FACTORS AFFECTING CONSTRUCTION OF COMMERCIAL HOUSING PROJECTS IN URBAN CENTER IN NAIROBI: A CASE STUDY OF GAKUYO REAL ESTATE

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BUS-4-2548-2018

A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS IN PARTIAL FULLFILLMENT FOR THE AWARD OF THE DEGREE OF BACHELOR OF COMMERCE (ACCOUNTING OPTION)

GRETSA UNIVERSITY.

DECEMBER 2019

DECLARATION

Declaration by the Student

This r	This research project is my original work and has not been presented for award of a				a
degree	degree or for any similar purpose in any other institution				
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This r	esearch project has bee	n submitted	l with my appr	roval as University supervisor	
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DEDICATION

To my beloved parents Mr. and Mrs. David Ombagi for their support and encouragement during the course of my studies, also to my beloved wife Saida and my son and daughter for their support during the research period.

ACKNOWLEDGEMENT

First I would like to acknowledge the heavenly father whose everlasting blessings have enabled me to work through this project. My regards go to my supervisor Dr. Odera for his guidance when I was doing this research. I would also like to thank the Gretsa university for the support they have induced me as I undertook my course I would also like to thank gakuyo real estate for allowing me to do my research at their firm. Finally I pay special tribute to my family and friends who have supported and encouraged me during this time, May God bless you all.

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LIST OF ABBREVIATIONS

A.V.L Acceptable Quality Level

G.O.K Government of Kenya

I.C.T Information Communication Technologies

I.T Information Technology

SADC Southern African Development Community

U.K United Kingdom

OPERATIONAL DEFINITION OF TERMS

Funding

Funding is the act of providing resources, usually in form of money (financing), or other values such as effort or time for a project, a person, a business, or any other private or public institutions. The process of soliciting and gathering fund is known as fundraising.

Infrastructure

A set of life enhancing amenities that a given population would require most and tend to influence settlement of human population within areas that have well developed infrastructure such as electricity, water and roads.

Staff Skills

A skill is the learned ability to carry out a task with predetermined results often within a given amount of time, energy, or both. In other words the abilities that one possesses. Skills can often be divided into domaingeneral and domain-specific skills.

ABSTRACT

The main aim of the study was to evaluate factors affecting the construction of commercial housing projects in urban center in Nairobi. The specific objectives were to assess the effect of road infrastructure, funding, cost of land, and the level of technology on construction of housing projects in urban center in Nairobi. A case study was confined to Gakuvo real estate. The study targeted directors, senior managers, architect and engineers. The beneficiaries of the study were the national government, county government of Nairobi, Gakuyo real estate and other researchers. The descriptive research design will be adopted in collecting and analyzing of data. This method was preferred because it is systematic and produces accurate description. It entails a complete description of the situation which limits errors and biasness in the collection of data. The target population from which the information was solicited by the researcher was 142 comprising of senior managers, technical staff, middle level managers, and support staff. Data was collected using questionnaires by the researcher which include both structured and unstructured questionnaires. Analysis of data was based in both qualitative and quantitative form and was presented using tables and figures. The findings were as follows; road infrastructure had 100% effect on construction of commercial housing projects in urban Centre. Funding had 94 % effect Cost of land had 90% effect while level of technology had 88% effect on the construction of commercial housing projects in urban center in Nairobi. The researcher therefore recommends as follows. The county government should ensure that roads are adequately constructed in urban center, funding by the government and private lenders should be more easily available, cost land should be reasonable and resident's should be further encouraged to use new construction technology which makes construction faster and cheaper.

CHAPTER ONE

INTRODUCTION OF THE STUDY

1.1 Background of the Study

Project implementation is the stage where all the planned activities are put into 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.

However, many developing countries are experiencing rapid growth in population and urbanization. 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).

Kumssa and Mwangi (2006), state that Nairobi as an urban center lacks proper planning and implementation of commercial housing projects plans necessary in a city. This lack of proper planning greatly affects construction of housing projects because urban populations are continuously growing. Failure to plan for them means that more people will stay in places that are meant for fewer people. This strains all resources including food, water, sewerage, roads, public transport, schools, hospitals, government services and even available jobs.

According to Kenya Property Developers Association (KPDA) and Hass Consult report (2014), the cost of land in Nairobi and its availability is presenting challenges to property developers. The cost of land is escalating rapidly and the availability of land is also uneven. There is insufficient urban planning and necessary infrastructure like roads, water, and sewer lines is inadequate for the current population.

1.2 Statement of Research 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 Nairobi suffer from many problems and complex issues in performance because of many reasons and factors. Research evidence shows that performance of the construction in Nairobi 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). Some of construction of commercial housing projects in Nairobi have stalled midway. Others are going on but very slowly. As one goes through the urban areas, there is no sight of many commercial housing projects being built but rather single houses and high rise buildings. In the existing informal settlements in urban centers, the road network is poor as evident during emergencies in these areas where the county fire services have complained of lack of access. It is therefore necessary to study the specific factors affecting construction of commercial housing projects in urban centers with a view of providing solutions to be applied in the future.

