Affordable Housing within the Context of Sustainability: Challenges and Prospects in Yola, Nigeria

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ABSTRACT

The issue of housing the urban populace especially the less privilege part of the society is one of the major challenges facing mankind in the twenty first century. Studies by various authors have shown that housing problem is worldwide however it is of greater scale in the developing countries around the world such as Nigeria. This is due to rapid, one-directional (rural - urban), unbalanced and unplanned urbanization. In an attempt to tackle the challenges associated with housing the less privilege of the societies in Nigeria, the public sector has introduced and implemented various affordable housing programs and policies with little success. Numerous researches on affordable housing have been undertaken across the nation. These studies have generally addressed economic sustainability implications of affordable housing (issues such as fiscal implication, housing finance, etc) with less emphasis on social and environmental dimensions of sustainability. However, if the challenges of affordable and sustainable housing in Nigeria are to be addressed, the analysis should be expanded to include all the three dimensions of sustainability: economy, environment, and social dimensions. Therefore this research is based on the analysis of different affordable housing schemes implemented by both governments at state and federal levels in Yola, examining the socio-economic and environmental impacts i.e. who have access to these housing schemes, how affordable they are, challenges associated with these types of housing schemes and provide possible solutions to the challenges identified by focusing on sustainability in affordable housing.

Using questionnaire survey and indicators developed from literature reviews on green buildings and affordable housing, this analysis evaluates four case studies in Yola. Results indicate that due to inadequate availability of housing inputs (land, finance, infrastructure, labor and materials), lack of diversity (in terms of housing types and socio-economic diversity of households), improper location, inefficient transport facilities and lack of user participation, the case studies are unsustainable hence unaffordable.

Keywords: urbanization, Affordable housing, Sustainability (sustainable development), Analysis, User survey, Yola (Nigeria).

ÖZ

Kent halkının, özellikle daha az ayrıcalıklı/ şanslı kesimin konuta kavuşturulması yirmibirinci yüzyılda insanoğlunun karşılaştığı en büyük sorunlardan biridir. Çeşitli araştırmacılar tarafından yapılan çalısmalar konut sorununun tüm dünyada yoğun olduğunu, ancak Nijerya gibi gelişmekte olan ülkelerde sorunun daha da büyük oldugunu ortaya koymuştur. Bunun nedeni hızlı, tek yönlü (kırdan kente), dengesiz ve plansız kentleşmedir. Nijerya'daki az ayrıcalıklı (düşük gelirli) kesimlere konut sağlanmasında karşı karşıya kalınan sorunları aşabilmek için benimsenen girişimde, kamu sektörü tarafından çeşitli konut programları ve politikaları ortaya konmuş ve uygulanmış, ancak önemli bir başarı elde edilememiştir. Ülkede ekonomik/erişilebilir konut program ve politikaları konusunda çok çeşitli araştırmalar yürütülmüş olsa da, bunlar genelde konutların ekonomik sürdürülebilirlik göstergelerine (örneğin "fiscal" göstergeler, konut fonları, vd) yoğunlaşmış, sürdürülebilirliğin sosyal ve çevresel boyutlarını ise gözardı etmiştir. Ne var ki, Nijerya'da ekonomik/erişilebilir ve sürdürülebilir konut söz konusu olduğunda, yapılacak analizler sürdürülebilirliğin üç boyutunu da kapsamak zorundadır: ekonomik, çevresel ve sosyal boyutlar. Bu nedenle, bu araştırmada Yola'da devlet ve eyelet düzeyinde gerçekleştirilen farklı ekonomik/erişilebilir konut kompleksleri analiz edilmiş, ve bunların sosyo-ekonomik ve çevresel etkileri irdelenmiştir.

Bu çalışma, kullanıcı anketleri ve yazılı kaynak arastırmasından elde edilen göstergeleri kullanarak, Yola'daki dört alan çalışmasına yoğunlaşmıştır. Elde edilen sonuçlar, söz konusu konut komplekslerinin sürdürülebilir olmadığını ve sadece

devletten sağlanan sübvansiyon bazında erişile- bilir ya da satın alınabilir olduğunu göstermiştir. İncelenen konut kompleksleri, yetersiz konut girdileri (arazi, finans, altyapı, işgücü ve malzeme), çeşitlilikten yoksunluk (konut tipleri ve hane halkı sosyo-ekonomik yapısı açısından), uygun olmayan konum, yetersiz ulaşım olanakları ve kullanıcı katılımının dışlanması nedeniyle sürdürülebilir ve ekonomik değildir.

