FACTORS INFLUENCING SUSTAINABILITY OF HOUSING PROJECTS IN KENYA: A CASE OF KCB SIMBA VILLAS ESTATE EMBAKASI PROJECT, NAIROBI COUNTY

CHRISTINE MARY AMBASA KUPEKA

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DECLARATION

This research project is my original work and has not been presented for any award in any other University.

SIGNED _____ DATE 11.05.2013

Christine Mary Ambasa Kupeka

L50/64167/2010

This research project has been submitted for examination with my approval as University Supervisor.

SIGNED _____ DATE 11.05.2013

Dr.GuantaiMboroki

Senior Lecturer

Department of Education Studies

University of Nairobi

DEDICATION

This Research Project is dedicated to my parents George Washington Ongalo and Miriam Khayetekhana, who taught me that the best kind of knowledge to have is that which is learned for its own sake. For having taught me that even the largest task can be accomplished if it's done one step at a time. It is also dedicated to my family more so my children Jose and Anguista who have been my constant source of inspiration. Without their love and support this project would not have been made possible.

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ABBREVIATIONS

GDP	-	Gross Domestic Product
GOK	-	Government of Kenya
HIV/AIDS	-	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
ICLEI	-	International Council for Local Environmental Initiatives
ILO	-	International Labour Organisation
IMF	-	International Monetary Fund
KCB	-	Kenya Commercial Bank
KIE	-	Kenya Institute of Education
MCs	-	Management Companies
NGOs	-	Non-governmental Organisations
PCE	-	Parliamentary Commissioner for the Environment in New Zealand
UK	-	United Kingdom
UN	-	United Nations
UNESCO	-	United Nations Educational Scientific and Cultural Organisations

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Sustainability of housing projects is arguably one of the most pressing concerns of our time. The United Nations Article 25 of 1948 on Human Rights considers adequate housing a human right. Despite government policy on property management that states that management and maintenance of buildings and related infrastructure are a measure of national wealth and capital formation, very little has been done to address the factors influencing sustainability of housing projects in Kenya. The purpose of the study was to establish the factors influencing sustainability of housing projects in Kenya. The study specifically sought to establish the influence of level of education of the community, socio-economic status and stakeholder involvement on sustainability of housing projects in KCB Simba Village Estate, Embakasi Project in Nairobi County Kenya. The research design was cross sectional descriptive survey. The target population was 252 house units in KCB Simba Villas Estate located in the Embakasi area of Nairobi. The subject of the study was drawn from all the 252 units (1 person per unit). As regards primary data, the researcher used questionnaires. Descriptive analysis was used to analyse the primary data of quantitative nature while thematic content analysis was used for the qualitative data. Additionally, Pearson Correlation tests were calculated to determine whether there is linear relationship and nature of such relationship between the factors under study and the sustainability of housing projects in Kenya. The study found that application of sustainable development structures, public awareness, knowledge sharing, user needs assessment and preoccupancy hands on education affected sustainability of housing projects to a great extent.The study revealed that housing cost affected sustainability of housing projects to a very great extent. Inclusive participation in monitoring, controlling, initiation or identification and execution also influenced sustainability of housing projects to a great extent. Technological skills and manpower training also affected sustainability of housing projects. The study concludes that affordability of houses affects sustainability of housing projects to a very great extent. Provision of labour and resources requirements and participation in planning affected sustainability of housing projects to a great extent.The study recommends focused development of policies aimed at benefiting the local people. Success should be measured in terms that are meaningful to local people and would address issues of equity, justice and sustainability. An increased capacity to build and apply systemic understanding of the nature of the systems we are trying to improve is needed. The institutional framework should be set to promote, enhance and encourage affordable housing provision. Estate management companies need to encourage social relationships among residents. The costs and benefits of participation must be balanced.

CHAPTER ONE

INTRODUCTION

1.1 Background Information

Housing has a central importance to quality of life with considerable economic, social, cultural and personal significance. Though a country's national prosperity is usually measured in economic terms, increasing wealth is of diminished value unless all can share its benefits and if the growing wealth is not used to redress growing social deficiencies, one of which is housing (Erguden, 2001). Housing plays a huge role in revitalizing economic growth in any country, with shelter being among key indicators of development (Ireri, 2010). The universal declaration of human rights gives one of the basic human rights as the right to a decent standard of living, central to which is the access to adequate housing (United Nations, The Human Rights - article25, 1948). Housing as a basic human right demands that urban dwellers should have access to decent housing, defined as one that provides a foundation for, rather than being a barrier to, good physical and mental health, personal development and the fulfilment of life objectives (Seed house, 1986).

Housing and other social services have become a priority in today's development programs, which are aimed at improving the quality of life and contributing towards the formation of a caring society (Maylor, 1999). The quality of housing and its social, economic and environmental performance is critically important to sustainable development. The lack of a system to ensure management and maintenance of housing projects may often bring about water, air and land pollutions thus affecting the natural environment health and quality of life.

A recent report on Sustainable Development in New Zealand (PCE 2002) argues strongly for a clear separation of environmentalism; which is seen as a movement against pollution, degradation and the serious loss of nature, sought to protect nature from the ravages of the economy and sustainable development. Sustainable development is about redesigning the economy and society more generally. To move in this direction requires a far greater understanding and integration across the social and natural sciences and a rethink of how we plan and develop the urban environment as a whole rather than as a series of disparate pieces. This raises with respect to sustainable housing the need to look

not only at the physical and emotional aspects of the house itself but also the relationship of the house to the neighbourhood and city. The mass housing programmes of the 1950s and 1960s were directed at dealing with such issues of increasing the ability of individuals to consume housing either through public renting or subsidies to facilitate owner occupation. However, the expansion of mass rental housing and speculatively built suburban owner occupied housing largely divorced people from participating in the production, maintenance and management of the housing and communities in which they lived. International debate is thus shifting attention back to emphasizing the benefits of involving householders in these aspects of their housing. As Daly (1996) has noted "self-help housing represents far more than shelter; it is an attempt to reclaim the commons and develop a sense of community, a sense of place, a place called home".

Our Common Future explores how sustainable development is not a fixed state of harmony but rather a process of change in which the exploitation of resources, the orientation of technological development, and institutional change are made consistent with future as well as present needs (Molles and Kelly, 2000). UNESCO report (2009) asserts that poverty is a major challenge making sustainable development elusive for many African countries and most countries on the continent do not fully benefit from the opportunities of globalisation. This has further exacerbated the continents marginalisation. Achieving sustainable development in Africa has had its constraints evident in situations including limited access to market opportunities and insufficient investment.

The term sustainable development is well known and widely used; there is no common understanding and approach for it. The perception of sustainability especially when it comes to what are the needs is regarded as important varies much by different nation and even different people with different point in time, economic, social and cultural backgrounds. The detail of what comprises sustainable development is very context – specific and therefore the same condition and practise cannot apply everywhere. This may have worked in the developed world but in the developing world and especially Africa, economic development has been paralysed by poverty, war and an exhausting debt burden which leaves the future generation with a mammoth debt repayment problem, and disempowers it to respond to its present and future needs (Zinkernagel, 2001).

Sustainable construction or housing has not received sufficient attention in Africa even though it is an important aspect of sustainable development. The critical issue surrounding construction activities of any kind in African countries is that construction systems have long been modeled on the experience of the developed world as argued by Taylor et al (1994). He contends that it has been assumed historically that norms and systems arising from a particular set of experiences in the developed world can be readily adopted by developing countries. He argues that this type of thinking typified the stage of economic growth, whereby the economic emergencies of nations were hypothesized to be consistently and universally similar, thus ignoring national circumstances, value systems or current priorities. This has been proved inappropriate where principles of the developed world have been applied in Africa without modification. The interpretation of the meaning and definition of sustainable development and construction is therefore revisited. Whether the general presupposition in practice is accomplished is questionable when applying the meaning in the African context given the diversity of problems facing Africa as a developing continent. It further questioned whether sustainable construction can stand alone without an understanding of the broader issues of development, there needs to be an understanding of the political, economic, social and developmental issues of a place, it is then that sustainable construction becomes an integral part of sustainable development. On a practical note the issues of conflict and war, and pandemics that have implications for sustainable construction, have become another angle of the debate around sustainability. This perhaps lends a different view to sustainable construction in Africa as a region of the world mostly affected by war, HIV/AIDS, malaria and pandemics (Irurah, 1999).

