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**FACTORS AFFECTING COMPLETION OF HOUSING PROJECTS
(SURVEY OF PRISONS HOUSING PROJECTS IN NAIROBI
COUNTY)**

BY

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D53/12416/2009

**A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS IN
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF
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KENYATTA UNIVERSITY**

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*Factors affecting
completion of housing*



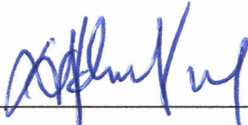
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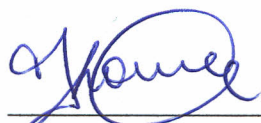
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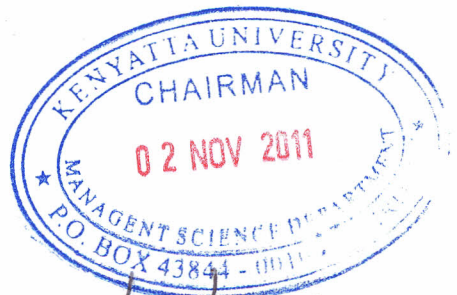
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DEDICATION

To my sagacious dad Omwega Monyenye, my brothers and sisters for their immeasurable and in brothers and sisters for their in depth support, encouragement, peace and patience they provided me. My late mom Agnes Moraa who never lived long enough to see me grow old.

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ABSTRACT

This study was to assess factors that affect completion of housing projects based on key project factors. The indicators of project success are cost, time, technical performance and customer satisfaction as used in previous studies and are essential to all types of projects. Meanwhile, project managers frequently ignore such general rules, because they are convinced that their particular projects pose entirely unique kinds of problems. This study, based on responses to an extensive questionnaire, explores factors that can affect completion of prisons' housing projects in Nairobi County. This research study adopted a descriptive research design that describes the existing conditions and attitudes through observation and interpretation techniques. The target population for this study was seven (7) prisons having one hundred and seventy five (175) ongoing housing projects. The respondents were officials from the Prisons in Nairobi County and Officers from MoPW & H. The data will be both qualitative and quantitative. Semis structured questionnaire will be used to collect data in order to investigate factors that can affect completion of prisons' housing projects. Quantitative data was analyzed using descriptive statistics and results on average percentage and variability will be presented through tables and graphs. It also included simple statistical methods of data analysis like frequencies, mean, mode, median; distributions, rankings and standard deviation. Qualitative analysis involved content analysis of data to find patterns, and understand the respondents' perceptions, opinions, and views of the study. The study concludes that the staffs were not directly involved in making decisions on what type of houses were to be built. Funds disbursed were not sufficient. Challenges faced in the process of financing the project was poor planning and long procurement procedures. Monitoring and evaluation involves all stakeholders. Monitoring and evaluation is well done by outsiders. Project finance and other monetary benefits can be used to improve project completion by timely release of funds. The study concludes that the prison used Government of Kenya Act. The study recommends the staffs to be directly involved in making decisions on what type of houses were to be built. Monitoring and evaluation should be an ongoing process that ensures targets are met. Management affected the utilization of funds allocated for housing projects. The study recommends that the Government of Procurement Act of Kenya should be reviewed to shorten the procedures.

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DEFINITION OF TERMS

- Client** - A part that carries out or assigns others to carry out construction, demolition or land work
- Contract** - A mutually binding agreement that obligates the seller to provide the specified product and obligates the buyer to pay for it
- Contractor** - A performing organisation whose employees are most directly involved in doing the work on the project
- Performance** - The ability to operate efficiently and effectively in line with the set goals
- Project life cycle** - A collection of generally sequential project phases whose name and number are determined by the control needs of the organisation or organisations involved in the project.
- Project management** - Project management is the discipline of planning, organizing, securing and managing resources to bring about the successful completion of specific project goals and objectives.
- Project manager** - This is a professional in the field of project management.
- Project risk** - An uncertain event or condition that, if occurs, has a positive or a negative effect on a project objective.
- Project termination** - The project closure phase is the last phase of a project.
- Project** - a unique process, consisting of a set of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements, including the constraints of time, cost and resources.

LIST OF ABBREVIATIONS AND ACRONYMS

PM	-	Project Manager
PLC	-	Project Life cycle
MoPW & H	-	Ministry of Public Works & Housing
NHC	-	National Housing Corporation
P.S.T.C.	-	Prisons Staff Training College
GoK	-	Government of Kenya
COHRE	-	Centre on Housing Rights and Evictions
KPI	-	Key performance indicators
PSTC	-	Prisons School Training College
Y.C.T.C	-	Youth Correctional Training Centre

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CHAPTER ONE

1.0 Introduction

This chapter one deals with the background to the study, research problem statement, significant of the study, scope of the study and limitation of the study. It also outlines the general objective, specific objective and research question. Finally, the structure of the thesis is outlined.

1.1 Background to the Study

A construction project is completed as a result of a combination of many events and interactions, planned or unplanned, over the life of a facility, with changing participants and processes in a constantly changing environment. Certain factors are more critical to project success than others. These factors are called critical success factors (CSFs). The term critical success factor, in the context of projects and the management of projects, was first used by Rosenau (1998) and is defined as those factors predicting success on projects (Pinto & Slevin, 1987). However the concept of project success has remained ambiguously defined in the mind of the construction professionals. Based on the results of the survey, it is anticipated that patterns will emerge regarding the key factors that influence project success in the Kenya's construction industry.

The project manager's skills are essential from the beginning (Meredith & Mantel, 2010). The defined approach and its business case will rely on a good understanding of the project process along with reliable estimating and carefully considered planning. As well as the project manager's prime objective to deliver the results, there are many supporting disciplines and processes. The foremost need is to monitor the anticipated level of benefits and make adjustments to deliver optimum results. The leadership team should also actively identify and manage risks, issues, changed requirements, quality standards, plus a host of other side issues. Not all these processes follow the traditional development lifecycle. In particular, it is wrong to consider the project has finished when the new system goes live. That way you will never know whether it delivered the planned benefits and you will probably not achieve them! Management attention must be retained to deliver the benefits through to the Post Implementation Review (PIR) and beyond.

Project implementation requires a combination of techniques, procedures, people, and systems focused on the successful completion of a project (Meredith & Mantel, 2010). It is also a process that includes the planning, implementation, tracking, and control of projects. According to Meredith & Mantel (2010), project implementation constitutes 85% of all the project activities and resource utilization. According to Kerzner (2009), project implementation is the execution of tasks and sub tasks that are parts of the whole project, using techniques and systems from start to finish, achieving predetermined objectives of scope, quality, time and cost, to the equal satisfaction of those involved. In a well run project, there is a constant array of implementation issues to deal with, as well as a challenging routine of project implementation processes. Project implementation is a complex undertaking, with many stages and processes. It should follow the full business lifecycle, from definition and justification of the project, through to delivering demonstrable benefits for the business.

Depending on the on the size of the project, the contract management plan may be a section within the PMP or for larger projects a supporting planning document referenced in the PMP. Procurements for most projects are undertaken by the Agency's procurement department that has in place associated procurement procedures. The project manager's role is to make certain that the department's procurement activities on behalf of the project fit in with the project plan (Meredith & Mantel, 2010). The role of the contract administrator is to make certain the contractor meets its contractual obligations, the Agency adheres to its contractual obligations, and the Agency's legal rights are protected. It is important that the PMP and the contract management plan clearly identify the roles and procedures to be followed by the project staff responsible for managing the project (delivering the project scope on time and within budget) versus the project staff responsible for administering project contracts (making certain contract parties meet their contractual obligations and protecting the organization's legal rights).

Project success means completing all project deliverables on time, within budget, and to a level of quality that is acceptable to sponsors and stakeholders (Kerzner, 2009). It is critical for a project manager to understand what the stakeholders consider as a successful project. In order to avoid any surprises at the end of the project, there is an urgent need to

identify the different perspectives of what success means before the project goes live. To the extent that the project management literature of the 1960s and 1970s dealt with project success at all, the definition was usually limited to meeting cost, schedule, and scope objectives was the project finished within budget, on time, and according to the specifications? Later, both quality and stakeholder satisfaction were often called out separately rather than being subsumed within scope (Meredith & Mantel, 2010). Project success requires a combination of product success and project management success that is the product (service, result, or outcome) of the project if it is a success and if the project is well-managed (Kerzner, 2009).

1.1.1 Prisons Housing Projects in Nairobi County

Traditionally, a construction process is sequential; many actors are involved only in some project phases and focus on their own part of work rather than on the whole project. As the size and complexity of projects have increased, successful implementation throughout the construction process has become an area of concern to project stake holders Dennis (2007). Different projects have to be allocated to the project's actors on the basis of who has the best qualifications for dealing with a specific risk; according to a report that investigates more than 3000 quality problems, the cost for poor quality can amount to 20% of the total cost (Grey & Larson, 2004). Moreover, about 70% of all problems can be identified at the early stages and, therefore, poor quality cost can be decreased by more than 60% (Turner & Simister, 2000).

The acute shortage of houses has led to the mushrooming of shanties and slums within the Prisons. Population density is high resulting in overcrowding and social pathology the country has witnessed. The Prisons administration requires junior officers to stay in the staff lines, this has led to the junior officers taking own initiative to construct shanties with poor ventilation or nonexistent in most shacks. Madoka (2008) noted that walls and partitions between families are made of cardboard and nylon papers, and all quarters occupied by junior staff experiencing acute crowding. As a result of this, during the fiscal years 2004/2005 – 2007/2008, the government initiated various interventions like Rapid Results Initiative (RRI) for Housing Projects, conventional Contracting through the

Ministry of Public Works and Use of Appropriate Building Technology through the Ministry of Housing. Through these initiatives, 473 house of various categories, have either been built or are under construction in various prisons.

An extensive literature review Pinto (1996) shows that the international studies have also been focused on the perspective of one group of project actors. The review of all project actors is limited. Therefore, this research discusses completion of projects from the joint perspective of project managers' technical skills, implementation processes, procurement process, finance and monitoring and evaluation during the project life cycle. The project manager's technical skills are essential from the beginning. The foremost need is to monitor the anticipated level of benefits and make adjustments to deliver optimum results (Kamau, 2002).

1.2 Statement of the Problem

According to Madoka (2008), In the 2005/2006 and 2006/2007 Financial Years, Kshs.900 million was allocated for construction of prisons' staff houses. In the two financial years, the sum of the unspent funds meant for staff housing was Kshs. 480,704,514/-. The explanations given for under utilization of funds were lack of better capacity within their Building Sections; inefficient design, certification and approvals by relevant authorities; ineffective procurement procedures and poor performance by the contractors awarded the projects. This has resulted in the housing situation for Prisons' staff to greatly deteriorate over the years and an acute housing shortage (Madoka, 2008), currently; most uniformed officers live in deplorable conditions with up to four families sharing a house meant for only one family: this congestion compromises privacy and jeopardizes their self esteem. There are 3,660 (17.4%) houses against staff strength of 17, 177. This reflects a shortfall of 82.6%. In Nairobi, there are 1,320 houses against staff strength of 3,970 (Madoka, 2008).

According to Madoka (2008), Prisons housing in Kenya do not supply fully serviced dwellings for all the Prison officers. The formal mechanisms of housing production and financing do not reach all Prisons while informal mechanisms produce solutions that are either substandard or expensive to construct. Government activities do not fully

compensate for the individual constructions. As a result, an estimated 2 773 junior prison officers are living in substandard dwellings. Lack of sanitation services, overcrowding and insufficient environmental protections are the most pervasive problems while insufficient access to outside housing services or the requirement to live within the prison compound worsens the problem in most Prisons (Madoka, 2008). Poor housing strikes mostly junior prison officers. According to Maslow (1954) basic needs (shelter) must be satisfied. Only when the lower order needs of physical and emotional well-being are satisfied, then are we concerned with the higher order needs of influence and personal development. Conversely, if the things that satisfy our lower order needs are swept away, we are no longer concerned about the maintenance of our higher order needs.

The Government has attempted to deal with the situation through a variety of policies and direct interventions like improving the sanitary conditions, providing water, sewerage, drainage and the construction of low-cost houses (Madoka, 2008). This study will investigate the factors affecting the ongoing housing projects and subsequently analyse the results obtained from Nairobi County. This will enable project stakeholders to have an understanding of how projects' completion is enhanced and urgently alleviate the current housing crisis.

1.3 General Objective of the Study

The overall aim of this research was to establish the factors affecting completion of housing projects.

1.3.1 Specific Objectives of the Study

The specific research objectives of the study were:-

- (i) To find out how a project manager technical skills affect completion of prisons' housing projects in Nairobi County.
- (ii) To establish how project implementation procedures affect completion of prisons housing projects in Nairobi County.
- (iii) To determine if procurement processes affect completion of prisons housing projects in Nairobi County.

- (iv) To find out how monitoring and evaluation affects completion of prisons housing projects in Nairobi County.
- (v) To find out how finance affects completion of prisons housing projects in Nairobi County.

1.4 Research Questions

The study sought to answer the following research questions:

- (i) How do the project manager's technical skills affect completion of prisons housing projects in Nairobi County?
- (ii) How do project implementation procedures affect completion of prisons housing projects in Nairobi County?
- (iii) How do procurement procedures affect completion of prisons housing projects in Nairobi County?
- (iv) How does monitoring and evaluation affect completion of prisons housing projects in Nairobi County?
- (v) How does finance affect completion of prisons housing projects in Nairobi County?
- (vi) Are there any other factors affecting the completion of prisons housing projects in Nairobi County?

1.5 Significance of the Study

This research would greatly help the completion of the ongoing prisons housing projects in Nairobi County for improved project success and also in reduce the wastage of resources already committed. The study would also contribute to the existing knowledge of other research conducted in this area so far. However, the researcher is expected to benefit the following:-

1.5.1 Selected Institution

This research study would enable the selected institution to realize why its projects have not been completed despite being allocated substantial resources. The recommendations

would enable the institution thus, to know what should be improved if these projects are to be completed by considering those factors affecting completion of housing projects.

1.5.2 Prison Officers

The study was aimed at analyzing Prisons' staff housing status and the researcher was keen to have accurate recommendation on the poor areas where changes and rectifications are necessary. The researcher would also advise the management of the institution of the need for proper housing, which would increase privacy, productivity and ensure future establishment.

1.5.3 Project Managers

The research would enable the top management team to know that they are an important asset of the institution and should contribute effectively in deciding the optimal mix of those factors affecting completion of housing projects and communicate them during the project implementation process. It would also suggest more initiative policies and procedures to be followed by the project managers, procurement departments and organizations, and contractors.

The study would also benefit other candidates aspiring to carryout similar research in future on how to go about it and the problems that they are likely to encounter. This would enable them to adopt the most appropriate approach to meet their targets. This research is also important for the purpose of partial fulfillment for the requirements of the award in Postgraduate Degree of Masters in Business Administration to the researcher.

1.6 Limitations of the Study

There were two areas of possible limitations namely time and finance. Given that this is a research project, there was a timeframe meaning the beginning and the end of the project is defined hence may be insufficient to comprehensively study the factors that can influence successful completion of prisons' housing to minute details required. Nairobi County has the most number of prisons compared to other counties in Kenya; substantial amount of finance will be required to conduct the study.

1.7 Scope of the Study

The study focused on construction of prisons housing projects in Nairobi County. A sample of the prisons staff houses across Nairobi County was examined. The respondents was Ministry of Public Works and Housing, Prisons building department and prison officers who were the project users.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter critically analyzed the literature on factors affecting completion of projects. Literature regarding construction of housing projects was the main focus for this chapter. The chapter also sought to identify the research gap from the past studies.

2.1 Overview of Project Success

Differences in a person's definition of success are often very evident. Traditionally, performance in construction was measured based on what is so called the iron-triangle of time, cost and quality (Walker, 1996); (Turner & Simster, 2000). A project is a unique venture with specific start and end dates (Kerzner, 2009). Constraints on project include cost, schedule, resources, and quality (PMI, 2004). In developed countries, the process of project implementation is changing rapidly (Capper, 1998). According Liu & Yetton (2007) organizations in the global world are changing the project implementation process so that they adopt what work best for their companies. Among the process of project implementation is the incorporation of project stakeholders in project implementation processes so as to improve project success (Leeves, 1999).

