



**ADOPTION OF ALTERNATIVE BUILDING
MATERIALS IN CONSTRUCTION OF
RESIDENTIAL PROPERTY IN KENYA**

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Now unto him that is able to do exceedingly and abundantly above all that we ask or think, according to the power that worketh in us, unto him be glory in the church by Christ Jesus throughout all ages, world without end. Amen.

Ephesians 3:20-21

DECLARATION

I Samuel Nyakundi Gekonge, i18015913, confirm that the work in this report is my own and the appropriate credit has been given where references have been made to the work of other researchers.

Signature



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ABSTRACT

Housing can be looked at as the provision of shelter and a place to live in. It is therefore necessary to have adequate shelter that is affordable and decent. Adequate shelter in this context refers to good quality rental and owner occupier housing units that can be affordable to the low-income families that are the main focus of this study.

The main objective of this study is to examine the determinants of affordable housing in Nairobi, Kenya. In this study, the population consisted of a total of 50 respondents who comprised of individuals who have already purchased an affordable house as well as those who wish to purchase an affordable house. Data collection was by means of a questionnaire, as well as interviews that were conducted. Primary data was used and coded and finally analysed using the descriptive statistics to describe each variable under study. Coefficient of variation was also used to analyse the variation of the data. The Microsoft Excel software used to present the data in tables.

The findings established that financial institutions prefer to give loans to individuals who are formally employed; however, majority of the population are in the informal employment. The results also established that a factor affecting affordability of housing in regard to interest rates was that majority of the borrowers would prefer to get a loan when the interest rates are low and stable, then it becomes much cheaper to purchase or build an affordable home.

The main conclusion provided that financial institutions had more preference on individuals who are formally employed as opposed to those who do not seem to earn a steady income. It was also noted that the tax incentives provided by the government would be more useful to developers who come up with huge affordable housing projects.

The study recommended that the tax incentives that have been provided for by the government be easily understood by all stakeholders, the tax benefits should also benefit both the large and small size developers.

It was also recommended that the financial institutions come up with systems that can be able to cater for those borrowers who are not in the formal employment. Lastly it was recommended that more research should be carried out on cheaper building materials that are effective and can be used to build houses; this would result in the eventual costs of building a house to reduce significantly. The study also suggests that future research could be done on the use of cheaper building materials on low-cost housing projects in Nairobi, Kenya. Low- cost housing is an area of interest in developing countries including Kenya.



Abbreviation

ABM – Alternative Building Material(s)

AH- Affordable house

BLR- Bank Lending Rate

CBK- Central Bank of Kenya

CGT- Capital Gains Tax

GDP- Gross Domestic Product

KSH- Kenya Shillings

ROK- Republic of Kenya

SACCO-Savings and Credit Cooperative Organization

SMEs- Small and medium enterprises

USD- US Dollar



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CHAPTER 1: INTRODUCTION

1.1 BACKGROUND OF STUDY

Low-cost housing looks at effective costing and use of techniques that can aide in reducing construction costs using building materials that are cheaper as well as use of improved technological skills without losing the power, performance and life of the structure that has been built.

There is a misconception that low-cost housing is only suitable for subnormal works and that they are built using cheap building materials that are of poor quality. One trust that holds true is that low-cost housing can be achieved by proper management of resources. The cost of reduction can be attained by selecting efficient materials or use of better and improved designs.

By using building materials that are low cost, there is an increased ability for individuals being able to build their own homes or residential buildings that they can rent out.

Some merits of using ABMs includes but not limited to the fact that there is promotion of non-pollutant products hence environment friendly, this could also mean that the products are biodegradable, the energy consumption is reduced while producing such products, there is longevity of building materials, lastly, the products are reusable. (jaigsnesh, dinesh and preetha, 2016)

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There are benefits of using low-cost building materials. This includes but not limited to promotion of non-pollutant products hence environment friendly, this could also mean that the products are biodegradable, the energy consumption is reduced while producing such products, there is longevity of building materials, lastly, the products are reusable. (jaigsnes, dinesh and preetha, 2016)

(Noppen, 2014) defines housing affordability as *the capability to bear the housing costs without acquiring severe consequences*. It is worth noting that this definition is subjective because it suggests that different individuals have different views on the aspect of affordability.