African governments' policies in areas of housing, economics, environment and spatial planning are viewed as factors influencing sustainable development and construction and in many cases having direct implications on the construction industry and related developmental. These policies are concerned with alleviation of poverty, employment creation, capacity building and quality of environment, but whether methods adopted to enact these policies enhance the objective of sustainable construction is debatable. This situation is compounded by the lending policies of the International Monetary Fund (IMF) and the World Bank, coupled with structural adjustment policies, which have had considerable impact on the construction industry. The policies advocate for reduction in public spending and restructuring of the public sector and privatisation of assets. The

process has created unemployment in certain sectors with the construction sector, among other sectors, needing to absorb some of this labour force. There has also been a shift in some countries from construction to maintenance of buildings. Due to the fact that most projects focus on the economic angle, they tend to negate the aspect of quality of environment, preservation of green, water, etc. In addition, other pertinent issues include infrastructure and services provision, energy and water as constant requirements for the success of the construction sector. Despite the global environmental campaign and individual country legislation on environmental protection, few African countries have made remarkable strides in this regard. The dilemma is how to ensure that these areas receive adequate response in the region. The issues raised call for sustainable construction that responds to the complexities and diversities of context within the region while embracing broader developmental concerns (Adebayo, 2000).

Kenya has experienced a rapid urbanization. Kenya's urban population increased from 0.75 million in 1962 to 9.90 million in 1999 representing an increase in 1,220%. The growth in the number of the dwelling units was not adequate to accommodate the increased population. The problem of housing led to overcrowding and development of substandard human settlements such as slums and squatter settlements. The squatter settlements are characterized by insecure land tenure because most of them are developed on government land or privately owned land. Due to insecure land tenure, no concerted efforts have been undertaken by the stakeholders i.e. the tenants, the land owners or the authorities to improve the housing environment. The settlements have only been growing in size and in numbers. On one hand are the land owners (private or public) who do not have the capacity or the political will to develop the informal settlements and on the other hand are the structure owners or tenants who are not willing to invest in housing improvement because of tenure insecurity. As is the case for Mathare 4 and Kibera slum upgrade projects, where the beneficiary was expected to pay more than the initial rent for upkeep and maintenance of the new dwellings yet they were not involved in the initial discussions to determine the affordable cost to be paid by each tenant (GOK,2001). Management and maintenance of buildings and related infrastructure are a measure of national wealth and capital formation is regarded as an afterthought activity and it is a neglected field of technology and practise. Consequently to this, maintenance works are carried out in an ad hoc manner with few or no records being kept, low budgetary allocation and prioritization. Maintenance is work undertaken

in order to keep or restore every part or the building and associated infrastructure to an acceptable standard and to sustain its value (GOK National Building Maintenance Policy, 2004). In order to be sustainable, housing initiatives must be economically viable, socially acceptable, technically feasible and environmentally compatible (Choguill, 2007). Housing encompasses the immediate environment, sanitation, drainage, recreational facilities, and all other economic and social activities that make life worthwhile (Olejado, 2003).

The sustainability notion is increasingly being linked to systems thinking whereby sustainability is understood to be a framework for managing change. A system is a whole whose elements interact as they continually affect each other over time and operate towards a common purpose (Senge et al., 1994); thus systems thinking encourages thinking about cause and effect and inter-relationships between elements. Whilst this holistic approach to measuring sustainability is valuable, recognizing that sustainability is not determined by single components. Systems theorists are still struggling to suggest a methodology for linking cause and effect in complex systems, to adequately analyze direct, indirect and flow-on effects of any one action and to deal with multiple, tiered temporal and spatial scales.

Donors are vehicles through which projects are introduced in developing countries, creating dependency of governments on them, for technical and managerial expertise. Most of the benefitting countries are characterised by poor infrastructure, lack of skilled and experienced human resources. Donor support is required but paradoxically also creates a situation of unsuitability, transfer of knowledge is also lacking and the funded structures are not built to sustain the projects after funding has ended. The risk of failure of donor supported projects is very high making sustainability a challenging task (Mursu et al, 2000).

1.2 Statement of the Problem

Kenya's economic revival has seen construction and real estate sector grow very rapidly and the sector is projected to grow annually by 16.7 percent on average. It’s GDP rising from 2.3 percent in 2002 to 4.2 percent in 2007, according to the Economic Recovery Strategy for Employment and Wealth Creation government report (2009). The government through the National Housing Corporation aims to continue developing

modalities of housing finance, as well as provide the legal framework to promote further housing development. Over the last 20 years, Kenya's urban housing has found itself in a state of disrepair, which has had the knock-on effect of creating informal settlements.

Previous studies on housing projects have been conducted by Mungai (2011) who looked at the challenges of housing development and sustainability for the low income market and identified challenges such as the complicated land acquisition process, high transaction costs relative to the level of income, outdated planning and building regulations and the lack of stakeholder involvement. Okonkwo (1998) also undertook a study on bottlenecks, recent developments and the way forward in housing finance and housing delivery systems in Kenya and identified level of income and stakeholder involvement as the main determinants. Owuor's (2007) study on integrating African indigenous knowledge in Kenya's formal education system as a potential for sustainable development indicated that solutions to problems that currently plague the Kenya housing must proceed from understanding of local capacities such as the role of indigenous knowledge in promoting sustainable development. Hone of the previous local studies has looked into the factors influencing sustainability of Simba Villas Estate despite the many challenges facing it.

This research seeks to find out the reason why despite government policy on property management that states that management and maintenance of buildings and related infrastructure are a measure of national wealth and capital formation, very little is being done to address the factors influencing sustainability of housing projects in Kenya.

1.3 Purpose of Study

This study was to establish the factors influencing sustainability of housing projects in Kenya.

1.4 Research Objectives

The study sought to achieve the following objectives:

1. To determine the level of education of the community and its influence on sustainability of housing projects in KCB Simba Villas Estate, Embakasi Project in Nairobi County Kenya.

2. To examine the influence of socio-economic status on sustainability of housing projects in KCB Simba Village Estate, Embakasi Project in Nairobi County Kenya.
3. To examine the influence of stakeholder involvement on sustainability of housing projects in KCB Simba Village Estate, Embakasi Project in Nairobi County Kenya.

1.5 Research Questions

The research aimed to answer the following key questions;

1. What is the influence of a community's level of education on sustainability of housing projects in KCB Simba Village Estate, Embakasi Project in Nairobi County Kenya?
2. How does socio-economic status influence sustainability of housing projects in KCB Simba Village Estate, Embakasi Project in Nairobi County Kenya?
3. To what extent does stakeholder involvement influence sustainability of housing projects in KCB Simba Village Estate, Embakasi Project in Nairobi County Kenya?

1.6 Significance of the study

The study would be important to the town planners in that it points on the gap in cooperation between the different stakeholders and the beneficiary community. This study brought out what best practices are in place, the gaps being experienced and the stakeholders expected roles.

The study would also be invaluable to the different dockets of the government especially the Ministry of Housing as it will help it in coming up with policies and guidelines related to housing. As a result the stakeholders and community plus researchers would come up with policies and guidelines aimed at promoting proper management and maintenance of housing estates to avoid reducing on the quality. The study would give a framework which would guide different communities to acquire skills and knowledge on their role in management and sustainability of projects.

It would also enlighten the benefitting communities that they are stakeholders in the whole process of sustainable housing project management. The study would also inform

the management of the poverty eradication programs on the likely challenges they might encounter in bridging the gap in housing among the community.

The study will also be invaluable to the implementation of the Social Pillar of vision 2030 blueprint on housing and urbanization as an adequately and decently housed nation is sustainable in an all-inclusive environment by pointing on areas to look on in enhancing the sustainability of housing projects in the country.

1.7 Delimitations of the Study

The study focused on the factors influencing sustainability of housing projects in Kenya. The study will be conducted at Simba Villas Estate which is a KCB Staff Pension Fund Project located in Embakasi, Nairobi county. The project was started in February 2006 at Ksh. 770 Million. The Project involved development of 60 Maisonettes, 192 Apartments (24 blocks of apartments each comprising 8 apartments) and a commercial centre (gym, aerobics, sauna and swimming pool).

