_2 = Stakeholders participation

X_3 = Risk management

X_4 = Monitoring and evaluation

ε = error term

State the assumptions underlying this model

ε -Comprises of $V_i + U_i$ Where V_i comprises of random errors associated with random events such as measurement errors in the model. Such errors are assumed to be independently and identically distributed (iid).

The study also used paired samples t-test of significance to test the independent variables and to test whether the change in the independent variables was statistically significant.

The statistical tests was conducted through the use of Statistical Package for Social Science (SPSS) version 20 (Andy, 2009).

3.8. The limitation of the Study

This section presents the limitations as identified by the researcher during the execution of the study. First, some respondents were reluctant to answer the questionnaires presented to them, citing confidentiality of information. There researcher handled this limitation by making it clear to them that this research was mainly for academic purposes, and that the information required to be filled would not compromise their job in any way. Also, the respondents had busy working schedules in their organizations which derailed the process of data collection. The researcher however tackled this limitation by emphasizing to the respondents that the data was needed urgently in order to meet the academic deadlines. Finally, the accuracy of the data collected was mainly dependent on what was provided by

the respondents. As such, there was need for the respondents to answer the questions honestly and accurately.

3.9.Ethical Issues

The researcher ensured that all the information given by the respondents were treated with the highest level of confidentiality. Secondly permission was obtained from Moi University, National Commission for Science, Technology and Innovation (NACOSTI) and Machakos County Government before data collection process

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

In this chapter, the analyzed results, presentation, and interpretations were presented as discussed below.

4.2 Response Rate

Table 4. 1: Response rate

Response rate	Frequency	Percentage
Response	72	90%
Non Response	8	10%
Total	80	100%

The questionnaires which were distributed were 80 of which 72 were correctly filled and returned a response rate of 90% as shown in table 4.1 above. According to Kothari (2014) a response rate of more than 70% is reasonable for analysis as shown in Table 4.1. Cooper and Schindler (2013) 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.

4.3 Pilot Test Results

4.3.1 Validity

Table 4. 2: Content Validity Index

Variables	Fraction	Comment
Project Planning	0.820	Accepted
Stakeholders` participation	0.889	Accepted
Risk management	0.808	Accepted
Monitoring and evaluation	0.788	Accepted

To establish the validity of the data collection instruments, a pre-test was conducted in Kitui County to 8 housing project team who gave their responses relating to the project management practices and timely completion of housing projects. It is suggested that tools used in study must have CVI of about 0.75 or higher and three or more specialists should be used indication of good content validity (Amin, 2005). The findings were as shown in Table 4.2.

From the findings in Table 4.2 shows that all the four variables were valid then their CVI standards exceeded the agreed threshold of 0.75. This shows that the tools was dependable as recommended by Amin (2005) as the validity of test produced an normal index score of 82.62%.

4.3.2 Reliability Analysis

Table 4. 3: Reliability results

Constructs	Cronbach's Alpha Values	Comments
Project Planning	0.883	Accepted
Stakeholders` participation	0.871	Accepted
Risk management	0.860	Accepted
Monitoring and evaluation	0.856	Accepted

To measure the reliability of the data collection instruments an internal consistency technique was applied to calculate Cronbach's alpha using a SPSS version 20. The pilot study involved questionnaires to 8 project management team of housing projects in Kitui County. The responses obtained from the respondents were analyzed using Cronbach's alpha formula and the results obtained are indicated in table 4.3. From the table it was established that the feedback obtained was reliable since all variables had Cronbach's alpha values of between 0.856 to 0.883. This was above 0.75 implying that the data collection instruments could be relied on in giving consistent information. According to Zinbarg, (2005) states that an alpha coefficient above 0.75 is an indication of the consistency of the research instruments in providing reliable results.

4.4 Respondents Background Information

4.4.1 Working Experience

Table 4. 4: Years of service

Years of Service	Frequency	Percentage
0 to 5 years	34	53
5 to 10 years	23	35.9
More than 10 years	7	10.9
Total	64	100

Table 4.4 above provides the number of years a respondent had worked with the housing construction projects in Machakos County. The findings indicated that (53%) of the respondents had a working experience between 0 to 5 years, (35.9%) had 5 to 10 years, (10.9 %) have more than 10 years. This implied that the respondents had adequate working experience with the housing construction projects in Machakos County and therefore possessed the necessary knowledge and information which was considered useful for this study.

4.4.2 Engagement in Housing project

The respondents were presented with statements that concerned the level of agreement with the statements that relate to the respondents engagement in Housing project where they were required to tick the one that best described their opinion.

Table 4. 5: *The Respondents engaged in Housing project*

Category of Housing project respondents engaged in	Percentage
Large	32.1
Medium	38.9
Low	29.0
Total	100

The study sought to find out the type of projects respondents were engaged in. From table 4.5, 38.9% of the respondents indicated that they were engaged in medium housing projects while 32.1% of the respondents indicated that they were engaged in large housing projects, 29% of the respondents indicated that they were engaged in low housing projects. It was noted that the type of projects may vary, (e.g., large, medium and low), the level of engagement may vary. The percentage indicator matrix can be adapted to correct information requirements for those respondents who engage in type of projects. The above results revealed that the respondents were well engaged in housing projects and were in a position to furnish the study with better information required for this study.

