INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH & DEVELOPMENT

ISSN 2278 – 0211 (Online)

Factors Influencing Implementation of Commercial Housing Projects in Kisumu County, Kenya

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Abstract:
The process of project implementation involves the successful expansion and introduction of projects in an organization, presents an ongoing challenge for urban and rural development of housing Projects. Most of the development projects experience major hurdles in their life cycle and barely realise the set objectives, this point to problem in project implementation. The major factors contributing to this trend require more examination. This study sought to identify factors influencing implementation of commercial Housing projects in Kisumu County, Kenya. The research objectives were to: assess how contractor selection criteria, investigate how cost of materials and determine how project activity scheduling influenced implementation of commercial Housing projects in Kisumu county. The study was informed by agency and project implementation theories. The research design was descriptive survey. A survey questionnaire was applied in the study. The target population included contractors (215), National Construction Authority (NCA) officers (7) and county government building inspectors (7), from which a sample of 193 contractors and 14 NCA and county government officials was developed. Simple random and purposive sampling techniques were used in this study. Questionnaire (for contractors) and interview schedule (for NCA and county government officers) were the instruments of data collection for this research. The study adopted both qualitative and quantitative data analysis approaches. Qualitative data was analysed by content analysis while Quantitative Data for this study was analyzed descriptively (frequencies, percentages, means and standard deviation) and inferentially (Multiple Linear Regression). The findings are presented in the form of tables, charts and frequencies. Results showed that contractor selection criteria, budgeting and project scheduling significantly ($p<0.05$) affected the implementation of commercial housing projects in Kisumu County. The Multiple Linear Regression statistics showed that about 40.0% of change in implementation of commercial housing projects was explained by the factors studied. The beta coefficients for the equation was; cost of materials$\beta=0.442$, project activity scheduling ($\beta=0.390$) and lastly contractor selection criteria $\beta=0.298$. The study recommends that there is need for build-up of effective coordination and communication during project implementation. There is also need for consideration of previous contracts undertaken by a particular contractor before engaging them to implement a new project. The findings of the study are important to NCA, county governments, contractors, developers and other stakeholders in the construction industry.

1. Introduction

1.1. Overview

This chapter presents background information on subject of this research and covers statement of the problem, research objectives, research questions, and significance of the study. The chapter also presents limitations and delimitations of the study and the scope. In the background of the study the study reviews the key concepts and how they relate to one another.

1.2. Background to the Study

Project implementation is the stage where all the planned activities are put in to action, the project is produced and the performance capabilities are verified (Githenya & Ngugi, 2014). A project is generally considered to be successfully implemented if it comes in on-schedule, comes in on-budget, and achieves basically all the goals originally set for it and is accepted and used by the clients for whom it is intended (Mbaluku & Bwisa, 2013).

Projects success is basically to gain the project objectives that are classically defined by the need to complete a project on time, within the budget, and with appropriate quality. Hence any disruptions to the project objectives will certainly contribute to project delays with its specified adverse effects on project objectives. Delays can give rise to disruption of work and loss of productivity, late completion of project, increased time related costs and third party claims and abandonment or termination of contract. Delays are costly and often result in disputes and claims (Abedi, Fathi, & Mohammad, 2011). This research looks at the implementation of housing projects in the construction industry.

Oshodi and Iyagba (2013) indicated that the importance of the construction industry in the development of any nation cannot be under emphasized. The industry provides the needed infrastructure for the growth of the economy. The housing sector creates employment,

reduces poverty and contributes to economic recovery and growth in many nations (Arku, 2006). The construction industry contributes significantly in terms of scale and shares in the development process the world over. The construction product provides the necessary public infrastructure and private physical structures for many productive activities such as services, commerce, utilities and other industries. The industry is not only important for its finished product, but it also employs a large number of people (directly and indirectly) and therefore has an effect on the economy of a country/region during the actual construction process (Wibowo, 2009). Thus, housing has economic, social and cultural importance.

However, many developing countries are experiencing rapid growth in population and urbanisation. As a result, provision of adequate housing remains a major challenge facing governments in those countries (Bredenoord &Lindert, 2010). Under the Vision 2030, the Kenyan government has committed to provide adequate, affordable and quality housing for all citizens, particularly the low-income groups. Despite the fact that governments have long been putting more effort into addressing this problem, little success has been recorded (Datta & Jones, 2001).

In South Africa, Mbonane (2005) reported that there was a huge backlog in terms of service and housing provision especially, low cost housing. The housing challenges include, housing shortage, mushrooming of informal settlements, overcrowding in the townships and flats. Overcrowding negatively affect the quality of basic services. It is obvious that the housing problem is more prevalent in Africa and developing parts of Asia (UN-Habitat, 2010).

Bredenoord and Lindert (2010) reported that most countries in Africa, Asia and Latin America lack adequate and decent housing for the majority of their citizens. UN-Habitat (2010) reported that the urban population is rapidly increasing, especially in the developing World, and thus national governments are challenged with the major task of providing decent accommodation for their people. For instance, UN-Habitat (2013) reveals that the world's urban population in 2011 was 3.63 billion people, equivalent to 52.1% of the world's total population; this figure will increase to 6.25 billion people by the year 2050 and will represent 67.2% of the global population.

In developing countries alone 5.12 billion people will be living in urban cities by 2050.

Furthermore, UN-Habitat (2010) claims that by the year 2030 approximately 3 billon people worldwide, mostly from developing countries, will need decent housing with infrastructure and services. These statistics are alarming as they suggest that national governments, especially in developing countries, must put greater effort into providing additional housing for their increasing population. The problem of inadequate housing cannot be blamed on the part of the government but also the housing and construction industry. This is because in many developing countries, the construction sector is not well developed.

According to Nordberg (2005), the construction industry does not fulfil its potential role in development. Hence, this poses serious problems for infrastructure and services development (Nordberg, 2005). There are many reasons for the sectors inability to yield good performance. These include, access to finance by Contractors, financial mismanagement, inadequate training of Consultants and Contractors, government policies and actions to mention a few.

In Malaysia, Abdul-Rahman, Wang and Hamiza (2015) informs that the construction industry has been criticized for its project delays, increasing costs, low productivity, unsafe site conditions, and poor quality. It has also been highlighted that internal management problems create negative impacts which result in abandoned housing projects. In Pakistan, Haseeb *et al.,* (2011) said that it is in very rare case that a large construction project is completed on the time specified or agreed upon. There are many large construction projects in Pakistan, which suffered delay or in some cases suffered suspension or abandonment.

In Vietnam, the delay in construction is the challenge often faced in the course of executing construction projects (Truong Van, Minha& Viet, 2015). In Nigeria, Owolabi, Amusan, Oloke, Olusanya, Tunji- Olayeni, Owolabi, Peter and Omuh (2014) indicated that delay is one of the biggest problems often experienced on construction project sites. Delays can instigate negative effects such as increased costs, loss of productivity and revenue many lawsuits between owners and contractors and contract termination. In Rwanda, construction projects run a high risk of being well over budget and significantly late. Delays in Kenyan projects are said to be a common and re-occurring phenomenon and are experienced in any sector that delivers services through project constructions. The government of Kenya and its developing partners continue to allocate huge financial resources to finance development. However, the benefits intended for the developments are partly or never realized due to un-successful project implementations.

According to KNBS (2012), the construction industry contributed 3.8%, 4.1%, 4.3% and 4.1% towards Gross Domestic Product (GDP) for the years 2008, 2009, 2010 and 2011 respectively. This is an average of 4.1% as compared to the 10% for the developed economies. Kibuchi and Muchungu (2012) discovered that despite the high quality of training of consultants in the building industry in Kenya and regulation of the industry in major urban areas, construction projects do not always meet their goals. This is manifested by myriad projects that have cost overruns, delayed completion period and poor quality resulting to collapsed buildings in various parts of the country, high maintenance costs, dissatisfied clients and even buildings which are not functional. The above review has shown that implementation of housing projects in Kenya and around the world still faces a lot of challenges. Therefore, this research soughtto evaluate factors influencing the implementation of housing projects in Kisumu City, Kenya.

1.3. Statement of the Problem

Housing and construction industry comprises of a large number of parties as clients, contractors, consultants, stakeholders, shareholders, regulators and others. Implementation of housing construction projects in Kenya suffer from many problems and complex issues in performance because of many reasons and factors. Research evidence shows that performance of the construction in Kenya is poor as time and cost performance affects their implementation (Nyangilo, 2012). Project delays are a common problem not only with an immeasurable cost to society, but also with debilitating effects to the contracting parties (Ondari & Gakera, 2013).

Kisumu being the third largest city in Kenya has experienced growth of commercial housing projects with the entry of county government.

However, statistics from National Construction Authority (2015) shows that 42.8% of projects in Kisumu have stalled, 35.26% others have not taken off, while (12.9%) others have been completed although certification have not yet been provided. Because of the migration of people from rural to Kisumu city, there exist a housing crisis but the industry is not responding to the demand. There could be factors in implementation that is affecting these housing projects of which many of researches have not yet focused on. It is against this backdrop that the study investigated whether; selection criteria of contractors, cost of materialsand project scheduling influence implementation of housing projects in Kisumu County, Kenya.

1.4. Purpose of the Study

The purpose of this study was to evaluate factors influencing implementation of commercial Housing projects in Kisumu County.

1.5. Objectives of the Study

The study was guided by the following specific objectives:

1. To analyze how contractor selection criteria influences implementation of commercial housing projects in Kisumu County.
2. To establish how cost of materials influence implementation of commercial housing projects in Kisumu County.
3. To determine how project scheduling influences implementation of commercial housing projects in Kisumu County.

1.6. Research Questions

The study was guided by the following research questions:

1. What extent does contractor hiring criteria influence implementation of commercial housing projects in Kisumu County?
2. What is the influence of material costs in the implementation of commercial housing projects in Kisumu County?
3. What extent does project activity scheduling influence implementation of commercial housing projects in Kisumu County?

1.7. Significance of the Study

This study may help construction developers, professionals and various development agencies increase the success of constructing commercial housing projects by managing well the factors that will help their implementation. The architects, engineers, quantity surveyors, construction project managers and site agents may benefit from this study by applying the results of its findings while carrying out housing construction projects. Project developers/clients may also benefit from the findings of this study and therefore achieve greater success in their future construction of commercial housing projects. This is because they may apply the findings of this study in ensuring the risk factors that may cause delay in implementation of their projects are mitigated upon.

1.8. Assumptions of the Study

The study assumed that respondents were willing to provide accurate and valid information without withholding any material information. The three factors; contractor selection criteria, cost of materials and project scheduling are critical to implementation of housing projects. The research instruments selected were adequate to answer the research questions well.

1.9. Limitations of the Study

The limitation of the study was lack of adequate time by the respondents since they are generally busy people and this contributed to the return rate of the questionnaires being less than a hundred percent. Some of the respondents were unwilling to give information. Inadequate previous information on the factors affecting the performance of construction projects for comparison purposes as well as sample size may not have been a good ground for extrapolation or generalization of a study finding to other areas.

1.10. Delimitations of the Study

This study focused on commercial housing projects in Kisumu County and the factors that influence their implementation.

2. Literature Review

2.1. Introduction

This chapter highlights written material cited in order to support the study. The literature is sourced from books, journals, internet and other research studies done by various scholars. The literature is written in line with the objectives. The chapter also covers the theoretical and conceptual frameworks.

2.2. Conceptual Review of Concepts

A project is a series of tasks or activities needed to achieve a specific objective within certain technical specifications, within defined start and end dates, and subject to funding limits and resource availability (Dilts & Pence, 2005). Similarly, Brooks and Combrink (2005) define a project as a unique process, consisting of a set of co-coordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements, including constraints of time, cost and resources. Project delays are a common problem not only with an immeasurable cost to society, but also with debilitating effects to the contracting parties (Ondari & Gakera, 2013). Project delays are a reoccurring problem and have negative impacts on project success in terms of

time, cost, quality and safety (Knight, Hurst & Farahani, 2009). To minimize these impacts, identifying the most significant factors influencing project delay is vital. This study investigated factors affecting the implementation of commercial housing projects in Kisumu County, Kenya.