1.8 Limitations of the study

As the research time was not sufficient enough to cover a larger population, the study was limited to the residence of Simba villas Estate in Embakasi. Due to the composition of the study site the results generated reflected a larger population. The researcher will cover the research costs from own funds.

1.9 Assumptions of the study

- Data managed by the management offices of the housing projects on study was accessible as prior authorization would be sought.
- It is assumed that the respondents answered honestly as anonymity and confidentiality was preserved and that the participants are volunteers who may withdraw from the study at any time and with no ramifications.

1.10 Definition of significant terms

Sustainability means creating an economic system that provides for quality of life while renewing the environment and its resources. It also means taking the long-term view of

how our actions affect future generations and making sure we don't deplete resources or cause pollution at rates faster than the earth is able to renew them.

Sustainable development in this study is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Housing in this study means adequate living conditions as well as affordability.

Sustainable housing in this case refers to the management and maintenance of the housing properties to its original state while considering efficiency and good use of the natural resources, and ensuring that the natural resources are renewable and sustainable.

Sustainable construction in this study has been used interchangeably with sustainable housing.

Donors in this study are financiers of housing projects such as the government, banks and private companies as well as individuals who self-finance from their own resources.

1.11 Organisation of the Study

Chapter one has presented the introduction, statement of the problem, research questions, significance of the study, definition of terms, and limitations of the study. Chapter two contains the review of related literature and research related to the problem being investigated, theoretical underpinnings, and the role of education and sustainability of housing projects, the impact of level of income on sustainability of housing projects, stakeholder involvement in sustainability of housing projects. The methodology and procedures used to gather data for the study are presented in Chapter three. The result of analyses and findings to emerge from the study was contained in Chapter four. Chapter five contained a summary of the study and findings, conclusions drawn from the findings, a discussion, and recommendations for further study.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter provides a focused review of theoretical and empirical discussions on factors influencing sustainability of housing projects and sustainable housing management and the relationship existing between the two concepts. Relevant empirical studies on sustainable development and sustainability of housing projects were analysed and research gaps identified.

2.2 Theoretical Underpinnings

Chiu (2006) carried out a study on socio-cultural sustainability of housing. She investigated the concepts of social and cultural sustainability and situates them within the housing context. She argues that they converge where the use of environmental resources for and ecological impacts of housing activities are influenced and determined by socio-cultural factors. She concludes that the sustainability development perspective offers an integrative approach to housing enquiries.

The International Council for Local Environmental Initiatives-ICLEI (1996) on its part defines sustainable development as development that delivers basic environmental, social and economic services to all residences of a community without threatening the viability of natural, built and social systems upon which the delivery of those systems depends on government policy implementation in areas such as housing and other social amenities.

The Amsterdam Treaty's (1997) definition of sustainable development may meet favour within the African region because it embraces the concept of integrated development within a contextual realm. This definition sees sustainable development as determined to promote economic and social progress for their peoples, taking into account the principle of sustainable development and within the context of the accomplishment of the internal market and of reinforced cohesion and environment protection, and to implement policies ensuring that advances in economic integration are accompanied by parallel progress in other fields. Sustainable construction then becomes the vehicle through which the construction industry responds to achieve sustainable development as part of

an integrated whole. Sustainable construction is then driven from the development realm in which it is situated.

2.3 The Role of Education on Sustainability of Housing Projects

Okolie (2003) study on producing knowledge for sustainable development in Africa examines how higher education is implicated in the process by which development knowledge are generated and become dominant in Africa as well as its consequences. He argues that higher education in Africa should be rethought and restructured to better reflect the actual lived experiences of the vast majority of Africans. He concludes that higher education has played a central, though not exclusive, role in centring and universalizing Eurocentric knowledge and ways of knowing, and marginalizing or delegitimizing others, including traditional African ones. This, coupled with economic and strategic interests of dominant groups in the advanced capitalist countries (and Africa), has largely shaped development policies and programs in Africa. The local peoples themselves should be the focus, and success should be measured in terms that are meaningful to them and would address issues of equity, justice and sustainability. They need to recover the capacity to shape their own destiny and the patterns of resource use they wish to pursue. His study focus has mainly been on higher education rather than education that is inclusive of all in the community.

Alam (2009) examined the role of science and technology education at network age population for sustainable development of Bangladesh through human resource advancement, states that education is supposed to play a vital role for the development of a nation. The countries that achieved sustainable development had given a high priority to science and technology education in formulating education policy. In his study he has defined a ‘network age population’ for Bangladesh and also suggests that this population is required to provide science and technology based education with some revision of education policy in order to ensure sustainable development. In his study he has not recognised that a higher population could also be a challenge to resource management.

Owuor (2007) study on integrating African indigenous knowledge in Kenya’s formal education system as a potential for sustainable development examines current paradigm shift toward promoting education for sustainable development gravitates toward alternative approaches to school curricula in Sub-Saharan Africa. She argues that

solutions to problems that currently plague the continent and with reference to the Kenyan context must proceed from understanding of local capacities such as the role of indigenous knowledge in promoting sustainable development. She explores the meaning of indigenous knowledge, provides rationale for valuing indigenous knowledge in formal school system, examines the government's efforts to indigenise curricula, and dilemmas to integrating indigenous knowledge in formal education with implications to teacher education programs. She concludes that understanding of the Kenyan ethnic communities past and present indigenous practices provides positive perspectives about groups sustainable economic and social responsibilities. This forms part of the approaches to sustainable development by inculcating values that promote communal solidarity in order to protect the environment, natural resources, and address current prevailing social issues inflicting communities. In her study she does not provide for what is next after understanding the ethnic communities past and present how do we marry all communities and put our differences aside to ensure sustainable development for all.

Claudia (2000) study on sustainable development education more so averting or mitigating cultural collision explores the role educational institutions play in fostering sustainable development, a framework based on the integration of the economic, social, and environmental dimensions. She argues that sustainable development, a culture sensitive model, lends itself to reconciling competing cultures in a contemporary context driven by global demands for competition and consumerism on one extreme, while the other focuses almost exclusively on strict environmental protection. She suggests that educating for a sustainable future requires inclusion of six features: an interdisciplinary approach; teacher-training, pre- and in-service; curricula based on the three pillars of sustainable development; social and environmental justice; meaningful political participation; and respect for local and indigenous cultures.

Soderquist and Overakker (2010) study on education for sustainable development examines systems thinking approach. They discovered that the challenges of sustainability are adaptive challenges and require the development of more effective mental models that support a transition to sustainability. They argue that what is needed is an increased capacity to build and apply systemic understanding of the nature of the systems we are trying to improve. They conclude that more coordinated efforts to build

systems thinking capacity be integrated into firmly established, inter-connected regional initiatives to increase the effectiveness of those initiatives and to spread more quickly through the social fabric.

The above five studies have failed to bring out the connection between a communities education and sustainability of projects not only housing, as well as practicality of the education offered in this relation and particularly in the Kenyan context. My study seeks to consider an inclusive education that meets the realities of the projects today and in modern day Kenya.

2.4 The Influence of Socio-Economic Status on Sustainability of Housing Projects

Aribigbola (2011) undertook a study on housing affordability as a factor in the creation of sustainable environment in developing world. He examined the growing problems of housing affordability in cities of developing world using Akure in Nigeria as a case study, with a view to ascertaining the extent of the problem as well as the challenges it poses to creating sustainable built environment. His findings of the study revealed the problems associated with urban housing in the area of which affordability is a major one. He argues that this poses a great challenge to sustainable development of the built environment. Thus, he suggests that the institutional framework to promote, enhance and encourage affordable housing provision should be created in the city. However he fails to indicate how this framework will be set up in order to benefit the communities in terms of management and maintenance of the build environment.

Ariff and Davies (2011) undertook a study on multi-owner low-cost housing management in Malaysia and the effects of owner-occupant characteristics and occupancy rates. They examined factors that could reduce conflict among the stakeholders in multi-owner low-cost housing in Malaysia. They explored hypotheses on whether the demographic and socio-economic characteristics of owner-occupants and occupancy rates affect owner-occupants' satisfaction with stakeholders' relationships. Theyalso examined the significant effect of occupancy rates. They suggested that Management Companies (MCs) should encourage social relationships among residents. To avoid conflict, the costs and benefits of participation must be balanced. Policy makers should take two key aspects seriously: owner-managed strategy practices by the MCs and high rates of tenant-residents. A mechanism should be identified for assisting the

MCs in housing management and for protecting the benefits of homeownership for owner-occupants. Their study did not indicate the formation of the management company and in its encouragement of social relationships among residents, and the acceptable relations within the housing estates.