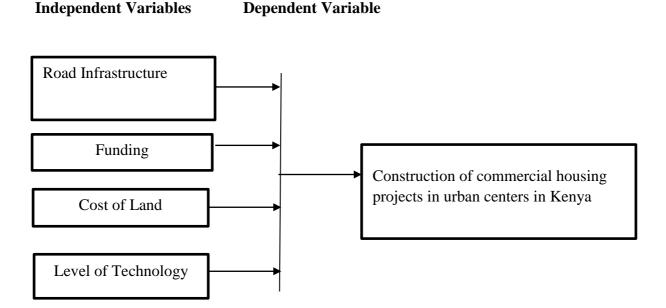
1.3 Purpose of Study

The purpose of this study was to investigate factors affecting construction of commercial housing projects in urban center in Nairobi

1.4 Conceptual Framework

The conceptual framework helped to illustrate the causal relationship between the independent variables and the dependent variable. Figure 1.1 shows the relationship between the independent variables which are road infrastructure, funding, cost land, and level technology that affect the construction of commercial houses in urban centers. This research will find out to what extent these factors affect the construction of commercial houses in urban centers in Kenya today.

Figure 1.1 Conceptual Frameworks



1.4.1 Road Infrastructure

Road infrastructure is important in development of commercial housing projects because without roads, contractors cannot access the construction sites. Buyers will also use the same roads once they buy the developed projects. Developers can only develop the roads that are within their project. Public roads accessing the project have to be developed by the government because it is expensive. It is therefore important to investigate this area to see its contribution to the construction of commercial housing projects.

1.4.2 Funding

Funding for development of the commercial housing projects has to be available in the urban areas for both developers and buyers. The institutions that fund developments need to be encouraged to provide funding for both the developers and buyers too. Contractors also need huge amounts of money to do their work and they should be given sufficient facilities. Without funding, roads cannot be constructed, developers cannot build housing projects and people cannot buy houses.

1.4.3Cost of Land

Buildings are constructed on land. It is therefore necessary to have sufficient land for the construction of commercial houses. Zoning of land should be strictly adhered to. The government and the private sector should avail affordable land for construction. Planning by national and county governments should allow for enough construction of commercial housing projects.

1.4.4 Level of Technology

Technology in commercial housing projects construction makes work cheaper and faster. It is necessary to enable the government to cover the housing deficit in urban areas.

1.5 Research Questions

- i. What is the effect of road infrastructure on the construction of commercial housing projects in urban centers in Nairobi?
- ii. To what extent does funding affect the construction of commercial housing projects in urban areas in urban centers in Nairobi?
- iii. How does cost of land affect the construction of housing projects in urban centers in Nairobi?
- iv. How does the level of technology affect the construction of commercial housing projects in urban centers in Nairobi?

1.6 Objective of the Study

1.6.1 General Objective

The objective of this research was to find out the factors affecting the construction of commercial housing projects in urban center in Nairobi today.

1.6.2 Specific Objectives

The specific objectives of this study were as follows;-

- i. To assess the effect of road infrastructure on the construction of commercial housing projects in urban centers in Nairobi.
- ii. To establish the effect of funding on construction of commercial housing projects in urban centers in Nairobi.
- iii. To assess the effect of cost of land on the construction of commercial housing projects in urban centers in Nairobi.
- iv. To assess the effect of the level of technology on construction of commercial housing projects in urban centers in Nairobi.

1.7 Hypotheses of study

The study was guided by the following alternative hypothesis

H1: Road infrastructure as significant influence on construction of commercial housing Projects

H2: Funding as significant influence on construction of commercial housing projects

H3: Cost of land as significant influence on construction of commercial housing projects

H4: Level of technology as significant influence on the construction of commercial housing

1.8 Significance of the Study

The study provides useful information to different stakeholders within the construction industry. The Gakuyo real estate may find the study useful when making decisions about investment in commercial housing.

The outcomes of the study may be used by county and national governments in formulation of construction industry policies and the way these policies are implemented. Informed policies provide guidelines to the industry which minimizes project failures, reduces risk and ensures order in the construction industry.

The findings of the study are also relevant to future researchers and scholars who intend to extend the research questions that can become the basis for study.

1.9 Scope of the Study

The study focused on the factors that are currently affecting construction of commercial housing projects in urban centers in Nairobi with a case study of gakuyo real estate whose head office is in Thika. The target population was 142 employees comprising of senior management, technical staff, middle management and support staff.

1.10 Limitations of the Study

1.10.1 Confidentiality

Some institutions may not allow their information to be made public. Details on how any business organization is planning its operations are normally secret to a certain extent. This is due to factors like hiding from the competition what an organization intends to do for the obvious reason of having an upper edge and avoiding industrial espionage. Past company records are not meant for the general public and may not be available. These company records could have important details on the factors affecting construction of commercial housing projects. Some websites with critical data on factors affecting construction of commercial housing projects are not open to the general public or are available at a fee. Buying all these information is expensive especially for students doing research work.

1.10.2 Lack of Cooperation

Some interviewees may fail to cooperate with the researcher. This may be due to unavailability. Some of the people who have access to critical company information are mostly senior like company directors and top managers who are usually very busy and therefore difficult to get when requiring important information. To win their trust, the researcher explained to them the importance of the study to the organization and how they would benefit from the research findings. The researcher also assured that their identity was confidential to any third party organization.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter focused on literature by different authors on factors affecting the construction of commercial housing in urban centers. The review covers several arguments and views postulated by various researchers across the world regarding factors that influence construction of commercial housing.