In another study, Turner (1997) points out that the client's perception of project "success" is the basis from which your client measures success, for example, whether the project is of high quality, that money paid to you was well spent, that you did a good job as a consultant, and whether you might be hired again (if you are an external consultant). Early in the project, it is important for the project manager and the client to discuss how to determine the success of the project. Unfortunately, determining whether a project was successful or not is not nearly as easy as it might seem because there are numerous perspectives on what is project success (Kerzner, 2009). Therefore, it is important to consider all of these perspectives, especially about a complex and usually changing projects.

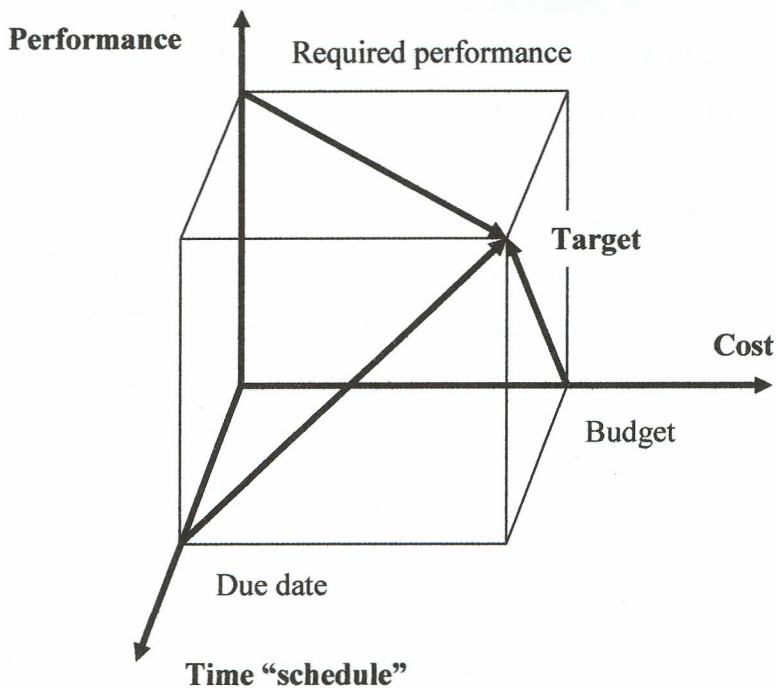


Figure 2.1: Performance, Cost, and time project targets

Source: (Kerzner, 2009)

2.2 Measurement of Construction Projects' Success

According to Kerzner (2009), Project success was the completion of an activity within the constraints of time, cost, and performance for the last 20 years. Today, the definition has been modified to include completion within the allocated time period, within the budgeted cost, at the proper performance or specification level, with acceptance by the customer/user, with minimum or mutually agreed upon scope changes, without disturbing the main work flow of the organization and without changing the corporate culture. According to PMI (2004), Success criteria or a person's definition of success as it relates to a building often changes from project to project depending on participants, scope of services, project size, sophistication of the owner related to the design of facilities, technological implications, and a variety of other factors. On the other hand, common threads relating to success criteria often develop not only with an individual project but across the industry as we relate success to the perceptions and expectations of the owner, designer, or contractor.

The very early stages in the project development such as the pre-project stage are crucial to its success. The decisions made within these stages cannot be adjusted or changed without significant impact on the process and the project costs (O'Connell, 1996). Many experts believe that planning efforts conducted during early stages of a project are keys in the whole project process and have a greater effect on project success than efforts undertaken on the project in later stages (Dingle, 1997); (Dissanayaka & Kumaraswamy, 1999). The pre-project stage has not always performed well in the construction industry, and as result it has suffered from poor implementation due to poor project scope definition, changes that result in cost overruns and time delays Christensen & Gordon (1998). It is therefore beneficial to be able to control the implementation process in the early stages of the construction process.

Project owner's criteria for measuring success is completion as scheduled; completion within budget; function for intended use (satisfy users and customers); end result as envisioned; quality (workmanship, products); aesthetically pleasing; return on investment (responsiveness to audiences); building must be marketable (image and financial); and minimize aggravation in producing a building (Kerzner, 2009). To the designer, the criteria for measuring success is a satisfied client that is obtain or develop the potential to obtain repeat work; quality architectural product; met is design fee and profit goal; professional staff fulfilment that is gain experience, learn new skills; met project budget and schedule; marketable product/ process (selling tool, reputation with peers and clients); minimal construction problems for example easy to operate and constructible design; no "ghosts," liability, claims (building functions as intended); socially accepted (community response); client pays (reliability); and well defined scope of work (contract and scope and compensation match) (Cadle & Yeates, 2008). Burke (2008) noted that the contractor's criteria for measuring success is, meets schedule (preconstruction, construction, design); makes a profit; under budget (savings obtained for owner and/or contractor); quality specification met or exceeded; no claims (owners, subcontractors); safety; client satisfaction (personal relationships); good subcontractor buy out; good direct communication (expectations of all parties clearly defined); and minimal or no surprises during the project.

2.2.1 Measurement of Housing Projects' Success

In construction, attempts have been made over recent years in several countries to establish and measure construction performance over a range of its activities to meet a set of improvement targets. The results of such attempts have produced a number of indicators (Seigle, 2001), the construction performance measures developed in the USA and success indicators developed in Chile (Rosenau, 1998). Gido & Clements (2004) points out that the concept of using indicators to assess success originates from the theory of benchmarking used in many industries for improving business processes and products. The concept involves measuring one or more aspects of the business or part of it and comparing it with the best in its specific sector.

Measurement of the performance of the construction projects on the basis of time, cost and quality is in many cases insufficient to ensure project success (Beale & Freeman, 1991); (Ford & McLaughlin, 1992); (Schuyler, 1996). The authors argued that other factors such as, for example, the quality of relationship between the stakeholders involved and their flexibility have a great effect on the project's success. In their work to develop tools for measuring performance, Turner & Simister (2000) recommended to keep the focus of measurement on implementation processes rather than on the functions of the project. Chandra (1984) highlighted that implementation process is an important feature of performance success, thus, the need to improve implementation process transparency so that the relevant and invisible attributes of the process become visible. Walker (1996) also suggested measuring the construction processes rather than their outcomes; this suggestion was supported later by (Rosenau, 1998), who proposed to identify the critical process targets so that the measurement reflects the proposed project direction and provides feedback in the processes.

Shenhar, Levy & Dvir (1997) made a critical overview of the existing KPIs used in the construction industry. In addition to main shortcomings of existing KPIs highlighted by their study, the authors also indicated that almost all indicators in construction are end-product oriented. Hence, the existing indicators do not provide improvement in construction process while the project is in progress. Graham & Englund (1997)

highlighted the need to develop objective as well as subjective measures to have more comprehensive picture of the different aspects that explain process performance. The literature review highlights the fact that very few performance indicators that are process-oriented (Schuyler, 1996); (Turner & Simister, 2000) and (Kerzner, 2009).

2.3 Key Success Indicators of Housing Projects

A housing project is completed as a result of a combination of many events and interactions, planned or unplanned, over the life of a facility, with changing participants and processes in a constantly changing environment. Certain factors are more critical to project success than others. These factors are called critical success factors (CSFs). Furthermore, because the pursuit of excellence in housing project delivery systems is not new, this new research direction could thrive upon a rich legacy of many previous indicators. However the concept of housing project success has remained ambiguously defined in the mind of the housing in Kenya (COHRE, 2005). According to Nabutola (2004), it is anticipated that patterns will emerge regarding the key success indicators for measuring housing project success in Kenya's construction industry. These results could then be used in effecting successful projects.

2.3.1 Desired Results Listed in the Project

Both the project manager and his client should somehow specify the overall results that the project is to achieve (Burke, 2008). Ideally, the results are described in terms such that both the project manager and the client could readily discern if the results were achieved or not. According to Newton (2009), the result must be formally documented and their outcome is often a measure as to whether the housing project was successful or not. According to Burke (2008) the approach aims to continually improve the business activities and leads to the setting of higher targets. Since the indicators are based on the comparison of actual implementation with targets or desired processes they also provide a basis for project control.

2.3.2 The Client's Problem is Solved

Chua, Hog & Loh (1999) notes that more times people realize the originally specified project results have little to do with actually solving the most important problem in a client's organization. Bolton (2006) points out that, this occurs because, as the project manager and his client work together to examine and address their overall problem, both realize that there is a more important problem to address. At that time, it is wise for the project manager to change the project plans if both agree. Discuss the new results that they prefer and how they will know whether or not they are achieved. Still, later on, the client might believe that any agreed-to results that were achieved from the project were not as important as addressing any current, unsolved problems, so the client might still conclude that the project was not as successful as it should have been (Pinto, 1996). Or, the client might believe that any achieved results were actually more useful than addressing the original problem that you discussed, so the client might still conclude that the project was highly successful (Grey & Larson, 2004)

2.3.3 Project Completed on Time and within Budget

Often, the client has limited resources in terms of money and time (PMI, 2004). Therefore, any project that did not require more time and money than expected might be considered successful (Kerzner, 2009). That might be true, especially if the client has the philosophy that there are always problems to be solved in any organization and that the project was done as best as could be done (Turner, 1999).

2.3.4 Sustain a High-quality working Relationship

As explained throughout by Ambari (2003), the quality of relationship between the project manager and the client is often directly associated with what the client perceives to be the quality of the project. In a highly collaborative approach to consulting, the relationship should be as open, honest and trusting as possible. The nature of the relationship supports the client's strong, ongoing commitment and participation in the project itself, which, in turn, helps to ensure that the project effectively addresses problems in their organization (Crosby, 1999).

2.3.5 Client Learns to Address Similar Problems

Newton (2009) suggests that the client should learn to address similar problems by themselves in future; this outcome should be one of the major goals for any consultant. However, the exact nature of the problem may never arise in the client's organization again, so it is often difficult to assess if the client has learned to solve that problem. Also, few consultants are willing to scope a project to the time required to assess whether a client really can solve the same type of problem in the future.

2.4 Project Lifecycle

According to PMI (2004) Projects, like products, have life cycles and are usually performed in phases. Each phase accomplishes specific work toward reaching the project goal and produces one or more deliverables. These are tangible, real items used in attaining the final goal of the project, and could include plans, studies, designs, or software or hardware prototypes. The end of a phase is defined by completing its deliverable. Figure 2.2 illustrates an example of a project life cycle with its phases. While major aspects of project management are applicable across all projects, life cycles may vary depending on the type of project and the organization performing the work (Kerzner, 2009). It is important to implement an appropriate life cycle for the project. The phases identified are common across most projects. However, they may be called by different names or split into additional phases (PMI, 2004).

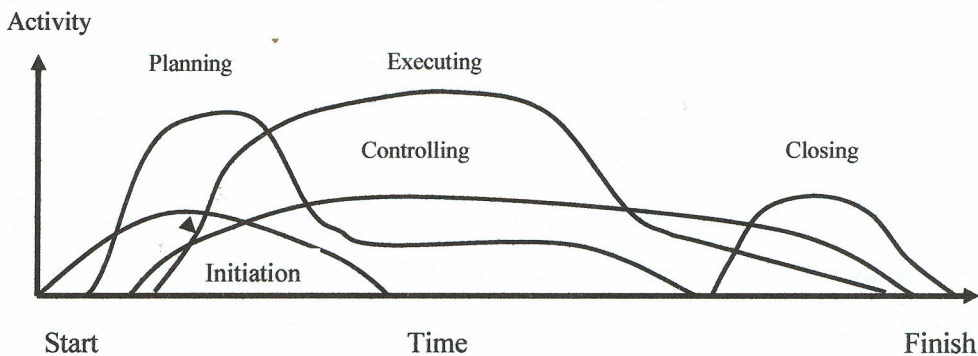


Figure 2.2: Overlap of project lifecycle phases. Source: (Dingle, 1997)

2.4.1 Conception Phase

This is the phase during which the project idea germinates; sources of ideas may be from the following sources like to find solution to certain problems, non-utilization of the available funds, plant capacity, expertise or simply unfulfilled aspirations like the case of prison housing, surveying the environment, idea put across by well wishers among others (PMI, 2004). The idea need to be put to shape before they can be considered and compared with competitive ideas. The ideas need to be examined in light of objectives and constraints. According to Beale & Freeman (1991), if this phase is avoided or truncated, the project will have innate defects and may eventually become a liability for the investors. A well conceived project will go along way for successful implementation and operation of a project; ideas may undergo some changes as the project progresses because pertinent data may not be available at inception (Rosenau, 1998), (Turner & Simister, 2000) and (Kerzner, 2009).

2.4.2. Definition Phase

According to PMI (2004), this phase develops the idea generated during the conception phase and produce a document describing the project in sufficient details covering all aspects necessary for the customer and for financial institutions to make up their minds on the project idea the areas to be examine during this phase are: Raw materials: quantitative and qualitative evaluation, Plant size enumeration for the entire plant and for the main departments. The location and site: description of location supported by map. Technology/process selection: selection of optimum technology, reasons for selection and description of selected technology. Leeves (1999); PMI (2004) and Meredith & Mantel (2010), noted that this phase also includes project layout; selection of optimum layout, reasons for selection and appropriate drawings. Utilities – fuel, power, water, telephone, among others. Also manpower and organization pattern and financial analysis are done here. Implementation schedule: This phase clears some of the ambiguities and one here associated with the formation made during the conceptual phase this phase also establishes the risk involved in going ahead with the project in clear terms. A project can either be accepted or get dropped at this stage.

2.4.3 Planning and Organizing Phase

This phase includes the project infrastructure and enabling services, system design and basic engineering package and organization and manpower. Systems and procedures, identification of project manager, Schedule and budgets, licensing and governmental clearances together with finance are also done at this stage (Walker, 1996). Design basis, conditions for purchase and contracts, site preparation and investigations and work packaging are also executed here (PMI, 2004). Thus this phase is involved with preparation for the project to take off smoothly. This phase is often taken as a part of the implementation phase since it does not limit itself to paperwork and thinking but many activities including field work it is essential that this phase is completely done as it forms the basis for the next phase that is implementation phase (Liu & Yetton, 2007).

2.4.4 Implementation Phase

PMI (2004) noted that preparation of specification for equipment and machinery, ordering of equipment lining up construction contractors, trial run, testing among others takes place during this phase. As far as the volume of work is concerned 80-85% of the project work is done in this phase only. Several authors assert that the bulk of the work is done during this phase therefore the need to complete this phase as fast as possible with minimum resources (Jiang & Klein, 1996); (Dingle, 1999); (PMI, 2004); and (Kerzner, 2009). In the project requirement details, the PM refines and details the project authorization and details what the project is required to accomplish in terms of the services the project will deliver and the scope of work that needs to be done (Burke, 2008).

2.4.5 Project Closing Phase

Meredith & Mantel (2010) defines this is a transition phase in which the hardware built with the active involvement of various agencies is physically handed over for production to a different agency who was not so involved earlier. The project drawings, its documents, files, operation and maintenance manuals are catalogued and handed over to the customer. Kerzner (2009) states that project accounts are closed, materials reconciliation carried out, outstanding payments made and dues collected during this phase. Essentially this is the handing over of the project to the customer.

2.5 Factors Affecting Project Success

Performance measurement is the process of evaluating performance relative to a defined goal (Shenhar, Levy & Dvir, 1997). It provides a sense of where we are and, more importantly, where we are going and measurement can guide steady advancement toward established goals and identify shortfalls or stagnation (Rosenau, 1998). Dissanayaka & Kumaraswamy (1999) affirms the importance of measuring performance because it indicates status and direction of a project. It is widely accepted view that, at a minimum, performance measures of a project are based on time, cost and quality (Crosby, 1999): what Nicholas (2004) noted as the 'iron triangle'. However, Dissanayaka & Kumaraswamy (1999) considered variety criteria in measuring a project. This includes meeting budget, schedule, and the quality of workmanship, stakeholder's satisfaction, transfer of technology, and health and safety. Similarly, Burke (2008) noted that various other key components also used in measuring project performance such as health and safety, environmental performance, user expectation/satisfaction, actor's satisfaction and commercial value. Therefore, in this article, six variables have been identified for measuring project performance. They are cost, time, quality, clients' satisfaction, health and safety and functionality.