4.5 Descriptive Analysis of Variables

The purpose of descriptive statistics was to enable the study to meaningfully describe a distribution of scores or measurements using indices or statistics. The type of statistics or indices used depends on the type of variables in the study and the scale of measurements.

4.5.1 Descriptive Analysis for Project planning

The respondents were presented with questions and statements in order to seek answers to the first research objective on to examine the extent to which project planning contributes to timely completion of housing projects in Machakos County. The findings of the study are discussed below.

Table 4. 6: Project Planning

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Stddev
Project planning is a key component on timely completion of housing construction projects	37%	26%	20%	10%	7%	3.93	.78
Project planning have long term benefits on performance of housing construction projects in terms of timely completion	38%	34%	15%	8%	5%	4.37	.63
Project planning is carried out before start of housing construction project to ensure timely completion	30%	26%	18%	10%	16%	3.89	.89
Project planning helps in achieving the deliverables of the project	32%	31%	17%	15%	5%	5.0	.77
Project planning demands several inputs such as conceptual proposals, schedules for the project, resource necessities/ restrictions and achievement metrics.	28%	33%	22%	11%	6%	7.8	.86
Composite Mean and Std						4.18	0.71

Source: Field Data, 2019

A Likert scale was used to examine the extent to which project planning contributes to timely completion of housing projects in Machakos County. The result indicated that 37% of the respondent strongly agreed to the statement that Project planning was a key component on timely completion of housing construction projects; 26% agreed, 20% were neutral, 10% disagreed, 7% strongly disagreed with a mean of 3.93 and standard deviation of 0.78 respectively; In finding out if Project planning has long term benefits on performance of housing construction projects in terms of timely completion; 38% strongly agreed, 34% agreed, 15% were neutral, 8% disagree and 5% strongly disagreed with a mean of 4.37 and standard deviation of 0.63 respectively; To determine if Project planning was carried out before start of housing construction to ensure the project was completed timely 30% strongly agreed, 26% agreed, 18% were neutral, 10% disagreed while 16 strongly disagreed with the statement as shown by a mean of 3.89 and standard deviation of 0.89 respectively.

That Project planning necessitated a comprehensive analysis as well as structuring in the subsequent events to ensure sustainability of construction projects were majority of respondents as was indicated by 35% strongly agreed, 27% agreed, 21% indicated were neutral, 8% disagreed while 9% strongly disagreed with a mean of 4.11 and standard deviation of 0.80 respectively. The respondents agreed with statement that Project planning helped in achieving the deliverables of the project were majority of the respondents indicated by 32% who strongly agreed, 31% agreed with the statement, 17% indicated that they were neutral, 15% disagreed while 5% strongly disagreed with a mean of 5.00 and standard deviation of 0.77 respectively.

That Project planning demanded several inputs such as conceptual proposals, schedules for the project, resource necessities/ restrictions and achievement metrics. 33% of the respondents strongly agreed, 28% agreed, 22% were neutral, 11% disagreed while 6% strongly disagreed with a mean of 7.8 and standard deviation of 0.86 respectively. The majority of the respondents indicated that project planning affect completion of the housing construction projects in time. This is due to leadership and management skills of project management team being good. This corroborates with the findings by Serageldin (2017) who argued that the essence of project planning was to increase the likelihood of successful completion of any project in time.

4.5.2 Descriptive Analysis for Stakeholders` participation

The respondents were presented with questions and statements in order to seek answers to the research objective which sought to assess the effect of stakeholders` participation on Machakos housing projects and their timely completion. The findings of the study are discussed below.

Table 4. 7: Stakeholders` participation

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Stdev
	Stakeholders are involved in s meetings to assess progress the housing constructi projects	34%	31%	19%	7%	9%	4.07
Stakeholders Participate in identifying performance gaps of housing construction projects.	45%	26%	20%	7%	2%	3.85	1.13
Stakeholders Participate in measuring performance levels of housing construction projects in terms of timely completion	38%	36%	11%	3%	7%	3.59	1.19
Project management practices provides opportunities for Stakeholders participation in housing construction projects	30%	26%	21%	19%	4%	3.89	.85
Engagement of stakeholders in all stages of the project lifecycle as much as possible leads to effective timely completion of housing construction projects	40%	28%	15%	9%	8%	3.99	.89
Composite Mean and Std						3.78	1.01

Source: Field Data, 2019

The second objective of the study sought to find out the effect of stakeholders` participation on Machakos housing projects and timely completion of such projects. To

achieve this, a likert scale was used. From the findings respondents agreed to the statement that Stakeholders were involved in site meetings to assess progress of the housing construction projects; 34% Strongly agree, 31% agree, 19% neutral, 7% disagree, 9% strongly disagree with a mean of 4.07 and standard deviation of 0.92.; that Stakeholders Participate in identifying performance gaps of housing construction projects. 45% strongly agree, 26% agree, 20% neutral, 7% disagree, and 2 % strongly disagree with a mean of 3.85 and standard deviation of 1.13.; That Stakeholders Participate in measuring performance levels of housing construction projects in terms of timely completion. 38% strongly disagreed, 36% disagreed, 11% were undecided, 3% agreed, and 7% strongly agreed with a mean of 3.59 and standard deviation of 1.19.