Anahtar Kelimeler: Kentleşme, Ekonomik/ erişilebilir konut, Sürdürülebilirlik, analiz, anket çalışması, Yola (Nijerya).

To My Family

ACKNOWLEDGMENTS

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LIST OF ABBREVIATIONS

AHURI	Australian Housing and Research Institute
AIA	American Institute of Architects
FGN	Federal Government of Nigeria
FHA	Federal Housing Authority of Nigeria
FMH & UD	Federal Ministry of Housing and Urban Development
LEED	Leadership in Energy and Environmental Design
HUD	U.S Department of Housing and Urban Development
IMF	International Monetary Fund
N	Naira
NPC	Nigerian population commission
UN	United Nations
UNCHS	United Nations Center for Human Settlements
UNDES	United Nations Department of Economic and Social Affairs
UNECE	United Nations Economic Commission for Europe
UN-Habitat	United Nations Habitat
USGBC	United States Green Building Council
WCED	World Commission on Environment and Development
WHO	World Health Organization

Chapter 1

INTRODUCTION

1.1 Introduction and Problem Definition

Housing is one of the most basic needs of human beings. A house is literally defined as buildings or structures that provide cover from weather or protection against danger, a building in which people live, a dwelling etc (Encarta, 2007). Housing is an important sector of a nation's economy because a vigorous and buoyant housing sector is an indicator of a strong program of national investment and is the foundation and first step to future economic growth and social development (Joseph, 2006). As part of the environment, housing has an influence on the health, social behavior and the general welfare of a community. Due to its importance to the welfare, survival and health of individuals, concerns have been raised both internationally and nationally over the growing deteriorating housing conditions in urban areas of developing countries across the world. This issue was highlighted at the United Nations Habitat I Conference held in Vancouver in 1976, the International Year of Shelter for the Homeless in 1987 and at the Habitat II Conference held in Istanbul in 1996.

As a result of the publicity through governmental and non- governmental agencies such as the United Nations, attention has been paid in most developing countries by researchers, professionals, decision makers, etc to the housing problems (i.e. overcrowding, deteriorating environments, etc) and to the design of housing policies

to solve these problems. Hence housing policies such as affordable housing which is also called low cost housing or subsidized housing are being implemented across the globe. Despite this, housing shortages still persist in most parts of the world especially in developing countries among which is Nigeria. According to UN-HABITAT (2000), more than "one billion human beings still lack adequate shelter and are living in unacceptable conditions of poverty" (Habitat Agenda, paragraph 53). The majority of these people live in developing countries such as Nigeria, India, etc and as a result of the urbanization of poverty, an increasing number of these people live in urban areas. Informal houses/ urban squatter settlements comprise between 30-70 percent of the housing stock in many towns and cities in developing countries across the globe (Pugh, 2001).

Nigeria, a country with 36 states is the most populous country in Africa and the eighth most populous country in the world (Encarta, 2007). The Nigerian population commission in 2006 estimated the country's population at about 140 million and a growth rate of 2.38 percent (NPC, 2006). Like most of its counterparts in the developing countries, Nigeria has housing shortages, with a high percentage of its citizens living in poor quality housing and in unsanitary environments i.e. informal houses and slums. This problem of inadequate housing is a result of the rapid rates of urbanization and economic growth. This urbanization is as a result of rural-urban migration, which is caused by the lack of development, infrastructure (water, roads, telecommunication, electricity etc) and the poor economic conditions of the rural dwellers. The absence of these amenities leads to migration of rural dwellers into urban centers in Nigeria.

Research has shown that the population of Nigerians living in urban centers has increased rapidly over the years. While only 7% of Nigerians lived in urban centers in the 1930s, and 10% in 1950, by 1970, 1980 and 1990, 20%, 27% and 35% lived in the cities respectively (Okupe, 2002 cited in Olotuah, et al 2009). Over 40% of Nigerians now live in urban centers of various sizes. The movement of this population in urban centers has created severe housing problems, resulting in overcrowding in inadequate dwellings, high rents, low infrastructure services, deteriorating environment(figures 1a and 1b) , rise in urban insecurity and in a situation in which 60% of Nigerians can be said to be homeless (Federal Government of Nigeria, 2004). Federal Housing Authority's recent studies of the housing situation in Nigeria put existing housing stock at 23 per 1000 inhabitant. Housing deficit is put at 15 million houses while N12 trillion (80 billion US dollars) will be required to finance the deficit (FHA, 2007).