2.2 Review of Theoretical Literature

Reviews both theoretical and analytical literature on factors affecting the construction of commercial housing projects in urban centers in Nairobi. It also summarizes the gaps to be filled by the study

2.3 Road Infrastructure

United Nations Economic Commission for Europe (UNECE, 2014) has categorized road infrastructure as crucial to the production and distribution of goods and services. These goods include construction housing projects because wherever people are working, they have to have places to dwell.

The African Development Bank (AfDB, 2014) states that the housing market in Nairobi can viewed from five dimensions. These are demand and supply gap, access to finance, building technology and related costs, real estate developers' capacity, and finally land and infrastructure (AEB, 2013). Investigations have been made in these five areas to find out to what extent they affect the development of housing projects in urban areas.

The trend in the world and in the design of commercial housing projects is that cities are zoned with land being allocated for industrial development, office development, and commercial housing. The commercial housing is constructed in projects so that as many people are provided with housing as possible with available resources being pooled together to benefit as many people as possible. These resources include personnel, road infrastructure, sewerage, and water pipelines, (UNECE, 2014).

2.4 Funding

Design Buildings Wiki (2014) states that it is difficult for a developer to provide all the funding required to complete a construction project. This applies to both the private sector as well as the public sector with the public sector using external sources of funding for its projects through the Private Finance Initiative (PFI). Sources of funding may include construction and development loans from a specialist property funder or a senior debt lender such as a commercial bank or a high street bank which may be either short term loans or long term loans. A mortgage provider may then be sought to provide mortgage to the buyers of the commercial houses. The long term loans may be more attractive to lenders because by then, the construction will be complete. It may attract pension providers and the interest rates may be small.

(Design Buildings Wiki, 2014). In Crown Build, construction projects are funded by the government through the government's capital expenditure budget. The completed project remains in the ownership of the public. This kind of funding is applicable where the government has sufficient funds to finance commercial construction projects for its departments. Joint venture with local government is a case whereby local governments assist developers with either soft loans or reduced taxes. The local government could force the sale of land to developers in a bid to assist them.

2.2.4 Cost of Land

According to Kenya Property Developers Association (KPDA) and Hass Consult report (2014), the cost of land in Nairobi and its availability is presenting challenges to property developers. The cost of land is escalating rapidly and the availability of land is also uneven. There is insufficient urban planning and necessary infrastructure like roads, water, and sewer lines is inadequate for the current population.

In Kenya, The Ministry of land has under it the directorate of land which is charged with the responsibility of ensuring efficient administration and sustainable management of the land resource in the country. Its mandate is to formulate and implement land policy, undertake physical planning, register land transactions, undertake land surveys and mapping, land adjudication and settlement, land valuation and administration of public and community land. It comprises five departments, namely Administration and Planning, Physical Planning, Land Adjudication and Settlement, Surveys and Lands. The department of administration coordinates activities of the four technical departments by providing services like, transport, procurement, accounts, human resource management among others. The Divisions and Units under this Department include; Human Resource Management, Information and Communication Technology (ICT), Finance, Accounts, Public Communications, Supply Chain Management Unit, General Administration, human Resource Development, Land Reform Transformation Unit (LRTU), Audit, Central Planning and Project Monitoring Unit, (GOK, 2014).

This department of physical planning aims at achieving a balanced regional development over the national geographic space for the benefit and welfare of all. Key activities include; preparation of regional and local physical development plans, feasibility studies into matters concerning physical planning and advising on matters concerning alienation of land and the most appropriate use of land such as change of user, extension of user, extension of leases, subdivision of land and amalgamation of land. Others include conflict resolution through physical planning liaison committees, (GOK, 2014).

The land valuation division is responsible for valuation of land and landed properties for various purposes. It provides professional valuation services to the government, parastatals and counties. Common types of valuation carried out in the division include, valuation for stamp duty, for subdivision (rent apportionment), lease extension, change of user and extension of user, alienation, rating, compulsory acquisition, loose assets, government purchase, sale and leasing. Land registration division is responsible for issuance of title deeds under various registration regimes, receiving and registration of documents under the various acts, attending and resolving land disputes. The division also safeguards and maintains custody for land records and documents, conducts searches for members of public, institutions and firms, advising members of public, institutions and firms, on land matters particularly on the legal implications of various land transactions. (GOK, 2014).

2.2.5 Level of Technology

The construction business review (2015) states that the Kenya government is counting on Appropriate Building Materials and Technologies (ABMT) to design materials that lower costs and improve the quality and speed of construction. Materials account for about 60 per cent of the cost of a building and new technologies could reduce that cost by up to 50 per cent. ABMT centers will be used to promote The National Housing Corporation's expanded polystyrene panels that promise to reduce the overall construction costs by 20 per cent. The Kenyan government is also planning to capitalize on hydraform technology from South Africa that uses hardened earthen blocks to minimize the use of sand and cement. Other materials and technologies being used in Kenya include Tevi roofing tile vibrator from Ecuador that creates micro concrete roofing tiles, Structural Insulated Panels (SIP) from India/Kenya that that provides cement/fibre polyurethane walling panels, and prefabricated concrete panels. There are simple construction methods, whose principal advantages are twofold: they are inexpensive and they can be used by people to build their own homes. Wood-framed and stone structures are relatively low-cost in many areas. Earth is the most important building material, providing housing for the majority of the world's population. The thermal properties of earth also make it well-matched to passive solar design requirements in many climates.