That Project management practices provided opportunities for Stakeholders participation in housing construction projects. 30% strongly agreed, 26% agreed, 21% neutral, 19% disagreed, and 4% strongly disagreed with a mean of 3.89 and standard deviation of 0.85. That engagement of stakeholders in all stages of the project lifecycle as much as possible led to effective timely completion of housing construction projects, 40% Strongly agreed, 28% agreed, 15% neutral, 9% disagreed, and 8% strongly disagreed with a mean of 3.99 and standard deviation of 0.89.

The results imply that the respondents acknowledged the need for the comprehensive involvement and participation of the stakeholders in the identification of Housing projects. Besides, the results imply that stakeholders should be consulted through the process and that their input should be considered in the implementation as it influences their

satisfaction in the projects. The findings were in agreement with the findings of Adan (2012) who found that project planning was positively correlated with the timely completion of projects. Project managers, resource managers, staff members, volunteers, participants, and community members all have a stake in the overall success of the project.

4.5.3 Descriptive Analysis for Risk Management

The respondents were presented with questions and statements in order to seek answers to the research objective on to evaluate the effect of risk management on timely completion of housing projects in Machakos County. The findings of the study are discussed below.

Table 4. 8: Risk Management

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Stdev
The contractors can easily identify the risks involved in the Housing construction projects	38%	34%	11%	10%	7%	4.03	.93
Time is always taken to analyze the risks relating to projects in housing construction	41%	41%	9%	4%	5%	3.74	1.09
There is timely response to the risks to achieve housing construction projects objectives	31%	28%	23%	10%	8%	3.4	1.18
The risks involved in the road construction projects can easily be shifted to the contractors	36%	30%	13%	12%	9%	3.85	.86
Effective risk management is a critical component of any winning management strategy	38%	29%	18%	8%	3.90	.89	
Composite Mean and Std						3.86	0.87

Source: Field Data, (2019)

The third objective of the study sought to evaluate the effect of risk management on timely completion of housing projects in Machakos County. From the findings respondents agreed to the statement that the contractors can easily identify the risks involved in the Housing construction projects; 38% strongly agreed, 34% agreed, 11% were neutral, 10% disagreed, 7% strongly disagreed with a mean of 4.03 and standard deviation of 0.93.; In finding out if time is always taken to analyze the risks relating to projects in housing

construction; 41% Strongly agreed, 41% agreed, 9%, neutral, 4% disagreed, 5% strongly disagreed, With a mean of 3.74 and standard deviation of 1.09.

In determining if there was timely response to the risks to achieve housing construction projects objectives; 31% strongly agreed, 28% agreed, 23% were neutral, 10% disagreed, and 8% strongly disagreed with a mean of 3.04 and standard deviation of 1.18; and in examining if the risks involved in the housing construction projects can easily be shifted to the contractors; 36% Strongly agreed, 30% agreed, 13% neutral, 12% disagreed, and 9% strongly disagreed with a mean of 3.85 and standard deviation of 0.86; In finding out if effective risk management was a critical component of any winning management strategy; 38% Strongly agreed, 29% agreed, 18% neutral, 8% disagreed, and 7% strongly disagreed as was indicated by a mean of 3.90 and standard deviation of 0.89 respectively. The findings show that majority of project management team had difficult in managing risks. Some of the projects the respondents indicated that they managed the risks well.

This particular findings on risk management agreed with literature review by Odeyinka, Lowe and Kaka (2012) who did a study to assess the impact of risk factors attributed for causing critical variations between forecasted and actual cash flows among construction firms in the UK. The findings identified eight significant risk factors. These risk factors included undervaluation of the scope of work, payment delays, underestimating the complexity of the project, shortage of skilled labour, variations to planned work activities, production target slippage, adverse and unpredictable weather conditions, and unforeseen changes to initial designs.