(a)   (b)

Figure 1: (a) and (b) Typical slum neighborhood in Nigeria

(Personal archive)

The city of Yola (fig 2) is the capital and administrative center of Adamawa State. It is a medium sized urban center with a population of about 395 thousand (NPC, 2006).
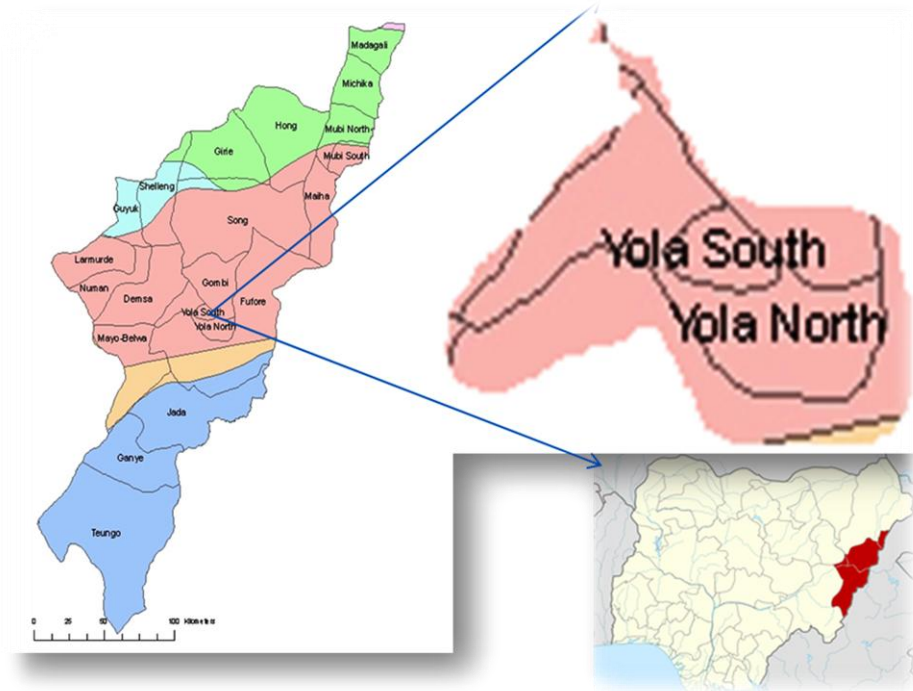
Figure 2: Map of Nigeria showing the location of Yola
(http://en.wikipedia.org/wiki/File:Nigeria_%28orthographic_projection%29.svg)

Like most urban cities in Nigeria, its population is increasing due to the rural- urban migration. Thus it is surrounded by vast neighborhood of poverty and informal houses. A study by Federal Ministry of Housing (FMH & UD, 2009) puts the deficit at approximately 17,500. Hence various housing schemes have been implemented by both governments at state and federal levels. Despite the implemented housing schemes, informal houses formation is on the increase in the city. This is because the schemes/ polices have failed in providing the less privilege people with sustainable affordable houses. Their end products are houses that are only affordable to few

Nigerians after huge subsidizes from governments. This is because the houses are not sustainable hence not affordable both in short and long term.

Numerous studies on affordable housing have been undertaken across Nigeria (Ajanlekoko, 2001; Ajenifujah et al., 2009; Ajibola, 2007; Olayiwola, 2005; etc). These studies have generally addressed economic sustainability implications of affordable housing (issues such as fiscal implication, housing finance, etc) with less emphasis on social and environmental dimensions of sustainability. In order to address the challenges of affordable and sustainable housing in Nigeria, the analysis should be expanded to include all the three dimensions of sustainability: economy, environment, and social dimensions. Therefore this research is based on the analysis of different affordable housing schemes implemented by both governments at state and federal levels in Yola, examining the socio-economic and environmental impacts i.e. who have access to these housing schemes, how affordable are they, challenges associated with these types of housing schemes, etc.

1.2 Research Questions, Aims and Objectives

The main questions this research intends to find answers are as follows:

a)   Can housing in Yola be both affordable and sustainable?

b)   Why are the affordable housing schemes implemented in Yola not sustainable hence not affordable to majority of people in Yola (i.e. low income earners)?

c)   How can sustainability help in providing affordable housing in Yola?