2.7 Review of Critical Literature

Design Buildings Wiki (2014) shows the emphasis that developed countries, Britain in particular, put on enabling funding for construction in their countries while Macaleo (2015), shows the impact of abrupt introduction of formal financing to construction projects in Mombasa with absentee landlordism and invasion of low income settlements by middle income earners. Kenya lacks sufficient funding mechanisms for the middle and lower income people (AfDB). It is therefore important to study the existing commercial construction funding mechanisms in Kenyan urban centers and their impact on construction of commercial housing projects in urban centers.

Cost of land is an important part of commercial housing projects development and it is accorded much attention as seen in South Africa and Kenya. Planning and division of land is paramount as it plays a key role in determining where construction of commercial housing projects can be done.

The level of technology has permeated every sector of our society today and construction of housing projects is no exception. The world over and Kenya included, researchers and governments have been searching for technologically driven solutions to faster and cheaper housing projects that do not compromise quality for residents. Kenya however needs this technology to be rolled out in urban centers quickly and affordably to enable construction of commercial housing projects.

2.8 Summary of Gaps to be filled

Road infrastructure has been found to be wanting in Kenya and in the urban centers to be specific. There are insufficient roads in Kenya's urban areas and though government policy seems to have allowed the construction of these important roads, the actual situation is that they are still insufficient.

Funding for both construction of commercial housing projects and purchase of these houses seems to be a problem. Most Kenyans have no access to funding. Banks and mortgage providers do not offer sufficient products for the citizens.

Cost of land is critical in housing project development. There are no land incentives provided for developers of commercial housing projects. Zoning of land to provide for commercial projects has not been followed up by the government.

Technology to be used in development of commercial housing projects is still at its formative stage according to ABMT. The use of cheaper, faster but strong and durable building materials in Kenya is still yet to be rolled out fully. This aspect needs to be investigated and strengthened.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

This chapter discussed the methodological procedures that were used in data collection and analysis. The discussion included the research design, target population sampling procedure and sample size, data collection, and data analysis.

3.1 Research Design The research design that was adopted by the study was descriptive study. The descriptive study was adopted in collecting and analysing of data. This method is preferred because it is systematic and produces an accurate description (Kothari 2014). It entails characteristics to which the researcher wants to generalize the results of the study. The researcher also considered a case study design for in-depth understanding of the research problem. The study targeted the senior managers, technical staff, middle level management, and support staff of Gakuyo real estate.

3.2 Study area

The study will be conducted in Gakuyo real estate Thika it will cover aspects relating to factors affecting the construction of commercial housing in Nairobi. The study will focus on both senior management and lower staff.

3.3 Target Population

According to Mugenda and Mugenda, (1999) population is a complete set of individuals or objects with common observable characteristics. Therefore target population is the population the researcher wants to generalize the results of the study. The targeted population in this study was 142 consisting senior management and lower staffs. The total target population is tabulated in Table 3.1

Table 3.1 Target Population

Population Category	Target population	Percentage
Senior Management	2	1
Technical Staff	3	2
Middle Management	5	4
Support Staff	132	93
Total	142	100

Source: Author (2019)

3.4 Sampling Techniques

According to Kothari (2004), Sampling is a list of elements from which the sample is withdrawn when closely related to the population. The study adopted the stratified random sampling design. This is because the target population is heterogeneous, therefore it was sub divided into strata according to various departments. The sample was then randomly taken from each stratum. This ensured that bias was reduced with each stratum. Sample size was 25% of the target population. Sampling design is the process of selecting respondents who are identified as representatives of targeted population. In this study stratified random sampling was used to select the respondents in four populations to have an equal and unbiased chance of participating in the study. According to Mugenda and Mugenda (1999) at least 10% of the target population was enough to give a representation of the entire population.

3.5 Sample Size

Sample size is the portion of the population to be studied in order to make an inference to a broader population to which the findings from the study are to be generalized (Araoye 2004)

Table 3.2 Sample Size

Category	Population	Sample	Percentage
Senior Management	2	2	1
Technical Staff	3	3	2
Middle Management	5	5	4
Support Staff	132	25	93
Total	142	35	100

Source: Author (2019)

3.6 Measurement of Variables

Table 3.3 Measurement of Variables

variable	Indicators	Measurement scale	Question number
Road infrastructure	Not fully developed	Nominal and ordinal	1
Funding	Not accessible and limited sources	Interval and ratio	2
Cost of land	Expensive and unavailability	Interval and ratio	3
Level of technology	inappropriate	Nominal and ordinal	4

Source: Author (2019)

3.7 Research Instruments

Data was collected using questionnaires by the researcher which included both structured and unstructured questions. This instrument was used because it enabled the respondents to set enough time convenient to them to fill in the questionnaires and it was free from bias because the researcher was not present when the respondents are answering the questions. The researcher designs questionnaire for every member and every official. There was a predetermined question where respondents were served with questionnaires and given a chance to view them. Questionnaires were hand delivered and collected after seven days. This primary data was supplemented by secondary data from available area. The questionnaires were divided into several parts.

Primary data were presented in actual information that is observed for a purpose of the research study. It included raw facts in the answered questionnaires. This type of data were collected and analyzed to get only important information for proper judgment analysis. Secondary data involved data collected from other sources but is usable to this type of study. Collection of data were obtained through field research which is either from external or internal sources external sources include; publications, marketing, research agency, press, newspaper, and various research organizations.