4.5.4 Descriptive Analysis for Monitoring and Evaluation

The respondents were presented with questions and statements in order to seek answers to the research objective which sought to determine the effect of monitoring and evaluation on timely completion of housing projects in Machakos County

Table 4. 9: Monitoring and Evaluation

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Stdev
Monitoring and Evaluation system cannot function without skilled people in housing construction projects	41%	37%	5%	9%	8%	4.04	1.06
Participatory monitoring and approach is used to determine timely completion of housing construction projects	39%	33%	11%	10%	7%	3.89	.85
Monitoring tools are well assessed if they are applicable in housing construction projects	40%	32%	22%	4%	2%	3.26	.98
We are satisfied with the policies put in place, which provide opportunity for adopting monitoring best practices in housing construction projects	32%	27%	18%	12%	11%	4.37	.63
The contractors have always used the stipulated amount of materials while constructing houses as per bills of quantities (BOQs)	35%	30%	19%	9%	7%	4.39	.66
Composite Mean and Std						3.43	0.83

Source: Field Data, 2019

The fourth objective of the study sought to determine the effect of monitoring and evaluation on timely completion of housing projects in Machakos County. From the findings 41% Strongly agreed, 38% agreed, 5% neutral, 9% disagreed, 8% strongly disagreed with a mean of 4.04 and standard deviation of 1.06; In finding out if Participatory monitoring and approach was used to determine timely completion of housing construction projects, 39% Strongly agreed, 33% agreed, 11% neutral, 10% disagreed, 7% strongly disagreed. With a mean of 3.89 and standard deviation of 0.85; In determining if Monitoring tools were well assessed if they were applicable in housing construction projects; 40% strongly agreed, 32% agreed, 22% were neutral, 4% disagreed, 2% strongly disagreed with a mean of 3.26 and standard deviation of 0.98; and in examining if respondents were satisfied with the policies put in place, which provide opportunity for adopting monitoring best practices in housing construction projects; 32% Strongly agreed, 27% agreed, 18% were neutral, 12% disagreed, and 11% strongly disagreed with a mean of 4.37 and standard deviation of 0.63.

In establishing if the contractors have always used the stipulated amount of materials while constructing houses as per bills of quantities (BOQs) 35% strongly agreed, 30% agreed, 19% were neutral, 9% disagreed, 7% strongly disagreed with a mean of 4.39 and standard deviation of 0.66 respectively. These findings show that majority of the respondents understood the importance of M&E activities on housing projects units. The respondents also noted that financial resources allocated to M&E were insufficient and this contributed to poor performance of housing projects undertaken by Machakos County.

The findings agreed with literature review by Naidoo, (2011) who did a study on role monitoring and evaluation to promote good governance and found that deliverables such as project plan, policies communication matrix and feedback were very significant in good governance and successful project implementation. The stakeholders relied on information submitted from M & E process to reveal project accountability and decision making.

4.5.5 Timely Completion of Housing Projects

The study sought to determine the extent to which key statements on timely completion of housing Projects affected completion of housing projects of Machakos County

Table 4. 10: Timely Completion of Housing Projects

Statements	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Stdev
Good project management practices, enough material and proper planning are the major reasons of timely completion of housing project in Machakos county	39%	27%	19%	8%	7%	4.14	1.16
Good strategies can lessen housing construction project delays in Machakos	33%	30%	16%	11%	10%	3.99	1.85
Proper housing project site management leads to timely completion	34%	30%	10%	14%	12%	3.56	1.88
Sufficient communication between housing project team leads to timely completion	36%	30%	14%	11%	9%	4.27	1.63
Composite Mean and Std						3.48	1.83

Source: Field Data, (2019)

The study sought to find out the level of agreement /Disagreement with statements regarding the timely completion of housing Projects in Machakos County. From the findings respondents agreed to the statements that good project management practices, enough material and proper planning are the major reasons of timely completion of housing project in Machakos County; 39% Strongly agreed, 27% agreed, 19% neutral, 8% disagreed, 7% strongly disagreed with a mean of 4.14 and standard deviation of 1.16;

In establishing if good strategies can lessen housing construction project delays in Machakos; 33% Strongly agreed, 30% agreed, 16% neutral, 11% disagreed, 10% strongly disagreed. With a mean of 3.99 and standard deviation of 1.85.

In finding out if Proper housing project site management led to timely completion; 34% strongly agreed, 30% agreed, 10% were neutral, 11% disagreed, 9% strongly disagreed with a mean of 3.56 and standard deviation of 1.88; and in determining if sufficient communication between housing project team led to timely completion; 36% strongly agreed, 30% agreed, 14% were neutral, 11% disagreed, and 9% strongly disagreed with a mean of 4.27 and standard deviation of 1.63; In establishing if the enough skilled labour Led to timely completion of housing construction projects in Machakos County; 31% strongly agreed, 29% agreed, 16% were neutral, 14% disagreed, 10% strongly disagreed with a mean of 4.17 and standard deviation of 1.53 respectively.

These findings were in agreement with those findings of Divakar & Subramanian, (2009) who found out that timely completion of the project was one of the determinants of its success, it was important to manage each project based on its uniqueness and project timely completion factors can be classified into managerial factors, efficient project planning and clarity of objectives.

4.6 Regression Analysis

The study further carried out regression analysis to establish the statistical significance relationship between the independent variable, project planning, stakeholders` participation, risk management, monitoring and evaluation and the dependent variable, timely completion of housing projects in Machakos County. According to Green and Salkind (2003) regression analysis is a statistics process of estimating the relationship between variables. It helps in generating equation that describes the statistical relationship between one or more predictor variables and the response variable. The regression analysis results were presented using regression model summary tables, analysis of variance (ANOVA) table and beta coefficient tables.