2.3. Theoretical Review

The research was guided by the theory of project implementation and agency theory.

2.3.1. Theory of Project Implementation

Implementation as Nutt (1996) puts it is a series of steps taken by responsible Organizational agents to plan change process to elicit compliance needed to install changes'. Managers use implementation to make planned changes in organizations by creating environments in which changes can survive and be rooted. Implementation is a procedure directed by a manager to install planned changes in an organization. There is widespread agreement that managers are the key process actors andthat the intention of implementation is to install planned changes, whether they be novel or routine.

However, procedural steps in implementation have been difficult to specify because implementation is ubiquitous. Amachree (1988) made several important distinctions pertinent to these processes of planned change, identifying four procedures called the entrepreneurial, exploration, control and implementation sub processes. From this perspective, implementation can be viewed as a procedure used in planning change process that lays out steps taken by the entire stakeholders to support change.

2.3.2. Agency Theory

Contract laws were influenced by the ancient Greek as a form of devotion to agreements as well as a basic category for cancelling agreements (Elliot & Quinn, 2007). Agency theory was first developed by Jensen & Meckling 1976. Its framework is concerned with the contractual relationships of stakeholders, managers, employees in an organization. Agency theory addresses incentive and information problems inside and outside the firm (Shalhoub, 2002). Agency theory deals with problems caused by contractual conflicts. Occasionally, different subjective interests give rise to conflicts of interest between contracting partners. These conflicts may result in either of the contracting parties or both contracting parties to undertake action that maybe against the interest of the other contracting party. According to Wentges and Gossy (2008), agency theory describes the relationship between one actor and group as the agent and another actor or group, the principle where the agent has to fulfil certain obligations for the principle. The basis of the relationship between the actor and the principle is on an explicit or implicit contract. Contracts describe the relationships between any two parties seeking to involve or already involved in collaborative actions or assignments.

2.4. Empirical Review of Studies

This section reviews empirical studies on factors influencing implementation of commercial housing projects in different areas and countries of the world.

2.4.1. Contractors Selection Criteria and Implementation of Housing Projects

According to Nachukwu (2011), contractors and sub-contractors are individuals or firms that undertake to perform required construction work in return for a contract price. Contractors may be categorized as prime contractors and subcontractors. Prime contractors have a contractual relationship with the owner, whereas subcontractors have a contractual relationship with the prime contractor or with another subcontractor. General contractors are prime contractors who contract to perform specified work, possibly excluding some specialty items such as electrical and mechanical work that the owners desire to contract directly with the specialty contractors.

As pointed out by Hobbs (1997), in most projects the contractor has little or no involvement until the bidding phase, and then the construction phase itself. By the end of the final design phase contract documents should have been prepared. The essence of the contractor's contractual responsibilities includes the furnishing of the labour, materials, and equipment and related services (the work) for a contract price and within the contract time. Ideally, projects designed and managed by highly trained construction professionals and executed by qualified contractors selected on the basis of their capability should meet the project performance goals. These goals are in terms of the contract period, budget, quality, environmental sustainability and client satisfaction. However, there is evidence that despite the high quality of training of consultants in the building industry in Kenya and regulation of the industry in major urban areas, construction projects do not always meet their goals. This is manifested by myriad projects that have cost overrun, delayed completion period and poor quality resulting to collapsed buildings in various parts of the country, high maintenance costs, dissatisfied clients and even buildings which are not functional (Kibuchi & Muchungu, 2012).

Amusan (2002) discovered from the analysis that factors such as contractor's inexperience, inadequate planning, Inflation, incessant variation order, and change in project design were critical to causing cost overrun, while project complexity, shortening of project period and fraudulent practices are also responsible. Shaban (2008) stated that the most important factors affecting the performance of construction projects agreed by the owners, consultants and contractors were: average delay because of closures and materials shortage; availability of resources as planned through project duration; leadership skills for project manager; escalation of material prices; availability of personnel with high experience and qualification; and quality of equipment and raw materials in project.

Iyer and Jha (2005) identified many factors as having influence on project cost performance, these include: project manager's competence, top management support, project manager's coordinating and leadership skills, monitoring and feedback by the participants, decision-making, coordination among project participants, owners' competence, social condition, economic condition,

and climatic condition. Coordination among project participants, however, was identified as the most significant of all the factors, having maximum influence on cost performance.

Ogunlana and Promkuntong (1996)conducted a study on construction delays in Thailand. They found that the problems faced by the construction industry in developing economies like Thailand could be: (a) shortages or inadequacies in industry infrastructure (mainly supply of resources); (b) caused by clients and consultants and (c) caused by contractor's incompetence/inadequacies. They recommended that there should be concerted effort by economy managers and construction industry associations to provide the necessary infrastructure for efficient project management.

Truong Van, Minh and Viet (2015) developed a conceptual model of delay factors and to analyze the level of impact of the delay groups on the completion of the government construction projects which could be related more to the legislation, the administrative procedures. This study identified 28 delay factors and 6 core groups of factors affecting the project completion in the final conceptual model. The results of the study show that the three most influential factors of project completion are: information delays and lack of information exchange between the parties; incompetent owner; and incompetent supervision consultant. The bulk of control of the delay depends on the groups of factors relating to contractor and owner because they have the strongest impact on the project completion.

Enshassi, Mohamed and Abushaban (2009) paper was to identify the factors affecting the performance of local construction projects; and to elicit perceptions of their relative importance. A total of 120 questionnaires were distributed to 3 key groups of project participants; namely owners, consultants and contractors. The survey findings indicate that all 3 groups agree that the most important factors affecting project performance are: delays because of borders/roads closure leading to materials shortage; unavailability of resources; low level of project leadership skills; escalation of material prices; unavailability of highly experienced and qualified personnel; and poor quality of available equipment and raw materials.

Othuman, Sani, Agus and Alias (2014) evaluated and identified the causes and consequences of project delays in the private housing development projects in Malaysia and the remedies that can minimize these delays. An online questionnaire survey has been carried out to collect the data and this included 76 respondents from multiple developers' companies around Malaysia. From the survey, a total of 28 causes and 6 consequences of project delays had been identified from four different factors of delays; such as client factors, consultant factors, contractor factors and external factors, by which the contractor factor being the major contributor to this problem. The top ten causes of the delays are due to weather conditions, poor site conditions, poor site management, incomplete documents, lack of experience, financial problems, contract modifications, delay in approving of major variations, contractor coordination problem with other parties and construction mistakes and defective works. The consequences of the delays would contribute to time overrun, cost overrun, different in opinions, negotiations, legal actions and total abandonment.

In Abdul-Rahman et al., (2015) study, almost all of respondents believed that poor construction management by contractor is also a factor of problems associated with abandoned housing projects. The contractor is the most important person in any construction housing project and responsible for monitoring the construction work at site regularly. Inexperienced contractor can bring many problems to the project, such as shortage or excess of construction materials due to the mis-estimation, taking the unskilled workers at project site, and lack of equipment and machinery which enable the construction team to complete each phase of project within specified time. The poor performance of contractor will clearly cause delays to the projects and induce the problems associated with abandoned housing projects.

Oshodi and Iyagba (2013) research aimed at comparing Nigerian and Iranian Construction Industry. A questionnaire survey was conducted to solicit the causes and effects of delay from contractors and consultants view point. The study compared 27 different causes and 6 effects of delay already identified in an Iranian study. It was observed that the causes of delay in Nigeria and Iran have no correlation while there was a correlation in the effects of delay from the contractors and consultants view point. The study concluded clients, consultants and contractors must ensure that clients recruits competent consultants and make progress payment on time. Consultants should manage the design and construction phase professionally so as to minimize changes during construction. Contractors should put in-place adequate finance, material and schedule management process to manage the construction phase of any project

Muguchu (2012) provides evidence that despite the high quality of training of consultants in the building industry in Kenya and regulation of the industry in major urban areas, construction projects do not always meet key performance goals. This is manifested by myriad projects that have cost overrun, delayed completion period and poor quality resulting to collapsed buildings in various parts of the country, high maintenance costs, dissatisfied clients and even buildings which are not functional.

Ndungu (2014) looked at the factors influencing completion of projects in Government funded Tertiary Institutions in Nairobi County. The study used quantitative research design. Data instrument tool used was survey where questionnaires were administered. The population for research was 44 Government Tertiary Institutions in Kenya of which 14 Tertiary Institutions are found within Nairobi County. The findings were then summarized as cost and time overruns in projects are as a result of instructions, delays and unrealistic project acquisition, delayed or disrupted communication or late approvals. Projects whereby professional consultants are engaged are better managed. Contractors who engage in-house professionals such as quantity surveyors and engineers manage projects better. Environment does not have a major effect on projects delivery.

Auma (2014) studied numerous potential factors that could be affecting the performance of construction projects in Kenya. Simple random sampling was used to sample the respondents. Questionnaires were used to collect data that were used in the processing and analysis of findings. The result showed that qualification and experience of staffs, quality of equipment and materials, conformance to specification are quality factors while leadership factors are staff training and leader's professional qualification are factors that affect the performance of construction projects.

Wanjau (2015) study explored the factors influencing the completion of building projects in Kenya. The design of this research was a descriptive survey research. The population for this study was composed of 136 managers from the Ministry of Lands, Housing and Urban Development, Nairobi County. The study found out that there is a positive relationship between completion of building projects and business related factors, project procedures, project management factors and human related factors. The study by Wanjau (2015) was done in Kisumu while this study will seek to determine whether the above-mentioned factors influence implementation of commercial projects in Kisumu County, Kenya.

2.4.2. Cost of Materials and Implementation of Housing projects

Building materials refers to the physical resources that are used to construct a house. Alaghbari (2012) found out with regards to construction materials that some of the basic hard supplies such as steel and most of the finishing materials like tiles, have to be imported making them susceptible to foreign exchange fluctuation cost and influence of external factors which are finally passed on to the final consumer. Although majority of the materials like cement and sand are produced locally the supply does not always meet local demand and pushing up prices, Memon (2010). The general costing of the entire project is a factor that really affects implementation of a housing project.

Aftab, Rahman, Abdullah and Azis (2010) stated that fluctuation in price of material, cash flow and financial difficulties faced by contractors, shortage of site workers, lack of communication between parties, incorrect planning and scheduling by contractors are most severe factors while frequent design changes and owner interference are least affecting factors on construction cost performance. Baloyi and Bekker (2011) discovered that the increase in material cost is the single largest contributor to cost overruns for both global and stadia projects. Baloyi and Bekker study looked at stadia projects while this study focussed on the housing sector.

Frimpong et al., (2003) conducted a survey to identify and evaluate the relative importance of significant factors contributing to delay and cost overruns in Ghana groundwater construction projects. A questionnaire with 26 factors was carefully designed from preliminary investigations conducted in groundwater drilling projects between 1970 and 1999 in Ghana. The questionnaire was directed towards three groups in both public and private organizations: owners of the groundwater projects, consulting offices, and contractors working in the groundwater works. The questionnaire was distributed to a random sample of 55 owners, 40 contractors and 30 consultants. The result of the study revealed the main causes of delay and cost overruns in construction of groundwater projects: monthly payment difficulties from agencies; poor contractor management; material procurement; poor technical performance; and escalation of material prices.

Musa, Amirudin, Sofield and Musa (2015) study sought to establish the effect of these factors on public housing project success using structural equation modelling (SEM) techniques. The study was conducted in Nigeria by means of interviews, a pilot study and a main survey. Five hundred and fifty (550) questionnaires were administered to construction professionals who work as developers, consultants or contractors and those working in public housing agencies. The results reveal that (i) the economics factor significantly affects public housing project success, (ii) the social factor significantly affects public housing project success, and (iii) the political factor significantly affects public housing project success. This shows that projects costs influence implementation of housing projects.

Ayodele and Alabi (2011) paper determined the causes and effects of abandonment of projects in Nigeria. Structured questionnaires were distributed to Quantity Surveyors, Structural Engineers, Architects and Contractors. The result from the study showed the causes of project abandonment as inadequate project planning; inadequate fund, inflation, bankruptcy of Contractor, variation of project scope, political factor, death of client, incompetent project manager, wrong estimate, inadequate cost control, faulty design and delayed payment. Effects of project abandonment from the study are disappointment of the populace/users, low living standard, wastage of resources, reduction in employment opportunities and decrease in tempo of construction activities, decrease in revenue accruing to government, difficulty in attracting foreign loans.