Huchzermeyer (2001) study on housing for the poor and negotiated housing policy in South Africa examines the contradictions in the policy between housing procedure and delivery target and finds that they have limited its relevance to the poorest sector in society. She explores how these tensions between product and process are an outcome of negotiated policy-making, in which the attempt was to combine the dominant position of the private sector for the commodification of housing, with people-centred housing procedures advocated by the democratic movement. She traces shifts and continuities in recent positions on housing in South Africa, their emergence from within the democratic movement including labour and community or civic organisation, the more recent Homeless People's Federation/People's Dialogue alliance, and the private sector with its influential Urban Foundation and subsequent policy research institutes. She argues that shifts in housing finance have largely ignored the needs of the poorest sector in society. Further, the inadequately integrated location of subsidised development for the poorest remains unchallenged. The perception of local government merely as implementer in a centralised programme limits the ability to address local realities, also imposing bureaucratic constraints on community-based construction. She concludes that an evasive discourse on squatting does not lend itself to the formulation of mechanism of intervention oriented around the needs of the poor. These limitations in addressing poverty through housing policy should inform future research on shelter in South Africa. In her study she brings out the dangers of policies that are not clearly thought out and inclusive of all communities, an important factor to consider when carrying out the intended research.

Shriberg (1999) study on development of sustainability management provides a framework upon which to base management for ecological sustainability in the University of Michigan’s Housing Division. He examines mechanisms for organizational alignment with sustainability by assessing leading edge sustainable practices and their applicability, describing housing’s current environmental status, suggesting sustainability visions, recommending initiatives to move housing toward sustainability,

and proposing indicators to measure progress. He describes three reasons for organizational alignment with sustainability: morality and intergenerational equity, survival, and organizational benefits and risks. He recommends modifying housing's current mission and goals statements to support sustainability as well as creating a free-standing sustainability mission statement. He concludes that sustainability management must be holistic, systemic and integrative. Implementation of management for sustainability in Housing will require time, effort and commitment. The researcher has clearly put important considerations when implementing management for sustainability in housing that the researcher seeks to consider in the proposed research in sustainability of housing projects in the Kenyan context.

Past studies on low-income household settlements examined public housing or low-income homeowners of single detached dwellings. This study adds to the existing body of knowledge by examining not only low-income homeowners in multi-owner low-cost settlements, but also affordability for all housing occupants and their effect on the sustainability of housing projects.

2.5 Stakeholder Involvement and Sustainability of Housing Projects

Reed (2008) in his study on Stakeholder participation for environmental management outlines that the complex and dynamic nature of environmental problems requires flexible and transparent decision-making that embraces a diversity of knowledge and values. He reviews the development of participatory approaches in different disciplinary and geographical contexts, and typologies that can be used to categorize and select participatory methods. He then examines evidence for normative and pragmatic benefits of participation, and evaluates limitations and drawbacks. He argues that stakeholder participation needs to be underpinned by a philosophy that emphasizes empowerment, equity, trust and learning. Where relevant, participation should be considered as early as possible and throughout the process, representing relevant stakeholders systematically. The process needs to have clear objectives from the outset, and should not overlook the need for highly skilled facilitation. He concludes that to overcome many of its limitations, stakeholder participation must be institutionalized, creating organizational cultures that can facilitate processes where goals are negotiated and outcomes are necessarily uncertain. His study brings out the importance of participation by stakeholders should be early into the projects but however fails to bring out the dangers

of instutionalisation that could lead of exclusion of some to some of the population for which he advocates, and this could have an adverse effect to sustainable development.

Kejia (2008) in his study on sustainable housing examines the housing sector in China as the world's biggest developing country with the largest population. Under the pressures from urbanization and the demand of economic development, the housing sector, both in terms of quantities and qualities, is in dramatic process of growth. He argues that unbalanced development, lack of holistic sustainable consideration, lack of corresponding supporting polices and high costs of environmental solutions are the main challenges for sustainable development in China's housing industry. Efforts need to be made with a focus on improving these aspects, which could further prompt sustainable housing. He concludes that the public's consciousness and living habit are the radical factors for sustainable housing. Chinese government could play a very important role on leading people to live in an environmental-friendly way. The study brings out the important role the government could play in sustainable environment; unfortunately he excludes all other stakeholders who also play a key role.

Jones, Keith, Kaluarachchi and Yamuna (2009) undertook a study on *s*takeholder engagement in sustainable housing refurbishment in the UK. They argue that *w*hilst much attention has been focused on new housing little effort had been focused on improving homes maintained and managed by the public sector in the UK, which given the low rate of new build and demolition, will represent approximately 70% of the public housing stock in 2050. Interpreting the sustainability agenda for an existing housing portfolio is not a straight foreword activity. In addition to finding a 'technical' solution, landlords also have to address the socio-economic issues that balance quality of expectations of tenants with the economic realities of funding social housing refurbishment. They explore the processes by which a large public landlord sought to develop a long-term sustainable housing strategy. Through a series of individual meetings and group workshops the research team identified: committed leadership; attitudes towards technology; social awareness; and collective understanding of the sustainability agenda as key issues that the organisation needed to address in developing a robust and defendable refurbishment strategy. They concluded that the challenges faced by the landlord in improving the sustainability of their existing stock are not primarily technical, but socio-economic. Further, while the economic challenges: initial

capital cost; lack of funding; and pay-back periods can be overcome, if the political will exists, by fiscal measures; the social challenges: health & wellbeing; poverty; security; space needs; behaviour change; education; and trust; are much more complex in nature and will require a coordinated approach from all the stakeholders involved in the wider community if they are to be effectively addressed. The key challenge to public housing landlords is to develop mechanisms that can identify and interpret the complex nature of the social sustainability agenda in a way that reflects local aspirations whilst addressing Government agendas. Their study acknowledges the importance of an inclusive management system and the value it brings to a community.

Jiboye (2011) in his study on achieving sustainable housing development in Nigeria examines the challenges of good governance through the application of appropriate developmental strategies that could enhance optimum utilization of existing resources for effective housing delivery. He highlights the need to stimulate a policy that will facilitate infrastructural development alongside housing delivery. In conclusion he advocates for renewed collaboration and commitment among stakeholders in housing and urban development in Nigeria. The researcher though brings out the importance of involvement of stakeholders fails to bring out the role stakeholders could undertake to ensure that the community is empowered on sustainable development and the role of each person.

This study adds to the existing body of knowledge by examining inclusion of all stakeholders in ensuring sustainability of housing projects in the Kenyan context.