3.8 Validity of Measurements

Saunders (2000) contends that research is valid only if it actually studies what it set out to study and only if the findings are verifiable. Validity is the degree to which results obtained from the analysis of the data actually determine the phenomenon under the study (Mugenda and Mugenda 1999). Validity addresses the question of how the social reality being measured through research matches with the construct researcher will understand it. (Neuman, 2006). There are three ways of testing validity in a research study. These are construct validity, criterion related validity and content validity. Construct validity test the degree to which between data obtained from the field actually conform to the underlying theory (Mugenda and Mugenda, 1999).

This study recognizes a balance between the two types of validity. External validity refers the degree to which research findings can be generalized to populations and environments outside the experimental setting. Internal validity on the other hand explains the degree to which the design of study actually lender itself sufficient in answering the research questions or accepting /nullifying the stated hypothesis

3.9. Reliability of Measurements

Reliability is a measure of the degree which the research instrument yields consistent results or data after repeated trials (Mugenda and Mugenda 1999). In research reliability can be influenced by random error, so as random errors increases, reliability decreases and vice versa. Reliability will be improved by use of multiple indicators of the variables. In this study, the reliability of the research instrument determined by the use of the split-half reliability procedure where the researcher administered the entire instrument to a sample of respondents during the pilot testing and calculated using the total score for each randomly divided half i.e. odd and even numbered items of the questionnaire. A reliability coefficient between the two total scores will be calculated using the Spearman-Brown prophecy tool

3.10 Data Collection Techniques

The research used questionnaires to collect data from the respondent (Gay 1996) recommends questionnaires as convenient and suitable for collecting data from a large surveys as it is inexpensive. The question were both open end and closed end, the open end questions were needed in the case where further clarification of variables was necessary. The questionnaires were mailed directly to the respondent or dropped at the place of work.

3.11 Data Analysis

Data analysis was based on the research objectives designed at the beginning of the research. Both qualitative and quantitative data was collected; Qualitative data was analysed in narration form while quantitative data was analysed by use of percentage and frequencies. Table and graphs was used to present data for easy presentation. The data to be collected was analyzed using qualitative and quantitative techniques. This involves creating descriptive statistics namely percentages and frequencies. Quantitative techniques were used to analyze information obtained and presented numerically to work out frequencies and percentages frequencies. The data was first edited and coded as this ensures accuracy. Frequencies tables and figures were used to present the results for easier understanding and interpretation. In quantitative analysis the information was analyzed the open ended questions. It was described using words and a data interpreted and inferences made and presented descriptively using frequencies, percentages, tables and figures.

3.12 Logistical and Ethical Considerations

Research ethics is important and requires that researchers should protect the dignity of their subjects and publish well information that is researched (Fouka and Mantzorou 2011) this research was guided by strict adherence to research ethics which do not allow the research to engage in deception.

The researcher kept the identity of respondent's secret by not identifying the ethical or cultural background of respondents; refrain from referring to them by their names (Mugenda 2003). The researcher exercised utmost honest by avoiding any falsification or fraud of information, data and instruments therefore resulting to provision of conclusion based on based on objective inferences that is guided by the data collected.

The researcher maintained humanity and in each case, explained the purpose of the study to the respondent's and benefits that will; accrue from it.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRERTATION OF FINDINGS

4.1 Introduction

This chapter presents classified data, summarized and displayed in compact form for better understanding. The presentation of data is done in percentage and descriptive statistics. The analysis is based on research objectives and the research questions constituted both qualitatively and quantitatively. Findings of research are presented in data tables.

4.2 Presentation of Findings

This is the statistical analysis of data collected based on research objectives.

4.2.1 Response Rate

The analysis of response rate was presented as follows.

Table 4.1 Response Rate Analysis

Response Rate	Frequency	Percentage
Response	32	92
No response	3	8
Total	35	100

Source: Author (2019)

The response shown in table 4.1 and figure 4.1 comprised of a summary of the response rate in which 92% of questionnaires were returned and 8% of the questionnaires were not returned. From the high percentage of the questionnaires that were returned, the researcher considered it a good number for the final analysis.

4.2.2 Gender Analysis

The gender analysis of the respondents was as follows.

Table 4.2 Gender analysis of Respondents

Gender	Frequency	Percentage
Male	27	84
Female	5	16
Total	32	100

Source: Author (2019)

Table 4.2 and figure 4.2 show the gender that was involved in the study. The percentage response rate shows that 84% of the respondents were male while 16% of the respondents were female. This response rate showed that there was a significant difference between male and female employees, an indication that more female employees need to qualify and apply for jobs at the firm.

4.2.3 Age of Respondents

The analysis of the age of the respondents was as follows.

Table 4.3 Age analysis of the respondents

Age	Frequency	Percentage
18 – 25	2	6
26 – 35	9	31
36 – 45	12	35
46 – 55	8	25
Above 55	1	3
Total	32	100

Source: Author (2019)

Table 4.3 and figure 4.3 was about the age of the members of staff of this organization. As shown, 6% of the respondents were of the age ranging between 18 and 25 years, 31% were of the age between 26 and 35 years, 35% were of the age between 36 and 45 years, 25% were of the age between 46 and 55 years, and 3% were above 55 years old. The majority of the respondents being between the age of 25 and 55 years was an indication that the organization had youthful and vibrant employees.