Abisuga, Amusu, and Salvador (2014) study sought to assess the causes, effects and methods of minimization of construction project delay in Nigeria. A questionnaire survey was conducted within the construction firms considering the indigenous and multinational firms. Findings of the study showed that cash flow problems, shortage of construction materials, client's financial difficulties, inadequate consultant experience and incompetent project team and so on were the causes of delay in construction projects. The study also revealed that time overrun; disputes, cost overrun, litigation/arbitration and project abandonment were the major effects of delay of construction projects.

Kamotho (2014) study aimed to establish how each of these factors influences project completion. The research relied both on primary and secondary data. The population was stratified into three with each group of respondents handling different responsibilities in the project. Primary data was collected using both questionnaires and an interview schedule. The study findings revealed that there is a weak relationship between budgeted cost and actual cost of implementation of property development projects at 35%. This implies that the actual costs incurred were greater than the budgeted costs. Also at 95% confidence interval the study findings revealed that there is a weak relationship between target implementation time and actual implementation time of property development projects at 26%. This implies that majority of projects in the property development industry were implemented later in time after expiry of their targeted implementation timelines.

Muriithi (2014) determine the factors that influence timely completion of power projects within Thika region. Descriptive and exploratory research designs were adopted. The target population was project engineers, supervisors and technical staff working in projects. It was established that procurement delays, timely availability of funds and climatic factors were observed to be the main factors that influenced the timely completion of KPLC projects in the studied area.

Kimani and Kimwele (2015) study aimed at identifying factors that influence project delays in Kenya: a case of National Housing Corporation. The study adopted a descriptive research approach due to its ability to take into account various aspects of a problem for the purpose of a detailed, intensive and scrupulous study. The study considered four factors influencing project delays which explain 77% of the project findings on the influencing factors and project delays as represented by the R2 with contract management being the most influencing factor of project delays in Kenya. The study found that majority of the respondents agreed that organizational structure, finance, contract management and labour influence project delays. The study by Kimani and Kimwele focused on government and parastatals while this study targeted mainly independent and private contractors in Kisumu County.

2.4.3. Project Scheduling and Implementation of Housing Projects

Project scheduling is the process of developing a detailed plan of the required stages of the implementation process. Ginzberg has drawn parallels between the stages of the implementation process and the Lewin model of Unfreezing-Moving-Freezing, viewing planning and scheduling as the first step in the "Moving" stage (Ginzberg, 1979). Kolb and Frohman's model of the consulting process views planning as a two-directional stage, not only as necessary to the forward-going change process, but as an additional link to subsequent evaluation and possible re-entry into the system (Kolb & Frohman, 1970). Nutt further emphasizes the importance of process planning, breaking down planning into four stages: formulation, conceptualization, detailing, and evaluation (Nutt, 1983). As developed in this study's model, Project Schedule/ Plans refer to the degree to which time schedules, milestones, manpower, and equipment requirements are specified. Further, the schedule should include a satisfactory measurement system as a way of judging actual performance against budget and time allowances.

The key objectives of construction projects are time, cost, quality and safety. Unfortunately, the phenomenon of delays adversely impacts all the stake holders of the projects including owners, design professionals, construction professionals, users and others. The delays, if occur, jeopardize the objectives and result in extension of time which lead to extra overheads that increase the cost of the project. Time is money and time is an integral part of every construction plan and can affect each party's contractual obligations. The time allowed for construction performance is an important consideration for both the project contractor and the project owner. In order to make sure that the projects are completed within the budgeted time and cost, identification of causes of delays is very much necessary so that once these factors become clear, the stakeholders can take proactive steps to avoid such situations (Safdar *et al.,* 2015).

Time is money to owners, builders, and users of the constructed facility. From the owner's perspective, there is lost revenue by not receiving return on investment, cash flow crunch, potential alienation and loss of clients/tenants, extended interest payments, and negative marketing impacts. From the users' perspective, there are financial implications similar to owners (Bob & Muir, 2005). Time as a factor that influence the performance of construction project was determine through finding out whether the firms participated in pre-project planning, the software that they use in planning, supply of incentive system to stimulate the construction time and opinion on time factors that affect the performance of construction projects (Auma, 2014).

Dele and Abiodun (2015) said thatcompletion time is one of the yardsticks for measuring the level of project success in the construction industry. Thus, timely completion of construction projects is of great concern to construction projects participants. However, time overrun in building projects has been observed to be one of the major problems of the industry for many years. This paper examined the causes of time overrun in building projects with a view to attracting policy response which could enhance project time performance. Copies of structured questionnaire were administered on 95 construction professionals in contracting and consulting firms in Lagos State, Nigeria out of which 70 were properly filled and used for analysis. Mean score and Spearman's rank correlation were used to analyse the data collected. The study indicates that both contractors and consultants were in agreement that time overrun was mostly due to financial difficulties, incomplete project details and clients' interference.

Pourrostam and Ismail (2011) identified 25 causes of delays on Iranian Construction project to include: ineffective planning and scheduling of project by contractor, financial difficulties by contractor, delay in progress payments by client, inadequate contractor experience, change orders by client during construction, poor site management, incompetent subcontractor, delay in delivery of materials to site, equipment unavailability, lack of materials on market, delays in producing design documents, mistakes and discrepancies in design documents, slowness in decision making process by client, mistakes during construction, inaccurate estimates, lack of communication between the parties, obstacles from government, late in reviewing and approving design documents by client, lack of consultant's experience, improper construction method by subcontractors, bad weather, poor contract management by consultant, low productivity level of labours, problems with subcontractors, type of project bidding and award, problem with neighbours and site condition and shortage of labourers.

In Malaysia, Abdul-Rahman *et al.,* (2015) found out that half of respondents agreed that the financial failure can also cause the problems associated with abandoned housing projects. The respondents commented that the responsibility of contractor is very critical in executing any housing projects. A contractor should have a good construction planning and also efficiently progress the construction works as planned. However, a weak financial position may result in a contractor's financial failure, leaving the contractor unable t to fulfil the requirement of the contract which will lead to the occurrence of abandoned housing projects.

Olusegun and Akintunde (2015) assessed construction stakeholders' perception of the causes of delays and its effects on project delivery in a bid to proffer solution in minimizing the occurrences of delays. Questionnaire was used to elicit responses from construction stakeholders; a total of thirty-three causes of delays, seventeen resultant effects of delays and fifteen methods of minimizing construction delays were identified for the study based on literature reviews. The results suggest that client's cash flow related problems are the main causes of delays while time and cost overruns are the major identifiable effects of delays in construction projects. However, adequate project planning and budgeting were suggested as possible ways of minimizing the occurrences of delays.

Mwangi (2015) investigated the extent of the risk management practices at planning phase and the effect of these practices on project cost and schedule performance. The risk management practices at construction project planning phase include: risk identification and profiling, architect/engineer selection; site selection and validation, needs identification and validation and cost and schedule development. The study targeted architects, engineers, project managers, quantity surveyors, contractors, and, regulatory authorities in operation in Rwanda and key clients with major investments in the construction industry. The research project found out that the consulting engineers and architects were often selected before the design phase of a project. This meant that many projects did not benefit from professional input at planning stage. The most used method of selection used for consultants was the quality and cost based selection method. 45.2% of the projects surveyed had poor time performance while 35.7 % of the projects had poor cost performance.

Majority of respondents in Auma (2014) study accepted that they participated in pre-planning effort, they used critical path method to present their planning and scheduling of the project, required the subcontractors to submit on a weekly basis in advance to adjust their schedule and provided bonus in position as incentive to stimulate construction time. The respondent response on time factors that affect the performance of construction indicated that time is a factor that must be put into consideration. High percentage of the respondent strongly agreed that estimated time, percentage of order delivered, delay in claim approval and that delayed payment from the owner to the contractor affect the performance.

As Ling and Bui (2010) indicates that major enablers that lead to project success are foreign experts' involvement in the project, government officials inspecting the project, and very close supervision when new construction techniques are employed. All these actions ensure that the contractor conforms to the specifications. Auma (2014) results showed that contractors should occasionally perform quality assurance training and follow up since a higher percentage of respondent have agreed that quality assurance training and follow up is a factor that affect the performance of construction projects.

Githenya and Ngugi (2014) assessed project planning, project control, motivated project team and project management competency, on housing project implementation in Kenya. The study employed descriptive study. Data was collected using questionnaires for project managers. The study found that project planning, project control, motivated project team and project management competency have a great influence on housing project implementation in Kenya. Project Control measures was found to be the most significant with correlation coefficient of 76.6% element influencing implementation housing projects in Kenya.

2.5. Research Gap

Based on the review of literature on factors influencing implementation of housing projects, several research gaps had been identified from scholarly work. In a study on factors influencing project delays in Kenya with specific reference to National Housing Corporation (NHC), Kimani and Kimwele (2014) mixed two research designs; case study and descriptive. The authors also conducted their research on a government organization while this study was conducted in private organizations with government entities (NCA and county government) providing supervisory roles. The authors failed to show how contractor selection criteria, cost of materials and project activity scheduling affected implementation of commercial housing projects.

In another Study, Ndungu (2014) conducted research in public education institutions in Nairobi that failed to link the relationship between cost overruns and project time on implementation of housing projects. More studies were reviewed in this study and it happened that a gap existed in identifying ways through which the process of selecting contractors, cost of materials and project activity scheduling affected implementation of commercial housing projects in Kisumu County.

2.6. Conceptual Framework

Orodho (2008) stated that a conceptual framework is a model representation where a researcher represents the relationships between variables in the study and shows the relationship graphically and diagrammatically. The two sets of variables are in tandem with the study objectives. It also has intervening variables coming in between the independent and dependent variables.

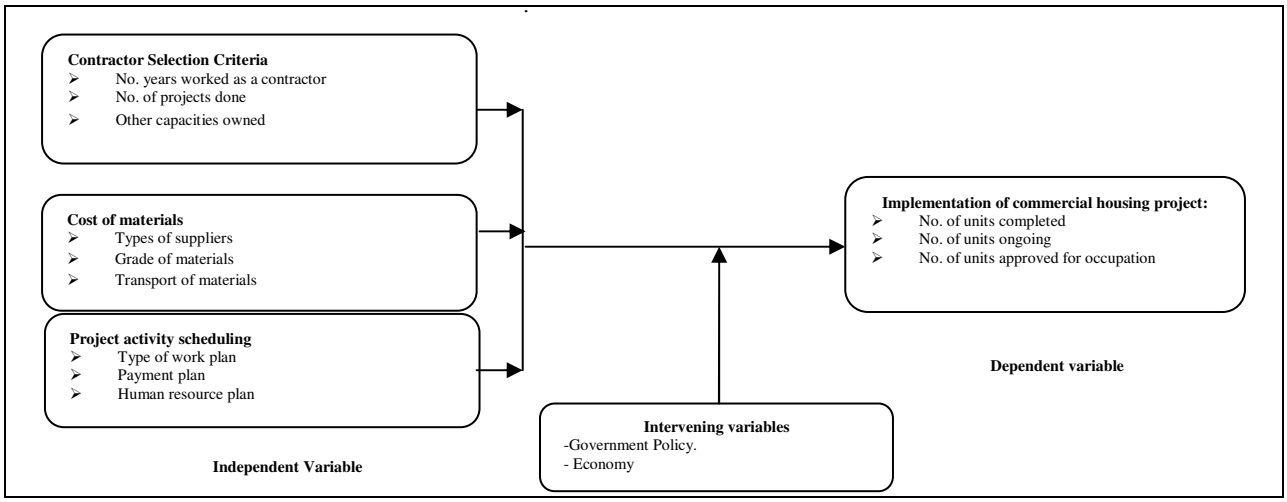

Figure 1: Conceptual framework
Source: Author (2017)

2.7. Summary of the Chapter

The chapter reviewed the literature on factors influencing implementation of commercial housing projects from a global perspective narrowing down to Kisumu County, Kenya. The study has also presented both theoretical and conceptual frameworks on which the study was based.