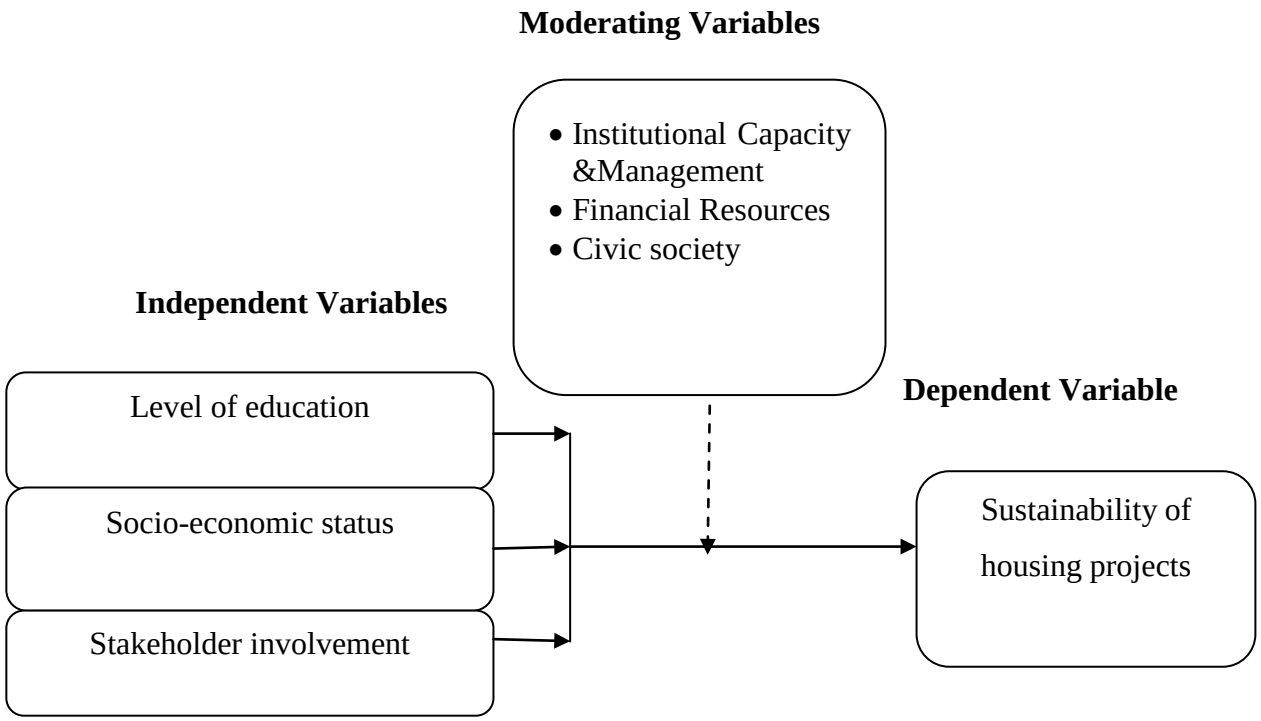
2.6 Conceptual Framework

Sustainable development was developed as a concept that could, provide new vision for national and international development, unify the disparate elements that make up the development community; ease the unbearable pressures on the planet's fragile ecosystems in rich and poor countries alike, lead to the formulation of new solutions recurrent socioeconomic needs of the world's least developing countries; foster significantly improved relationships between the governmental, business and civic society and ; provide greater assurance that contemporary approaches to development would not deprive future generations of their resources needed for their development.

Fostering positive human development in promoting a fair and just society is a part of the social aspect of sustainable development (Rozana, 2007).

In Kenya studies on sustainable development have been done, but revolving on policies and the need to involve different stakeholders. Explaining housing development and property management has so far not been conclusive as there are broader operational factors that need to be transposed into the housing context. A holistic perspective is needed to chart the future of housing development, and the paradigm of sustainable development for housing offers such possibility (Chui, 2003).To achieve this it's important to consider key factors such as the interaction taking place between the capacity of the human work force, public awareness, affordability and involvement of all the stakeholders with clearly defined roles to move the sustainability agenda forward. Neither the private market nor public housing providers have shown much interest in environmentally sustainable housing, because housing are driven by the marginal cost of construction and the question of affordability.

Figure 2.1: **Conceptual Framework**



CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out the research method that was followed in conducting the research. It involves a blueprint for the collection, measurement and analysis of data. This chapter is structured into; research design, target population, sampling design, data collection instruments, data collection procedures and data analysis.

3.2 Study Area

Embakasi is a residential and commercial suburb 15km east of the Central Business District. It borders Langata constituency and parts of Industrial Area to the south and is one of the few estates in Nairobi with a seeming never-ending construction boom, due to space availability. Private and government connected Real Estate Developers have pitched here. The Estate is surrounded by other older estates such as: Donholm, Nyayo, Umoja and Komarock. The study area houses low income and higher middle income residents. Purposively the study chose Embakasi as the study site/area since it has the largest number of upcoming gated housing projects. Specifically Kenya Commercial Bank Simba Villas Estate, located in the Embakasi area, was chosen.

3.3 Research Design

The research design was cross sectional descriptive survey. According to Cooper and Schindler (2003), a study design is descriptive when it is concerned with why and how a variable produces change in another, and cross sectional if it is done at only one point in time or over a short period, collecting of data pertaining to the variables in a population or sample is done at a point in time. This design was appropriate for the study to determine the existing sustainable development structures in housing projects within the specific cross-section (Embakasi) and generalized it about the larger population (Kenya).

3.4 Target Population

The study was carried out in Kenya at the KCB Simba Villas Estate located in the Embakasi area of Nairobi. The target population is 252 house units.

3.5 Sampling Design

In the sampling process, a sample design is carefully selected and used to obtain the sample from the population size. The subject of the study was drawn from all the 252units (1 person per unit). As such, the study was a census. According toMugenda and Mugenda (2003), census involves studying the whole population.

3.6 Research Instruments

This study gathered both secondary and primary data. As regards primary data, the researcher used the questionnaires. The questionnaire employed both open ended and closed questions. Trained assistants were used to collect data, therefore ruling out the possibility of errors and biases. The prepared questionnaires were distributed to each household.

3.7 Validity of Research Instrument

Content validity is a measure of the degree to which data collected using a particular instrument represents a specific domain or content of a particular concept. Expert opinion was requested to comment on the representativeness and suitability of questions and give suggestions of corrections to be made to the structure of the research tools. To establish the validity of the research instrument the researcher sought opinions of experts in the field of study especially the supervisor.

3.8 Reliability of Research Instrument

Reliability is increased by including many similar items on a measure, by testing a diverse sample of individuals and by using uniform testing procedures. The researcher selected a pilot group of 15 individuals from the target population to test the reliability of the research instruments. In order to test the reliability of the instruments, internal consistency techniques was applied using Cronbach's Alpha. The alpha value ranges between 0 and 1 with reliability increasing with the increase in value. Coefficient of 0.6-0.7 is a commonly accepted rule of thumb that indicates acceptable reliability and 0.8 or higher indicated good reliability (Mugenda, 2008). The pilot data was not to be included in the actual study.

3.9 Data Analysis

The data obtained from the structured questions in the questionnaire was coded, classified under different variables and entries made into Statistical Package for Social Science (SPSS version 17). Similarly, responses from unstructured questions on respondents' opinion were written in a separate sheet and organized in themes and thematic content analysis used to answer research questions. Descriptive analysis was used to analyze the primary data of quantitative nature (structured questions). Descriptive statistics such as frequencies and percentages and augmented with measures of central tendency (means) and dispersion (standard deviation) was used. Additionally, Pearson Correlations test was calculated to determine whether there is linear relationship and nature of such relationship between the factors understudy and the sustainabilityof housing projects in Kenya. These tests were conducted at 95% level of confidence (α=0.05).

3.10 Ethical Considerations

Consent to administer the data collection was sort from the management board of the estate under study. The research is on general issues therefore no approval was required from the ethical board to carry out the study. The collected data by means of questionnaires administered door to door ensured anonymity of respondents.

3.11 Operational Framework

Table 3.1: **Operationalization Table**

Objectives	**Type of Variables**	**Indicator**	**Measure**	**Measurement Scale**	**Type of Analysis**	**Tools of analysis**
To determine the level of education of the community and its influence on sustainability of housing projects	Independent	Level of education	Application of sustainable development structures User needs assessment and preoccupancy hands on education Public awareness knowledge sharing Technological	Ordinal Nominal	Parametric	Descriptive Correlation

			skills Manpower training			
To examine the influence of socio-economic status on sustainability of housing projects	Independent	Socio-economic status	Monthly revenue Access to Credit Business Opportunities Housing cost Form/frequency of income	Ordinal Nominal	Parametric	Descriptive Correlation
To examine the influence of stakeholder involvement on sustainability of housing projects in Kenya	Independent	Stakeholder involvement	Number of network meetings held Frequency of network meetings Participation in initiation identification Participation in planning Participation in execution Participation in monitoring and controlling Provision of labour and resources requirements	Ordinal Nominal	Parametric	Descriptive Correlation
	Dependent	Sustainability of housing projects	Physical condition Consumer satisfaction Operations and maintenance Sustainable development audits Corporate Social Responsibility (CSR)	Ordinal	Non - Parametric	Descriptive Correlation

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION & INTERPRETATION

4.1 Introduction

The main objective of the study was to establish the factors influencing sustainability of housing projects in Kenya, once completed and handed over to the beneficiaries also known as house owners. Qualitative data was analyzed through quantitative analysis. Graphs, pie charts and tables were used to present the data. The questionnaires were dropped and later picked at a later date to allow the respondents to fill the questionnaires at their own time. Once the respondents answered the questionnaires, data was then coded and analyzed using SPSS.