2.5.1 Cost Performance

Cost is defined as the degree to which the general conditions promote the completion of a project within the estimated budget (Cadle and Yeates, 2008). Kerzner (2009) indicated that cost variance as the most common technique used to measure design performance. It is not only confined to the tender sum, but the overall cost that a project incurs from inception to completion, which includes any costs arise from variations, modification during construction period and the cost arising from the legal claims, such as litigation and arbitration. It can be measured in terms of unit cost, percentage of net variation over final cost (Burke, 2008). Cost variance is a very important factor in measuring project performance because it indicates how much the project is over or under budget. Cadle and Yeates (2008) used cost variance to measure project performance caused by defective design in Japan's construction industry. Similarly, Liu & Yetton (2007) suggested the element of cost to measure the performance of engineering projects.

2.5.2 Time Performance

It is very important for construction projects to be completed on time, as the clients, users, stakeholders and the general public usually looks at project success from the macro view where their first criterion for project success appeared to be the completion time (Schuyler, 1996). Cadle and Yeates (2008) mentioned that time variance is one of the techniques for assessing project performance in construction projects. The element of time could indicate to project managers that the project was not running as smoothly as scheduled.

Furthermore, PMI (2004) suggested that ensuring timely delivery of projects is one of the important needs of clients of the construction industry. Construction time can be regarded as the elapsed period from the commencement of site works to the completion and handover of a building to the client. The construction time of a building is usually specified before the commencement of construction. Construction time can also be deduced from the client's brief or derived by the construction planner from available project information (Meredith and Mantel, 2010).

2.5.3 Quality Performance

In the construction industry, quality is defined as the totality of features required by a product or services to satisfy a given need, or fitness for purpose (Ambari, 2003). In other words, the emphasis of quality in construction industry is on the ability to conform to established requirements. Requirements are the established characteristics of a product, process or service as specified in the contractual agreement and a characteristic is any specification or property that defines the nature of those products, processes or services, which are determined initially by the client. In order to achieve a completed project that meets the owner's quality expectations, all parties to a project must acquire an understanding of those expectations, incorporate them into the contract price and other contract documents to the extent possible, and commit in good faith to carry them out (Crosby, 1999).

Quality is the ability of a product or service to consistently meet or exceed customer expectations (Walker, 1996). The different dimensions of quality include safety, durability, and safety. The quality perspective is very important from the point of view of modern-day organizations. It is the fundamental aspect, which determines the meeting or exceeding expectation level of the customers. Describing the essence of quality in project management practices, Crosby (1999) noted that quality assures that the project will satisfy stated to implied needs . ISO (2002) further adds that in ensuring quality management a formal customer sign off process is needed. Ensure the scope statement has specific measures of success so that it is easier to determine if a project succeeded in meeting its objectives.

2.5.4 Clients' Satisfaction

Satisfaction is regarded as a function of comparison between an individual's perception of an outcome and its expectation for that outcome (Turner, 1997). In the construction industry, client's satisfaction has remained an elusive and challenging issue for some considerable time. Dissatisfaction is widely experienced by clients of the construction sector and may be caused by many aspects but is largely attributable to overrunning project costs, delayed completion, inferior quality and incompetent service providers including contractors and consultants Cadle and Yeates (2008). Research findings by Ford & McLaughlin (1992) have suggested that it is five times more expensive to develop a new construction client than to maintain an existing one and companies could increase their profits by almost 100 per cent by retaining just 5 per cent more of their clients.

Client's satisfaction is therefore a fundamental issue for construction participants who must constantly seek to improve their performance if they are to survive in the global marketplace. In the construction industry, the measurement of client's satisfaction is often associated with performance and quality assessment in the context of products or services received by the client (Schuyler, 1996); and (Cadle & Yeates, 2008). Usually the client's requirements are to get construction needs translated into a design that specifies characteristics, performance criteria and conformance to specifications, besides to get the facilities built within cost and time (Jiang & Klein, 1996).

2.6 Factors Affecting Completion of Housing Projects

A number of variables influencing the success of project implementation were identified following a thorough literature review. There is a great deal of connection between the various factors that is cost, time, technical performance and customer satisfaction as used in previous studies. As mentioned earlier, success factors are those inputs to the management system that lead directly or indirectly to the success of the project (Nicholas, 2004). Some project managers intuitively and informally determine their own success factors. However, if these factors are not explicitly identified and recorded, they will not become part of formal project management reporting process nor they become part of the historical project data (Gido & Clements, 2004).

2.6.1 The Project Manager

As Turner and Simister (2000) observed, many research studies have discussed the importance and/or style of project leadership in determining project performance Leeves (1999); Nicholas (2004); Liu & Yetton (2007); and Newton (2009); however, there is no definitive skill and leadership style mix that is appropriate for handling different types of projects, and project leadership orientation is not related to project structure (Ambari, 2003). Dennis (2007) presenting a different perspective, concluded that there are no significant differences between perceived leadership styles of line managers and project managers in terms of their transformational leadership behaviour.

The PM must have technical skills to use during the entire PLC. In Burke (2006) business, communication, responsiveness, process, results, operational, realism and technological skills are mentioned as some of the most important skills a project manager should have to deliver success. However, more recent research by Newton (2009) has concluded that the leadership style and competence of the project manager have no impact on project success. It is very interesting to investigate why a highly respectable professional body for project managers published such a contradictive position. Project manager's results are difficult to prove and even more difficult to measure; if the project is successful, senior management will probably claim that all external factors were favorable. On the contrary, if it turns to be a failure, project manager easily becomes the scapegoat (Newton, 2009).

It is that side of the project manager that makes the miracle happen (Pinto, 1996). The project manager is key stakeholder in a construction project and his competence is a critical factor affecting project planning, scheduling, and communication (Cadle & Yeates, 2008). Variables under this factor consist of the skills and characteristics of project managers, their commitment, competence, experience, and authority (Chua, Hog & Loh, 1999). Firms and individuals in the informal sector construct the vast majority of property developed in Kenya, even though the number of companies in the formal construction sector has not increased significantly since the 1970s. The withdrawal of many (large foreign) construction companies from Kenya in the 1990s has aggravated the situation (Nabutola, 2004).

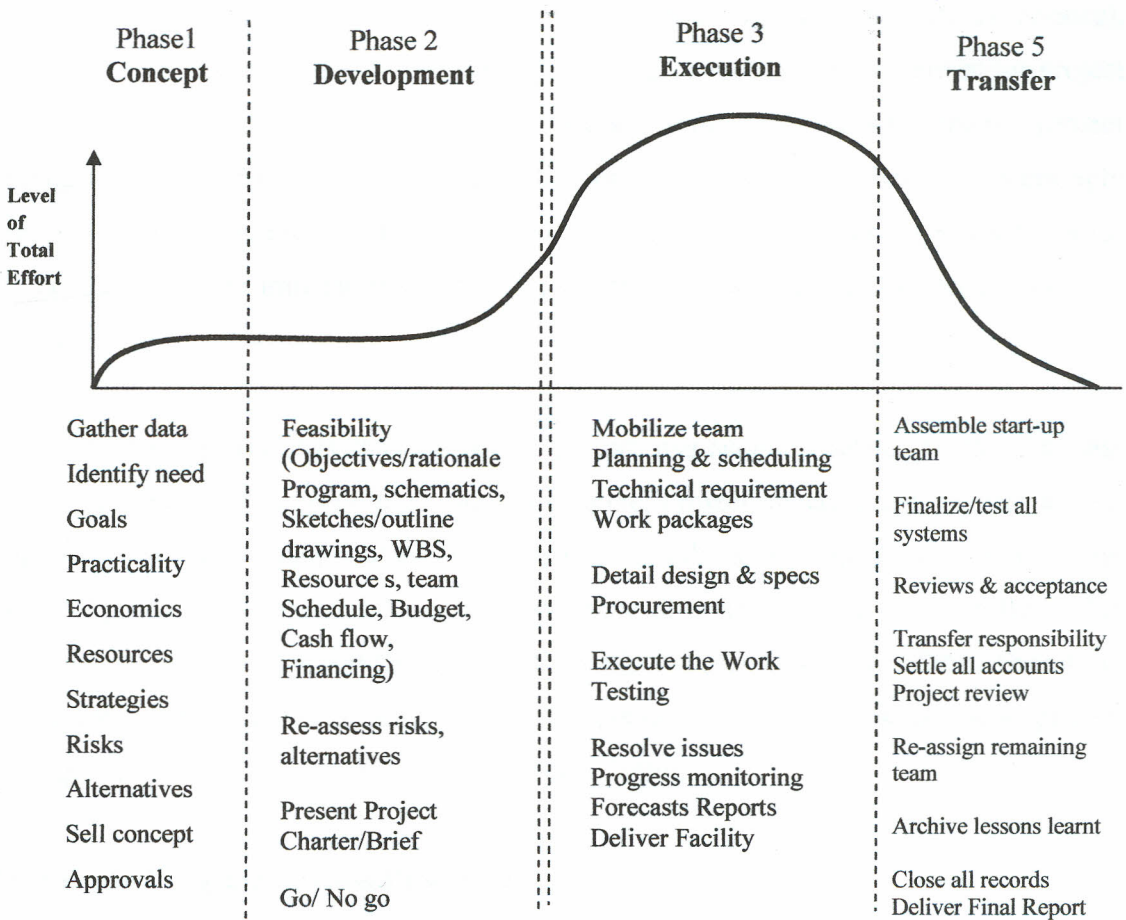


Figure 2.3: Project Phase Processes. Source: (Ford & McLaughlin, 1992)

According to Kamau (2002) weak capacity in construction is, therefore, yet another constraint in urban development and the supply of necessary housing that Kenya will need; it needs to be addressed. There is an urgent need to support the emergence of competitive national construction companies through training, research and development, and start-up finance (Mbatha, 1993). Kenyans should aim to build companies that can compete for the largest construction projects in our region (Nabutola, 2004). This should go hand-in-hand with the re-entry of construction companies from outside Kenya, as this is one way of raising standards and lowering overall building costs.

Since recognition of opportunities and threats depends, in part, on cognitive structures possessed by individuals (frameworks developed through their previous life experience), it follows that the emphasis in competency training should be put on educating project managers about integrative frameworks. These frameworks should enable project managers and project team members “to perceive connections between seemingly unrelated changes or events.” In other words, they should provide the cognitive basis for connecting the dots into patterns that suggest project opportunities or threats (Bolton, 2006).

Liu & Yetton (2007) says that the art of project management relates to the fact that projects are really about people getting things done. Project management requires a keen knowledge of human behaviour and the ability to skilfully apply appropriate interpersonal skills. If people are considered to be the root cause of project failure, then it follows that people must be at the heart of the solution for project success (Newton, 2009). Therefore, it is argued that the artistic side of the project manager as a leader is what allows project managers to be who they could best be (Newton, 2009).

2.6.2 Project Implementation Processes

Radical improvement of project performance is impossible as long as projects are approached in the same way as they have been in the past. Refinements of technique can lead, at best, to incremental gains in project performance and do not solve the systemic and structural problems that plague projects (O’Connell, 1996). Project management

action is a key for project success (Pinto & Slevin, 1987). Newton (2009) suggested that by using the management tools, the project managers would be able to plan and execute their construction projects to maximize the project's chances of success. Then, the variables in project management include adequate communication, control mechanisms, feedback capabilities, troubleshooting, coordination effectiveness, decision making effectiveness, monitoring, project organization structure, plan and schedule followed, and related previous management experience (Beale & Freeman, 1991); (Chua, Hog & Loh, 1999); and (Gido & Clements, 2004).

A number of attributes will affect this factor, including the communication system, control mechanism, feedback capabilities, planning effort, organization structure, safety and quality assurance program, control of subcontractors' works, and finally the overall managerial actions. Changes in the building code, however, are just one aspect of the legal and administrative reforms that the country needs in order to meet the demands of housing and urbanisation in future. Others reforms include a comprehensive housing sector legal framework and reduction in the multiple approval procedures in property development which investors face today.

Basing on Maslow's (1943) hierarchy of needs theory which states that, human beings fulfil needs arranged in a hierarchical manner. He further states that the satisfaction of a lower level of needs leads a person to seek higher level of needs. This means that successful completion of one phase motivates the PM and team members proceeding to the next level for example completion of planning and organization motivate team members to undertake the implementation phase. In the literature, many factors related to the motivation of PMs and team members have been proposed that not only affect project completion but they also have an impact on client satisfaction and project acceptance (Seigle 2001). Pinto and Slevin (1989) demonstrated the importance of motivating project managers for project completion. Similarly, (Turner 1997) says that motivation is one of the most important factors, which determines project implementers' efficiency is critical factor throughout the project cycle. It always leads to high performance, low employee turnover and acceptance of project changes.

The process is far too cumbersome for developers who are required to have multiple approval permits from local authorities, land offices, and public utility bodies for example Kenya Power & Lighting Company. The Government has undertaken measures to simplify the multiple permits and licensing system that traders and business investors face (Kamau, 2002). This should be now applied to the housing sector too. None of the legal and administrative problems facing property developers, however, have been as challenging as the inaccuracies in our land registries and fraudulent behaviour in the registration and issuance of title deeds. The Government has already taken measures to streamline and computerise land registries and to minimise fraud. This process now needs to be accelerated and scaled down to the local authorities (Ruitha, 2010).

2.6.3 Procurement Factors

A number of researchers identified the importance of procurement factors Jiang & Klein (1996); Dissanayaka & Kumaraswamy (1999); Seigle (2001); and Bolton (2006). Dissanayaka & Kumaraswamy (1999) defined the scope of procurement as the framework within which construction is brought about, acquired or obtained. Therefore, two attributes are used to measure this factor; they are procurement method (selection of the organization for the design and construction of the project) and tendering method (procedures adopted for the selection of the project team and in particular the main contractor).

Procurement Management Processes		
Process	Project Phase	Key Deliverables
Plan Procurements	Planning	Procurement Management Plan
Conduct Procurements	Execution	Selected Sellers, Procurement contract award
Administer Procurements	Monitoring and Controlling	Change requests
Close Procurements	Closure	Closed procurements

Figure 2.4 Procurement Management Processes Source: (Kerzner, 2009)

Project Procurement Management (PPM) is part of the project management process in which products or services are acquired or purchased from outside the existing employee base (which would work on the project) in order to complete the task or project (Jiang & Klein, 1996). There are essentially two different types of procurements, one in which the company is responsible for the particular product or service under a legal contract, this PPM includes contract management responsibilities that issue specific tasks to various team members (Kerzner, 2009).

According to PMI (2004) Project Procurement Management (PPM) can also include responsibility of the contracts in which, the buyer that is hired for this particular project is performing the task for a certain seller, this contract is placed between the one providing a service and the particular team that was responsible for completion of this project (Jiang & Klein, 1996). PPM includes a variety of tasks including the planning process where one decides what to acquire or purchase and how they will do so. Next, they plan the contract which provides the drafting of a legal document of the exchange.

Legal documents enable the seller to respond with variety of inquiries such as a bid or proposal. Tender forms are returned for review of the various offers and decision is made who will be awarded the project. The most important process of Project Procurement Management includes project management relations between both the buyer and seller via the contract. Awarding of the contract sets the project in motion (Seigle, 2001). Procurement actions are taken in a timely way to avoid schedule delays attributable to lack of inventory but also to bring suppliers and vendors into the scheduling and planning process so that they can share ownership on the timing and quality of the deliverables (Jiang & Klein, 1996).

2.6.4 Finance

Cost management is extremely important for running successful projects (Pinto and Slevin, 1988). The management of costs, in many ways, reflects the project organization's strategic goals, mission statement and business plan. Cost management has been defined to encompass data collection, cost accounting, and cost control; and it involves taking

financial – report information and applying it to projects at finite levels of accounting in order to maintain a clear sense of money management for the project (Pinto, 1996). According to Pinto (1996) cost estimation is a natural first step in determining whether or not a project is viable and it creates a reasonable budget baseline for the project and identify project resources (human and materials) as well, creating a time – phased budget for their involvement in the project (labour, materials, subcontractors, equipment and facilities and travel).

According to Kerzner, (2009) developers must have professional advice and a competent technical team. Increasing the input or quality of the professional team may add fees equivalent to say 3% of budgeted construction cost, having an impact of 2% on selling prices or reducing the developer's margin (Jiang & Klein, 1996). Developers should encourage or insist that their quantity surveyors and mechanical and electrical engineers reduce the value of provisional sums contained within construction contracts. The higher the value of provisional sums, the greater the risk of cost overruns. Financing Costs like Legal fees and costs on loan security documentation must be budgeted. Interest costs should be calculated in the cash flow projection. Careful documentation must be done to determine if interest rates are variable or fixed (Newton, 2009).