3. Research Methodology

3.1. Introduction

This chapter describes the methods that were used in the study. It explains the research design, the study population, sampling method and procedures, data collection procedures and instruments, data analysis, reporting and ethical issues.

3.2. Research Design

It is the blueprint for conducting the study that maximizes control over factors that could interfere with the validity of the findings. Designing a study helps the researcher to plan and implement the study in a way that helped the researcher to obtain intended results, thus increasing the chances of obtaining information that could be associated with the real situation. A descriptive survey design was used in this study to explore factors influencing implementation of commercial housing projects in Kisumu County, Kenya.

Descriptive survey is a method of collecting information by interviewing and administering questionnaires to a sample of individuals (Orodho,2003; Kothari,2003).Descriptive survey enables the collection of information through questionnaires to determine the opinions, attitudes, preferences and perceptions of persons of interests to the research (Borg,1987).Descriptive design allowed the researcher to generate both numerical and descriptive data that can be used in measuring the relationship between variables as well as determining their influence to implementation of commercial housing projects in Kisumu County, Kenya.

3.3. Target Population

According to Kothari (2004) population is the total target group which would in the ideal world, be the subject a researcher is interested with, in gaining information for and drawing conclusion. The main purpose of this study was to evaluate factors influencing implementation of commercial housing projects in Kisumu County, Kenya. According to data from NCA Kisumu office, there are more than 979 projects that are ongoing in Kisumu County and undertaken by more than 463 contractors who are registered with the office. Therefore, the target population for the research involved 463 contractors and 14 officers. Table 1 shows the target population for the study.

Respondents	**Number**
Contractors	463
NCA officers (Sub Counties)	7
Kisumu County officers (sub counties)	7
Total	477

Table 1: Target Population for the Study
Source: NCA (2016)

Therefore, the target population for the study involved 477 respondents who involved NCA officers, Kisumu County government officers in charge of building inspections in the seven sub counties in Kisumu and 463 registered building contractors.

3.4. Sampling Design

Burns and Groove (2001) refer to sampling as a process of selecting a group of people, eventsor behaviour with which to conduct a study. Polit and Hungler (1997) confirm that, in sampling aportion that represents the whole population is selected. The sampling design also refers to the process of selecting a number of individuals or objects from a population such that the selected group contains elements representative of the characteristics found in the entire group is known as sampling (Kombo & Orodho, 2002). Time and money is saved by selecting a sample study rather than attempting to study the entire population of buildings.

3.4.1. Sample Size Determination

According to Nkpa (1997) a sample is a small proportion of a target population. A sample is a subset of a population selected to participate in the study, it is a fraction of the whole, selected to participate in the research project (Kombo & Orodho, 2002). In this research, NCA officers and County officers weresampled and only contractors are the ones who were sampled. The sample size for the contractors was determined by the following formula proposed by Role (2010) for known size of the population.

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

Where:n = sample size
N = population size = 463
e = margin of error (e≤0.05)

This was computed as

$$n = \frac{463}{1 + (463x0.05^2)} = 214.6$$

Therefore, the final sample size for the study involved 215 contractors, 7 NCA officers and 7 county government inspectors. Table 2 below shows the sample size for the study.

Respondents	**Target**	**Sample Size**
Contractors	215	193
Government officers (NCA and County)	14	14
Total	**229**	**207**

Table 2: sample size

3.4.2. Sampling Procedure

In this research, the contractors were selected using random sampling method, probability sampling design was adopted which, according to Kombo and Orodho (2002), samples are selected in such a way that each item or person in the population has a known likelihood of being included in the sample. Simple random sampling was used as it was easy to implement. The sample yielded research data that was used to generalized to a larger population; it permitted the researcher to apply inferential statistics to the data and provided equal opportunity of selection for each element of the population (Kombo & Orodho, 2002). The officers from NCA and county government were selected using purposive sampling technique.

3.5 Research Instruments

The study collected data through use of questionnaires and interview schedules.

3.5.1. Questionnaires

The study used questionnaire to solicit information from contractors. Dwivedi (2006) defines a questionnaire as a device for securing answers to questions by using a set of questions. The use of questionnaires offered considerable advantages in management as it presented an even stimulus to a large number of people simultaneously and provides investigator with a relatively easy accumulation of data. The use of questionnaires also allowed the respondents time on questions that would require reflections to avoid nasty responses, however they required a lot of time in travelling hence a lot of expenses that inflated research cost, and some respondents did not answer all the questions.

3.5.2. Interviews

Interviews were conducted on NCA officers and county government officers. Dwivedi (2006) defines an interview as face to face interpersonal role situation in which one individual (interviewer) asks the other individual (respondent) questions designed to obtain answers relevant to the research problem. The study used an interview schedule to gather data as it permitted much greater depths than other methods of data collection. It also provided a true picture of opinions and feelings

3.5.3. Pilot Testing

A pilot study was done by administering the questionnaire on 10 contractors. Appropriate modifications were then made to the questionnaire before administering them to the whole sample. The interview schedule was also pre- tested on one contractor and appropriate amendments made.

3.6 Validity and Reliability of Research Instruments

For instruments to reflect good results, they need to be tested before data collection to ensure that the information they will gather concerns the research objectives. The procedures for pre-testing the research instruments are presented in the following sub-sections.

3.6.1. Validity of Research Instruments

Validity is the degree to which results obtained from the analysis of the data actually represent the phenomenon under study (Mugenda & Mugenda, 2003). Validity is concerned with whether the instrument measures what it is intended to measure. The research used content validation measure to check on the validity of the research instruments. Content validity was achieved by seeking expert opinion of the consultants. The data collected was checked while still in the field to ensure that all questions were answered.

3.6.2. Reliability of Research Instruments

Reliability refers to the consistency of the scores obtained. According to Fraenkel and Wallen (2008), in relation to reliability, you assess how consistent the scores were for each individual from one administration of an instrument to another and from one set of items to another. Reliability of the instrument was tested using the test-retest technique. Questionnaires were given to the same consultants after a period of two weeks or even one month. The reliability of the questionnaire was estimated by examining the internal consistency of the responses between the two tests using Cronbach alpha correlation coefficient. Cronbach's Alpha is a popular method for measuring the internal consistency and reliability of a group of items and indicates how well the items in a set are

positively correlated to one another. A Cronbach alpha coefficient of 0.761 was obtained for the three objectives of the study. This value was greater than 0.7 as advocated by Kothari (2004) to be the threshold for reliability determination.

3.7. Data Collection Procedures

To implement the general objectives of a research study, methods of data collection must always be used. Kerlinger (1978) further says that problems dictate methods to a considerate extent, but methods, their availability, feasibility and relevance influence problems. McMillan and Schumacher (1993) argues that in order to begin the research, the researcher should formally acquire an introduction letter from the university identifying who he/she is, stating the intent of the student to conduct a research, the purpose and within what period. This enabled to secure research permit from National Commission for Science, Technology and Innovation (NACOSTI). The researcher administered the questionnaires to the respondents himself. Interviews were conducted by the researcher on pre-arranged dates.

3.8. Data Analysis and Presentation

Once data have been collected and presented, proper data analysis and interpretation are essential. Analysis of data involves examining, categorizing, tabulating or otherwise combining the evidence to address the initial propositions of a study (Yin, 2003). The collected data was edited, coded, cleaned and entered into statistical Package for SocialStatistical Package for Social Sciences (SPSS) computer program to aid in data coding, entry and analysis.

Descriptive statistics was used to describe data and examine the relationship between variables, while inferential statistics was used to examine casual relationship between qualitative and quantitative data. Measures of centraltendencywere computed and compared.The analysed data was presented using tables and narrations. The equation for implementation of housing projects wasexpressed in the following equation:

$Y = \beta o + \beta 1\ X1 + \beta 2\ X2 + \beta 3\ X3 + Ɛ$, where,

Y = implementation of projects

β0 = constant (coefficient of intercept)

X1 = Contractor selection criteria

X2 = Cost of materials (budgeting)

X3 = Project activity scheduling

Ɛ = error term

B1 …., B3= regression coefficient of four variables.

Qualitative data derived from the interviews, questionnaires and the secondary data sources was presented in the form of narrations while others were converted to quantitative form and presented using frequency tables.

3.9. Ethical Considerations

According to McMillan and Schuhmacher (2006), ethics in terms of conducting research aims to protecting the rights and welfare of the subjects at the same time. The participants were guaranteed that the identifying information was not to be made available to anyone who was not involved in the study and it remained confidential for the purposes it is intended for. The author explained to the respondents about the research. It was made clear that the participation was voluntary and that the respondents were free to decline or withdraw any time during the research period. Respondents were not coerced into participating in the study. The participants had informed consent to make the choice to participate or not. They were guaranteed that their privacy was protected by strict standard of anonymity.

4. Data Analysis, Presentation and Interpretation

4.1. Overview

This chapter presents the results of data analysis on factors influencing implementation of commercial housing projects in Kisumu County, Kenya. The study collected data from 193 contractors, 7 NCA officers and 7 County government inspectors through questionnaire and interview schedule. The questionnaire return rate for questionnaire 89.76% while the interview was 100%. The following table shows the responses rate for the study.

Respondents	**Sample**	**Responded**	**Response rate**
Contractors	215	193	89.76%
Government officers (NCA and County	14	14	100.00%
Total	**229**	**207**	**94.88%**

Table 3: Response Rate

This response rate was good and representative and conforms to Mugenda and Mugenda (2003) stipulation that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. Data analysis is done using descriptive and inferential statistics for quantitative data. Qualitative data obtained from open-ended questions is analysed using content analysis.

4.1.1. Demographic Data of Respondents

The respondents were asked to indicate their gender profiles. This expresses the nature of gender relations in the construction industry. When asked to indicate their gender category, result showed that 180 (93.3%) of respondents were male while 13 (6.7%) were female. The result therefore implies that construction sector is a male dominated industry with little number of women being involved. The result coincides with Wanjau (2015) who established that majority of the respondents were male (77%) while the rest (33%) were female. This shows that construction industry attracts male compared to female. This calls for women to be more involved in construction and management of projects (Ndungu, 2014). Moreover, the respondents were asked to indicate the period of time they had been working in the construction industry. The results of the analysis are illustrated in Figure 2.

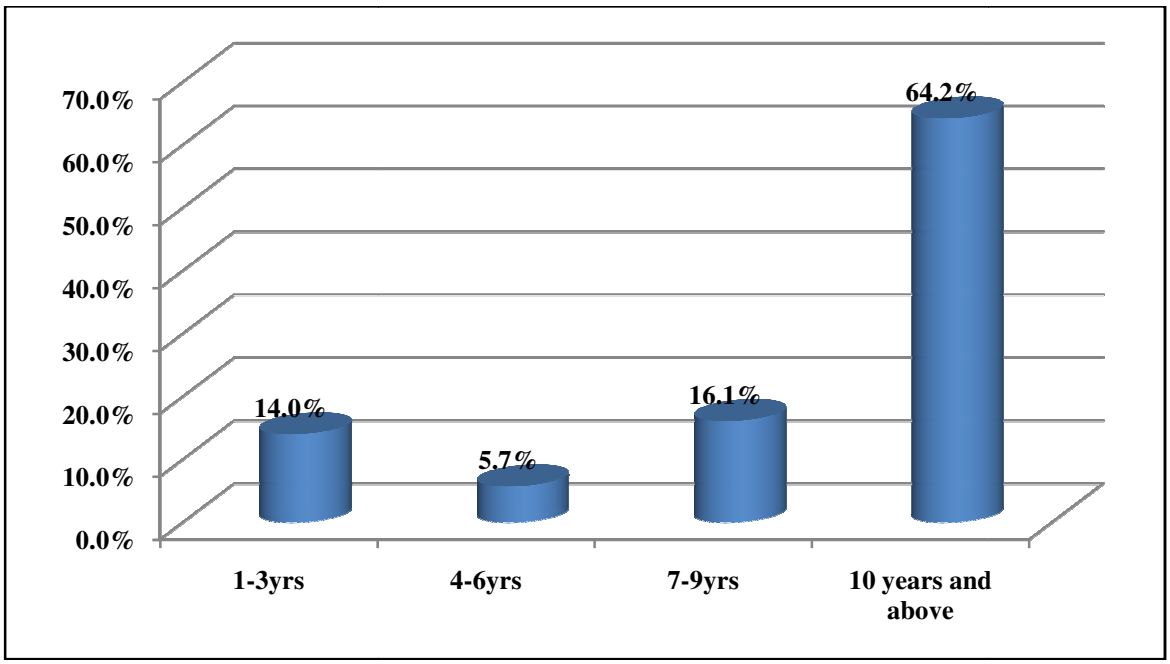

Figure 2: Period of Work in the Construction Industry

It is evident that majority 124 (64.2%) had worked in the construction industry for more than 10 years, 31 (16.1%) had worked for 7-9 years, 27 (14.0%) had worked for 1-3 years and 11 (5.7%) had worked for 4-6 years. The result therefore shows that majority of respondents understand the dynamics of housing project implementation in the construction industry because of their long working experience. They can therefore identify how contractor selection criteria are conducted in implementing housing projects in Kisumu County. The result coincides with Ndungu (2014) who found out that majority of respondents have experience of over 13 years while only 5% that falls between 3-6 years' bracket. Similarly, Truong *et al.,* (2015) found out that the number of respondents having experience of more than 10 years. The more experienced, the better the output of projects in terms of time, quality and workmanship, resulting to the contractor getting more work from clients. The respondents were also asked to indicate the academic qualification level. Results are given in Table 4.