4.1.1 Response Rate

The study targeted 252 respondents in collecting data with regard to factors influencing sustainability of housing projects in Kenya. From the study, 200 respondents out of the 252 sample respondents filled-in and returned the questionnaires making a response rate of 79.4%. This reasonable response rate was achieved after the researcher made personal calls and physical visits to remind the respondent to fill-in and return the questionnaires.

4.1.2 Reliability analysis

Reliability of the questionnaire was evaluated through Cronbach's Alpha which measures the internal consistency. The Alpha measures internal consistency by establishing if certain items measure the same construct. Nunn ally (1978) established the Alpha value threshold at 0.6 which the study benchmarked against. Cronbach Alpha was established for every objective in order to determine if each scale (objective) would produce consistent results should the research be done later on. Table 4.1 shows that all the scales were significant, having an Alpha above the prescribed threshold of 0.6. Socio-economic status had an Alpha of 0.923, stakeholder involvement scale had an Alpha of 0.843, and level of education of the community had an Alpha of 0.801. When all scales were combined, the Cronbach's Alpha became 0.801.

Table 4.1: Reliability Analysis for the variables

Scale	Cronbach Alpha	Item
Socio-economic status	0.923	8
Stakeholder involvement	0.843	18
Level of education of the community	0.801	9
Average (All Scales)	**0.856**	**35**

4.2 Demographic information

This is the information describing the characteristic of the respondents.

The study sought the gender of the respondents.

Table 4.2: Gender of the respondents

	Frequency	Percentage
Male	90	45
Female	110	55
Total	**200**	**100**

According to the findings, 45% of the respondents were male while 55% were female. This implies that there were many female than men at KCB Simba Villas Estate.

It was important for the study to find out the age of the respondents.

Table 4.3: Age of the respondents

	Frequency	Percentage
22 - 25	31	15.5
26 - 30	12.2	6.1
31 - 40	84.8	42.4
41 - 50	60.6	30.3
51 - 60	12.2	6.1
Total	**200**	**100**

From the findings, 42.4% of the respondents were aged 31-40 years, 30.3% were aged 41-50 years, 15.2% were aged 22-25 years and 6.1% were aged 26-30 years and 51-60 years. This indicates that residents at KCB Simba Villas Estate were both young and old.

The study sought to find out the current occupation of the respondents.

Table 4. 4: Current occupationof the respondents

	Frequency	**Percentage**
Employed	110	55
Self-employed	60	30
A Student	30	15
Total	**200**	**100**

As illustrated in the table above, 55% of the respondents were employed, 30% were self-employed and 15% were students.

It was important for the study to find out the educational level of the respondents.

Table 4.5: Educational levelof the respondents

	Frequency	**Percentage**
Masters	48.4	24.2
Undergraduate	133.4	66.7
High School Diploma	18.2	9.1
Total	**200**	**100**

From the findings, 66.7% of the respondents were undergraduates, 24.2% had masters and 9.1% had higher diploma. This implies that the residents at KCB Simba Villas Estate were well educated.

The study sought to find out the number of children that lived in the respondents' household.

Table 4.6: Number of children that lived in the respondents' household

	Number of Children			
Age	**Zero**	**One**	**Two**	**Four**
0-5 years	57.6	42.4	0	0
5 to 12 yrs old	66.7	27.3	0	6.1
13 – 17 yrs old	81.8	6.1	12.1	0
Over 17yrs	93.9	6.1	0	0

According to the findings, 42.1% of the respondents had one child aged 0-5 years, 27.3% had one child aged 5-12 years, 12.1% had two children aged 13-17 years and 6.1% had one child aged over 27 years. This implies that the residents had small households.

The study sought to find out the category that best represented the respondents' annual household income

Table 4.7: Category that best represented the respondents' annual household income

	Frequency	**Percentage**
20, 000 - 39999	12	6.1
40,000 – 59,999	12	6.1
60,000 – 79,999	24	12.1
80,000 – 99,999	12	6.1
100,000 and over	139	69.7
Total	**200**	**100**

From the findings, 69.7% of the respondents indicated that their annual household income was 100,000 Kshs and above, 12.1% indicated that their annual household income was 60,000-79,999 Kshs and 6.1% of the respondents indicated that their annual household income was 20,000-39,999 Kshs, 40,000-59,999 Kshs and 80,000-99,999 Kshs.

The respondents were requested to indicate the type of ownership of the respondents' houses.

Table 4.8: Type of ownership

	Frequency	Percentage
Owner	60	30
Tenant	140	70
Total	**200**	**100**

From the findings, 70% of the respondents were tenants while 30% were owners. This implies that majority were tenants.

4.3 Sustainability of Housing Projects

Housing has a central importance to quality of life with considerable economic, social, cultural and personal significance. Housing plays a huge role in revitalizing economic growth in any country, with shelter being among key indicators of development. Housing as a basic human right demands that urban dwellers should have access to decent housing, defined as one that provides a foundation for, rather than being a barrier to, good physical and mental health, personal development and the fulfilment of life objectives.

4.3.1 Education of community and its influence on sustainability of housing projects

Higher education has played a central, though not exclusive, role in centring and universalizing Eurocentric knowledge and ways of knowing, and marginalizing or delegitimizing others, including traditional African ones.

The study sought to find out the extent that the level of educational factors influenced sustainability of housing projects in Kenya.

Table 4.9: Extent that the level of education influenced sustainability of housing projects in Kenya

	Mean	S.D
Application of sustainable development structures	4.15	0.76
User needs assessment and preoccupancy hands on education	3.76	0.97
Public awareness knowledge sharing	4.09	0.98
Technological skills	3.48	0.87
Manpower training	3.24	0.44

From the findings, the respondents indicated that application of sustainable development structures, public awareness knowledge sharing and user needs assessment and preoccupancy hands on education influenced sustainability of housing projects to a great extent as shown by a mean of 4.15, 4.09 and 3.76 respectively. In addition, the respondents indicated that technological skills and manpower training influenced sustainability of housing projects to moderate extent as shown by a mean of 3.48 and 3.24 respectively.

The study sought to find out the respondents' agreement level with statements related to education factors.

Table 4.10: Respondents' agreement level with statements related to education factors

	Mean	**S.D**
There is training of office bearers in sustainable development	2.64	0.78
The management and board keep a network between them and other similar /successful projects in the same field	3.88	4.76
The board considers sustainable development issues as a criteria when outsourcing services	2.82	0.73
The estate management organizes awareness day for the community	2.21	1.11

According to the findings, the respondents agreed that the management and board keep a network between them and other similar /successful projects in the same field as shown by a mean of 3.88. In addition, the respondents were neutral that the board considers sustainable development issues as criteria when outsourcing services and there is training of office bearers in sustainable development as shown by a mean of 2.82 and 2.64 respectively. More over the respondents disagreed that the estate management organizes awareness day for the community as shown by a mean of 2.21.

4.3.2 Impact of socio-economic status on sustainability of housing projects

There are three reasons for organizational alignment with sustainability: morality and intergenerational equity, survival, and organizational benefits and risks. Low-income

homeowners in multi-owner low-cost settlements and affordability for all housing occupants have an effect on the sustainability of housing projects.

The study sought to find out the extent of socio-economic status influencing sustainability of housing projects in Kenya.

Table 4.4: Extent that socio-economic status influences sustainability of housing projects in Kenya

	Mean	**S.D**
Monthly revenue	4.39	1.12
Access to Credit	4.33	0.96
Business Opportunities	4.21	1.14
Housing cost	4.58	0.87
Form/frequency of income	4.09	1.16

From the findings, the respondents indicated that housing cost influenced sustainability of housing projects to a very great extent as shown by a mean of 4.58. In addition, the respondents indicated that monthly revenue, access to credit, business opportunities and form/frequency of income influenced sustainability of housing projects to a great extent as shown by a mean of 4.39, 4.33, 4.21 and 4.09 respectively.

The study sought to find out therespondents' agreement level with statements related to influence of socio-economic status on sustainability of housing projects.