The aim of this research is to analyze the housing schemes implemented by both governments at state and federal levels in Yola in order to identify why they are not sustainable hence not affordable both in long and short term to majority of people

living in the city, to identify the advantages and disadvantages of these housing schemes and finally explore the principles of sustainability that can be used in providing affordable housing in Yola and Nigeria at large.

The objectives of this research are as follows:

a) To examine the concept and the reasons of affordable housing.

b) To determine the problems of implementing affordable housing schemes in Yola and Nigeria at large.

c) To examine the concept and the reasons of sustainable development.

d) To examine the relationships between sustainability and affordability in housing.

e) To explore how sustainability can solve affordable housing problems in the city of Yola.

1.3 Research Methodology

For the purpose of this research, both qualitative and quantitative data collection methods were used on the selected cases. Since governments (states and federal) are the main developers of affordable housing in Yola, the case areas namely Bekaji housing, State low cost housing, 80 units housing and 400 units housing estate are selected on that basis. For qualitative data collection, the case areas were analyzed in terms of density, compactness, housing diversity, diversity of use, access to public transportation, public spaces, housing dispersal and community development. Data was also collected through interviews with relevant government authorities. While for the quantitative data collection method, questionnaires were distributed to residents in order to examine their socio-economic levels (householders income, cost of rent, rooms occupied by respondent, conditions of housing units, etc).

Quantitative data collected were analyzed through SPSS while content analysis was used for qualitative data.

1.4 Limitations

Beyond limiting this study to affordable and sustainable housing hence the use of triple-bottom-line approach with equal and balanced consideration to social, economic and environmental concerns i.e. no attempt to prioritize one component of sustainability over another, some data related limitations were encountered during the research. This is due to limited documentation on affordable housing in Yola. However, questionnaire survey and site analysis were detailed enough to undertake the study as shown in the thesis.

Chapter 2

AFFORDABLE HOUSING

2.1 Introduction

The issue of housing the urban populace especially the less privilege part of the society is one of the major challenges facing mankind in the twenty first century. Though studies by various researchers have shown that housing problem is worldwide, however it is of greater scale in the developing countries around the world such as Nigeria. United Nations habitat agenda paragraph 53 noted over one billion are living in an unacceptable conditions of poverty and lacking adequate shelter most of whom are in the developing countries (UN-Habitat, 2000).

In an attempt to tackle the challenges associated with housing the less privilege of the societies, world leaders, decision makers, etc have introduced and implemented various housing programs and policies such affordable housing. This chapter discusses the essence of affordable housing, its evolution, its definitions, types and objectives of the scheme and policies implemented by governments in developed and developing countries.

2.2 Definition of Affordable Housing

The term affordable housing has various synonyms associated with it which differs from different countries. For example in France, it is known as "Habitation à Loyer Moderé" (low-rent housing); in Finland as "ARAVA dwellings" (subsidized-finance

housing); and in Spain as "vivienda de protección oficial" (social-interest housing, officially protected housing) (Donner, 2004 p.1).

Different authors (Andrews N. 1998; Chaplin R. and Freeman A. 1999; MacLennan D. and Williams R. 1990 etc) have tried developing working definitions for the term "affordable housing" but there is no generally applicable definition since the term is very broad and might mean different things to different people.

The term is used to refer housing for rental or purchase that is below the market price and is targeted at individuals with lower income ranges in a society. In this context, MacLennan and Williams (1990) stated; affordability is concerned with securing some given standards of housing at a price or rent which does not impose an unreasonable burden on household incomes. In broad terms, affordability is assessed by the relationship between household costs to a selected measure of household income.

Andrews (1998) definition of affordable housing is the most often cited in literature and used by most government programs and researchers. She defined the term affordable housing as "that which costs no more than 30 percent of the income of the occupant household". According to U.S Department of Housing and Urban Development (HUD)"Families who pay more than 30 percent of their income for housing are considered cost burdened and may have difficulty affording necessities such as food, clothing, transportation and medical care".

Housing Stress is mostly defined using the '30/40 split', whereby more than 30% of household income is spent on housing costs for the bottom 40% of household

incomes. Although this is commonly used in literature (Beer et al 2007; Disney 2007; Yates et al. 2007; Yates et al. 2008, etc), Pullen et al. 2009 highlighted that the figure is conservative.

The '30/40 Split' is conservative in two ways; firstly, by only considering the bottom 40% of income categories, there is a tendency to underestimate the extent of the issue; secondly, it does not consider those households who spend less than 30% of their income on housing costs (and thus are not experiencing housing stress) but still experience hardship due to factors such as house size and quality, location, access to employment and proximity to family and social networks (Yates et al.,2007 cited in Pullen et al. 2009).