Housing finance is a fundamental issue in provision of both public and private housing in Kenya (Kamau 2002). He further states that, most of the individual housing developers experienced financing problems in construction of their houses. When compared to houses built by the government, the question then would be; is there a significant difference between individually financed housing and the government financed housing? Public policies often worsen the situation for low-income households. The use of private real estate developers has not been embraced by the Prisons housing officials, thus promoting poor households. Housing finance mechanisms do not cater for the needs of the prison officers as a result of frequent transfers that discourage construction of permanent houses. Mortgage-backed loans with regular payments are but out of the reach for the vast majority. Prisons' junior officers housing improvement mechanisms do not receive support from the government (Madoka, 2008).

2.6.5 Monitoring and Evaluation

Monitoring ensures that activities are implemented as planned. This helps the PMs to measure how well they are achieving their targets. This is based on the understanding that the process through which a project is managed has a lot of effect on its use, operation and maintenance (Newton, 2009). An audit is a review of different aspects of a project by an expert from outside of the project. A project audit provides an opportunity to uncover issues, concerns and challenges encountered during the project lifecycle. Conducted midway through the project, an audit affords the project manager; project sponsor and project team an interim view of what has gone well, as well as what needs to be improved to successfully complete the project. If done at the close of a project, the audit can be used to develop success criteria for future projects by providing a forensic review (Leeves, 1999). This review identifies which elements of the project were successfully managed and which ones presented challenges. As a result, the review will help the organization identify what it needs to do to avoid repeating the same mistakes on future projects.

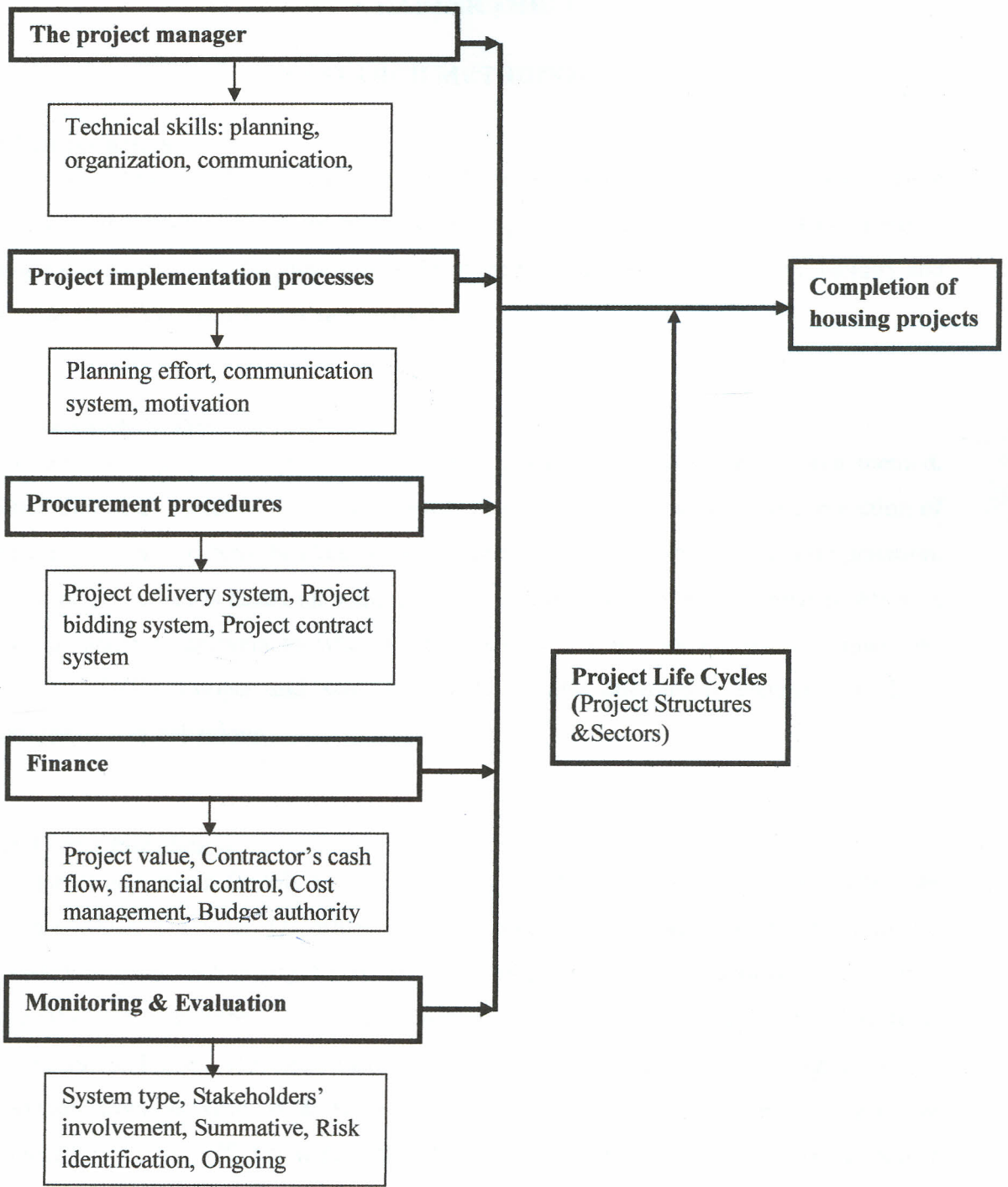
This stage consists of investigation and reviewing the effects of the completed or ongoing projects to see whether the benefits which were planned to flow from the project have indeed been realized and whether these benefits have had their intended consequences. This phase ensures sustainability of the project or recommends changes in the project to ensure the goals and objectives are achieved (Pinto, 1996). Monitoring and Evaluation consists of those processes performed to observe project Implementation so that potential problems can be identified in a timely manner and corrective action can be taken, when necessary, to control the implementation of the project. The key benefit is that project performance is observed and measured regularly to identify variances from the project management plan. Monitoring and Evaluation includes: Measuring the ongoing project activities (*'where we are'*); Monitoring the project variables (cost, effort, scope, etc.) against the project management plan and the project performance baseline (*where we should be*); Identify corrective actions to address issues and risks properly (*How can we get on track again*); Influencing the factors that could circumvent integrated change control so only approved changes are implemented (Nicholas, 2004).

Over the course of any construction project, the work scope may change. Change is a normal and expected part of the construction process. Changes can be the result of necessary design modifications, differing site conditions, material availability, contractor-requested changes, value engineering and impacts from third parties, to name a few. Beyond executing the change in the field, the change normally needs to be documented to show what was actually constructed. This is referred to as Change Management (Dennis, 2009). Hence, the owner usually requires a final record to show all changes or, more specifically, any change that modifies the tangible portions of the finished work. The record is made on the contract documents – usually, but not necessarily limited to, the design drawings. The end product of this effort is what the industry terms as-built drawings, or more simply, “as built.” The requirement for providing them is a norm in construction contracts.

When changes are introduced to the project, the viability of the project has to be re-assessed. It is important not to lose sight of the initial goals and targets of the projects. When the changes accumulate, the forecasted result may not justify the original proposed investment in the project (Dissanayaka & Kumaraswamy (1999).

2.7 Conceptual Framework

Serakan (2003) defines a conceptual framework as a logically developed, described and elaborated network of interrelationships among variables deemed to be integral part of the dynamics of the situation being investigated. Hussey & Collis (2009) further adds that the major function of a conceptual framework is to position the researcher in relationship to the research. It states the researcher’s ideological position from his or her agreement or disagreement with the current discussion and issues. This research inter relates project manager factors; project implementation factors and procurement-related factors as independent variables and successful completion of housing projects as the dependent variable, as the best possible factors that should be adopted in the project management so as to enhance their project success. Successful housing project completion is subject to incorporation of project manager factors; procurement-related factors; project implementation factors.



Independent Variable

Dependent variable

Figure 2.5 Conceptual framework (Source: Researcher, 2011)

Each independent variable directly affects completion of housing projects.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The main purpose of the study was to investigate factors affecting completion of Housing projects. This chapter therefore describes among others the study design, area of study, target population, sampling procedures, instruments to use in data collection, validity and reliability, data collection and data analysis.

3.2 Research Design

The research study adopted a cross-sectional design and descriptive research method. Since this study seeks to investigate factors that can influence successful completion of prisons' housing in Nairobi County, descriptive study led to an accurate interpretation. Descriptive studies is based on some previous understanding of the research problem; it tries to discover answers to who, what, when, where and sometimes how questions (Kothari, 2003). Cooper and Schindler (2003), it also attempts to capture attitude or patterns of past behaviour.

3.3 Target Population

The target population for this study was the ongoing Prisons' housing projects in Nairobi County which has seven (7) prisons and one hundred and seventy five (175) ongoing housing projects. According to Hussey & Collis (2009), in descriptive studies, two categories of respondents are crucial; namely informed specialists (civil/architectural engineers) and users (Prisons' staff members). It is estimated that at least three (3) engineers from the (MoPW & H) are involved or in charge of each Prisons' housing Project and Prison officers within Nairobi County. As the research requires a deeper understanding of the various variables constituting the research problem, the target population will be divided into two sets – Civil/Architectural engineers in charge of those Prisons' housing projects; Officer-in-Charge of Prison, Housing Committee members, procurement officer; and senior Prison officers.

Station	MoPW & H	Gender	Senior Officers	Junior officers	Ongoing housing projects
PPC's office		M	5	36	-
		F	1	19	
Kamiti Main	5	M	35	739	35
		F	3	20	
Nairobi Remand	5	M	12	575	21
		F	3	21	
Langata	5	M	2	73	42
		F	16	400	
Kamiti Medium	5	M	9	293	26
		F	1	31	
Nairobi West	5	M	5	211	12
		F	3	28	
Nairobi Medium	5	M	5	234	20
		F	-	22	
Kamiti Y.C.T.C	5	M	2	53	19
		F	1	18	
TOTALS	35		103	2773	175

Table 3.1 Target population, Source: www.prisons.go.ke

3.4 Sampling Procedures and Sample Size

3.4.1 Sampling Procedures

This study employed purposive sampling to select the respondents these are project stakeholders from MoPW & H officials in charge of prisons' housing projects; Prisons housing committee members; Prisons' procurement officer and Prisons' Building officer. Also, stratified random sampling will be used to select nine (one male & one female) senior prison officers that is an officer on or above the rank of a chief officer occupying

those houses. Further, questionnaires will be administered upon selected officials from the MoPW & H and those from prisons that are Prisons housing committee members (Officer-in-Charge of Prison, Welfare officer and two members representing other officers); Prisons' procurement officer; Building officer and two senior prison officers. The study purposively samples the above respondents because of the information that they are likely to have as a result of their official capacities and duties. The sample size distribution to be used was as indicated in the table below. The following table thus, illustrates how the sample was arrived at.

3.4.2 Sampling Size of the Study

Saunders, Lewis & Thornhill (2009) argue that 10 % to 20% of accessible population is acceptable in a descriptive research. Hence, this study sampled 20% of the ongoing prisons' housing projects in Nairobi County that is a minimum sample size of thirty five (35) projects was used which was randomly selected throughout the seven Prisons.

Prison	20% of ongoing housing projects	Building/ procurement officer	Housing committee officials	Engineers	Senior Prison Officers	Officers Sampled
Kamiti Main	7	2	5	2	2	11
Nairobi remand	5	2	5	2	2	11
Langata	9	2	5	2	2	11
Kamiti Medium	6	2	5	2	2	11
Nairobi West	3	2	5	2	2	11
Nairobi Medium	4	2	5	2	2	11
Kamiti Y.C.T.C	4	2	5	2	2	11
Total sample size	38					77

Table 3.2 Sample size, Source: Researcher, 2011

3.5 Data Collection

Data was collected using a questionnaire. Questionnaires provided a high degree of data standardization and adoption of generalized information amongst any population. They were useful in a descriptive survey study where there is need to quickly and easily get information from people in a non-threatening way. The questionnaires were distributed through a drop and pick method. Two research assistants with previous research experience in the construction industry (civil engineer technicians) were recruited and an extensive review of the questionnaire undertaken. The questionnaire was structured in such a way as to specifically address the research questions as well as gather basic demographic data as academic qualification and professional level of the respondents; in addition observation supplemented the data collected using questionnaires. Both primary and secondary data was used in this study.

3.6 Reliability and Validity

3.6.1 Reliability

In qualitative research, reliability is the degree of consistency in assignment of similar words, phrases or other kinds of data to the same pattern or theme by different researchers that is inter-rater reliability (Hussey & Collis, 2009). Reliability is also means the degree of consistency that the same researcher assigns similar observations and interpretations at different points in time.

3.6.2 Validity

In qualitative research validity refers to the goodness of data, the kind, accuracy, relevance, richness, colourfulness. Inferential validity in qualitative research can be established in a number of ways. Face validity is said to exist when the research produced the kind of information wanted or expected (Kruger, 2003). Internal validity referred to as the internal coherence of the findings and meant checking out responses for consistency, and ruling out ambiguity and contradiction (Robson, 2002). According to Hussey & Collis (2009), criterion validity is said to exist when the interpretations from qualitative research matched the conclusions drawn from alternation procedures.

3.7 Data Analysis

Completed instruments were assembled and information analyzed. Quantitative data was analyzed using descriptive statistics and results on average percentage and variability was presented through tables and graphs. It also included simple statistical methods of data analysis like frequencies, mean, mode, median and standard deviation. Qualitative analysis involved content analysis of data relating to factors that can influence the successful completion of Prisons' housing. This included opinions, views, ideas, feelings and tastes.

3.8 Data Presentation

Data collected was presented using tables, charts and graphs to illustrate the study findings. Research findings, conclusions, and recommendations were presented in chapters IV and V respectfully.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research methodology. The study findings are presented on to establish the factors affecting completion of housing projects. The data was gathered exclusively from the questionnaire as the research instrument. The questionnaire was designed in line with the objectives of the study.

4.1.1 Response Rate

The study targeted 77 respondents in collecting data with regard to investigate the factors affecting completion of housing projects. From the study, 47 out of the 77 sample respondents filled-in and returned the questionnaires making a response rate of 61%. This reasonable response rate was made a reality after the researcher made personal calls and visits to remind the respondent to fill-in and return the questionnaires.

4.2 Demographic Information

4.2.1 Age of the respondents

The study sought to find out the demographic information of the respondents. This was to determine the average age of the respondents. From to the study, 51% of the respondents were aged 18-25 years, 36% of the respondents were aged 26-35 years and 13% of the respondents were aged 36-45 years as shown in the figure below.

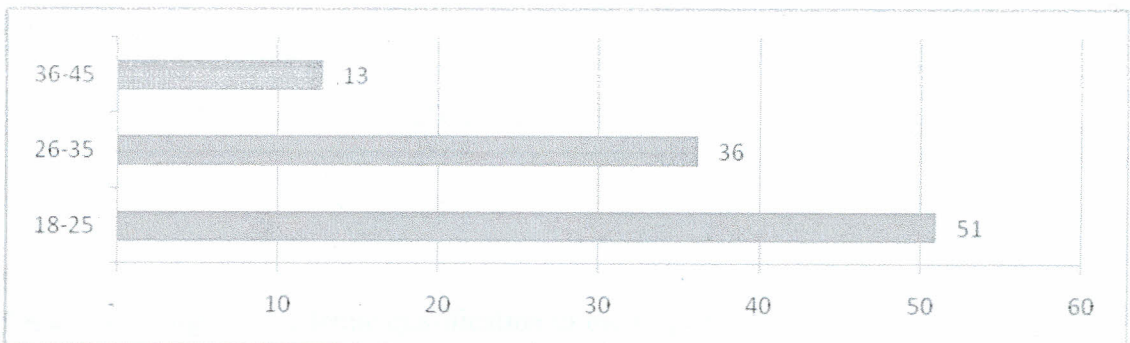


Figure 4.1: Age of the respondents. Source: *Survey data (2011)*

4.2.2 Gender of the respondents

The research also sought to find out the gender of the respondents. This was to determine the gender distribution among them. According to the findings, 66% of the respondents were male while 34% of the respondents were female as shown in the table below.