Table 4.5: Respondents' agreement level with statements related to influence of socio-economic status on sustainability of housing projects

	Mean	**S.D**
The housing cost meet my current needs	3.55	0.87
Am able to comfortably pay my mortgage or rent	4.82	0.04
Am able to comfortably pay up my service charge	3.91	1.13

According to the findings, the respondents strongly agreed that they were able to comfortably pay their mortgage or rent as shown by a mean of 4.82. The respondents

agreed that they were able to comfortably pay up their service charge and the housing cost met their current needs as shown by a mean of 3.91 and 3.55 respectively.

4.3.3 Stakeholder Involvement

Stakeholder participation for environmental management outlines that the complex and dynamic nature of environmental problems requires flexible and transparent decision making that embraces a diversity of knowledge and values.

The study sought to find out theextent that stakeholder involvement influenced sustainability of housing projects in Kenya.

Table 4.6: Extent that stakeholder involvement influenced sustainability of housing projects in Kenya

	Mean	S.D
Frequency of network meetings	2.94	1.20
Participation in initiation/identification	3.94	0.90
Participation in planning	3.61	0.93
Participation in execution	3.88	1.29
Participation in monitoring and controlling	4.18	0.73
Provision of labour and resources requirements	3.79	1.27

From the findings, the respondents indicated that participation in monitoring and controlling, participation in initiation/identification and participation in execution influenced sustainability of housing projects to a great extent as shown by a mean of 4.18, 3.94 and 3.88 respectively. In addition, the respondents agreed that provision of labour and resources requirements and participation in planning influenced sustainability of housing projects to a great extent as shown by a mean of 3.79 and 3.61 respectively. Moreover, frequency of network meetings influenced sustainability of housing projects to a moderate extent as shown by a mean of 2.94.

The study sought to find out the respondents' agreement level with statements related to stakeholder involvement.

Table 4.7: Respondents' agreement level with statements related to stakeholder involvement

	Mean	S.D
The board and management promote Sustainable development & environment practice to improve stakeholder relationships internally / externally	2.94	1.22
There are links or networks between the project leadership and stakeholders in order to deliver a Sustainable environment	2.94	0.90
There are review sessions done between management, the board and stakeholders	2.82	1.10
The reports are shared with all concerned as regards to any sustainable developments and future plans	2.58	1.09

According to the findings, the respondents were neutral that the board and management promote sustainable development & environment practice to improve stakeholder relationships internally/externally and there are links or networks between the project leadership and stakeholders in order to deliver a sustainable environment as shown by a mean of 2.94. In addition, the respondents were neutral that there are review sessions done between management, the board and stakeholders and the reports are shared with all concerned as regards to any sustainable developments and future plans as shown by a mean of 2.82 and 2.58 respectively.

4.3.4 Guidelines for sustainable project management

The study sought to find out thetrend of the aspects of sustainability in the estate for the last five years

Table 4.8: Trend of the aspects of sustainability in the estate for the last five years

	Mean	S.D
Physical condition	3.45	0.75
Consumer satisfaction	3.30	0.95
Operations and maintenance	3.03	0.85
Sustainability/ Sustainable Development policy or plan	3.06	0.90

Corporate Social Responsibility (CSR)	2.64	1.03
Environmental policy	3.33	1.02
Sustainable development audits (covering energy use/water/waste management/ recycling system)	2.94	0.75
Buildings with design construction and operation, demonstrating good practice to sustainable development	3.12	0.99

From the findings, the respondents indicated that the trend of physical condition, environmental policy, consumer satisfaction and buildings with design construction and operation, demonstrating good practice to sustainable development were constant as shown by a mean of 3.45, 3.33, 3.30 and 3.12 respectively. In addition, the respondents indicated that the trend of sustainability/ sustainable development policy or plan, operations and maintenance, sustainable development audits (covering energy use/water/waste management/ recycling system) and Corporate Social Responsibility (CSR) were constant as shown by a mean of 3.06, 3.03, 2.94 and 2.64 respectively.

4.4 Correlation

In order to establish the factors influencing sustainability of housing projects in Kenya, Pearson's correlation analysis was used. A correlation is a number between -1 and +1 that measures the degree of association between two variables. The correlation coefficient value (r) ranging from 0.10 to 0.29 is considered to be weak, from 0.30 to 0.49 is considered medium and from 0.50 to 1.0 is considered strong. A positive value for the correlation implies a positive association while a negative value for the correlation implies a negative or inverse association.

Table 4.9: Pearson Moment correlation of the Variables in the study

		Sustainability of housing projects	Stakeholder involvement	Level of education	Socio-economic status
Sustainability of housing projects	Pearson Correlation	**1**			
Stakeholder involvement	Sig. (2-tailed)				
	Pearson Correlation	.523	1		
Level of education	Sig. (2-tailed)	.0032			
	Pearson Correlation	.6140	.3341	1	
Socio-economic status	Sig. (2-tailed)	.0021	.0014		
	Pearson Correlation	.7460	.1320	.0521	1

According to the findings, it is clear that there was a positive correlation between sustainability of housing projects and stakeholder involvement as shown by a correlation figure of 0.053, it was also clear that there was a positive correlation between sustainability of housing projects and level of education with a correlation figure of 0.6140, it was also clear that there was also a positive correlation between sustainability of housing projects and socio-economic status with a correlation value of 0.7640. This shows that there was strong positive correlation between sustainability of housing projects and stakeholder involvement, level of education and socio-economic status.

This infers that socio-economic status has the highest influence on sustainability of housing projects, followed by level of education while stakeholder involvement had the lowest influence on sustainability of housing projects. This notwithstanding, all the variables had a significant p-value ($p<0.05$) at 95% confidence level. The significance values for relationship between sustainability of housing projects and stakeholder

involvement, level of education and socio-economic status were 0.0032, 0.0021 and 0.0043. All the findings are captured in Table 4.9.

CHAPTER FIVE

SUMMARY OF THE FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides the summary of the findings from chapter four, and it also gives the conclusions and recommendations of the study based on the objectives of the study. The objectives of this study were to investigate the factors influencing sustainability of housing projects in Kenya, once completed and handed over to the beneficiaries also known as house owners.

5.2 Summary of the Findings

The study aimed at investigating factors influencing sustainability of housing projects. It aimed at establishing how level of education of the community, socio-economic status and stakeholder involvement influences sustainability of housing projects.

The study found that application of sustainable development structures, public awareness knowledge sharing, user needs assessment and preoccupancy hands on education influenced sustainability of housing projects to a great extent. In addition, technological skills and manpower training influenced sustainability of housing projects to a moderate extent.The management and board kept a network between them and other similar /successful projects in the same field. In addition, the respondents were neutral that the board considers sustainable development issues as criteria when outsourcing services and there is training of office bearers in sustainable development.

The study revealed that housing cost affected sustainability of housing projects to a very great extent. In addition, monthly revenue, access to credit, business opportunities and form/frequency of income affected sustainability of housing projects.The residents at KCB Simba Villas Estate were able to comfortably pay their mortgage or rent. They were also able to comfortably pay up their service charge and the housing cost met their current needs.

The study also found that participation in monitoring and controlling, initiation/identification and in execution influenced sustainability of housing projects to

a great extent. In addition, provision of labour and resources requirements and participation in planning influenced sustainability of housing projects to a great extent.

5.3 Discussions of the findings

The study found that the trend of physical condition, environmental policy, consumer satisfaction and buildings with design construction and operation, demonstrating good practice to sustainable development were constant. In addition, the trend of sustainability/ sustainable development policy or plan, operations and maintenance, sustainable development audits (covering energy use/water/waste management/ recycling system) and Corporate Social Responsibility (CSR) were constant. There was unnoticed or no improvement at all on housing project management.

5.3.1 Education of community and its influence on sustainability of housing projects

The study established that application of sustainable development structures, public awareness knowledge sharing and user needs assessment and preoccupancy hands on education influenced sustainability of housing projects to a great extent. This study confirms that higher education has played a central, though not exclusive, role in centring and universalizing Eurocentric knowledge and ways of knowing, and marginalizing or delegitimizing others, including traditional African ones (Okolie, 2003). In addition, technological skills and manpower training influenced sustainability of housing projects to a moderate extent. This therefore confirms that the countries that achieved sustainable development had given a high priority to science and technology education in formulating education policy (Alam, 2009).