2.3 Why Does Affordability Matter?

As earlier mentioned in the introduction, housing is one of the most basic needs of human beings. According to hierarchy of needs based on Maslow's theory, biological and physiological needs include; shelter, sleep etc. If these needs are not met, the human body cannot continue to function (Maslow, 1943).

Housing is also a fundamental human right. The Universal Declaration of Human Rights (1948), article 25 states; "Everyone has the right to a standard of living adequate for the health and   well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services,…….. ".

 Article 11 of the International Covenant on Economic, Social and Cultural Rights also recognized the right of all people to adequate housing. The article recognizes; ".... the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing..." (ICESCR, 1966)

Therefore how can parents, more often single parents with low income living in slums afford decent homes, send their children to schools and support their daily lively activities? How can children living in slums with no decent homes be motivated to study? How can children be protected from the influence of gangs and rapists? That is the reason why affordable housing matters. The ability of people i.e. low income earners to have the opportunity of decent homes which they can afford can help in solving some of the problems of associated with families in need.

In terms of a nation's economy, Yates and Berry (2004) noted that affordable housing potentially has an impact on a country's economic outcomes in a number of ways. In the first place, it can affect the macro economy. Secondly, lack of affordable housing may affect the efficiency with which labor markets operate either at national and regional level and thirdly, it has an impact on wealth distribution in the society and therefore can contribute to social and economic problems that flow from an inequitable distribution of resources. In other words, housing affordability affects the economy through its impact on stability, efficiency and equity.

Yates and Milligan (2007) studies on *"Risk as a motivation for concern over housing affordability"* in Housing Affordability: a 21st century problem also showed why housing affordability is important and should be a matter of concern. It focuses on the risks associated with the outcomes of poor housing affordability. Table 1 summarizes their assessment on some of the potential risks arising from possible future trends in relation to affordability outcomes.

Table 1: Affordable Housing Risk Assessment Matrix

Core group	Possible trend	Potential household risks	Societal and organizational risk
Trapped renters	Increase in rents ahead of increases in income.	Households move to remote locations to find cheaper housing, leading to increase in length of commuting – this generates extra pressures on household budgets and family wellbeing. Increases in homelessness and overcrowding. Arrears, eviction and high mobility rate resulting in inability to integrate into community, high transaction costs for those who can least afford it, non-shelter outcomes especially affect on children's schooling; financial pressures strain family relations.	Increasing greenhouse gas emissions. Increasing social polarization. High mobility rates in specific locations can affect sustainability of areas, and create potential for polarization between urban areas, reducing social cohesion.
Aspirant purchasers	Increase in rents ahead of increases in income and increase in house prices ahead of increases in incomes.	Inability to save and bridge deposit gap. Creates blocked aspirations and household stress.	Frustrated potential owners creates political problem. Weakens value of home ownership. Tension between purchasers and non-purchasers grows.
Stretched purchasers	Increase in house prices. Increase in interest rates.	Households move to more distant locations to find cheaper housing, leading to increase in length of commuting – this generates extra pressures on household budgets and family well being. Loss of homes for those with high levels of debt (but risks are balanced by very tenacious preferences for home ownership). Severe reductions in consumption for those who remain in their home. Reductions in disposable income affect family.	Increasing greenhouse gas emissions. Increasing social polarization. Public loss of confidence in housing market (prices fall) and in financial system.

Source: Yates & Milligan, 2007; pp 30-31.

2.4 History of Affordable Housing

To be able to understand the problems associated with today's affordable housing schemes, more needs to be known about how it evolved. This is because they are the results of many years of housing developments. The housing problems encountered today are the consequences of "housing development decisions made in the past and in different political and economic situations" (Golland & Blake, 2004, p.45).

Subsidies in housing emerged from western countries. As Bashir (2007) noted, United Kingdom, United States of America, western and eastern European countries are the areas where social housing emerged from. The history of affordable housing will be discussed under three main periods;

a) The Industrial Period

b) World Wars (1 and 2) Periods

c) Post- war and Modern Period

2.4.1 The Industrial Period

The 18th century industrial revolution, which started in Great Britain's rural areas where coal mining, iron making and canal building transformed the housing systems of that period. The revolution transformed Britain's economy from manual labor and animal based to a machine based manufacturing economy. This mechanization brought changes in the agricultural, mining, transportation and other sectors of the economy that had a profound effect on the socioeconomic and cultural lives of the people at that time. This is because before the revolution, goods were produced manually by individuals in homes. During the revolution, the goods were transferred from home to factories thus it affected what was produced and how it was produced. And also because of the mechanization of goods and services, there was an increase

in the demands for raw materials and manpower which led to rapid urbanization as a result of rural – urban migration (Alao, 2009; Bashir, 2007; Golland & Blake, 2004; Holmes, 2006 and Priemus, 2000).