Table 4.1: Gender of the respondents

	Frequency	Percent
Male	31	66
Female	16	34
Total	47	100

Source: *Survey data (2011)*

4.2.3 Academic qualification of the respondents

The research sought to find out the highest academic qualification of the respondents. This was to determine their level of education. From the findings, 43% of the respondents had a bachelors' degree, 32% of the respondents had a diploma, 15% of the respondents had a certificate and 11% of the respondents had a post graduate as shown in the figure below. The respondents also had other professional training for example computer packages, military science and driving.

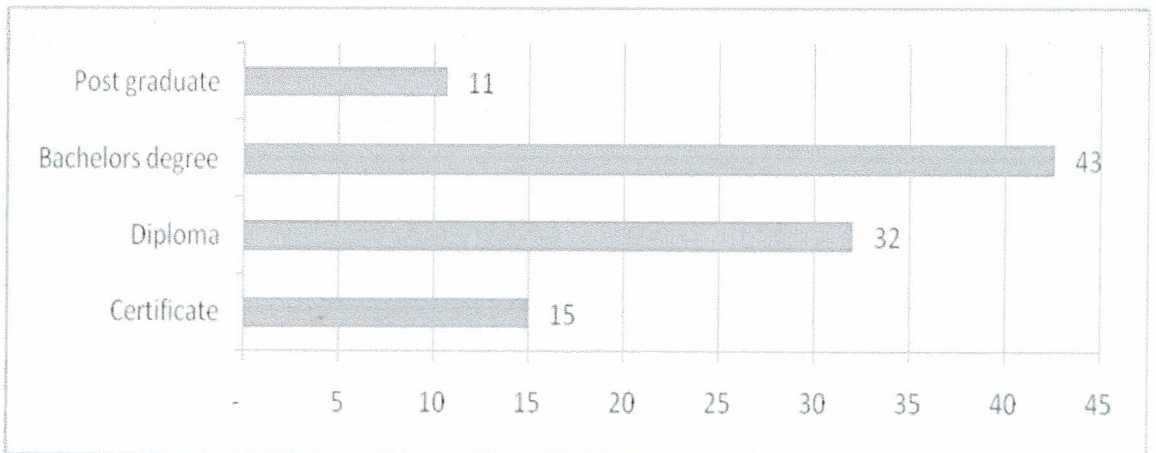


Figure 4.2: Highest academic qualification of the respondents.

Source: *Survey data (2011)*

4.2.4 Organizations funding the projects

Further, the research sought to find out the organizations that were funding housing projects. This was meant to find out the source of finance for the Prisons housing projects. According to the findings, 77% of the respondents indicated that the projects were funded by MOPW and H, 19% of the respondents indicated that the projects were funded by NGOS and 4% of the respondents indicated that the projects were funded by donors as shown in the table below.

Table 4.2: Organizations that were funding housing projects

	Frequency	Percent
NGOS	9	19
Mopw and H	36	77
Donors	2	4
Total	47	100

Source: *Survey data (2011)*

4.2.5 Stakeholders involved in construction

The research sought to find out those involved in the construction of the housing projects. This was meant to identify those stakeholders like contractors, community members and other workers involved in the construction of the housing projects.

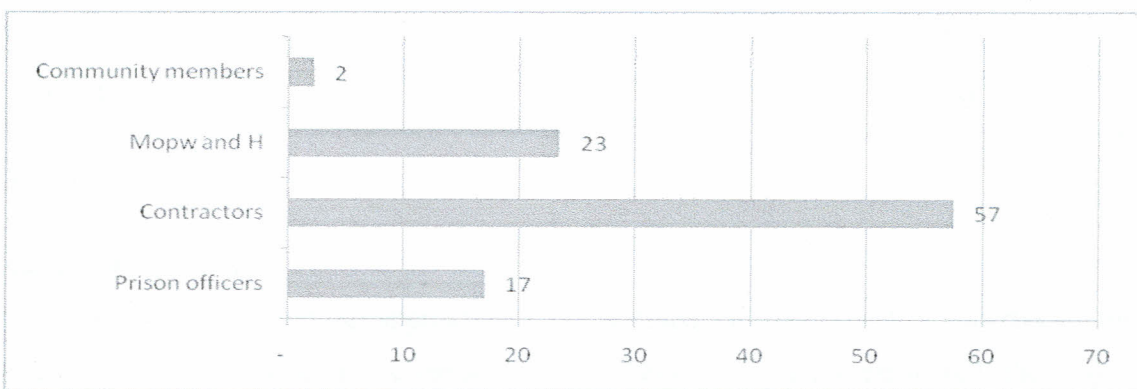


Figure 4.3: Those involved in the construction of the housing projects. Source: *Survey data (2011)*

From the findings, 57% of the indicated that contractors were involved in the construction of the housing projects, 23% of the indicated that MOPW and H were involved in the construction of the housing projects, 17% of the indicated that prison officers were involved in the construction of the housing projects and 2% of the indicated that community members were involved in the construction of the housing projects as shown in figure 4.2.3. The role of the respondents in these projects was security, designing and supervision.

4.3 Completion of Housing Projects

4.3.1 Respondents involvement in decision making

The study also sought to find out if the respondents were directly involved in making decisions on what type of houses were to be built. This was meant to show if the respondents were involved in decision making or there was any consultation before the projects began. From the findings, 70% of the respondents were not directly involved in making decisions on what type of houses were to be built while 30% of the respondents were directly involved in making decisions on what type of houses were to be built. The respondents advised on the mechanical services to be installed.

Table 4.3: If the respondents were directly involved in making decisions on what type of houses were to be built

	Frequency	Percent
Yes	14	30
No	33	70
Total	47	100

Source: *Survey data (2011)*

4.3.2 Cost estimation

The study sought to find out approximately how much had been spent in undertaking the housing projects under construction at that time. This was meant to estimate if the project cost. According to the findings, 47% of the respondents indicated that more than 2,000,000 Kenyan shillings had been spent in undertaking the housing project, 35% of the

respondents indicated that more than 0.5 million to 1 million Kenyan shillings had been spent in undertaking the housing project and 19% of the respondents indicated that 1 million to 2 million Kenyan shillings had been spent in undertaking the housing project.

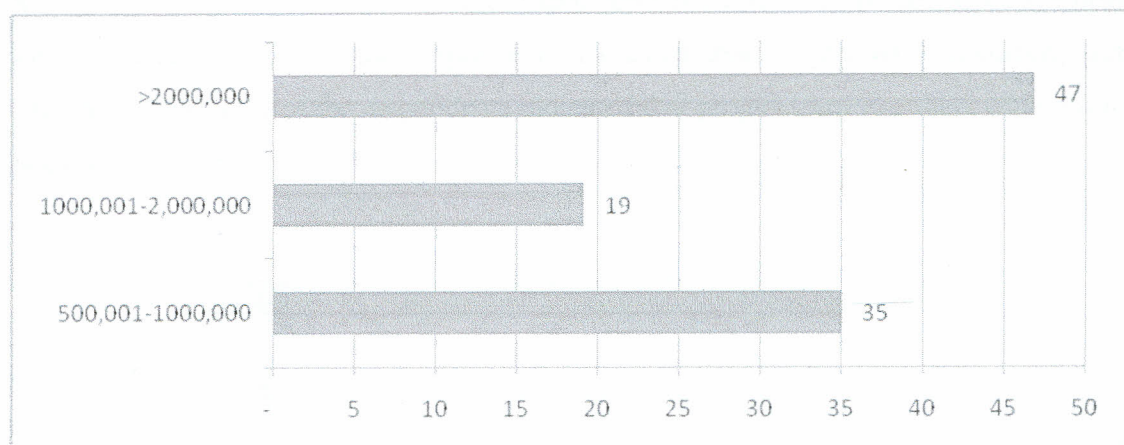


Figure 4.4: Approximately how much had been spent in undertaking the housing project.
Source: *Survey data (2011)*

4.3.3 Sufficiency of funds disbursed

Further, the study sought to find out if funds disbursed were sufficient. This was to find out if the allocated finance was enough to complete the project. From the findings, 79% of the respondents indicated that funds disbursed were not sufficient while 22% of the respondents indicated that funds disbursed were sufficient. This was due to poor cost estimation which lead to under financing of the projects. Challenges faced in the process of financing the project was poor planning and long procurement procedures.

Table 4.4: If funds disbursed were sufficient

	Frequency	Percent
Yes	10	22
No	37	79
Total	47	100

Source: *Survey data (2011)*

4.3.4 Selection of team members

The study also sought to find out how project team members were selected. This was meant to check the criteria used to choose project team members for example elections. According to the findings, 60% of the respondents indicated that project team members were nominated, 29% of the respondents indicated that project team members were interviewed and 11% of the respondents indicated that project team members were elected as shown in figure 4.3.2.

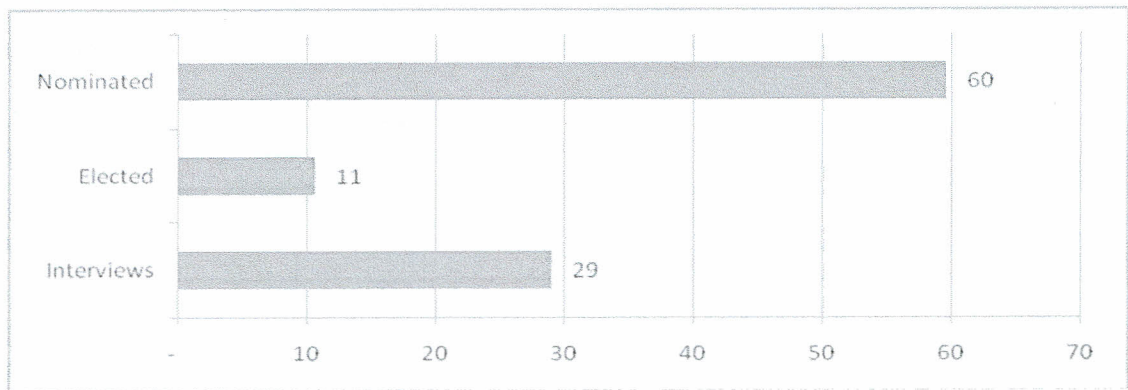


Figure 4.5: How project team members were selected. Source: *Survey data (2011)*

4.3.5 Engineers involvement

The study sought to find out if Government engineers were involved in housing projects at all levels. This was meant to determine if MoPW & H Officials were involved in all the levels of the housing projects. According to the findings, 78% of the respondents indicated that Government engineers were involved in housing projects at all levels while 21% of the respondents indicated that Government engineers were not involved in housing projects at all levels.

Table 4.5: If Government engineers were involved in housing projects at all levels

	Frequency	Percent
Yes	37	78
No	10	21
Total	47	100

Source: *Survey data (2011)*

4.3.6 Phase activities of the Engineers

The study sought to find out the phases that Government engineers were involved. This was meant to identify the specific activities that MoPW & H Officials perform within the project phases. From the findings, 15% of the respondents indicated that Government engineers were involved at initiation activities, 6% of the respondents indicated that Government engineers were involved at planning activities, 4% of the respondents indicated that Government engineers were involved at closing stage activities and 2% of the respondents indicated that Government engineers were involved at implementation activities.

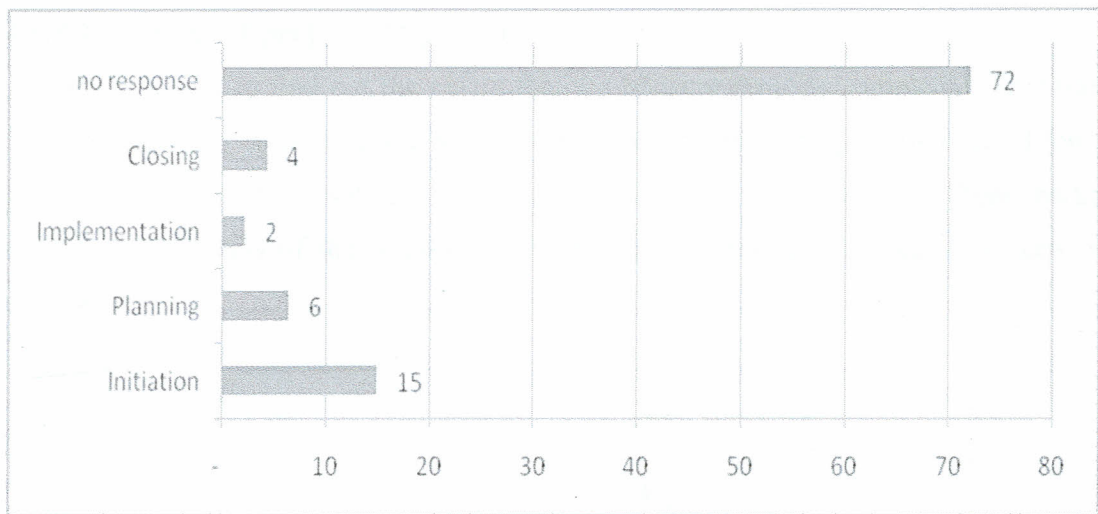


Figure 4.6: Phases that Government engineers were involved. Source: *Survey data (2011)*

4.3.7 Type of Prison houses required

The study sought to find out the type of houses that the Prison Officers recommended for construction. This was meant to identify the client or end user tastes and preferences on the standard housing unit. From the findings in the above table, 64% of the respondents recommended for construction of self contained, 23% of the respondents indicated for construction of one bed roomed, 6% of the respondents indicated that the type of houses that the Prison Officers recommended for construction were bed sitters and 6% of the respondents indicated that the type of houses that the Prison Officers recommended for construction of two roomed.

Table 4.6: Type of houses that the Prison Officers recommended for construction

	Frequency	Percent
One roomed	11	23
Bed sitter	3	6
Two roomed	3	6
Self contained	30	64
Total	47	100

Source: *Survey data (2011)*

4.3.8 The extent of project completion

The study sought to find out the extent that the housing projects completed. This was to find out the status of the ongoing housing projects in terms of project life cycle. From the findings, 62% of the respondents indicated that housing projects had been partially completed and 38% of the respondents indicated that housing projects had been fully completed.

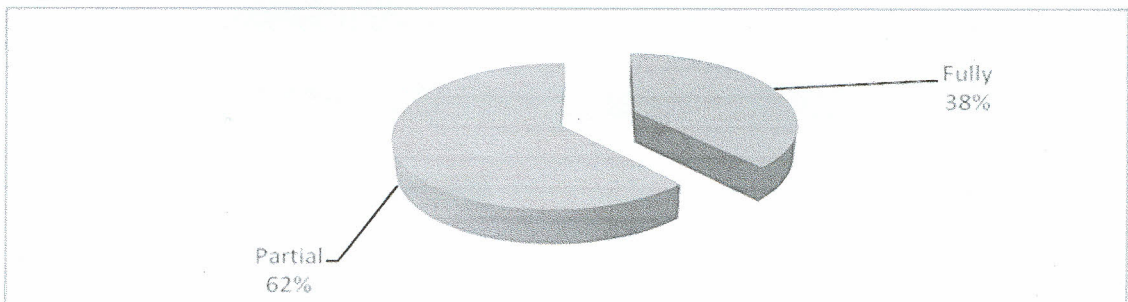


Figure 4.7: Extent that the housing projects completed. Source: *Survey data (2011)*

4.3.9 Factors affecting completion

The study sought to find out the factors that affected the completion of the housing projects that is those issues derailing or promoting the housing projects completion in general. According to the findings, 60% of the respondents indicated insufficient funds affected the completion of the housing projects, 32% of the respondents indicated change of priorities affected the completion of the housing projects and 9% of the respondents indicated sufficient technical skills affected the completion of the housing projects.

Table 4.7: Factors that affected the completion of the housing projects

	Frequency	Percent
Insufficient funds	28	60
Sufficient technical skills	4	9
Change of priorities	15	32
Total	47	100

Source: *Survey data (2011)*

4.3.10 Quality of the housing projects

The study sought to find out how the respondents rated quality of the housing projects. This was to find out on the quality of those recently completed housing projects that were the same as those under construction. From the findings, 45% of the respondents rated the housing projects as of quality, 38% of the respondents rated the housing projects as of low quality and 17% of the respondents rated the housing projects as of high quality.