Level	Frequency	Percent
Certificate	101	52.3
Diploma	36	18.7
Higher Diploma	18	9.3
Bachelors	27	14.0
Artisan	6	3.1
None	5	2.6
Total	**193**	**100.0**

Table 4: Academic Qualifications of Contractors

Result shows that more than half 101 (52.3%) of respondents had certificate level of education, 36 (18.7%) had diploma, 18 (9.35) had higher diploma, 27 (14.0%) had degree, 6 (3.1%) held artisan certificate while 5 (2.65) had no formal education level. The result is somewhat different from Ndungu (2014) who found out that highest numbers of respondents were masters'degree holders while only a few had PHD and had undergraduate degrees. This means that level of education in top management of construction industry is dynamically changing. The result therefore shows that majority of respondents have tertiary level of education and therefore easily understand factors influencing implementation of commercial housing projects in Kisumu County, Kenya. In seeking to understand the job category of respondents, they were asked to indicate their job title. The results are given in Table 5.

Findings reveal that the respondents for the study comprised of; contractors, owner of projects, project managers, foreman, project engineer, caretaker, plumbers, sub-contractors, masons and clerk of works. They are key people in the implementation of commercial housing projects hence provide this study with rich information on selected factors influencing project implementation.

Job cadre	Frequency	Percent
Contractor	52	26.9
Owner	40	20.7
Project manager / deputy	31	16.1
Foreman	19	9.8
Project engineer / office engineer	14	7.3
Caretaker	12	6.2
Plumber	7	3.6
Sub-contractor	7	3.6
Mason	6	3.1
Clerk of works / deputy	5	2.6
Total	**193**	**100.0**

Table 5: Respondents Job Title

Most contractors had an average of 30 workers on one particular site. Similar to the study findings, Auma (2014) ensured that everybody in the construction firm had the opportunity to respond to the questionnaire. The study further asked the respondents to give estimates on the value of projects that they had undertaken. Their responses are given in Figure 3.Findings reveal that 112 (58.0%) most of the respondents had been undertaking commercial housing projects worth more than Kshs. 20 million, 31 (16.1%) said that they have undertaken commercial housing projects of Kshs. 10-20 million, 23 (119%) had undertaken projects for less than Kshs. 5 million and 13 (6.7%) had undertaken projects of between Kshs. 5 – 10 million. The result therefore shows that majority of respondents had been undertaking commercial housing projects.

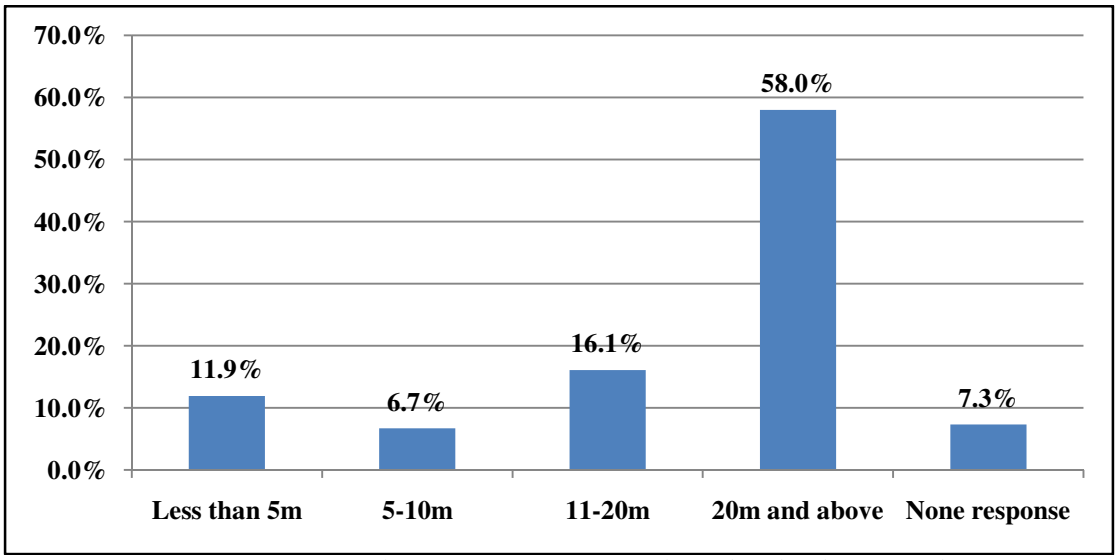

Figure 3: Estimates of housing Projects Previously Undertaken by Respondents

4.1.2. Implementation of Commercial Housing Projects in Kisumu County

The dependent variable for the research involves the stages at which commercial housing projects are being implemented in Kisumu County. The respondents were asked to indicate the projects they had executed for the past five years, if the project costs overrun, number of commercial housing projects completed on time, number of projects delayed, number of projects finished and level of implementation of commercial projects that they had undertaken so far. The result is summarised in Table 6 below.

Results shows that 154 (79.8%) of respondents admitted that they had executed 1-10 projects in the past five years, 27 (14.0%) had executed 21-30 projects and 12 (6.2%) had executed 11-20 projects. The result shows that construction companies have been working on several projects over the past five years. From the above executed projects, 150 (77.7%) said that they had construction cost overrun, 6 (3.1%) said that 11-20 projects they executed had cost overrun and 37 (19.2%) did not have project cost overrun.

	Variables	Frequency	Percentage
Construction projects executed in the past 5 years	1-10	154	79.8
	21-30	27	14.0
	11-20	12	6.2
	Total	**193**	**100.0**
Number of projects that had construction cost overrun	1-10	150	77.7
	None	37	19.2
	11-20	6	3.1
	Total	**193**	**100.0**
Number of projects completed on time	1-10	132	68.4
	All	34	17.6
	21-30	13	6.7
	11-20	7	3.6
	None	7	3.6
	Total	**193**	**100.0**
Number of projects delayed	1-10	159	82.4
	None	20	10.4
	All	14	7.3
	Total	**193**	**100.0**
Number of projects completed (despite delays)	None	118	61.1
	1-10	68	35.2
	All	7	3.6
	Total	**193**	**100.0**
Level of implementation of commercial housing projects	High	74	38.3
	Very high	50	25.9
	Low	41	21.2
	Average	28	14.5
	Total	**193**	**100.0**

Table 6: Implementation of Commercial Housing Projects in Kisumu County

The result implies that majority of construction companies experience cost overrun leading to slow implementation of commercial housing projects in Kisumu County. The findings coincide with Auma (2014) who established that 68.2% of projects had cost overrun. On the number of projects completed on time, 132 (68.4%) said that they were 1-10 projects, 13 (6.7%) said 21-30 projects, 7 (3.6%) 11-20 projects and 34 (17.6%) said they completed their projects on time. Surprisingly, only 7 (3.6%) of respondents said that they have always completed their projects on time. The findings imply that majority of contractors in Kisumu County do not complete their projects on the stipulated time.

On the number of projects delayed, 159 (82.4%) mentioned 1-10 projects, 14 (7.3%) said all projects and 20 (10.4%) said that none of their projects have ever been delayed. From this, it can be deduced that delay is a common occurrence in commercial housing projects in Kisumu County and this could explain why there is high demand for commercial housing in Kisumu County due to their low number.

When asked to indicate the number of projects that were finished despite regular and constant delays, 118 (61.1%) said none, 68 (35.2%) said the projects were 1-10 and 7 (3.6%) said all projects were completed. From this, it is clear that some projects despite being delayed are never completed while others are occupied even before completion andoccupation certificate is issued for occupancy from the concerned authorities. With regard to level of implementation of commercial projects in the study area, 74 (38.3%) said that it was high, 50 (25.95) indicated to be very high, 41 (21.2%) said that it was low and 28 (14.5%) indicated to be on average. From the study, it can be deduced that the implementation of commercial housing projects in Kisumu County faces significant challenges from conception to completion as delays are the order of the day.

4.1.3. Key Informants Responses on Implementation of Commercial Housing Projects

Through the interview, the NCA officers and county government officers were asked to state the number of projects they had supervised over the past five years, the frequency of delays in implementation of and average number of years that a project in Kisumu County takes from initiation to completion. Their responses are given in Table 7.

No of building supervised	Frequency
Less than 10	1
20 to 30	2
40 to 50	3
51 and above	4
Many (don't know the figure)	4
Total	**14**
Average time taken to complete a commercial housing projects	
Less than 1 year (12 months)	2
24 Months	7
18 Months	1
28 Months	4
Total	**14**
delays in project implementation	
Always	10
Rarely	1
Occasionally	3
Total	**14**

Table 7: Project Supervision by NCA and County Government Officers

Their responses (Table 7) show that 4 had supervised many projects, 4 had supervised 16 projects and above, 3 had supervised 40-50 projects, 2 had supervised 20-30 projects while only 1 said that they had supervised less than 10 building projects. This shows that most officers have been working in their current jobs and therefore had good understanding of how different factors affect project implementation in Kisumu County. the responses also show that in many buildings in Kisumu county, most projects take 24 months to complete (2 years), 2 of the officer said that it took less than 1 year, 1 said that it takes 18 months while 4 said it take 28 months. The result therefore shows that most projects in Kisumu County take two years to complete. When asked on whether there were delays in implementation of commercial housing projects, 10 of the officers said the delays are frequent, 1 said the delays are rare while 3 said the delays were occasional. The result therefore shows that cases of project delays are common and this study investigates whether contractor selection criteria, project material costs and project scheduling influence their delay or success.

4.2. Contractor Selection Criteria and its Influence on Housing Projects Implementation

The first objective of the study was to determine the degree to which contractor selection criteria influenced implementation of commercial housing projects in Kisumu County, Kenya. therefore, the respondents were asked to state the frequency to which various criteria were prioritised during implementation of commercial housing projects in Kisumu county as; always (5), often (4), sometimes (3), rarely (2) and never (1). The result of the analysis is presented in Table 8.

The results show that some issues were always followed, others often followed while others were sometimes considered during selection process. The top most criteria was the competence of the supervisor (M=4.48 and SD=0.45) followed by contractor experience (M=4.60 and SD=0.91) and lastly competence of the project team (M=4.59 and SD=0.77). The result shows that the main item that is looked at before awarding a construction contract / tender to an individual or a company, experience and competence of the organisation personnel features most.