According Holmes, cities such as England transformed from largely rural to urban societies. "Millions of people flocked to the cities when new factories were being built…" hence decent and affordable houses were needed to house the migrant workers and their families because "many lived in overcrowded tenements with no proper sanitation" (Holmes, 2006, p.1). Perhaps the descriptions of Andrew Mearns captured the conditions endured by the poorest families at that time:

> "Every room in these rotten and reeking tenements houses a family, often two. In one cellar a sanitary inspector reports finding a father, mother, three children and four pigs! In another room seven people are living in one underground kitchen and a little dead child lying in the same room…" (Holmes, 2006, p.2)

Due to the health hazard as a result of the poor sanitary conditions of these housing environments, initiatives to provide decent and affordable homes to the working class tenant was embarked by philanthropists, reformers and enlightened employers (Holmes, 2006). Industrialist such as Robert Owen, Titus Salt and others realized that production output could be improved by improving the living conditions of their employees. Therefore they relocated their factories from highly populated urban areas to urban fringe such as Bounville near Birmingham and used the lower cost of land to provide decent shelters with gardens to their employees. A notable example is the Cadbury's model village in Bounville which inspired Ebenzer Howard's concept of garden city (Golland & Blake, 2004).

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In summary, during this period two major housing schemes were used with the aim of providing decent and affordable housing to the less privileged working class. These are cooperatives/ associations and philanthropic housings. Housing associations such as Peabody Trust funded their schemes by loans from investors with the aim of demonstrating the financial viability of providing decent and affordable homes to low income families. However, both housing schemes were beyond the reach of these families only the better paid families were able to afford the rents (Holmes, 2006).

2.4.2 World Wars (1 and 2) Periods

The 1914-1918 First World War transformed the housing provision for the less privilege members of the society. As Golland, et al (2004; p. 23) stated, it "proved a major threshold in the dwelling design and provision". This is because after the war, most of the countries affected had to rebuild their infrastructure, provide housings to the displaced families and war veterans. In Britain for example, there was a political mood to provide decent homes for the war veterans. The Prime Minister at that time David Lloyd promised to provide "homes fit for heroes". A local government minister stated: "To let them (our heroes) come home from horrible, water logged trenches to something little better than a pigsty would indeed be criminal" (Holmes, 2006; p.7). Consequently, committees were set up and policies were implemented with the aim of providing affordable houses for those in need. This resulted to an increase in public sector participation in housing hence increase in housing provisions. Among such committees was the Tudor Walters committee which recommended that new houses should be built with higher space standards and their densities should not be more than 12 per acre i.e. 30 per hectare (Holmes, 2006). In America on the other hand, there was an increase in private sector participation in

housing provision though the authorities continued to support cooperative developments (Stone, 2003 cited in Bashir, 2007).

The Second World War (1939-1945) was another period which defined the provisions of affordable houses. This is because the period witnessed a virtual freeze in housing construction because resources were diverted to military purpose. In Britain, for six years new houses were not built and with in that period, half a million homes were destroyed by bombings and another half a million were damaged (Holmes, 2006). Hence houses were needed to accommodate families affected by the war. The shortages made the government search for alternatives which affordable houses could be built. According Oxley, et al (2004), policy maker, architects and planners saw the problem as an opportunity to provide much more innovations into housing development. This resulted into creation of high rise development to accommodate affected families.

The main difference between the world war periods and the industrial period is that during world war periods, the government accepted to promote and provide affordable houses to the low income working class (Oxley, et al 2004).

2.4.3 Post War and Modern Period

The previous section of this chapter discussed the process that brought about the development of High rise building as a means of providing shelter to those in need. The construction of such buildings i.e. High rise blocks of flats continued up to 1960's because the development was thought to encourage a sense of community and it uses less area of land. In other words it is an easy and quicker solution to house the fast growing urban populations (Hussain, 1991). Though according to Davis (1995; p.4), the high rise development has proved to be an "ill-advised strategy".