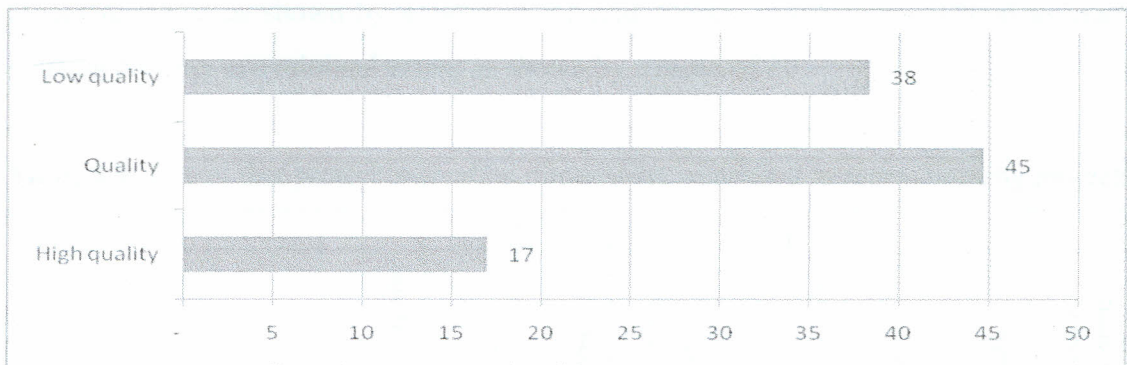


Figure 4.8: Quality of the housing projects. Source: *Survey data (2011)*

4.3.11 Usefulness of the Completed housing projects

The study sought to find out the usefulness of the housing projects that had been completed. This was meant to confirm if those completed housing were of any use to the Prison Officers. According to the findings, 51% of the respondents indicated that the housing projects that had been completed were very much useful, 43% of the respondents indicated that the housing projects that had been completed were useful and 6% of the respondents indicated that the housing projects that had been completed were not useful.

Table 4.8: Usefulness of the housing projects that had been completed

	Frequency	Percent
Very much	24	51
Useful	20	43
Not useful	3	6
Total	47	100

Source: *Survey data (2011)*

4.3.12 Project evaluation dimensions used

The study sought to find out the extent that project evaluation dimensions were used to assess housing projects. This was meant to find out if the usual project evaluation targets were used. According to the findings, cost was used to assess housing projects to a great extent as shown by a mean of 3.8, time was used to assess housing projects to a moderate extent as shown by a mean of 3.4, quality was used to assess housing projects to a moderate extent as shown by a mean of 2.8 and clients satisfaction was used to assess housing projects to a minimal extent as shown by a mean of 2.1.

Table 4.9: Extent that project evaluation dimensions were used to assess housing projects

	No response	Very great extent	Great extent	Moderate extent	Minimal extent	Not all	Mean	Standard deviation
Time	15	34	30	9	9	4	3.4	0.3
Cost	17	57	9	11	2	4	3.6	0.2
Quality	15	13	23	30	15	4	2.8	0.1
Clients satisfaction	15	6	15	23	13	28	2.1	0.4

Source: *Survey data (2011)*

4.4 Implementation of Housing Projects

4.4.1 Selection of project Implementers

The study sought to find out how project implementers were selected. This was to determine the contractors, engineers and suppliers were chosen. From the findings, 49% of the respondents indicated that project implementers were nominated, 42% of the respondents indicated that project implementers were appointed and 9% of the respondents indicated that project implementers were elected.

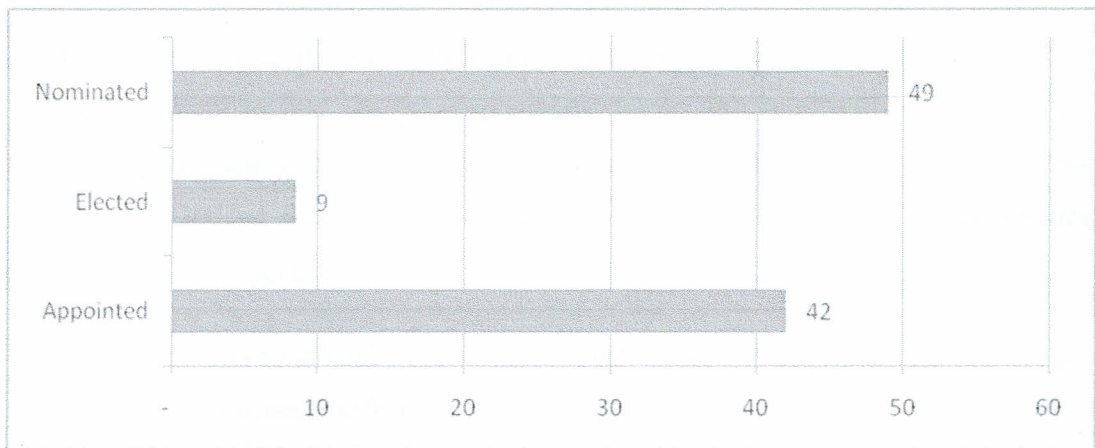


Figure 4.9: How project implementers were selected. Source: *Survey data (2011)*

4.4.2 Stakeholders involved in implementation

The study sought to find out if there were stakeholders involved in the implementation of the Prisons housing projects. This was to determine the involvement of other stakeholders in the implementation of the Prisons housing projects.

Table 4.10: If there were stakeholders involved in the implementation of the Prisons housing projects

	Frequency	Percent
Yes	23	49
No	24	51
Total	47	100

Source: Source: *Survey data (2011)*

According to the findings, 51% of the respondents indicated that there were no other stakeholders were involved in the implementation apart from the contractors of the Prisons housing projects while 49% of the respondents indicated that there were stakeholders involved in the implementation of the Prisons housing projects as shown in table 4.10. The stakeholders were the clients and their role was sourcing for funds. Challenges faced in the process of implementing the housing projects were insufficient finances and lack of enough space.

4.4.3 How project implementation affects completion

The study sought to find out the respondents' agreement level with statements on how project implementation processes affected completion of housing projects. This was to determine if indeed the processes of implementation itself affects the completion of prisons housing projects.

Table 4.11: Respondents' agreement level with statements on how project implementation processes affected completion of housing projects

	No response	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Mean	Standard deviation
planning effort	6	66	23	2	2	0	4.3	0.4
Control mechanism	6	26	53	9	4	2	3.8	0.2
Prior project management experience	6	40	34	11	9	0	3.9	0.1
Communication and motivation system	4	34	26	15	17	4	3.6	0.3
Coordination among stakeholders(teamwork)	9	11	26	30	6	19	2.8	0.1
Consumer (user) support	9	9	6	40	28	9	2.5	0.6
Uniqueness of project activities	6	11	26	32	15	11	2.9	0.8

Source: *Survey data (2011)*

According to the findings, the respondents agreed that planning effort affected completion of housing projects as shown by a mean of 4.3, the respondents agreed that prior project management experience affected completion of housing projects as shown by a mean of 3.9, the respondents agreed that control mechanism affected completion of housing projects as shown by a mean of 3.8, the respondents agreed that communication and motivation system affected completion of housing projects as shown by a mean of 3.6, the respondents were neutral that uniqueness of project activities affected completion of housing projects as shown by a mean of 2.9, the respondents were neutral that coordination among stakeholders (teamwork) affected completion of housing projects as shown by a mean of 2.8 and the respondents were neutral that consumer (user) support affected completion of housing projects as shown by a mean of 2.5.

4.5 Monitoring & Evaluation

4.5.1 Type of monitoring and evaluation done

The study sought to find out whether the housing project had a monitoring and evaluation system. This was to determine the type of monitoring and evaluation used in the Prisons housing projects. According to the findings, 68% of the respondents indicated that the housing project had a monitoring and evaluation system and 32% of the respondents indicated that the housing project did not have a monitoring and evaluation system. The type of system was frequent site visits and ghatt charts.

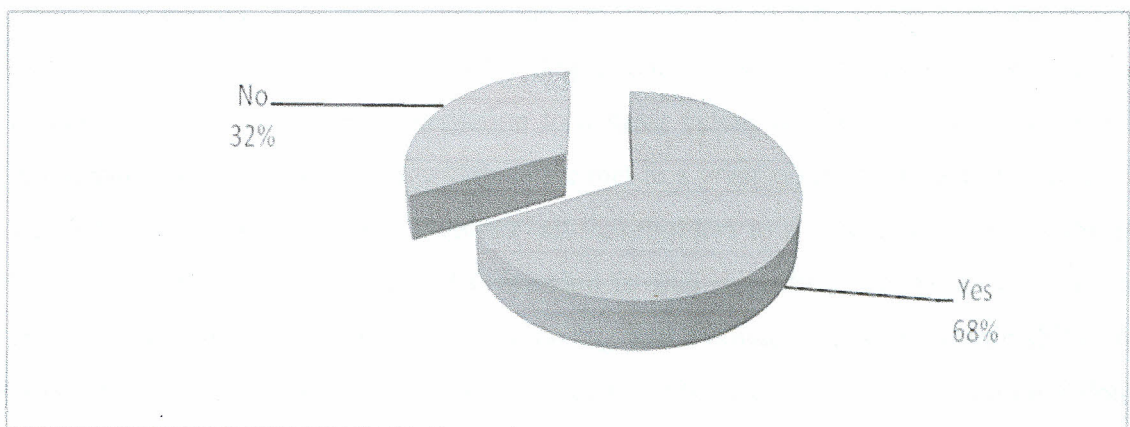


Figure 4.10: Whether the housing project had a monitoring and evaluation system.

Source: *Survey data (2011)*

4.5.2 Effectiveness of the system used

The study sought to find out if the system was effective in monitoring and evaluation of the project. This was to determine the effectiveness of the system used in the Prisons housing projects. According to the findings, 53% of the respondents indicated that the system was not effective in monitoring and evaluation of the project while 47% of the respondents indicated that the system was effective in monitoring and evaluation of the project. This should be adjusted through by giving contracts to private companies. The challenges faced in the process of monitoring and evaluations of this project were delay in building plans and insufficient funds.

Table 4.12: If the system was effective in monitoring and evaluation of the project

	Frequency	Percent
Yes	22	47
No	25	53
Total	47	100

Source: *Survey data (2011)*

4.5.3 Factors of monitoring and evaluation

The study sought to find out the extent that factors of monitoring and evaluation affected project completion. This was to determine the frequency of the system used and how it should be adjusted. According to the findings, monitoring and evaluation is an ongoing process that affected project completion to a great extent as shown by a mean of 3.7, monitoring and evaluation ensures targets are met to a great extent as shown by a mean of 3.6, monitoring and evaluation involves all stakeholders to a moderate extent as shown by a mean of 3.3, monitoring and evaluation is well done by outsiders to a moderate extent as shown by a mean of 3.0, monitoring and evaluation ensures sustainability of project to a moderate extent as shown by a mean of 3.0, monitoring and evaluation is done only once to a minimal extent as shown by a mean of 1.9 and monitoring and evaluation has not been done on this project to a minimal extent as shown by a mean of 1.6 as shown in table 4.13.

Table 4.13: Extent that factors of monitoring and evaluation affected project completion

	No response	Very great extent	Great extent	Moderate extent	Minimal extent	Not all	Mean	Standard deviation
Monitoring and evaluation involves all stakeholders	9	32	19	23	4	13	3.3	0.3
Monitoring and evaluation ensures targets are met	9	43	26	11	4	9	3.6	0.1
Monitoring and evaluation is well done by outsiders	9	17	28	21	13	13	3.0	0.2
Monitoring and evaluation is an ongoing process	9	36	36	13	2	4	3.7	0.4
Monitoring and evaluation is done only once	9	6	11	17	9	49	1.9	0.3
Monitoring and evaluation ensures sustainability of project	9	30	9	19	30	4	3.0	0.1
Monitoring and evaluation has not been done on this project	17	15	4	2	4	57	1.6	0.2

Source: *Survey data (2011)*

4.6 Finance

4.6.1 How project funds are released

The study sought to find out how funds were released for the Prisons housing projects. This was to determine the method used to release the project money by the organization funding the Prisons housing projects. From the findings, 94% of the respondents indicated that the funds were released at interval while 6% of the respondents gave no response as shown in figure 4.11. The funds for these housing projects are sourced through budget allocation from the Government, channelled through the ministry of Home Affairs and later onto the Prisons headquarters.

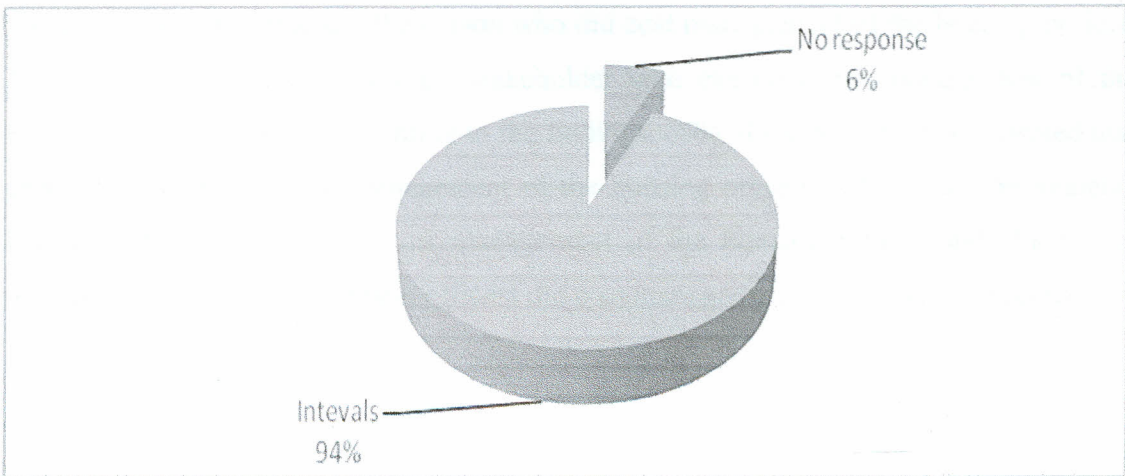


Figure 4.11: How funds were released for the projects. Source: Source: *Survey data (2011)*

4.6.2 How the method affected completion

The study sought to find out if interval method affected the completion of the housing project. This was to determine if the method used affected the completion of Prisons housing projects. From the findings, 74% of the respondents indicated that interval method affected the completion of the housing project while 26% of the respondents indicated that interval method did not affect the completion of the housing project. Funds were delayed.

Table 4.14: If interval method affected the completion of the housing project

	Frequency	Percent
Yes	35	74
No	12	26
Total	47	100

Source: *Survey data (2011)*

4.6.3 Cost management

The study sought to find out the person who did cost management of the housing project. This was to determine the project stakeholder who executes cost management of the Prisons housing projects. According to the findings, 66% of the respondents indicated that project managers did cost management of the housing project, 30% of the respondents indicated that engineers did cost management of the housing project and 4% of the respondents indicated that prison officers did cost management of the housing project.

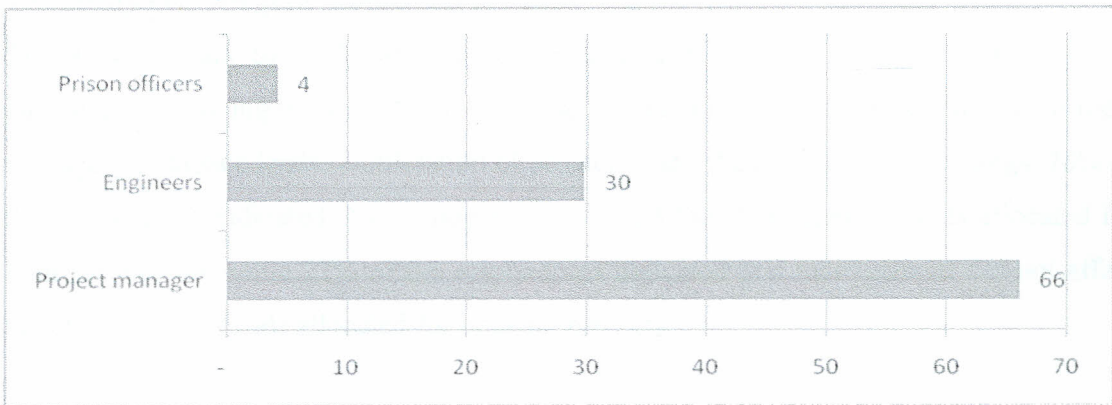


Figure 4.12: The person who did cost management of the housing project. Source: *Survey data (2011)*

4.6.4 Challenges of cost management

The study sought to find out the challenges that affected cost management. This was to determine those shortcomings that affect the process of cost management.