5.3.2 Impact of socio-economic status on sustainability of housing projects

The study revealed that housing cost influenced sustainability of housing projects to a very great extent. In addition, monthly revenue, access to credit, business opportunities and form/frequency of income also influenced sustainability of housing projects. This study therefore confirms that affordability of houses poses a great challenge to sustainable development of the built environment (Aribigbola, 2011).

5.3.3 Stakeholder Involvement

The study found that participation in monitoring and controlling, participation in initiation/identification and participation in execution influenced sustainability of housing projects to a great extent. In addition, provision of labour and resources requirements and participation in planning affected sustainability of housing projects to a great extent. Moreover, frequency of network meetings influenced sustainability of housing projects to a moderate extent.Stakeholder participation needs to be underpinned by a philosophy that emphasizes empowerment, equity, trust and learning (Reed, 2008).The board and management promote sustainable development & environment practice to improve stakeholder relationships internally/externally and there are links or networks between the project leadership and stakeholders in order to deliver a sustainable environment to some extent. This study confirms that unbalanced development, lack of holistic sustainable consideration, lack of corresponding supporting policies and high costs of environmental solutions are the main challenges for sustainable development in housing industry (Kejia, 2008).

5.4 Conclusion

The study concludes; that higher educationand public awareness knowledge sharinginfluenced sustainability of housing projects to a great extent. Technological skills and manpower training also influenced sustainability of housing projects.The board considers sustainable development issues as criteria when outsourcing services. The estate management did not organize awareness day for the community.Affordability of housesinfluences sustainability of housing projects to a very great extent. In addition, annual income influences sustainability of housing projects and the residents lived where they could comfortably afford depending on their income. Stakeholders'participation to a great extent also influenced sustainability of housing projects. Provision of labour and resources requirements and participation in planning influenced sustainability of housing projects to a great extent. Sustainability of housing projects had remained constant for the last five years in the estate.

5.5 Recommendations

The study recommends that development of policies to be the focus for the local people. Success should be measured in terms that are meaningful to local people and would

address issues of equity, justice and sustainability. They need to recover the capacity to shape their own destiny and the patterns of resource use they wish to pursue. The government should encourage the citizens to get higher education. Educating for a sustainable future requires inclusion of six features: an interdisciplinary approach; teacher-training, pre- and in-service; curricula based on the three pillars of sustainable development; social and environmental justice; meaningful political participation; and respect for local and indigenous cultures.

An increased capacity to build and apply systemic understanding of the nature of the systems we are trying to improve is needed. More coordinated efforts to build systems thinking capacity need to be integrated into firmly established, inter-connected regional initiatives to increase the effectiveness of those initiatives and to spread more quickly through the social fabric.

The institutional framework should be set to promote, enhance and encourage affordable housing provision in the counties. This framework should be set by the ministry of planning and housing. The institutional framework should have a manager who will have power to follow up on building and affordability of houses.

Management Companies should be formed in each estate. The companies need to encourage social relationships among residents. The costs and benefits of participation must be balanced. Policy makers should take two key aspects seriously: owner-managed strategy practices by the MCs and high rates of tenant-residents. A mechanism should be identified for assisting the MCs in housing management and for protecting the benefits of homeownership for owner-occupants.

The planning and housing ministry should modify their current mission and goals statements to support sustainability as well as creating a free-standing sustainability mission statement. A project on low-income household settlements should be put in place.

Stakeholder participation needs to be underpinned by a philosophy that emphasizes empowerment, equity, trust and learning. Where relevant, participation should be considered as early as possible and throughout the process, representing relevant stakeholders systematically. The process needs to have clear objectives from the outset, and should not overlook the need for highly skilled facilitation.Unbalanced development,

lack of holistic sustainable consideration, lack of corresponding supporting polices and high costs of environmental solutions are the main challenges for sustainable development. Thus efforts need to be made with a focus on improving these aspects, which could further prompt sustainable housing.

5.5 Suggestions for Further Research

The study focused on factors influencing sustainability of housing projects in Kenya thus a similar study should be carried out in other residential areas to find out if the same results will be obtained, and thus inform policy makers.

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APPENDICES

Appendix I: Introductory Letter

To Whom It May Concern,

Dear Sir/Madam,

RE: DATA COLLECTION

I am a student of Nairobi University pursuing a Master of Arts in Project Planning and Management. In partial fulfillment of the above course, I am required to undertake a research project on "Factors influencing Sustainability of Housing Projects in Kenya".

In view of the above, I am humbly requesting you to cooperate in answering the questionnaire attached herewith. Kindly read the accompanying instructions and respond to the questions appropriately. This will help in collecting the necessary data that will actualize the research project.

The information that you will provide will remain confidential and used exclusively for this research and not for any other purpose, whatsoever. Your response and cooperation in this matter will be highly appreciated. Thank you in advance.

Yours Faithfully,

Kupeka, Christine Mary Ambasa- L50/64167/2010

Appendix II: Questionnaire

As part of research on sustainable housing projects in Kenya, We wish to learn about your current activities on Sustainable Development and to understand the type and amount of support that your housing project is likely to require.

Please help us do this by completing this questionnaire and returning it to the research assistants or deliver at the main entrance gate to the estate. We would be very grateful if you would complete the questionnaire and return it to us during the same week it's issued.

Demographic Information

1) Are you male/ female?

Male	Female

2) What is your age?

18 - 21	22 - 25	26 - 30	31 - 40	41 - 50	51 - 60	61 or over

3) Current occupation?

Employed	Self-employed	A homemaker	A Student	Retired	Unable to work

4) Education completed

PHD	Masters	Undergraduate	Diploma	High School Diploma	Other (specify)

5) How many children live in your household?

0 - 5yrs old	5 to 12 yrs old	13 – 17 yrs old	Over 17yrs

6) What category best represents your annual household income (in KSHS)?

0 - 19,999	20, 000 - 39999	40,000 – 59,999	60,000 – 79,999	80,000 – 99,999	100,000 and over

7) What type of ownership?

Owner	Tenant

Education of community and sustainability of housing projects

8) To what extent do the following influence sustainability of housing projects in Kenya?

	Very great extent	Great extent	Moderate extent	Little extent	Not at all
Application of sustainable development structures					
User needs assessment and preoccupancy hands on education					
Public awareness knowledge sharing					
Technological skills					
Manpower training					

9) What is your level of agreement with the following statements?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
There is training of office bearers in sustainable development					
The management and board keep a network between them and other similar /successful projects in the same field					
The board considers sustainable development issues as a criteria when outsourcing services					
The estate management organises awareness day for the community					

10) **Impact of socio-economic status on sustainability of housing projects**

To what extent do the following influence sustainability of housing projects in Kenya?

	Very great extent	Great extent	Moderate extent	Little extent	Not at all
Monthly revenue					
Access to Credit					
Business Opportunities					
Housing cost					
Form/frequency of income					

11) What is your level of agreement with the following statements?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The housing cost meet my current needs					
Am able to comfortably pay my mortgage or rent					
Am able to comfortably pay up my service charge					

Stakeholder Involvement

12) To what extent do the following Influence sustainability of housing projects in Kenya?

	Very great extent	Great extent	Moderate extent	Little extent	Not at all
Frequency of network meetings					
Participation in initiation/identification					
Participation in planning					
Participation in execution					
Participation in monitoring and controlling					
Provision of labour and resources requirements					

13) What is your level of agreement with the following statements?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The board and management promote Sustainable development & environment practise to improve stakeholder relationships internally / externally					
There are links or networks between the project leadership and stakeholders in order to deliver a Sustainable environment					
There are review sessions done between management, the board and					

stakeholders					
The reports are shared with all concerned as regards to any sustainable developments and future plans					

Guidelines for sustainable project management

14) What is the trend of the following aspects of sustainability in your organisation for the last five years?

	Greatly Improved	Improved	Constant	Decreasing	Greatly decreased
Physical condition					
Consumer satisfaction					
Operations and maintenance					
Sustainability/ Sustainable Development policy or plan					
Corporate Social Responsibility (CSR)					
Environmental policy					
Sustainable development audits (covering energy use/water/waste management/ recycling system)					
Buildings with design construction and operation, demonstrating good practise to sustainable development					

Thank you for taking the time to complete this questionnaire. The answers you have given will be very useful in helping us to assess the current sustainable development practises within the housing projects.