Table 4. 11: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.968 ^a	.937	.933	.57020

a. Predictors: (Constant), Monitoring and evaluation, Risk management, Project planning, Stakeholders` participation

Source: Field Data, (2019)

Table 4.11 shows that adjusted R square was 0.933. This implies that 93.3 percent of the variation in the dependent variable (timely completion of housing projects) was explained by the independent variables: Monitoring and evaluation, Risk management, Project planning, Stakeholders` participation. This results implied that there existed a strong positive relationship between independent variables and the timely completion of housing projects in Machakos sub Counties.

Table 4. 12: ANOVA

Model	Sum of Squares	ANOVA ^a		F	Sig.	
		Df	Mean Square			
1	Regression	323.536	4	80.884	248.780	.000 ^b
	Residual	21.783	67	.325		
	Total	345.319	71			

Source: Field Data, (2019)

a. Dependent Variable: Timely completion of housing projects

b. Predictors: (Constant), Monitoring and evaluation, Risk management, Project planning, Stakeholders` participation

Table 4.12 shows that F-statistic for the model was 248.780 with 4 degrees of freedom and its p-value was 0.000. This implies that the overall model was statistically significant. F statistics being 0.000 which was less than 0.05. This implied that there was a significant relationship between the project planning, stakeholders` participation, risk management, monitoring and evaluation and timely completion of housing projects.

Table 4. 13: Coefficients

Model	Coefficients ^a			T	Sig.
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta		
(Constant)	.848	.203		4.188	.000
Project planning	.049	.022	.172	2.233	.029
Stakeholders` participation	.060	.034	.155	1.761	.083
Risk management	.046	.016	.184	2.807	.007
Monitoring and evaluation	.168	.030	.516	5.633	.000

a. Dependent Variable: Timely completion of housing projects

Source: Field Data, (2019)

From Table 4.13, the regression coefficient for project planning was positive implying that project planning increased the timely completion of housing projects. The coefficient had a p-value of 0.029 which was less than 0.05 leading to the rejection of the null hypothesis and the conclusion is that project planning had a significant effect on timely completion of housing projects within Machakos Sub Counties. This means that hypothesis one did not

accurately predict the outcome of the study, leading to the rejection of null hypothesis one. These findings were consistent with those of Majanja (2012) and Gitenya and Ngugi (2012) who asserted that project planning was a key to timely completion of infrastructure projects.

The regression coefficient for stakeholders` participation was found to be positive. This implied that the more stakeholders` participation the higher the timely completion of housing projects. The coefficient had a p-value of 0.083 which is higher than 0.05. Thus, the null hypothesis was accepted and the conclusion was that conducting stakeholders` participation did not play a critical role in the timely completion of housing projects within Machakos Sub Counties. The acceptance of null hypothesis implied that hypothesis two accurately predicted the outcome of the study, leading to acceptance of null hypothesis two. These findings concur with those of Harries and Reyman (2008) who asserted that stakeholders participation is increasingly being recognized as critical in any project function.

In the case of risk management, the regression coefficient was also positive implying that timely completion of projects improved by putting risk management strategies. The coefficient had a p-value of 0.007 which is less than 0.05 leading to the rejection of the null hypothesis. Thus, risk management had a significant effect on timely completion of housing projects in Machakos Sub Counties. The results implied that hypothesis three did not accurately predict the outcome of the study, leading to the rejection of null hypothesis three.

The findings concur with that of Saunders (2014) who asserted that risk management strategies are the best solutions for a firm to efficiently achieve the desired quality of projects.

The regression coefficient for Monitoring and evaluation was positive implying that timely completion of housing projects improved positively if Monitoring and evaluation was practiced effectively. The coefficient had a p-value of 0.000 leading to the rejection of the null hypothesis and the conclusion was that Monitoring and evaluation had a significant effect on the timely completion of housing projects in Machakos Sub counties. The results implied that hypothesis four did not accurately predict the outcome of the study, leading to the rejection of null hypothesis four. The findings of this study concur with those of Might and Fisher (2011) who asserted that unearthing Monitoring and evaluation and managing them could contribute to better performance of infrastructure projects.

The overall model as shown on Table 4.12 indicated that Project planning, Stakeholders` participation, Risk management and Monitoring and evaluation were highly significant at $p=0.029$, $p=0.083$, $p=0.007$ and $p=0.000$ respectively. The overall test result is shown by the following equation: $Y = 0.029X_1 + 0.083X_2 + 0.007 X_3 + 0.000 X_4$.

Where;

Y was timely completion of housing projects, X_1 was Project planning, X_2 In Stakeholders` participation, X_3 was Risk management and X_4 was Monitoring and evaluatio

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter, presents summary of findings, conclusions and recommendations of the study.