Selection criteria	N	Mean	Std. Deviation	Criteria prioritization
Competence of supervisor	193	4.8446	.45264	Always
Contractor experience in similar work	193	4.6062	.91308	
Competence of project team	193	4.5959	.77216	
Key personnel (competent staff)	193	3.9896	1.22470	Often
Category of contractor (NCA	193	3.9793	1.39925	
Project owner leadership skills	193	3.9223	1.02020	
Sub-contractor's qualification	193	3.9016	1.53625	
Financial ability (liquidity of the organisation)	193	3.5181	1.53465	
Completion and certification of previous or ongoing projects undertaken by a contractor	193	3.2073	1.48904	Sometimes
Shareholding	193	2.6891	1.54338	
Average response rate	**193**	3.9254	1.18854	**Often**

Table 8: Contractor Selection Criteria and its Influence on Housing Projects

Result also reveal that the following item were often considered during the implementation of commercial housing projects; key personnel (M=3.98 and SD=1.22), category of the contractor as defined and listed under NCA (M=3.97 and SD=1.39), project owner

leadership skills (M=3.92 and SD=1.02), sub-contractor's qualification (M=3.90 and SD=1.53) and financial ability of the company (M=3.51 and SD=1.53).The study findings are in agreement with Kamotho (2014) who found out that engagement of competent team of consultants was important because they are the ones who extract, interpret and communicate complex design information from drawings and documents which saves time in a project. The factors that were sometimes considered included; completion and certification of previous/ongoing projects undertaken by a contractor (M=3.20 and SD=1.48) and shareholding (M=2.6 and SD=1.54) which was rated lowly. From the findings above, it is evident that contractor's criteria and characteristics is often (M=3.92 and SD=1.18) considered before awarding a certain organisation (person) a commercial housing project in Kisumu County.

4.3. Materials Cost and its Influence on Implementation of Housing Projects

The second objective of the study was to investigate how cost of construction materials influenced the implementation of commercial housing projects in Kisumu County, Kenya. At first, the respondents were asked to indicate the period to which they purchased construction materials for commercial housing projects in Kisumu County. The results are given in Figure 4.

The results show that 77 (39.9%) of respondents said that they always purchase construction materials when they are required while 73 (37.8%) indicated that they purchase the materials when they are required. The study findings coincide with Auma (2014) who found out that 68.2% of contractors purchased construction materials always when they were required. Moreover, the respondents were requested to indicate the frequency to which the costs related to materials acquisition for commercial housing projects and how it affected implementation. The findings are presented in Table 9.

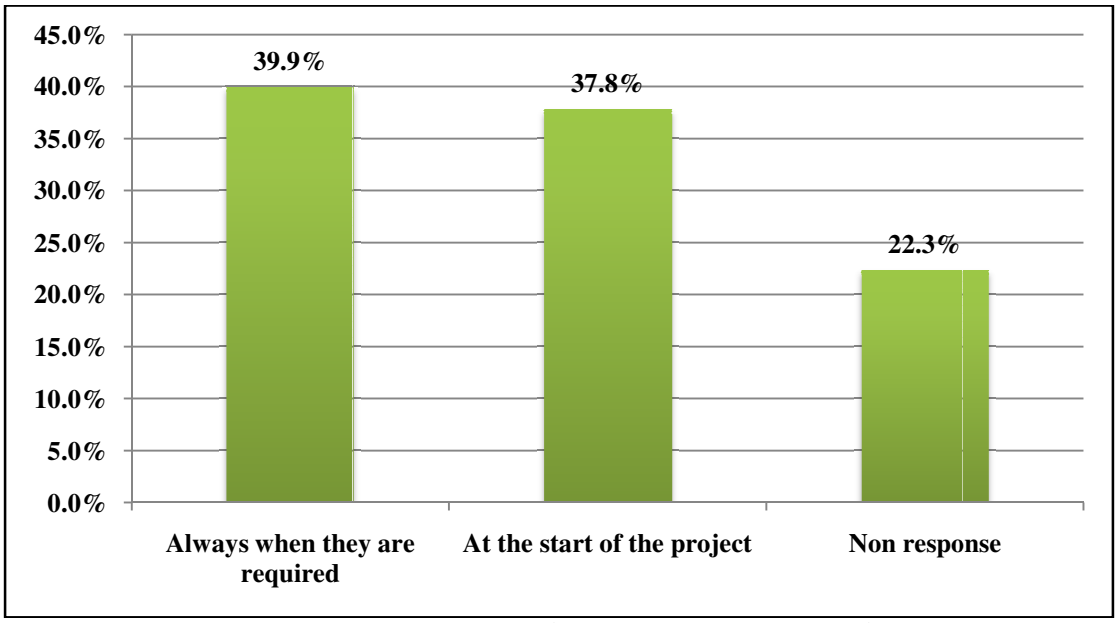

Figure 4: Frequency of Purchase of Construction Materials

It is evident that the respondents indicated that sometimes escalation of material prices (M=3.41 and SD=1.18) affected the implementation of commercial housing projects in Kisumu county. This was because of changes in economy, inflation and even exchange rate between the Kenyan currency and US dollars.

Views	N	Mean	Std. Deviation	
Escalation of material prices	193	3.4197	1.18367	**Sometimes**
Fluctuation of the market price of materials	193	3.3212	1.55470	
Change orders by client during construction (variation in orders)	193	3.2280	1.17697	
Fluctuation in transport costs	193	3.0881	1.40961	
Lack of materials on market	193	2.8964	1.64875	
Cost of equipment and materials	193	2.8031	1.46579	
Use of historical cost data	193	2.7358	1.38730	
Project labour cost	193	2.6891	1.52300	
Material wastage	193	2.4041	1.24682	**Rarely**
Cost of rework	193	2.1192	1.16873	
Average response	**193**	**2.8705**	**1.37653**	

Table 9: Material Cost and its Influence on Implementation of Housing Projects

The fluctuation and escalation of material prices could affect the implementation of commercial housing projects. The study coincides with Kimani and Kimwele (2015) who found out that a high percentage of the respondents agreed that finance contribute to project delays in an organization through late funding, poor cash flows and budgets while some of the respondents were for the opinion that finances do not contribute to project delays in an organization. The situation in Kenya is different from what Truong et al., (2015) found in Thailand where price fluctuations of construction materials had the lowest means and therefore did not affect project completion rate.

Secondly, the respondents also indicated that sometimes the fluctuation of the market price of materials (M=3.32 and SD=1.55). The fluctuation of these cost affect initial estimates indicated in the project budget and thereafter making majority of construction projects to delay while others are abandoned due to lack of adequate cash for purchase of materials. The results are also in agreement with Wanjau (2015) who established that for housing project to be implemented well, adequate funding throughout the project and commitment to project were rated as significant. In addition, Auma (2014) found out that cost of material and equipment is a factor that affected the performance of construction. This confirms that the single largest contributor to cost overruns is price of material and equipment's fluctuations.

Thirdly, the respondents perceived that change of orders by client sometimes (M=3.22 and SD=1.17) during construction due to variation in orders also affected project implementation. This happens whereby the owner of the commercial housing project regularly changes project designs and materials purchases affecting implementation and completion of housing projects. Similar to the study results, Auma (2014) found out that cost of variation orders affected the performance of construction projects. Moreover, the respondents also said that fluctuation in transport costs sometimes (M=3.08 and SD=1.40) affected the implementation of commercial housing projects in Kisumu County. This situation is exacerbated by rising fuel costs, taxes and dilapidated infrastructure (roads) usually pushes up transportation costs thereby affecting successful implementation of housing projects.

Another factor related to budgeting during project implementation is the occasional lack of materials on the market (M=2.89 and SD=1.64). The lack of raw materials for construction at times increased project costs and thereafter affected timely delivery of commercial housing projects in Kisumu County. Another aspect that the study observed is that respondents agreed that cost of equipment and materials sometimes (M=2.80 and SD=1.46) affected implementation of commercial housing projects. The cost of equipments in some instances makes it difficult to avail the materials on time thereby affecting project timeline. The study also found out that sometimes (M=2.73 and SD=1.38) they used historical cost data during project implementation.

Another factor related to budgeting that sometimes (M=2.68 and SD=1.52) changes in project labour cost affect project implementation. For instance, the labour charges in Kisumu City are higher than the peri-urban areas and rural areas and this makes the contractor to factor in project labour costs during ongoing projects. the study findings coincide with Kimani and Kimwele (2014) who found out that labour contribute to project delays in an organization through human resource availability, expertise and skills. However, the respondents indicated that material wastage (M=2.40 and SD=1.24) and cost of rework (M=2.11 and SD=1.16) rarely affected project implementation.

The results do not coincide with Auma (2014) who found out that cost of re-work was a factor that affected the performance of construction project but it may not be a factor as some of the respondents disagreed that the cost of re-work affected the implementation of commercial projects. From the above findings, it is clear that cost of materials and budgeting sometimes (M=2.87 and SD=1.37) affected the implementation of commercial housing projects in Kisumu County. It has been revealed that escalation of material prices is a cost of material factor affecting the implementation of commercial housing projects.

4.4. Project Activity Scheduling and its Influence on Housing Projects

The last objective of the study was to investigate how project scheduling influenced the implementation of commercial housing projects in Kisumu County. Through statements indicated in a Likert Scale of Five, the respondents were asked to indicate the frequency to which project scheduling influenced the implementation of commercial housing projects in Kisumu County. The results of the analysis are given in Table 10.

Research results show that various project scheduling processes were considered several times during implementation of commercial housing projects in Kisumu County, Kenya. For instance, findings reveal that respondents always planned time for construction in advance (M=4.62 and SD=0.71), planning and schedule of project was always done by the contract (M=4.55 and SD=0.94) and site preparation was made on time before commencement of project works (M=4.52 and SD=0.81). From this it can be deduced that majority of contractors working in different commercial housing projects in Kisumu County. The findings are similar to what Kamotho (2014) obtained that targets of project management were very important on the completion of project on time. Finding is related to Musa *et al.,* (2015) who found out that appropriate design had strong impact on user's satisfaction and well-being.

Project scheduling areas	N	Mean	Std. Deviation	Frequency of scheduling
Planned time for construction	193	4.6218	.71220	Always
Planning and scheduling of project by contractor	193	4.5544	.94008	
Site preparation time	193	4.5233	.81056	
Comparing the actual time taken with the planned timelines on project works	193	4.1088	1.03258	Often
Delays in producing design documents	193	3.4249	1.42368	Sometimes
Delay in progress payments by client	193	3.2642	1.42435	
Average delay because of closures leading to materials shortage	193	2.9378	1.28544	
Computer software for planning	193	2.9119	1.49217	
Equipment unavailability	193	2.8601	1.26496	
Client interference	193	2.7254	1.33160	
Average perception	**193**	**3.5933**	**1.17176**	**Often**

Table 10: Project Activity Scheduling and its Influence on Housing Projects

The study also established that comparison of actual time taken with the planned timelines on project works was often done (M=4.10 and SD=1.03). This implies that there is regular checking on whether project progress goes with the initial timeline developed during project formulation phase. Ndungu (2014) also established that projects could not have been fast tracked to finish with less than the initial contract period given due to prevailing factors beyond their control.

However, the following procedures and processes were found to be sometimes conducted in the implementation of commercial housing projects in Kisumu County, Kenya; delays in producing project design documents (M=3.42 and SD=1.42), delay in progress payments by client (M=3.26 and SD=1.42), average delay because of closures leading to materials shortage (M=2.93 and SD=1.28), computer software for planning (M=2.91 and SD=1.49), equipment unavailability while client interference was ranked the least (M=2.72 and SD=1.33). The findings coincide with Ndungu (2014) who found out that government projects experienced massive delay due to factors attributed to delays in responses on government officials in information dissemination, delayed payments among other factors. In addition, Auma (2014) found out that if orders were delivered late, it had negative impact on the performance of housing projects. From the above findings, it can be deduced that project scheduling often (M=3.59 and SD=1.17) influence implementation of commercial housing projects in Kenya.

Software used	Frequency	Percent
Microsoft project	103	53.4
None	39	20.2
Microsoft Excel	37	19.2
Manual	7	3.6
Microsoft project and excel	7	3.6
Total	**193**	**100.0**

Table 11: Software Used in Project Scheduling and Planning

The respondents were asked to indicate the software that they used for planning and scheduling the progress of commercial housing projects. Their responses are presented in Table 11.More than half 103 (53.4%) of respondents said that they utilised Microsoft office project software project during scheduling and planning, 37 (19.2%) used Microsoft excel, 7 (3.6%) used manual method, 7 (3.6%) used a combination of Microsoft project office and excel.