Construction of buildings is one of the top priority items in the budget of most individuals. Statistics show that an average household will devote about a quarter of their income to the housing expenditures while the poor and near poor households will devote approximately half of their income to housing. This statistic clearly shows that a small significant change in the prices of building materials can have a huge impact on the construction costs.

Access to affordable, durable and lasting building materials however can be limited to various factors such as lack of proper information to the investors or individuals who are building residential houses, stringent regulations in regard to construction, poor quality of building materials in the market and lack of technological advancements.

This study therefore seeks to find out whether there is a relationship between Alternative Building Materials and the selected factors namely the Government Policies, the Cost Implication of using ABMs and lastly the rate of longevity of the built structures. This is aimed at trying to come up with solutions that are in line with the challenges in construction, that hinders the low income earners and the middle class Kenyans from getting the houses they want.

Through this study the researcher shall be able to understand some of the main problems faced when it comes to constructing residential houses and the various steps that can be taken to ensure that housing is available to all individuals. It is worth noting that housing forms an important part of a nation's or City's fixed capital, with a buoyant housing market helping to fuel economic growth in other areas (Hall, 2004). This study will enable the researcher to understand reasons as to why it is important to use modern technology to come up with lasting building materials, the kind of Government Policies that can be put in place to enable us to achieve the goal of constructing residential houses at cheaper costs.

1.2 PROBLEM STATEMENT

Construction costs can generally be reduced by using efficient planning and management, low-cost building materials that are of good quality, technologies that are economical as well as the use of alternative construction methods therefore making it affordable to the low income groups of people. (jaigsnesh, dinesh and preetha, 2016)



Alternative building materials is defined as those materials that are economical, thus replacing the conventional building materials. Such materials can be made from waste products therefore minimizing pollution of the environment. (Alternate Building Materials Used in Construction - Constro Facilitator, 2020). Construction costs in Kenya are mostly influenced by numerous economic and technological variables. According to the Joint Building and Construction Council and the Institute of Quantity Surveyors of Kenya, they estimate that the average cost of construction in Kenya ranges from Kenya Shillings Thirty-Two Thousand per square metre (**KSH 32,000.00/m²**) for a standard private house in Nairobi to about Kenya Shillings Seventy Thousand per square metre (**KSH 70,000.00/m²**) for a luxurious high-rise office block. Narrowing it down to Nairobi, they estimate that a standard apartment would cost about Kenya Shillings Thirty-Two Thousand Five Hundred Shillings per square metre (**KSH 32,500.00/m²**). A standard Low Rise Apartment Block would cost Kenya Shillings Thirty-Six Thousand Four Hundred and Fifty per square metre (**KSH 36,450.00/m²**). (The Construction Costs Handbook 2020: Building Materials Prices in Kenya - Integrum, 2020)

Access to affordable construction costs in many countries have a positive impact on many individuals since the costs of housing are greatly reduced. Generally, the costs of building materials should always meet the needs of the local circumstances hence improving the standards of life of many people. (jaigsnes, dinesh and preetha, 2016). This study therefore seeks to find out whether there is a relationship between Alternative Building Materials (ABMs) and the selected factors namely technological advancements, government policies and cost implication in the construction of residential houses in Nairobi, Kenya. The purpose of this study is to come up with solutions that are in line with the housing challenge that affects the low-income earners mostly, as well as the middle class Kenyans.

The researcher begins by understanding what alternative buildings materials are. The rapid urbanization rate in Kenya has greatly increased the demand for shelter and has a ripple