5.2 Summary of Findings

5.2.1 Project Planning

The study established that Project planning was a key component on timely completion of housing construction projects; That Project planning had long term benefits on performance of housing construction projects in terms of timely completion; That Project planning was carried out before start of housing construction project to ensure timely completion; That Project planning necessitated a comprehensive analysis as well as structuring in the subsequent events to ensure sustainability of construction projects; That Project planning helped in achieving the deliverables of the project; That Project planning demanded several inputs such as conceptual proposals, schedules for the project, resource necessities/ restrictions and achievement metrics as indicated with a composite mean of 4.11.

5.2.2 Stakeholders` Participation

The findings show that machakos County somehow they did not involve the stakeholders during the housing project constructions and that stakeholder participation involves early identification and management of stakeholders at the start of a project and that stakeholder's needs and expectations can influence project decisions and that stakeholder's influence timely completion of housing projects.

5.2.3 Risk management

On Risk management the finding revealed that the contractors easily identified the risks involved in the Housing construction projects; that time was always taken to analyze the risks relating to projects in housing construction; that there was timely response to the risks to achieve housing construction projects objectives; that the risks involved in the housing construction projects was easily shifted to the contractors; that effective risk management was a critical component of any winning management strategy for housing construction projects as was indicated with a composite mean of 3.86.

5.2.4 Monitoring and Evaluation

The findings further show that monitoring and evaluation enhances the quality of project management, monitoring activity supports both project managers and staff in understanding whether the projects are progressing on schedule or meet their objectives and ensures that required quality standards are achieved in project. It was also established that monitoring provides the background for reducing schedule and cost overruns and that

evaluation can be perceived as an instrument for helping planners to assess to what extent the projects have achieved the objectives.

5.2.5 Timely completion of housing projects

On timely completion of housing projects the findings indicated that good project management practices, enough material and proper planning are the major reasons of timely completion of housing project in Machakos County; that good strategies can lessen housing construction project delays in Machakos; that Proper housing project site management leads to timely completion; that sufficient communication between housing project team leads to timely completion; that the enough skilled labour Leads to timely completion of housing construction projects in Machakos county as indicated with a composite mean of 3.48.

5.3 Conclusion

The study concluded project planning positively led to timely completion of housing projects of Machakos County and it's enhanced by various indicators. These indicators included; conducting a feasibility study, clearly planning for the project in terms of scope, time and completion schedule; stakeholders participation; studying the risk plan; making a procurement plan; community participation; and preparing a financial detailed plan.

The study concluded that stakeholder participation was important factor which led to completion of housing projects in Machakos County. The regression coefficients of the study shown that stakeholder participation had a significant influence on completion of

housing projects. This implied that increasing levels of stakeholder participation would increase the levels of completion of housing projects in Machakos County.

On risk management the study concludes that housing projects are faced with various risks in management of projects. From the analysis of the findings, the respondents indicated that quality and risk are considered key factors for a performance management and a standard. Risk assessment fully discloses the sensitivity of the project to its participants to ensure that all threats are fully understood. As a result, targets and contingencies can be set at correct levels, contracts can be negotiated with an accurate understanding of potential challenges, and risk mitigation strategies can also be created in advance.

On monitoring and evaluation the study concluded that well organized monitoring system creates a solid base for proper design of final evaluation. Monitoring and evaluation enhances the quality of project management and ensures that required quality standards are achieved in project. It was also established that evaluation can be perceived as an instrument for helping planners to assess to what extent the projects have achieved the objectives. The necessity of applying a formalized monitoring and evaluation flow is being supported by many international studies, which revealed that most projects are facing serious problems before completion and part of them are being abandoned after important amounts of money had already been invested. The stud therefore concluded that effective monitoring and evaluation is an important determinant of timely completion of housing projects.

5.4 Contribution to body of Knowledge

Housing projects constructed in developing countries by local construction firms have continued to perform poorly in terms of cost, time and quality. Kenya's overall performance was 36.9 percent for the period 2013 to 2018. Despite this poor performance, none of the previous studies have focused on the timely completion of housing infrastructure projects constructed by county governments in Kenya. Most of the studies focused on performance of other infrastructure projects and focused other countries, hence there was need to conduct a study in Kenya. Furthermore, no study has specifically focused the Machakos County in spite of poor housing infrastructure. Many of the housing projects in the region were constructed by local firms.

The study therefore has shed light on the effect of project management practices on the timely completion of projects constructed by local firms in Kenya. In addition, none of the studies had been conducted on project management practices on timely completion of housing projects. The study therefore, presented insights into the effects of project management practices on timely completion of housing projects a case of Machakos county in Kenya. The study also contributes to the body of knowledge by testing the regression model and its applicability in the timely completion of housing projects.

5.3 Recommendations

From the conclusions arrived at, the following recommendations were made:

On project planning the study recommends that the county housing project team should prepare documentations and manuals guiding on project planning. Rules and regulation

should as well be established on the requirements for project planning. Where possible there should be guidelines and checklist on the project planning mechanisms. These should provide clarity of standards and specifications for the elements project planning. Secondly proper planning at all project stages should be done as well as good supervision and inspection of a construction project to ensure the project is successfully completed in time.