Table 4.15: Challenges that affected cost management

	Frequency	Percent
Insufficient funds	30	64
Insufficient technical skills	6	13
Change of priorities	11	23
Total	47	100

Source: *Survey data (2011)*

According to the findings, 64% of the respondents indicated that the challenges that affected cost management were insufficient funds, 23% of the respondents indicated that the challenges that affected cost management were change of priorities and 13% of the respondents indicated that the challenges that affected cost management were insufficient technical skills. The reasons given for under financing housing projects were lack of enough funds and change of priorities.

4.6.5 Project managers' utilization of funds

The study sought to find out whether management affected the utilization of funds allocated for housing projects. This was to determine how top managers and other project managers influence leads to utilization of project funds. According to the findings, 78% of the respondents indicated that management affected the utilization of funds allocated for housing projects while 22% of the respondents indicated that management did not affect the utilization of funds allocated for housing projects.

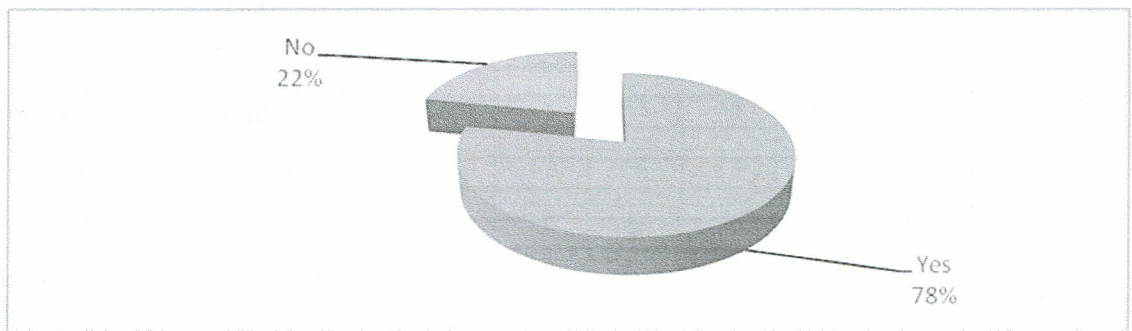


Figure 4.13: Whether management affected the utilization of funds allocated for housing projects. Source: *Survey data (2011)*

4.6.6 Information about Project Funds

The study also sought to find out how the respondents ranked information in processing and managing project finance. This was to find out how availability of information about project funds influences the management of the project funds. From the findings, the respondents ranked timely release of funds as fairly important in processing and managing project finance as shown by a mean of 4.0, followed by fully computerized operations, highly qualified personnel and cost management as fairly important in processing and managing project finance as shown by a mean of 3.9.

Further, the respondents ranked centralized and integrated operations as fairly important in processing and managing project finance as shown by a mean of 3.8, followed by resource scheduling as shown by a mean of 3.5. Also, shorter acquisition procedures, financial control and good filling system as important in processing and managing project finance as shown by a mean of 3.4, while contractors' cash flow and project value as important in processing and managing project finance as shown by a mean of 3.0 and the respondents ranked good office layout as important in processing and managing project finance as shown by a mean of 2.7. Project finance and other monetary benefits can be used to improve project completion by timely release of funds.

Table 4.16: Information in processing and managing project finance

	No response	Most important	Fairly important	Important	Not important	Irrelevant	Mean	Standard deviation
Fully computerized operations	13	60	17	4	4	2	3.9	0.1
Good filling system	0	11	45	28	11	6	3.4	0.3
Highly qualified personnel	0	11	68	17	4		3.9	0.2
Good office layout	11	19	6	36	9	19	2.7	0.4
Centralized and integrated operations	13	53	17	11	4	2	3.8	0.7
Timely release of funds	11	55	26	4	2	2	4.0	0.3
Shorter acquisition procedures	0	11	36	32	21	0	3.4	0.3
Resource scheduling	0	13	45	26	17	0	3.5	0.6
Financial control	0	11	40	32	15	2	3.4	0.4
Contractors' cash flow	0	13	28	23	21	15	3.0	0.8
Project value	11	28	13	15	30	4	3.0	0.6
cost management	0	13	74	2	6	4	3.9	0.8

Source: *Survey data (2011)*

4.7 Procurement Procedures

4.7.1 Procurement Act

The study sought to find out the procurement act that the Prison used. This was to find out which procurement act is used by the Prisons to procure the materials and services of the Prisons housing projects. According to the findings, 90% of the respondents indicated that the prison use Government of Kenya Act while 10% of the respondents indicated that the prison used Prisons' Act. Prisons procurement was greatly affected by rigid procedures. Challenges faced in the procurement process were corruption.

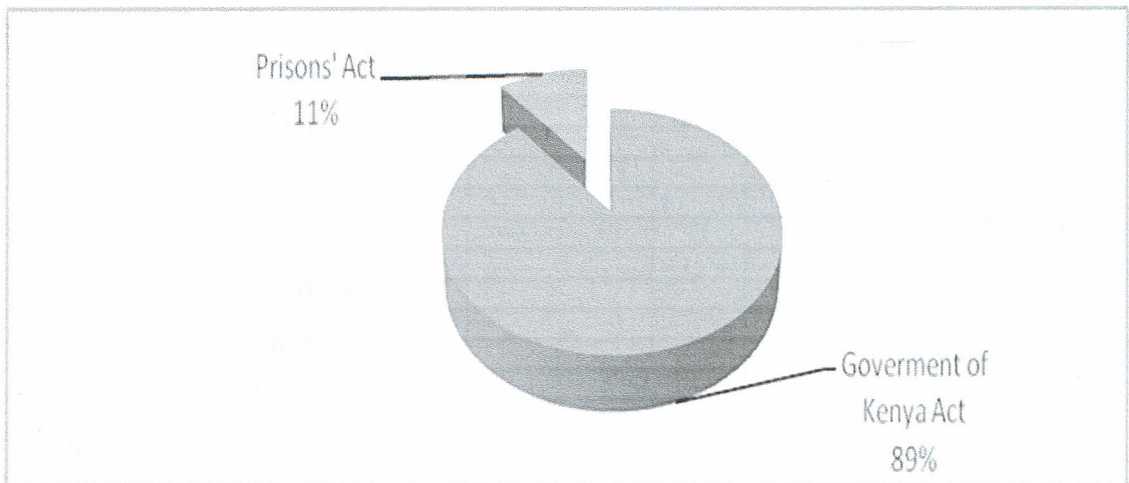


Figure 4.14: Procurement act that the Prison used. Source: *Survey data (2011)*

4.7.2 Procurement procedures

The study sought to find out the sections that greatly affected the Prisons procurement from the Act. This was to determine the According to the findings, the respondents agreed that project delivery system(e.g. design bid build, design build affected the Prisons procurement to a great extent as shown by a mean of 4.2, the respondents agreed that project contact mechanism(e.g. lump sum, unit price, cost plus etc) affected the Prisons procurement to a great extent as shown by a mean of 4.2, the respondents agreed that project bidding method(e.g. price based competitive bidding, negotiated bidding, best value bidding) affected the Prisons procurement to a great extent as shown by a mean of 4.1, the respondents agreed that tendering process affected the Prisons procurement to a great extent as shown by a mean of 3.9, the respondents agreed that quality of procured

services affected the Prisons procurement to a great extent as shown by a mean of 3.8, the respondents agreed that quality of procured materials affected the Prisons procurement to a great extent as shown by a mean of 3.8 and the respondents disagreed that project schedule affected the Prisons procurement to a great extent as shown by a mean of 2.3.

Table 4.17: Sections that greatly affected the Prisons procurement from the Act

	No response	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Standard deviation
Project delivery system(e.g. design bid build, design build)	0	45	36	11	9	0	4.2	0.6
Project bidding method(e.g. price based competitive bidding, negotiated bidding)	0	45	30	13	13	0	4.1	0.7
Project contact mechanism(e.g. lump sum, unit price, cost plus etc)	0	45	34	19	2	0	4.2	0.4
Project schedule	45	32	11	9	2	2	2.3	0.4
Quality of procured materials	0	45	23	9	17	6	3.8	0.6
Quality of procured services	0	45	19	13	19	4	3.8	0.7
Tendering process	0	45	23	15	13	4	3.9	0.1

Source: *Survey data (2011)*

4.8 Project Manager

4.8.1 Selection of the Project Manager

The study sought to find out how project manager was selected. This was to determine if the process was based on qualification or stakeholder interest. According to the findings, 68% of the respondents indicated that project managers were selected by appointment and 32% of the respondents indicated that project managers were nominated.

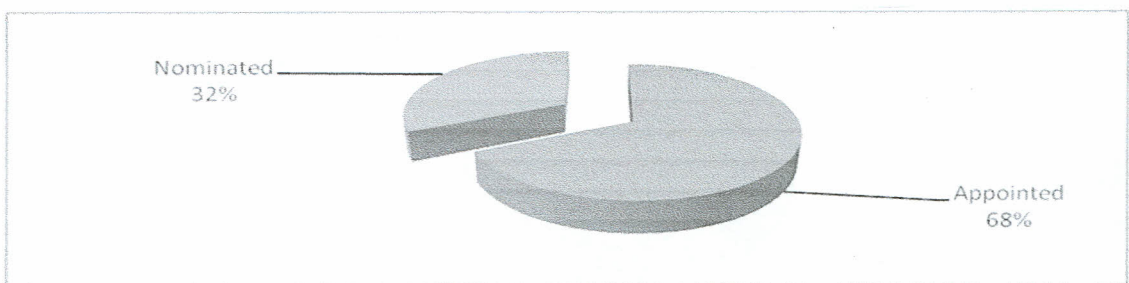


Figure 4.15: How project manager was selected. Source: *Survey data (2011)*

4.8.2 Source of the Project Manager

The study sought to find out where the project manager came from. This was to determine if the project manager came from the funding organization, Prisons or the private sector. According to the findings, 53% of the respondents indicated that project managers came from government officials, 44% of the respondents indicated that project managers came from the private sector and 2% of the respondents indicated that project managers came from the prisons.

Table 4.18: Where the project manager came from

	Frequency	Percent
Government officials	25	53
Private sector	21	44
Prisons	1	2
Total	47	100

Source: *Survey data (2011)*

4.8.3 Selection of the project managers' team members

The study sought to find out if there were other project managers directly involved in selection of project team members. This was to determine the level of authority held by the project manager in selecting team members. According to the findings, 73% of the respondents indicated that there were other project managers directly involved in selection of project team members while 27% of the respondents indicated that there were no other project managers directly involved in selection of project team members.

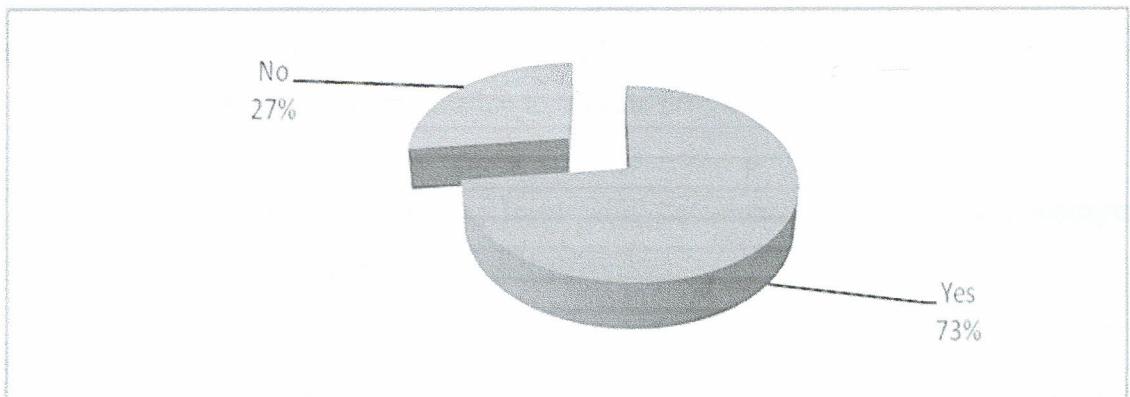


Figure 4.16: Is the project manager directly involved in selection of project team members. Source: *Survey data (2011)*

4.8.4 Other Officers involved in the housing projects

The study sought to find out whether there were other Officers involved in the housing projects at all levels. This was to find out other Officers involved in the Prisons housing projects and their specific roles.

Table 4.19: Whether there were other Officers involved in the housing projects at all levels

	Frequency	Percent
No response	22	47
Yes	13	28
No	12	26
Total	47	100

Source: *Survey data (2011)*

From the findings, 28% of the respondents indicated that there were other Officers involved in the housing projects at all levels while 26% of the respondents indicated that there were no other officers involved in the housing projects at all levels as shown in table 4.19. Challenges faced in the process of managing the housing projects were dealing with unmotivated workers.

4.8.5 Project managers' technical skills

The study sought to find out the respondents agreement level with statements on how project manager involvement affected completion of housing projects. This was to determine the technical skills application to execute project activities.

Table 4.20: Respondents agreement level with statements on how project manager involvement affected completion of housing projects

	Strongly agree	Agree	Neutral	Disagree	strongly disagree	Mean	Standard deviation
project manager's experience	45	47	4	2	2	4.3	0.2
Project manager's ability to make decisions	45	30	21	2	2	4.1	0.6
Project manager's commitment	45	32	17	4	2	4.1	0.5
Project manager's leadership skills	47	36	9	9	0	4.2	0.4
Project manager' support	43	30	21	4	2	4.1	0.7
Top management support	45	34	21	0	0	4.2	0.8

Source: *Survey data (2011)*

From the findings, the respondents agreed that project manager's experience affected completion of housing projects to a great extent as shown by a mean 4.3, project manager's leadership skills and top management support affected completion of housing projects to a great extent as shown by a mean 4.2, project manager's ability to make

decisions, commitment and support affected completion of housing projects to a great extent as shown by a mean 4.1.

4.8.6 Ranking of factors

The study sought to find out the how the respondents ranked the factors that affected completion of Prisons housing projects. This was to determine the aggregate of each factor analysed on how it affected the completion of Prisons housing projects. According to the findings, the respondents ranked finance as important in completion of Prisons housing projects as shown by a mean of 4.3, the respondents ranked project manager as important in completion of Prisons housing projects as shown by a mean of 4.2, the respondents ranked project implementation process as important in completion of Prisons housing projects as shown by a mean of 4.0, the respondents ranked procurement processes as important in completion of Prisons housing projects as shown by a mean of 3.9 and the respondents ranked monitoring and evaluation as important in completion of Prisons housing projects as shown by a mean of 3.9. To enhance completion of the ongoing housing projects top management should support the projects and proper procurement process should be followed.

Table 4.21: Extent they affected completion of Prisons housing projects

	Most important	Important	Moderate	Least	Least important	Mean	Standard deviation
Project manager	43	43	11	4		4.2	0.2
Project implementation process	43	30	19	4	4	4.0	0.1
Procurement processes	43	23	21	4	9	3.9	0.5
Finance	43	49	4	4		4.3	0.2
Monitoring and evaluation	43	28	15	4	11	3.9	0.1

Source: *Survey data (2011)*

CHAPTER FIVE

SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter provides the summary of the findings from chapter four, and it also gives the conclusions and recommendations of the study based on the objectives of the study. The objectives of this study were to establish the factors affecting completion of housing projects.

5.2 Summary of the Findings

The study aimed at investigating the factors affecting completion of housing projects.

5.2.1 Project Manager

53% of the respondents indicated that project managers came from government officials with 44% coming from the private sectors that were still under guidance from the MoPW. This means that all projects were under control of the MoPW. The study found that 70% of the respondents were not directly involved in making decisions on what type of houses were to be built. This means that all the project managers were not involved at all levels of the housing projects. Indeed during the implementation level, decision making; monitoring and evaluation, and control of the projects were done by engineers as shown by 78% of the respondents who indicated that Government engineers were involved at all levels. However, 15% of the respondents indicated that Government engineers were involved at initiation thus their involvement in other stages was minimal and not regular as they left the contractors to do the implementation leading to poor execution of plans and eventually in complete projects. This means that the project managers were not involved in all aspects of the housing projects thus could not use their full technical skills.