However, a significant 39 (20.2%) of respondents were found not to be using any kind of software in scheduling and planning of their projects and this could affect the implementation.

Method	Frequency	Percent
Bar-chart method	88	45.6
None	53	27.5
Critical path method	32	16.6
Gantt chart	7	3.6
manual	7	3.6
Line chart	6	3.1
Total	**193**	**100.0**

Table 12: Method Used to present Project Planning and Scheduling Output

Furthermore, the respondents were asked to give the kind of method they use to present project planning and scheduling output. Their responses are presented in Table 12. above. Findings reveal that 88 (45.65) said that they use bar-chart method to present their project plan output, 32 (16.6%) used critical path method, 7 (3.65) used manual method while 6 (3.1%) used line chart. However, a significant

53 (27.5%) did not present their project plan and output. The use of presentation mode allows summarising the project plan and schedule for easy understanding and interpretation by stakeholders being directly and indirectly by the project. The study findings are similar to Kamotho (2014) result that showed that project managers used program schedules such as Gantt charts in Nairobi construction industry. Critical paths were used to enhance time management at construction sites.

Still on project scheduling, the respondents were asked to indicate the degree to which monitoring and evaluation activities were conducted by clients, authorities and even contractors to ascertain whether project is implemented well. The results of the analysis are given in Table 13.

M&E processes	**N**	**Mean**	**Std. Deviation**	**Frequency**
Inspection by client (s)	193	4.7254	.58828	Always
Inspection by contractors	193	4.6788	.68497	
Regular project budget update	193	4.5492	.89496	
Comparing the actual costs with the budget on project works	193	4.5026	.99018	
Cost control system	193	4.4249	1.12537	Often
Inspection by county government officers on various stages	193	3.9534	1.20455	
Quality assurance training and follow-up	193	3.4715	1.34260	
Project team meeting for discussion of monitoring, updating and controlling the progress	193	3.4301	1.28555	Sometimes
Inspection by NCA officers on various stages	193	3.3834	1.31820	
Sub-contractors or supplier submitting their detail activities schedule for in advance to adjust your actual schedule	193	3.2591	1.37130	
Average	**193**	**4.0378**	**1.08060**	**Often**

Table 13: Frequency of Monitoring and Evaluation of Project Progress

Monitoring and evaluation processes are critical aspects in project control. The process of monitoring and evaluation starts before project start up and continues until project completion. Therefore, the respondents reported that the following activities of monitoring and evaluation were always conducted in commercial housing projects in Kisumu County; inspection by client (M=4.72 and SD=0.58), inspection by contractors themselves (M=4.67 and SD=0.68), regular project budget update (M=4.54 and SD=0.89) and comparison of the actual costs within the budget on project works (M=4.50 and SD=0.99). The result implies that inspection of commercial housing projects is regularly done by the project owners (clients and contractors), the regulatory agencies do not always come to inspect projects on regular basis.

Another observation from the research result shows that the budget is regularly updated as the project implementation proceeds. There is also comparison of the projected costs against the actual project implementation costs. The findings agree with Kamotho (2014) who found out that majority of respondents compared the actual costs with the budgeted costs at different stages of the construction fortnightly. Furthermore, research results showed that cost control system is often conducted (M=4.42 and SD=1.12). The county government often (M=3.95 and SD=1.20) conduct inspection visits during various phases of commercial housing development. Through interview the NCA and county government inspectors indicated that they do not regularly conduct building inspection due to unavailability of personnel and resources to conduct the activity. Other respondents also reported that lack of adequate supervision was the main factor affecting the implementation of commercial housing projects in Kisumu County.

The respondents also said that quality assurance training and follow up is often done (M=3.47 and SD=1.34) to ensure that projects being implemented are up to the required standard and conform to relevant laws and policies. However, it was established that the project team sometimes (M=3.43 and SD=1.28) meet for discussions on monitoring, updating and controlling the progress of construction project. In contrast to this result, Kamotho (2014) found out that project team regularly met to discuss on the project progress. In addition, the respondents also said that inspection by NCA officers on various stages of commercial housing was sometimes conducted (M=3.38 and SD=1.31). The lowest ranked item was the sub-contractors/suppliers sometimes submitted their detail activities schedule for consideration in advance to adjust their actual schedule. The results therefore showed that monitoring and evaluation is often (M=4.03 and SD=1.08) conducted when implementing commercial housing projects in Kisumu County, Kenya. Wanjau (2015) indicated that that monitoring and updating plan is also significant to a very great extent in the success of commercial housing projects. Similarly, Ndungu (2014) established that directing and planning each respectively as the most preferred monitoring and evaluation technique used by majority of respondents while controlling was least used. Projects that are well planned from on-set are delivered in a better way when monitoring and evaluation is effectively done.

4.5. Influence of Selected Factors on Implementation of Commercial Housing Projects

The main purpose of conducting this study was to determine the degree to which the three selected factors; contractor selection criteria, cost of materials and project activity scheduling affected the implementation of commercial housing projects in Kisumu County, Kenya. To arrive at the result, a multiple linear regression analysis was computed at 95% confidence level. The results are presented in Table 14 (a, b & c).

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.639[a]	.409	.400	.83576
a. Predictors: (Constant), contractor selection criteria, cost of materials, project activity scheduling				

Table 14: Model Summary

The model statistics shows that the correlation coefficient for the research model is strong positive (R=0.639) and that 40.0% change in implementation of commercial housing projects in Kisumu County is influenced by the three factors studied;contractor selection criteria, cost of materials, project activity scheduling. 60.0% of the rest could be influenced by other factors that the study did not consider in this study. The study findings correspond with Truong (2015) who found out that factors relating to contractor and owner competence, finance, productive forces and approval procedures delayed project completion. From this result, it is evident that at 0.05 confidence level, the variables produce statistically significant values and can be relied upon to explain implementation of development projects. The following table shows the results of f-test.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	91.333	3	30.444	43.586	.000[a]
	Residual	132.015	189	.698		
	Total	223.347	192			
a. Predictors: (Constant), contractor selection criteria, cost of materials, project activity scheduling						
b. Dependent Variable: implementation of commercial housing projects						

Table 14 (b) ANOVA[b]

The change statistics shows that the research model and variables are fit ($p<0.05$). This is revealed by low p-values (0.001) which is less than 0.05 and high F values. The ANOVA results showed that at $\alpha=0.05$ level of significance, there existed enough evidence to conclude that at least one of the predictors was useful for predicting implementation of commercial housing projects in Kisumu County.

It can be concluded that there is a linear relationship between the dependent variable and the independent variable.The coefficients values for the independent variables are given in Table 14 (c).

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.980	.444		4.458	.000
	Cost of materials	.442	.087	.283	5.057	.000
	project activity scheduling	.390	.060	.374	6.517	.000
	Contractor selection criteria	.298	.051	.338	5.880	.000
a. Dependent Variable: implementation of commercial housing projects						

Table 14 (c) Coefficients

The model equation can be expressed as:

$$y = 1.980 + 0.298x_1 + 0.390x_2 + 0.442x_3$$

The statistics shows that all the three independent variables; contractor selection criteria, cost of materials and project activity schedulinghad significant influence ($p<0.05$) on implementation of commercial housing projects in Kisumu County, Kenya. However, the coefficients were stronger in cost of materials ($\beta=0.442$) followed by project activity scheduling ($\beta=0.390$), and lastly contractor selection criteria ($\beta=0.298$). The result shows that cost of materials and project activity scheduling are the critical factors that affect the implementation of commercial housing projects. This is because the coefficient values denote that a unit change in cost of materials, commercial housing project implementation changes by 0.42. This implies that fluctuation in the cost of project is the main factor influencing implementation of commercial housing projects in Kisumu County. The findings coincide with Kimani and Kimwele (2014) who established that high percentage of the respondents agreed that finance contribute to project delays in an organization through late funding, poor cash flows and budgets. In another study, Kamotho (2014) found out that consultants who are competent influenced successful completion of property development projects. The findings above reveal that various factors within and outside affect commercial housing projects in Kisumu County.

4.5.1. Respondents Perception on Improvement of Housing Projects

Through interview, the NCA officers and county government officers were asked to indicate ways through which implementation of commercial housing projects can be improved in future. They suggested that County government should be effectively involved in proper planning of Kisumu County and its urban centres, issuance of title deeds will also enhance quick and assured development. Approval of building plans which forms an integral part of any development and being an instrument of development control should

be looked into keenly starting with cost, the approving authorities and the time taken to have all the necessary approvals. It was also noted that specialised works should be done by experts in those areas.

Further to the above, the technical team and the client/ project owners should work in harmony in a given project. This aspect will ensure collective responsibility in decisions made and will ensure moving together as a team.The contractors and the project owners felt there should be enforceable agreement between them including the sub-contractors to safeguard against breaching the contract from either side. Project cash should be made available in good time and more preferably throughout the project period. It will thus ensure sourcing; purchasing and delivery of materials are done efficiently and effectively.

5. Summary, Conclusions and Recommendations

5.1. Introduction

This chapter presents the summary, conclusions, recommendations and suggestions for further research on factors influencing implementation of commercial housing projects in Kisumu County, Kenya.

5.2. Summary of Findings

The study was conducted to determine probable factors influencing effective implementation of commercial housing projects. The participants for the study involved contractors, owners and regulators. Information for this research was mainly collected through questionnaires and interview guide.

5.2.1. Contractor Selection Criteria and its Influence on Housing Projects

The first objective of the study was to determine the degree to which contractor selection criteria influenced implementation of commercial housing projects in Kisumu County, Kenya. A contractor is the main individual/organisation who is in charge of implementing commercial housing projects. They have to meet certain requirements before being entrusted to develop or construct a commercial housing project. According to the study result, the competency of the supervisor, contractor experience in doing a similar work together with the competence of project team was the most significant criteria that were considered during contractor selection process. This could be because despite funds and approvals being there, a competent persons/organisation has to competitively be recruited to implement the commercial housing project. However, other factors such as category of contractor based on NCA, sub-contractor's qualification and financial liquidity of the contractor were often looked at. Generally, contractor selection procedures were often utilised before implementation of commercial housing projects in Kisumu County, Kenya.

5.2.2. Materials Cost and its Influence on Housing Projects

It has been observed that projects regularly fail to take off, delay during implementation while others are abandoned due to lack of adequate capital to finance it. It was established that cost of materials sometimes (M=2.87 and SD=1.37) affected the implementation of commercial housing projects in Kisumu County. For instance, changes in materials prices due to market and economic forces were cited to be a major factor that affected the implementation of housing projects in Kisumu County.

Changes in transport costs were also cited to sometimes influence delivery of products to construction sites. The high transport costs were due to long distance between construction sites and source of materials. Another factor that the study established was the project labour cost. Changes in labour cost affected the implementation of commercial housing projects. The unavailability of materials on the market was also cited to sometime affect successful implementation of commercial housing projects. However, study findings established that costs of rework and material wastage had minimal influence on implementation ofcommercial housing projects.

5.2.3. Project Activity Scheduling and its Influence on Housing Projects

This was the third objective of the study which looked at how project scheduling influenced implementation of commercial housing projects in Kisumu County, Kenya. It was established that project budgeting was conducted often (M=3.59 and SD=1.17). However, variations emerged on how various project scheduling activities were conducted during the implementation of commercial housing projects. For instance, planned time for construction, planning and scheduling of project by contractor and site preparation time were always conducted as opposed to use of computer software for planning. Microsoft project office was found to be used by 53.4% while others reported to be using Microsoft Excel software.

Presentation of information stored in the above-mentioned software was through the use of bar chart, critical path method, Gantt chart and line graphs charts. The respondents however said that Client interference,delay in producing design documents and payments by clients sometimes affected implementation of commercial housing projects in Kisumu County. Monitoring and evaluation of project implementation progress was mainly done by clients themselves, contractors, comparison of initial costs against actual costs and regular project implementation of budget updates. Inspection visits by county government officers in charge and NCA officials were found to be sometimes conducted. The results however showed that monitoring and evaluation of projects was highly considered (M=4.03 and SD=1.08) an important activity that was often conducted during construction of commercial housing projects.