4.2.4 Highest level of education

The analysis of the highest level of education was as follows.

Table 4.4 Highest Level of Education

Highest level of education	Frequency	Percentage
Primary	0	0
Secondary	3	9
Tertiary College	7	22
University Level	22	69
Other (Specify)	0	0
Total	32	100

Source: Author (2019)

Table 4.4 and figure 4.4 were used to show the level of education of the employees of this organization. As shown in the study, 9% of the respondents had secondary level of education, 22% had tertiary education, while 69% had university education. The majority of the employees having university education showed that the firm had very well educated employees.

4.2.5 Years worked in the company

The analysis of the years worked in the company was as follows

Table 4.5 Years Worked in the Company

Years worked in the	Frequency	Percentage
company		
1-5	6	19
6 – 10	8	25
11 – 15	10	31
16 – 20	8	25
Total	32	100

Source: Author (2019)

Table 4.5 and figure 4.5 were about the years worked in the organization by members of staff. As shown in this study, 19% of the respondents had worked in the company for a period of between one year and five years, 25% had worked in the firm for a period of between six and ten years, 31% of the respondents had worked for the firm for a period of between eleven and fifteen years, and another 25% of the respondents had worked for the firm for a period of between sixteen and twenty years. The majority of the employees having worked for the organization for a period of between five and twenty years was an indication that the organization had a fairly experienced and stable workforce.

4.2.6 Effect of Road Infrastructure

Table 4.6 Whether Road Infrastructure affects construction of commercial housing projects in urban centers in Kenya

Category	Frequency	Percentage
Yes	32	100
No	0	0
Total	32	100

Source: Author (2019)

Table 4.6 and figure 4.6 is an indication of the study showing effect that road infrastructure had on construction of commercial housing projects in urban centers in Kenya. The study findings revealed that 100% respondents claimed that there was an effect while none claimed that there was no effect. The study confirmed from all of the respondents that road infrastructure affected the construction of commercial housing projects in urban centers in Kenya.

4.2.7 Ratings on effects of Road Infrastructure

Table 4.7 Effect of Road Infrastructure on construction of commercial housing projects in urban centers in Kenya.

Effect	Frequency	Percentage
Very high	14	44
High	8	25
Moderate	7	22
Low	3	9
Total	32	100

Source: Author (2019)

Table 4.7 and figure 4.7 constituted the various effects that road infrastructure had on construction of commercial housing projects in urban centers in Kenya. The analysis showed that 44% of the respondents said that there was a very high effect, 25% said that there was high effect, 22% said that there was moderate effect while 9% said that there was low effect. The study revealed that road infrastructure affects the construction of commercial housing projects in urban centers significantly.

4.2.8 Effect of Funding

The analysis of the effect of funding on construction of commercial housing projects in urban centers in Kenya was as follows.

Table 4.8Whether Funding affects construction of commercial housing projects in urban centers.

Category	Frequency	Percentage
Yes	30	94
No	2	6
Total	32	100

Source: Author (2019)

Table 4.8 and figure 4.8 were used to show the whether funding affected the construction of commercial housing projects in urban centers. The analysis showed that 94% of the respondents claimed that there was an effect while 6% claimed that there was no effect. The study findings confirmed from majority of the respondents that funding had a major effect on construction of commercial housing projects in urban centers in Kenya.

Table 4.2.9 Ratings on effect of Funding

Table 4.9 Effects of Funding on construction of commercial housing projects in urban centers in Kenya.

Effect	Frequency	Percentage
Very great extent	15	47
Great extent	8	25
Moderate extent	7	22
Low extent	2	6
Total	32	100

Source: Author (2019)

Table 4.9 and figure 4.9 provided ratings on the effects of funding on construction of commercial housing projects in urban centers in Kenya. In the study findings, the majority 47% of the respondents claimed that the effect was of a very great extent, 25% claimed the effect was of a great extent, 22% claimed that the effect was of moderate extent, while 6% claimed that the effect was of low extent. This analysis confirmed that the effect of funding on construction of commercial housing projects in urban centers in Kenya was of a very great extent.

4.2.10 Effect of cost of Land

The analysis of the effect of the availability of land on construction of commercial housing projects in urban centers in Kenya was as follows.

Table 4.10 Whether availability of land affects construction of commercial housing projects in urban centers

Frequency	Percentage
29	90
3	10
32	100
	29

Source: Author (2019)

Table 4.12 and figure 4.12 were used to show the whether availability of land affected the construction of commercial housing projects in urban centers. The analysis showed that 90% of the respondents claimed that there was an effect while 10% claimed that there was no effect. The study findings confirmed from majority of the respondents that availability of land had a major effect on construction of commercial housing projects in urban centers in Kenya.

4.2.11 Ratings on cost of Land

Table 4.11Effect of cost of land

Effect	Frequency	Percentage
Very high	24	75
High	5	16
Moderate	2	6
Low	1	3
Total	32	100

Source: Author (2019)

Table 4.13 and figure 4.13 constituted the various effects that availability of land had on construction of commercial housing projects in urban centers in Kenya. The analysis showed that 75% of the respondents said that there was a very high effect, 16% said that there was high effect, 6% said that there was moderate effect while 3% said that there was low effect. The study revealed that availability of land affects the construction of commercial housing projects in urban centers significantly.