The study recommends that there should be good policies on Monitoring and evaluation which ought to be attempted in each progression of project implementation and not a one-time occasion as it is normal with the numerous financed projects. This will help distinguish, escape clauses and deviations from general projects objectives, and correct them ahead of schedule as to guarantee effective quality implementation.

On Stakeholder participation the study recommends that the management of housing projects should involve stakeholders in project life cycle. The stakeholders on the other hand must be willing and able to listen, truly seeking and valuing diverse voices, making a special effort to hear and understand. The process also requires that all participants demonstrate respect for each other and commitment to the process, and have the patience and discipline to work together toward shared perspectives and common outcomes. Effective participation cannot be achieved by simply adopting a successful model from another context. Public participation should be designed and informed by key principles and be sensitive to relevant local institutions and governance arrangements. The study also recommends stakeholder engagement sessions in the lifetime of the project so as to ensure that every interested party plays their role in ensuring the

construction of housing projects does not take longer than intended because of the actions or inactions of any one of the project players.

On Risk Management the study recommends that management of housing projects in Kenya should ensure that adoption and implementation of sound risk management practices, that there is appropriate risk policy in place, that there is appropriate risk-return tradeoff policy, that there exists favorable internal business environment and that appropriate credit risk limits are set as they impact on the timely completion of housing projects. Secondly Project management team should consider putting in place a team of experts to identify, analyze and mitigate project risks, the study recommends that County government should consider putting in place a team of experts to ensure that contractors who do shoddy work are not paid until they deliver a quality house project.

For the risks to be mitigated there is need to determine what risks are most likely to affect the project, which risks are the most important and document them. The constructors need to assess the risks carefully and identify the implications that these risks might have on their project.

5.5 Areas for Further Research

The study was carried out on the project management practices in relation to timely completion of housing projects of Machakos County in Kenya. The study suggests that further research should be carried out to establish the other project management practices

that are attributed to affecting of the timely completion of housing projects The study also suggests that further research should target other counties for purpose of comparison

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APPENDICES

Appendix I: Introduction Letter

**VINCENT M MULI,
MOI UNIVERSITY,
SHRD/PGPE/207/17**

Dear Respondent,

RE: PARTICIPATION IN ACADEMIC SURVEY

I am a student of a Master of Science in Project Planning and Management at Moi University, Currently, I'm collecting data for the writing my thesis in partial fulfillment of Degree of Master of Science in Project Planning & Management of Moi University. I am collecting information relating to the best project management practices and how such practices results to timely completion of housing projects: in Machakos County.

I'm therefore kindly requesting you to cordially give the answers to the questions in this questionnaire. The information provided will be treated with the highest confidentiality as much as possible and anonymity. This questionnaire should take about 5-10 should you have difficulty in understanding any part or a whole section of a question, you are free to ask for clarification from me or my research assistant who has given you the questionnaire. Your honest and sincerely participation in filling this questionnaire is highly appreciated.

Yours Faithfully
Vincent Muli

APPENDIXII: SAMPLE QUESTIONNAIRE

The purpose of this questionnaire is to collect information on some variables project planning, stakeholder's participation, risk management, and monitoring and evaluation and how they affect the timely completion of housing projects in Machakos County. You are therefore requested to cordially provide the information sought by this questionnaire as much as you can. The information provided will be treated with the highest level of confidentiality writing a thesis in partial fulfilment for the requirement of the degree of Master of Science in Project Planning and Management.

Section A: Personal Information of Respondents

1. Name of respondent (optional)

.....

2. Name of your Sub – County?

.....

3. For how long have you worked in housing construction projects?

a. 0-5years ()

b. 5-10 years ()

c. Over 10 years ()

4. Is the housing project you are engaged in:

(a) Large ()

(b) Medium ()

(c) Low ()

Tick as appropriate

Section B: Project Planning

Please indicate the extent to which you agree/disagree with the following statements on project planning by indicating 1 for Strongly Agree), 2 for Agree, 3 for Neutral, 4 for Disagree, 5 for strongly disagree

	Statement	1	2	3	4	5
1	Project planning is a key component on timely completion of housing construction projects					
2	Project planning have long term benefits on performance of housing construction projects in terms of timely completion					
3	Project planning is carried out before start of housing construction project to ensure timely completion					
4	Project planning necessitates a comprehensive analysis as well as structuring in the subsequent events to ensure sustainability of construction projects					
5	Project planning helps in achieving the deliverables of the project					
6	Project planning demands several inputs such as conceptual proposals, schedules for the project, resource necessities/ restrictions and achievement metrics.					