5.3. Conclusions

The study has found out that several factors; contractor selection criteria, cost of materials and project activity scheduling influenced effective implementation of commercial housing projects in Kisumu County, Kenya. From the respondents view, it was established that some projects stalled, others took long to complete while others were abandoned as a result of different factors. This has seen the

sector struggling for some times. However, study findings show probable factors that if corrected could influence effective implementation of housing projects as MLR result showed that 40.0% of change in implementation of commercial housing projects in Kisumu was explained by the three variables studied.

At first, research result showed that the competence of construction managers and other workers were found to significantly contribute to effective implementation of commercial housing projects in Kisumu County (β=0.298). The key aspect that featured in the selection criteria was the competence of contractors, project team and even sub-contractors. The study learnt that contractors play an integral role in the implementation of housing projects. If they cannot perform their independent roles efficiently regardless of the competence of the project team, project implementation would be unattainable.

Secondly, research result showed that cost of materials affected the implementation of commercial housing projects (β=0.442). For instance, the study established that fluctuation in prices of building materials significantly affected the implementation of housing projects. This explains the reason why most of the respondents purchased construction materials when the needs arise. This is because the projected cost in most instances differs from the actual costs of raw materials from the suppliers. Transport costs and labour costs also were found to affect implementation of projects in Kisumu Kenya.

Thirdly, it was also established that project activity scheduling, monitoring and evaluation were also significant aspects influencing implementation of commercial housing projects in Kisumu County (β=0.390). Planned time for construction, planning, activity scheduling and site preparation time were found to be the ones that were always done by contractors. Procedures such as producing of design documents and delay in progress payments by clients and shortage of materials affected the implementation of commercial housing projects in Kisumu County. Monitoring and evaluation activities were found to be conducted by contractors and project clients themselves while inspection officers (NCA and County government) seldom visited sites to check on progress of projects on different phases.

5.4. Recommendations

Based on the findings of the study, the following recommendations are made to all stakeholders directly and indirectly affected by commercial housing projects. There is need for consideration of previous contracts undertaken by a particular contractor before engaging them to implement a new project. This aspect was found to be sometimes considered during contractor selection process. There is also need to check on the shareholders of construction companies to avoid situations whereby some contractors are unpaid due to non-commitment by particular member of shareholders who could not have been involved during project award process.

There is need for construction companies to factor in the cost of materials by providing miscellaneous funds that will help cushion additional costs on materials and labour.

The study recommends that effective communication and coordination of project deliverables among the stakeholders can eradicate or minimize the occurrence of projects delay in the commercial housing projects.

5.5. Recommendations for Future Research

For future research the study makes a suggestion that a similar study need to be undertaken in other industry different from construction e.g. manufacturing and service industry. A similar study can also be conducted on a wider scope to determine if there exists difference between different areas with regard to factors influencing implementation of housing projects. It may also be necessary to look at the influence of government regulations on the implementation of commercial housing projects.

6. Acknowledgement

I wish to express my sincere gratitude to the following people for their support: my Heavenly Father, for the courage and the strength He gave me to complete this Thesis, Prof. Peter Isaboke Omboto and Dr. Ruth Tubey for their keen guidance in developing my research topic, conceptual framework and the entire thesis.I appreciate with a lot of humility all lecturers in my earlier studies, more so Dr. Ndambiri Hillary, Dr. Ochieng' Owuor, Mr. Kirui Stephen, Miss Chemuge Maureen, Mr Khandondi Stephen, Mr. Kibowon Patrick and Mr. Kemei Dan. I want to thank my friends Charles and Emmy, Naftally and Viva, Kirui and Wangui for their immense support coupled with very constructive criticisms. I would like to in a special way salute my research assistants Christopher Okoth Omoro, Benard Othim, Alfred Augo, Fredrick Onduu, T.J Mboya and Job Ombewa together with their very able team members for aiding in administration of the questionnaires.I also want to thank my son Gudah Vincent Raila who always sat patiently beside me as I worked on this research paper. A lot of gratitude to Mr Dickson Waweru for his editorial suggestions throughout this work. I would like to thank anybody not mentioned but contributed in one way or another in the preparation of this work.

7. List of Abbreviations

- GDP Gross Domestic Product
- KNBS Kenya National Bureau of Statistics
- NACOSTI National Commission for Science, Technology and Innovation
- NCA National Construction Authority
- NHC National Housing Corporation
- RoK Republic of Kenya
- SPSS Statistical Package for Social Sciences
- UN-Habitat United Nations Habitat

8. Operationalisation of Significant Terms

- Commercial Housing: Also known as commercial building, this describes buildings that can be used for residential, business and or for both.
- Implementation of a project: This is meeting the project's technical specification while at the same time attaining a high level of satisfaction on the part of the stakeholders. The project must be physically implemented and meet the time, cost and quality criteria.
- Material: this is any item which is used for construction purposes. Many naturally occurring substances, such as clay, water, rocks, sand, and wood, have been used to construct buildings
- Project activity Scheduling: This refers to the type of work plan and payment plan which can be daily, weekly and even monthly.
- Project: This is a combination of human and nonhuman resources systematically pulled together in a temporary organization to achieve a specified purpose.
- Contractor: An organization that constructs a building, a structure or services for a client, for payment.

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APPENDICES

APPENDIX I: LETTER OF TRANSMITTAL OF QUESTIONNAIRE

GUDAH JOHN
P.O BOX 14653-00100
Nairobi.
Tel: 0722 987171

Dear Sir/ Madam,

RE: REQUEST FOR ASSISTANCE OF FILING RESEARCH QUESTIONNAIRE

I am a student at Moi University doing a Master of Science Degree in Project Planning and Management and currently carrying out a research as part of my academic requirement on ***"Factors influencing implementation of commercial housing projects in Kisumu County, Kenya"***. I am therefore kindly requesting your assistance by filling the questionnaire as correctly and as candidly as possible. Your identity and response will be treated with utmost confidentiality and so do not write your name on the questionnaire. Thank you in advance for your assistance.

Yours faithfully,

GUDAH JOHN
SHRD/PGP/200/14

APPENDIX II: QUESTIONNAIRE FOR CONTRACTORS

Dear respondent,
This questionnaire is for the purpose of research only and the information you give will be treated confidentially. Your cooperation will be highly appreciated. Do not write your name on this questionnaire. Thank you.
Instruction: please tick in the spaces provided or provide information where necessary.

Section A: Demographic Data

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

2. How long have you worked in the construction industry?
   Less than 1 year [ ] 1-3 years [ ] 4-6 years [ ] 7-9 years [ ]
   10 years and above [ ]

3. What are your academic qualifications?
   Certificate [ ] Diploma [ ] Higher Diploma [ ]
   Bachelors [ ] Masters [ ] Other ……

4. What is your job title?
   Project Manager/ deputy [ ] Project Engineer/ office engineer [ ]
   Clerk of Works/ deputy [ ] Others (specify).....

5. What is the size of your company (number of employees)? ……

6. What is the value of executed projects executed in the last five years: (in millions?)
   Less than 5 M [ ] less than 10 M [ ]
   Less than 20 M [ ] More than or equal 20 M [ ]

Section B: Contractor selection criteria and its influence on housing projects

7. Indicate the frequency to which the following criteria are looked upon during contractor selection and how it influences implementation of housing projects. The following coding procedure will be used: Never (1), Rarely (2), Sometimes (3), Often (4) and Always (5)

	Variable	Always (5)	Often (4)	Sometimes (3)	Rarely (2)	Never (1)
i	Contractor experience in similar work					
ii	Category of contractor (NCA Classification)					
iii	Sub contractors qualification					
iv	Key personnel (competent staff)					
v	Completion and certification of previous or ongoing projects undertaken by a contractor					
vi	Financial ability (liquidity of the organisation)					
vii	Shareholding					
viii	Competence of project team					
ix	Project/owner leadership skills					
x	Competence of supervisor					

Section C: Budgeting and its influence on housing projects

8. How often do you purchase materials for your projects?

At the start of the project [ ] At mid of the project [ ]
Always when they are required [ ] Other (specify) …….

9. Indicate the frequency to which the costs related to materials acquisition for commercial housing projects affects its implementation. The following coding procedure will be used: Never (1), Rarely (2), Sometimes (3), Often (4) and Always (5)

	Variable	Always (5)	Often (4)	Sometimes (3)	Rarely (2)	Never (1)
i	Change orders by client during Construction (variation in orders)					
ii	Lack of materials on market					
iii	Fluctuation of the market price of materials					
iv	Material wastage					
v	Use of historical cost data					
vi	Cost of equipment and materials					
vii	Cost of rework					
viii	Escalation of material prices					
ix	Project labour cost					
x	Fluctuation in transport costs					

Section D: Project scheduling and its influence on housing projects

10. Indicate the frequency to which project scheduling influence the implementation of commercial housing projects in Kisumu County? The following coding procedure will be used: Never (1), Rarely (2), Sometimes (3), Often (4) and Always (5)

	Variable	Always (5)	Often (4)	Sometimes (3)	Rarely (2)	Never (1)
i	Site preparation time					
ii	Planned time for construction					
iii	Planning and scheduling of project by contractor					
iv	Delay in progress payments by client					
v	Client interference					
vi	Delays in producing design documents					
vii	Equipment unavailability					
viii	Computer software for planning					
ix	Average delay because of closures leading to materials shortage					
x	Comparing the actual time taken with the planned timelines on project works					

11. Which software do you apply for planning and scheduling the progress of the project?
Primavera [ ] Microsoft project [ ] Ms. Excel sheet [ ]
Others (specify)……

12. Which kind of method do you use to represent the project planning and scheduling?
Bar Chart method [ ] Critical path method [ ]
S-Curve method [ ] Gantt chart [ ] Others (specify) …….....

13. Indicate the frequency to monitoring and evaluation activities is conducted by clients, authorities and even contractors during the implementation of commercial housing projects in Kisumu County? The following coding procedure will be used: Never (1), Rarely (2), Sometimes (3), Often (4) and Always (5)

	Variable	**Always (5)**	**Often (4)**	**Sometimes (3)**	**Rarely (2)**	**Never (1)**
i	Project team meeting for discussion of monitoring, updating and controlling the progress					
ii	Sub-contractors or supplier submitting their detail activities schedule for you in advance to adjust your actual schedule					
iii	Inspection by NCA officers (on various stages)					
iv	Inspection by county government officers (on various stages)					
v	Inspection by client (s)					
vi	Inspection by contractors					
vii	Quality assurance training and follow up					
viii	Comparing the actual costs with the budget on project works					
ix	Regular project budget update					
x	Cost control system					

Section E: Implementation of Commercial Housing Projects

14.(a) How many construction projects have you executed in the last 5 years?
1 to 10 [ ] 11 to 20 [ ]
21 to 30 [ ] More than 30 [ ]

(b) From the above executed construction projects, how many had construction cost overrun?
1 to 10 [ ] 11 to 20 [ ]
21 to 30 [ ] More than 30 [ ] None [ ] All [ ]

(c) Based on the number of construction project executed in above, how many were completed on time?
1 to 10 [ ] 11 to 20 [ ]
21 to 30 [ ] More than 30 [ ] None [ ] All [ ]

(d) Based on the number of construction project executed in above, how many delayed?
1 to 10 [ ] 11 to 20 [ ]
21 to 30 [ ] More than 30 [ ] None [ ] All [ ]

(e) Based on the number of construction project executed in above, how many were abandoned?
1 to 10 [ ] 11 to 20 [ ]
21 to 30 [ ] More than 30 [ ] None [ ] All [ ]

15. What can you rate the level of implementation (success rate) of commercial housing projects that you have undertaken so far?
Very high [ ] High [ ] Average [ ] Low [ ] Very Low [ ]

The end
Thank you for taking your time to participate in this study

APPENDIX III: INTERVIEW SCHEDULE FOR KEY INFORMANTS

Questions:

1. How many commercial housing projects have you supervised in the past five years?
2. What challenges if any have you encountered during the implementation of these projects?
3. What is the average time taken to complete a commercial housing project and what was the size?
4. How often do you encounter delays to construction of these projects and what are the major setbacks?
5. In your opinion, to what extent does this project contributed towards sustainable development
6. What do you think should be done in subsequent projects to improve this image?