5.2.2 Implementation of Housing Projects

The study found that 49% of the respondents indicated that project implementers were nominated while 42% indicated that they were appointed. Implementers here are basic contractors' who execute the building plans. This means that most of the contractors used are not the best since the projects rarely complete. 51% of the respondents indicated that

there were no stakeholders involved in the implementation of the Prisons housing projects thus lack of collective effort towards project implementation. The respondents agreed that planning effort affected completion of housing projects as shown by a mean of 4.3 since this is where the foundation of the project starts. Prior project management experience affected completion of housing projects as shown by a mean of 3.9 unlike control mechanism with a mean of 3.8 this means that to control the implementation of a project successfully past experience is very important. The respondents agreed that communication and motivation system affected completion of housing projects as shown by a mean of 3.6 because motivation is done by communication hence how one communicates will encourage or discourage the implementers.

5.2.3 Monitoring & Evaluation

The study found that 68% of the respondents indicated that the housing project had a monitoring and evaluation system that was continuous. However this system is not effective since it had rarely addressed the issues it is supposed to and it takes long periods for any control to be effected as 53% of the respondents indicated that the system was not effective in monitoring and evaluation of the project. This means that delay in approving the changes and insufficient funds to make regular visits to the site to monitor and evaluate affect the housing projects as shown by a mean of 3.7. Monitoring and evaluation is well done by outsiders and it ensures sustainability of project to a moderate extent as shown by a mean of 3.0. This means that other stakeholders should be used to monitor and evaluate the housing projects so as to supplement where the government officials cannot make regular visits to the site due to insufficient funds.

5.2.4 Finance

The study found that 94% of the respondents indicated that the funds were released at interval. This means although a project can start with the anticipation of utilising the funds allocated, it can only progress within the timely release of funds. 74% of the respondents indicated that this method affected the completion of the housing projects since the actual acquisition of the funds was long and change of priorities leads to rechanneling of the remaining funds. 64% of the respondents indicated that the challenges

that affected cost management were insufficient funds hence projects are awarded less funds than the actual cost, this compounded with the ever changing prices eventually affects completion of the project. On the other hand, the 4% of the funds released as a whole are well utilised or misused by top management eventually affecting the housing projects. In addition to whole release of funds, fully computerized operations, highly qualified personnel and cost management are important in managing project finance. This also means centralized and integrated operations; resource scheduling and shorter acquisition procedures enhance financial control of the project. According to the findings, 60% of the respondents indicated insufficient funds affected the completion of the housing projects. This was mainly because of change of priorities by the MoPW and as a result of longer time taken to complete the projects than planned for, changes in prices.

5.2.5 Procurement Procedures

The study found that 90% of the respondents indicated that the prison use Government of Kenya Act. This means that project delivery system and the project bidding are subject to the act. The respondents ranked procurement processes as important in completion of Prisons housing projects as shown by a mean of 3.9. This means that long procurement procedures lead to delayed completion of the housing projects and sometimes change of prices. It also means that for the completion of the ongoing housing projects procurement department should enhance faster and easier approval of and for building materials and services. This was due to long procurement procedures and change of priorities leading to delay in completion of the projects or abandoning them when they are almost complete. Cost was used to assess housing projects to a great extent as shown by a mean of 3.8 this means that contractors and engineers were concerned more with the cost of the project when compared with quality and clients satisfaction shown by a mean of 2.8 and 2.1 respectively. This means that the Prison Officers interests and opinions do are rarely taken into consideration.

5.3 Conclusions

The study showed that defining project processes and roles is the first and most important step for managing and leading projects successfully. This is the foundation of clarity, communication, and control mechanism. In essence this requires the technical skills of the project manager. From research effort project managers' past experience is prerequisite to defining and monitoring project outcomes. Managers should take actions in multiple contextual arenas and at multiple levels in their projects to ensure that team leaders receive training to exhibit appropriate behaviours and increase the production/service responsibilities of teams. The team consensus technique meets more of the theoretical requirements for obtaining team-level data than does the aggregation method and that the former is a superior predictor of team-level outcomes Newton (2009). Managers should consider the team consensus technique as a viable alternative to collecting team-level data and as a way to overcome the limitations of the aggregation technique.

There were no other stakeholders involved in the implementation of the Prisons housing projects apart from the Government engineers and the contractors. Challenges faced in the process of implementing the housing projects were insufficient finances. It further concludes that housing projects had an ongoing monitoring and evaluation system but it was not effective since there were instances where it was not followed to the latter and delayed change approvals. Monitoring and evaluation could be well done by outsiders. Interval method of releasing project funds affected the completion of the housing project as a result of long procurement procedures. Actual acquisition of the funds is affected by delayed approvals by the top management. While Project managers did cost management of the housing project, the availability of the funds was subject to approvals by the top management leading to insufficient funds. Timely release of funds still remains a challenge towards management of Project finance. The study concludes that the prisons used Government of Kenya Procurement Act which is long and certainly delays timely acquisition of materials and services for project implementation. Also a lot of time is wasted on following up project development applications consequently leading to project cost over-runs and stalled projects.

5.4 Recommendations

The study recommends that both the project managers and the MoPW Officials should be involved at all levels of the project; support the strengthening of institutions, capacity building, and policy development in all the prisons. Also housing projects to have an effective monitoring and evaluation system that involves all project stakeholders to ensure targets are met. The study recommends the government to release funds at interval but on time and increase the funds disbursed. It also recommends that while the Prisons should use the Procurement Act of Kenya, it should be reviewed to adjust those sections that hinder quick and smooth procurement of goods and services used in the construction of Prisons houses. The study also recommends that future projects should target the improvement of infrastructure - drainage, water and sanitation systems and street lighting in the prisons. Infrastructure development should be based on plans developed in consultation with the prison Officers. Prisons' stakeholders should put emphasis on prevention of slum development by supporting planning and delivering infrastructure services, and affordable housing for newly recruited prison officers that is self contained. The study recommends regular reviews of development plans, enforcement mechanisms to ensure compliance with regulations by the contractors and review and consolidation of multiple laws and institutional frameworks. It also recommends the use of Public – private sector partnership, strong role of technical offices and consultants, use of competent staff and adequate budgetary allocation. Given that technology tools assist knowledge sharing, team development, efficiency, and effectiveness thus there is a need to embrace use of latest management information systems.

5.5 Recommendation for Further Studies

This study has reviewed the factors affecting completion of prisons' housing projects in Nairobi County. The same study should be carried out in the other Counties to find out if the same findings will be obtained. The study focused on the Government institutions thus the same study should be carried out in private sector to find out if the same findings will be obtained. Lastly, research should be done on use of Information Communication Technology in the implementation of Prisons housing projects.

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APPENDICES

Appendix I: Introduction Letter

Omwega Mosembe,
Kenyatta University,
P.O. Box 8882-00300,
Nairobi, Kenya.

To:
The Commissioner of Prisons Kenya
Prisons Headquarters,
P.O. Box 30175 – 00100,
Nairobi, Kenya.

Dear Sir/ Madam,

RE: INTRODUCTION LETTER

I am an MBA student at Kenyatta University. I intend to carry out a research on factors affecting completion of housing projects: Survey of Prisons housing projects in Nairobi County. Your institutions have been identified as rich source of information. I therefore request you to allow me to collect data required for the study from your area of jurisdiction. The information provided will be confidential and will only be used for academic purpose.

Thanks in advance.

Yours faithfully,

Omwega Mosembe

Appendix II: Questionnaire

FACTORS AFFECTING COMPLETION OF HOUSING PROJECTS: SURVEY OF ONGOING PRISONS HOUSING PROJECTS IN NAIROBI COUNTY.

The purpose of this questionnaire is to help collect data for an MBA project in Kenyatta University. All respondents and information provided will be treated as confidential.

Respondent no.....

SECTION A: Background of respondents

Please answer the following questions. Place a tick [✓] where necessary in the spaces provided.

1. What is your age bracket?

- 18 – 25 [] 26 – 35 [] 36 – 45 []
46 – 55 [] 56 and above []

2. What is your gender? Male [] Female []

3. Which of the following best describes your highest academic qualification?

- KCPE [] KCSE [] Certificate []
Diploma [] Bachelors degree [] Post-graduate []

Which other professional training do you have? _____

4. In your prison which organizations are funding housing projects?

- NGOs [] MoPW & H [] Donors []

Others (please specify) _____

5. Who are involved in the construction of these housing projects?

- Prison officers [] Contractors [] MoPW & H []
Community members [] Foreign donors []

Specify your role in these projects _____

Section B: Completion of housing projects

6. Are you directly involved in making decisions on what type of houses are to be built?

Yes No

If yes, state your role _____

7. i) Approximately how much has been spent in undertaking the housing project you are involved in?

1 - 500,000 500,001 - 1,000,000

1,000,001 - 2,000,000 Over 2000,000

ii) In your own opinion are funds disbursed sufficient?

Yes No

Comment _____

iii) State any challenges faced in the process of financing the project

8. i) How are project team members selected?

Interviews Elected Nominated

ii) Are Government engineers involved in housing projects at all levels?

Yes No

iii) If No, at what phases are they involved?

Initiation Planning Implementation

Closing None

9. What kind of houses does the Prison Officers recommend for construction?

One roomed Bed sitter

One bedroom Self contained

Others (specify) _____

10. i) To what extent are the housing projects completed?

Fully partial

ii) What factors affects the completion of these housing projects?

Insufficient funds [] Sufficient technical skills []

Change of priorities []

Others _____

11. i) How would you rate the quality of the housing projects?

High quality [] Quality [] Low quality []

ii) How useful are those housing projects that have been completed?

Very much [] Useful [] Not useful []

12. i) To what extent are the following project evaluation dimensions used to assess how they affect housing projects? Use a scale of 1-5 where 1= very great extent, 2=great extent, 3=Moderate extent, 4=minimal extent and 5= Not at all

	1	2	3	4	5
Time					
Cost					
Quality					
Clients' Satisfaction					

SECTION C: Implementation of Housing Projects

13. i) How are project implementers selected?

(a) Appointed [] (b) Elected [] (c) Nominated []

ii) Are there any other stakeholders involved in the implementation of the Prisons housing projects?

Yes [] No []

If yes, who are they and what is their role in these projects?

iii) State any challenges faced in the process of implementing the housing projects

14. The following table indicate various statements on how project implementation processes affect completion of housing projects .You are required to express your level of agreement by placing a tick in appropriate columns named
SD = Strongly Disagree (5) D = Disagree (4) N = Neutral (3) A = Agree (2) SA = Strongly Agree (1)

Statements	SA (1)	A (2)	N (3)	D (4)	SD (5)
Project implementation processes					
Planning effort					
Control mechanism					
Prior project management experience					
Communication and motivation system					
Coordination among stakeholders (Teamwork)					
Consumer (user) support					
Uniqueness of project activities					
Stage of project					

SECTION D: Monitoring & Evaluation

15. i) Does this housing project have a monitoring and evaluation system?
 Yes [] No []
- ii) If Yes, what type of system is it?

- iii) Is the system effective in monitoring and evaluation of this project?
 Yes [] No []
 If No, how should it be adjusted _____
- iv) State any challenges faced in the process of monitoring and evaluation of this project.

16. In relation to the housing projects in the Prisons to what extent do the following factors of monitoring and evaluation affect project completion? Use a scale of 1-5 where 1= very great extent, 2=great extent, 3=Moderate extent, 4=minimal extent and 5= Not at all

Statements	(1)	(2)	(3)	(4)	(5)
Monitoring & Evaluation (M & E)					
Monitoring and Evaluation involves all stakeholders					
Monitoring and Evaluation ensures targets are met					
Monitoring and Evaluation is well done by outsiders					
Monitoring and Evaluation is an ongoing process					
Monitoring and Evaluation is done only once					
Monitoring and Evaluation ensures sustainability of project					
Monitoring and Evaluation has not been done on this project					

SECTION E: Finance

17. i) How are the funds sourced for these housing projects?

- ii) How are the funds released for the projects?

Fully [] Intervals []

- iii) Does the method in (ii) above affect the completion of this housing project?

Yes [] No []

Comment _____

18. i) Who does cost management of this housing project?

Project Manager [] Engineers [] Prison Officers []

Other (specify) _____

- ii) What are challenges that affect cost management?

Insufficient funds [] Insufficient technical skills []

Change of priorities [] Others (Specify) _____

iii) What are the reasons given for under financing housing projects?

19. Does management affect the utilization of funds allocated for housing projects?

Yes [] No []

Specify how _____

20. The following information is desirable in processing and managing project finance. Please rank them in the scale of 1-5 where: 1 – Most Important 2 – Fairly Important 3 – Important 4 – Not Important 5 – Irrelevant

	1	2	3	4	5
Fully computerized operations					
Good filling system					
Highly qualified personnel					
Good office layout					
Centralized and integrated operations					
Timely release of funds					
Shorter acquisition procedures					
Resource scheduling					
Financial control					
Contractor's cash flow					
Project value					
Cost management					

21. Give suggestions on how project finance and other monetary benefits can be used to improve project completion

SECTION F: Procurement Procedures

For the Ministry of Public Works & Housing and Procurement officials only

22. i) Which procurement act does this Prison use?

(a) Government of Kenya Act [] (b) Prisons' Act []

ii) Highlight those sections that greatly affect the Prisons procurement from the Act

iii) State any challenges faced in the process of procurement processes

23. The following table indicate various statements on how project procurement procedures affect completion of housing projects .You are required to express your level of agreement by placing a tick in appropriate columns named

SD = Strongly Disagree (5) D = Disagree (4) N = Neutral (3) A = Agree (2) SA = Strongly Agree (1)

Statements	SA (1)	A (2)	N (3)	D (4)	SD (5)
Procurement-related					
Project delivery system (e.g. design-bid-build, design-build					
Project bidding method (e.g. price based competitive bidding, negotiated bidding, best value bidding)					
Project contract mechanism (e.g. lump sum, unit price, cost plus etc)					
Project schedule					
Quality of procured materials					
Quality of procured services					
Tendering process					

SECTION G: Project Manager

For the Ministry of Public Works & Housing and Procurement officials only

24. How is the project manager selected?

Appointed Elected Nominated

Other (Specify) _____

25. i) Where does a project manager come from?

Government Officials Private Sector Prisons

Other (specify) _____

ii) Is the project manager directly involved in selection of project team members?

Yes No

If No, how are they selected _____

26. i) Are there other Officers involved in these housing projects at all levels?

Yes No

ii) If yes, who are they and what is their role in these projects?

27. Highlight any challenges faced in the process of managing the housing projects

27. The following table indicates various statements on how project manager involvement affects completion of housing projects. Express your level of agreement by placing a tick as: **SD = Strongly Disagree (5) D = Disagree (4) N = Neutral (3) A = Agree (2) SA = strongly Agree (1)**

Statements	SA (1)	A (2)	N (3)	D (4)	SD (5)
Project Manager					
Project manager's experience					
Project manager's ability to make decisions					
Project manager's commitment					
Project manager's leadership skills					
Functional managers' support					
Top management support					

28. Rank the following factors to show the extent they affect completion of Prisons housing projects using a scale 1-5. **1 = Most important; 2 = Important, 3 = Moderate, 4 = Least and 5 = Least important.**

FACTORS	RANK
Project Manager	
Project implementation process	
Procurement processes	
Finance	
Monitoring and Evaluation	

29. In your opinion what should be done to enhance completion of the ongoing housing projects within your Prison/ Ministry?

THANK YOU VERY MUCH FOR YOUR CO-OPERATION.

Appendix IV: Work Plan

Activities	Week											
	1	2	3	4	5	6	7	8	9	10	11	12
Data Collection	■	■										
Data Editing			■	■								
Data Coding & Entry				■	■	■						
Data Analysis							■	■				
Report Writing								■	■	■	■	
Report Submission											■	■

(Source, Research 2011)

Appendix V: Research Budget

Item	Quantity	Price per Unit (Kshs.)	Total cost (Kshs.)
1. Proposal Writing			
Photocopy paper	2 reams	@ 500.00	1 000.00
Ball pens	5	@ 20.00	100.00
Fools caps	2 reams	@ 400.00	800.00
Airtime			2 000.00
Internet			2 000.00
Total			5 900.00
2. Data collection			
Field assistants	2	@5000.00	10 000.00
3. Travel expenses			
Principal investigation	30 days	@ 500.00	15 000.00
4. Data analysis and transcription			35 000.00
5. Report Preparation			
Typing			700.00
Printing			4 200.00
Binding			600.00
Total			5 500.00
6. Contingency 15%			10 710.00
Grand Total			82 110.00

(Source, Researcher 2011)

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