Section B: Stakeholders Participation

Please indicate the extent to which you agree/disagree with the following statement on Stakeholders Participated by indicating 1 for Strongly Agree), 2 for Agree, 3 for Neutral, 4 for Disagree, 5 for Strongly disagree

	Statement	1	2	3	4	5
1.	Stakeholders are involved in site meetings to assess progress of the housing construction projects					
2.	Stakeholders Participate in identifying performance gaps of housing construction projects.					
3.	Stakeholders Participate in measuring performance levels of housing construction projects in terms of timely completion					
4	Project management practices provides opportunities for Stakeholders participation in housing construction projects					
6	Engagement of stakeholders in all stages of the project lifecycle as much as possible leads to effective timely completion of housing construction projects					

Section F: Risk Management

Please indicate the extent to which you agree/disagree with the following statement on risk management by indicating 1 for Strongly Agree), 2 for Agree, 3 for Neutral, 4 for Disagree, 5 for strongly disagree

	Statement	1	2	3	4	5
1	The contractors can easily identify the risks involved in the Housing construction projects					
2	Time is always taken to analyze the risks relating to projects in housing construction					
3	There is timely response to the risks to achieve housing construction projects objectives					
4	The risks involved in the road construction projects can easily be shifted to the contractors					
5	Effective risk management is a critical component of any winning management strategy					

Section C: Project Monitoring and Evaluation

Please indicate the extent to which you agree/disagree with the following statement on project monitoring and evaluation by indicating 1 for Strongly Agree), 2 for Agree, 3 for Neutral, 4 for Disagree, 5 for strongly disagree.

	Statement	1	2	3	4	5
1	Monitoring and Evaluation system cannot function without skilled people in housing construction projects					
2	Participatory monitoring and approach is used to determine timely completion of housing construction projects					
3	Monitoring tools are well assessed if they are applicable in housing construction projects					
4	I am satisfied with the policies put in place, which provide opportunity for adopting monitoring best practices in housing construction projects					
5	The contractors have always used the stipulated amount of materials while constructing houses as per bills of quantities (BOQs)					

Section G: Timely Completion of Housing Projects

Please indicate the extent to which you agree/disagree with the following statement on timely completion of housing construction projects by indicating 1 for Strongly Agree), 2 for Agree, 3 for Neutral, 4 for Disagree, 5 for Strongly disagree.

	Statement	1	2	3	4	5
	Timely completion of housing projects					
1	Good project management practices, enough material and proper planning are the major reasons of timely completion of housing project in Machakos county					
2	Good strategies can lessen housing construction project delays in Machakos					
3	Proper housing project site management leads to timely completion					
4	Sufficient communication between housing project team leads to timely completion					
5	Enough skilled labour. leads to timely completion of housing construction projects in Machakos county					

THANK YOU FOR PARTICIPATION

APPENDIX III MOI UNIVERSITY LETTER



MOI UNIVERSITY
ISO 9001:2008 CERTIFIED
SCHOOL OF BUSINESS AND ECONOMICS

Tel: (053) 43153

P.O Box 63056-00200

Fax: (053) 43153

NAIROBI
 KENYA

=====
 MU/NRB/MBA/SA/01

=====
 22nd July 2019

National Commission for Science, Technology and Innovation
 Upper Kabete
 P.O. Box 30623 00100
NAIROBI

Dear Sir/Madam,

RE: REQUEST FOR RESEARCH PERMIT
VINCENT M. MULI

This is to confirm that the above named is a Postgraduate student of Moi University, School of Business and Economics, Department of Management Science. Mr. Muli is pursuing a Master of Science in Project Planning and Management course offered at Nairobi campus.

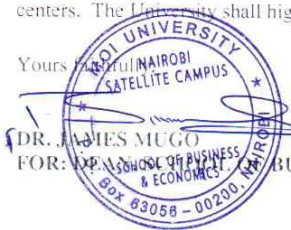
The student successfully defended her proposal and is due to proceed for her research data collection.

The research Title is- **“Project Management Practices and Timely Completion of Housing Projects in Kenya: A Case of Machakos Town Sub-County Housing Projects.”**






The student is in the process of obtaining a research permit to enable him visit the identified research centers. The University shall highly appreciate any assistance accorded to him.

Yours faithfully,

DR. JAMES MUGO
 FOR: **SCHOOL OF BUSINESS & ECONOMICS**



APPENDIX IV: RESEARCH AUTHORISATION LETTER

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 953453	Date of Issue: 05/September/2019
RESEARCH LICENSE	
	
This is to Certify that Mr., VINCENT MULI of Moi University, has been licensed to conduct research in Machakos on the topic: PROJECT MANAGEMENT PRACTICES AND TIMELY COMPLETION OF HOUSING PROJECTS IN KENYA: A CASE OF MACHAKOS TOWN SUB-COUNTY HOUSING PROJECTS for the period ending : 05/September/2020.	
License No: NACOSTI/P/19/516	
953453 Applicant Identification Number	 Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
	Verification QR Code 
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APPENDIX V: MACHAKOS COUNTY SUBCOUNTIES



Source: www.googleearth.com/kenya/machakoscounty