4.2.11 Effect of level of technology

The analysis of the effect of the level of technology on the construction of commercial housing projects in urban centers in Kenya was as follows.

Table 4.12 Whether level of technology affects construction of commercial housing projects in urban centers

Category	Frequency	Percentage
Yes	28	88
No	4	12
Total	32	100

Source: Author (2019)

Table 4.14 and figure 4.14 were used to show the whether level of technology affected the construction of commercial housing projects in urban centers. The analysis showed that 88% of the respondents claimed that there was an effect while 12% claimed that there was no effect. The study findings confirmed from majority of the respondents that level of technology had a major effect on construction of commercial housing projects in urban centers in Kenya.

4.2.12 Ratings on Level of Technology

Table 4.13 Effect of level of technology on construction of commercial housing projects in urban centers in Kenya

Effect	Frequency	Percentage
Very High	12	38
High	9	28
Moderate	7	22
Low	4	12
Total	32	100

Source: Author (2019)

Table 4.15 and figure 4.15 constituted the various effects that level of technology had on construction of commercial housing projects in urban centers in Kenya. The analysis showed that 38% of the respondents said that there was a very high effect, 28% said that there was high effect, 22% said that there was moderate effect while 12% said that there was low effect. The study revealed that availability of land affects the construction of commercial housing projects in urban centers greatly.

4.3 Summary of Data Analysis

4.3.1 General Information

The summary of data analysis included the background information of respondents and the rate of response. The study showed that from the distributed questionnaires, 92% were returned whereas 8% were not returned. In summary of findings on gender, 84% were male while 16% were female. In the highest level of education, 9% had secondary level, 22% had tertiary college level, and the majority 69% had university level education. In number of years worked, 19% had worked for the organization for a period of between 1 year and 5 years, 25% had worked for a period of between 6 and 10 years, 31% had worked for between 11 and 15 years and 25% had worked for between 16 and 20 years.

4.3.2 Road Infrastructure

The summary of data analysis focused on the need to have a good road infrastructure during and after construction of commercial housing projects in urban centers in Kenya. In the study majority of the respondents pointed out that a good road infrastructure that makes it easy to transport construction materials to site, organize site visits for prospective buyers, and eventually allow smooth access to and from the housing projects for the actual buyers is very necessary. This meant that developers and contractors of commercial housing projects had to ensure that construction sites and finished commercial housing projects in urban centers in Kenya had very good and easy access for stakeholders. This study was majority supported by 100% of the respondents who believed that road infrastructure had an effect on construction of commercial housing projects in urban centers in Kenya.

4.3.3 Funding

Majority of the respondents were of the opinion that funding of commercial housing projects in urban centers in Kenya was a major challenge with most saying that developers did not have sufficient funds to run the projects by themselves but rather needed financing by lenders like banks. Fluctuating interest rates were cited as a major problem faced by developers. The need to stabilize the interest rates was expressed to enable developers make good sales and repayment forecasts. Funding having an effect on construction of commercial housing projects in urban centers in Kenya was supported by 94% of the respondents as opposed to 6% who said that funding had no effect.

4.3.4 Availability of Land

Availability of land in urban centers was also found to have a major impact on construction of commercial housing projects in urban centers in Kenya. Land is scarce in urban centers and the increasing rural urban migration coupled with population growth has made the problem even worse. The little land that is available is very expensive and leads to constructed houses being very expensive. The respondents proposed encouragement of the citizens to stay in rural areas and this can be done by taking development and jobs to these rural areas especially through the county governments. 90% of the respondents said that availability of land affected while 10% said that availability of land did not affect construction of commercial housing projects in urban centers in Kenya.

4.3.5 Level of Technology

The level of technology used was also found to have an impact in construction of commercial housing projects in urban centers. It was suggested that developers and contractors should modern technology that is being used in other parts of the world like expanded polystyrene system (EPS) that is cheaper than stone, is of good quality, and enables construction of houses to be completed faster. This was supported by 88% of the respondents who felt that the level of technology had an effect while 12% of the respondents felt that it had no effect on the construction of commercial housing projects.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

The chapter presents summary of the findings, Discussions and conclusions of the research as analyzed in chapter four, and recommendations for further research suggested. The discussions will be guided by the research objective and whether the data will confirm to research questions.

5.2 Summary of findings

After carrying out an intensive and exhaustive research, analyzing, and presenting the findings, the study found out that the variables worked on are very significant in construction of commercial housing projects in urban centers in Kenya. Findings on variables of factors affecting the construction of commercial housing projects in urban centers in Kenya are as follows:

5.2.1 How does road infrastructure affect the construction of commercial housing projects in urban centers in Kenya?

Based on the analysis of respondents, road infrastructure affects construction of commercial housing projects in urban centers in Kenya. This effect is rated as 44% very high, 25% high, 22% moderate, and 9% low. The effect of road infrastructure was therefore found to be very great. Stakeholders in the construction of commercial housing projects should give great emphasis on the state of road infrastructure during and after construction so as to ensure maximum return on investment.

5.2.2 How does funding affect the construction of commercial housing projects in urban centers in Kenya?

Based on the analysis of respondents, funding affects the construction of commercial housing projects in urban centers in Kenya. This effect is rated as 47% very great extent, 25% great extent, 22% moderate extent, and 6% low extent. This effect is significant and it indicated that stakeholders need to further look at ways of availing more funds at affordable for rates for developers as this would encourage more construction of commercial housing projects in urban centers in Kenya.