Affordable housing delivery during the post war period can be divided into two; the first part which is the period when quantity of output was the priority due to high shortages in housing stocks as a result of the World War 2 effects and the second period was when the quality of output was prioritize due to environmental and consumer needs. The first period was characterized by provisions of "greater space" within and outside and amenities such as lifts were available in the buildings. Whereas in the latter period, emphasis were on energy efficiency and quality of design (Blake, 2004).

Despite the early intervention in providing decent housing to the less privilege members of our societies, affordable housing in this modern period i.e. twenty first century is still a major challenge especially to the governments of developing countries where according to UN-HABITAT (2000) more than "one billion human beings still lack adequate shelter…" (Habitat Agenda, paragraph 53). Developed countries such as Great Britain and United States have gone through years of changes both positive and negative in affordable housing delivery reforms and policies in order to find the best solutions of housing the less privilege members of their societies. These countries are now concentrating on the qualities not quantities of affordable housing because the post world wars experience shows what happened when quality is sacrificed for quantity (Holmes, 2006).

The present environmental challenges such as global warming have made professionals and decision makers mostly in the developed countries search for solutions on not only how to produce qualitative affordable houses but in a sustainable way i.e. affordable houses using sustainable design principles. According to Global Green (2010), these houses are called "Green Affordable Housing". While

this affordable housing concept is still considered unachievable by some, the concept is used in various projects across the world. Projects such as; Solara houses located in California by Rodriguez Associates, 500 Hyacinth Place in Chicago by K2 studio and Wentworth Commons in Chicago by Harley Ellis have proved that it is possible to create a common ground between affordability and sustainability. The projects are designed using integrated design process which examines the interaction between design, construction, and operations to optimize the energy and environmental performance of the project. The strength of this process is that relevant issues are considered simultaneously in order to "solve for pattern" or solve many problems with one solution with the goals of developments that have the potential to heal damaged environments and become net producers of energy, clean water and air, and healthy human and biological communities (Global Green, 2010 and MacArthur Foundation, 2009). Affordability and sustainability will be discussed in further details in subsequent chapters.

While the developed countries have change their affordable housing strategies from quantities to green affordable housing, the developing countries such as Nigeria on the other hand are still concentrating on increasing the quantities regardless of qualities i.e. following similar process the developed countries passed through without ensuring that similar mistakes are not made. As Zulficar, (1990; p.1) stated: "… governments in the Third World have been content with improving the built environment by purely technical methods without particular regard to cultural and social factors". Their housing programs are not determined by real housing needs rather "by the meager financial resources at their disposal and by the productive capacity of their construction industries". Perhaps may be because they are faced challenges such as unprecedented urbanization, high unemployment, unfavorable

international economy and high levels of external debt. According to UNCHS (2006), such challenges have devastating impacts on development programs and strategies and on the political and social stability of such countries.

In summary, governments either in developed or developing countries have intervened and are still intervening in the provision of affordable housing due its importance. This is done either via subsidies to private developers, housing cooperatives or by the public sector itself.

2.5 Types of Affordable Housing

Affordable housing is classified based on ownership system i.e. rental or purchase ownership systems. A further classification can also be done under the ownership system based of providers of such housing schemes i.e. State authorities, non-profit housing cooperation, private organizations, charities, etc. The main types of affordable housing schemes are;

    a) Rent based affordable housing scheme

    b) Ownership based affordable housing scheme

2.5.1 Rent Based Affordable Housing

This type of housing scheme is mostly owned and managed by local authorities. In UK for example Social rented homes are owned and/or managed by a Registered Social Landlord RSL (or other body agreed by the Housing Corporation), and will be required by regulation or contract to meet the housing scheme criteria. The rents are set under a national rent regime, below market levels and are normally based on relative property values, local earning levels and property size (ODPM, 2006).

The main aim of rent based affordable housing is to provide a subsidized/ below market housing rate to the less privilege members of the society. As stated by Priemus H. (2000), social rented housing schemes are for low income groups and "rents are kept below market values; and their landlords are usually non-profit organizations" (p.13)

The main difference between this type of housing scheme and conventional rented scheme is the ownership system. In conventional schemes, the main aim of the owner is to maximize profit while in social rented housing the profits if made are used in providing more houses to help other eligible households or maintaining the existing housing stock (Priemus, 2000). UNECE (2004) listed factors distinguishing the two schemes as follows;

a) Public production support

b) Determination of rents (where cost price and rent pooling are often used)

c) Social criteria in the selection of tenants

d) Restriction on ownership of social housing

e) Specific legislation and authorities regulating the activities

f) Security of tenure

g) Tenant participation (UNECE, 2004 cited in Bashir, 2007)