5.2.3 How does government policy affect the construction of commercial housing projects in urban centers in Kenya?

Based on the analysis of respondents, government policy affects the construction of commercial housing projects in urban centers in Kenya. This effect is rated as 38% very high, 25 % high, 25 % moderate, and 12 % low. This showed that government policy affected construction of commercial housing projects greatly and all involved parties need to be vigilant in this matter.

5.2.4 How does cost of land affect the construction of commercial housing projects in urban centers in Kenya?

Based on the analysis of the respondents, availability of land has an effect on the construction of commercial housing projects in urban centers in Kenya. This effect is rated as 75% very high, 16% high, 6% moderate, and 3% low. This is a very great effect and it shows that any developer has to have land before they start planning to construct commercial housing projects in urban centers.

5.2.5 How does the level of technology affect the construction of commercial housing projects in urban centers in Kenya?

Based on the analysis of respondents, the level of technology affects the construction of commercial housing projects in urban centers in Kenya. This effect is rated as 38% very high, 28% high, 22% moderate, and 12% low. This is a significant effect and the more a developer uses good technology, the easier it will be to successfully complete the commercial housing project in an urban center.

5.3 Conclusions

The study concluded that road infrastructure is a prime factor in construction of commercial housing projects. Good roads are needed up to and inside the projects because they determine how easily contractors and buyers access the site.

Funding was also found to be a major challenge in construction of commercial housing projects in urban centers. Developers do not have sufficient funds to complete the projects on their own but interest rates were found to be too high in most of the cases.

Government policy was also found to affect the construction of commercial housing projects significantly. Matters to do with zoning of areas and the process of approval of both the building plans and the actual buildings constructed were found to be impeding construction of commercial housing projects because of taking too long.

Availability of land was also found to affect construction of commercial housing projects significantly. Land is not easily available in urban centers and when gotten it is usually very expensive. This was found to be a factor that slows down construction of commercial housing projects in urban centers in Kenya.

The conclusion on the level of technology used in construction of commercial housing projects in urban centers in Kenya was that it was below what is being used in developed countries and the more good technology is used, the cheaper and faster the houses will be built.

5.4 Recommendations

The following are recommendations based on study findings:

5.4.1 Road Infrastructure

The central government of Kenya and the county governments should ensure that roads are adequately built in all urban centers in Kenya to ease the work of both the government and private developers who intend to develop commercial housing projects in urban centers.

5.4.2 Funding

Funding from both the government and private lenders like banks should be availed more easily to the public to facilitate more construction of commercial housing projects in urban centers in Kenya.

5.4.3 Government Policy

The central government and county governments should make it easier for private developers to construct commercial housing projects by having easier approval processes for plans and buildings.

5.4.4 cost of Land

The government should look into rezoning areas in urban centers to further ease construction of commercial housing projects in urban centers in Kenya. Rural areas should also be developed so as to attract commercial housing developers and buyers for these houses. This will decongest urban centers.

5.4.5 Level of Technology

Kenyans should be further encouraged to use new construction technology which makes construction of commercial housing projects in urban centers faster and cheaper.

5.5 Suggestions for Further Study

Further studies should be done on the allocation and transparent use of government resources meant to develop rural areas. Provision of roads, electricity and water in these areas would attract more commercial housing projects developers as well as house buyers. This would in turn ease the pressure to develop urban centers.

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APPENDIX II

QUESTIONNAIRE

Any information given by the respondents in this research questionnaire will be treated confidentiality. Tick inside the box provided where necessary and for explanation make it brief if necessary.

Your contribution will be highly appreciated.

SECTION A: GENERAL INFORMATION

1. Ge	nder	
I	Male	
]	Female	
2. A	ge	
a)	18-25	
b)	26-35	
c)	36-45	
d)	46-55	
e)	above 55	
3. Hig	ghest level of education L	evel
a)	Primary	
b)	Secondary	
c)	Tertiary College	
d)	University level	
e)	Other(Specify)	
4. Ye	ars worked in the compan	y
a)	1-5 years	
b)	6-10 years	
c)	11-15 years	
d)	16-20 years	

SECTION B: ROAD INFRASTRUCTURE

ruction	of commercial housing projects in
No	
astruct	ture on construction of commercial
of com	mercial housing projects in urban
No	
funding	g on the construction of commercial
• • • • • • • • • • • • • • • • • • • •	
	No rastruc

SECTION D: AVAILABILTY OF LAND

11. Does availability of land affect the con	struction of commercial housing projects
in urban centers in Kenya?	
Yes	No
12. How do you rate the effect of avai	lability of land on the construction of
commercial housing projects in urban centers	s in Kenya?
Very high	
High	
Moderate	
Low	
Please explain	

SECTION E: LEVEL OF TECHNOLOGY

13.	Does the level of technology a	affect the	construction	of commercial	housing
proje	ects in urban centers in Kenya?				
Yes		No			
14.	How do you rate the effect of	the level of	of technolog	y on the constru	iction of
comi	mercial housing projects in urban	centers in	Kenya?		
Very	high				
High					
Mod	erate				
Low					
Pleas	se explain				
			• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	

Thank You for Your Cooperation