2.5.2 Ownership Based Affordable Housing

In this type of housing scheme, the houses are sold at subsidized/ below market housing rate to the less privilege members of the society. Priemus H. (2000) has noted that social houses are sold to household occupants where payments were made in full or on the basis of lease hold system where payments are made periodically. Though the aim of this housing scheme is to enable the less privilege members of the society own their homes, ownership based affordable housing is more appealing to

high income earners. This is because the houses have to be on a mortgage system and the rate of mortgage is determined by the state of the economy (Priemus, 2000). Despite the disadvantages; mortgage and mostly limited to developed countries, ownership based housing schemes enables the occupants (i.e. after purchase) alter their homes according to personal needs, culture and socioeconomic backgrounds. Studies by researchers such as Watson, CG with Beazley, NM and Joiner, DA (1995) on Post Occupancy Evaluation have shown how home owners personalize their homes to make better buildings.

2.6 Objectives of Affordable Housing

Affordable housing operates within the context of a society and economy with the purpose of providing a standard of living for all households. Therefore such housing schemes are aimed at providing quality homes below market price for those members of the societies that can't access it at market price. In this section, its economic and social objectives are discussed in the context of labour market and social cohesion respectively. This is because affordable housing improves life opportunities related to family, education, employment etc.

2.6.1 Economic Objectives

As previously discussed in section 2.3, affordable housing impacts on a nation's economy are in terms of; macro economy, economic efficiency and wealth distribution (Yates, et al 2004). Therefore its economic objectives are aimed towards solving such problems.

High housing costs is reflected in rising wage levels which results in rising housing prices with in a region. Though according to Yates, et al (2007) such process is

unclear, but if pronounced, it can undercut the competitive advantage of companies operating in such regions hence affecting economic efficiency.

Disparity in housing affordability between areas inhibits migration to high employment, high cost areas while encouraging migration to low employment, low-cost areas. These affect the labour market because it encourages the migration of 'Key workers' to areas with low employments. Hence among the economic objectives of affordable housing is to ensure the supply of houses to such workers because they are essential to the supply of labour and to the functioning of the local economy (UN-Habitat, 2009 and Yates, et al 2004).

2.6.2 Social Objectives

The social objectives of affordable housing be it providing high quality homes for those in need, widening the opportunities for home ownership or promoting community development can be summarized into a phrase; social cohesion . Social cohesion is a process of developing a community of shared values, shared challenges and equal opportunity, based on a sense of trust, hope and reciprocity among the population (UNECE, 2006a). Durkheim defined social cohesion as the interdependence between the members of the society, shared loyalties and solidarity (UNECE, 2006b). According to Rosell (1995), social cohesion involves "building shared values and communities of interpretation, reducing disparities in wealth and income, and generally enabling people to have a sense that they are engaged in a common enterprise, facing shared challenges and that they are members of the same community" (Rosell et al. 1995).

Social cohesion is often associated with social exclusion. According to Dahrendorf et al. (1995) for example, social cohesion exists in societies which prevent social

exclusion: "social cohesion comes in to describe society which offers opportunities to all its members within a framework of accepted values and institutions. Such a society is therefore one of inclusion. People belong; they are not allowed to be excluded" (Dahrendorf et al. 1995; vii).

Therefore the failure to establish a political, economic, social and physical environment with adequate standard of living for all inhabitants in a community may contribute to higher societal costs, political instability, urban insecurity, ethnic conflicts, homelessness etc which according to Turok (2008) and UNECE (2006 a and b), such factors lead to social exclusion.

The social objective of affordable housing is to tackle social exclusion by providing decent quality homes, prevent social polarization by combating spatial segregation and also reduce disparities in wealth and income (UNECE, 2006b).

2.7 Affordable Housing Policies in Developing Countries

In recent decades, most developing countries have experienced a rapid rate of urbanization without the needed expansion in infrastructure. Lagos, Nigeria, for instance has grown from 290 thousand inhabitants in 1950 to over 7.9 million in 2006 (NPC, 2006). This resulted in many of the migrants living in overcrowded dwellings such as slums and squatters. Hence housing policies in developing countries are influenced by the rate of urbanization. Due to the unique social, political and economic characteristics that influence the form of urbanization and the types of housing problems that emerges, the policies varies from country to country and between cities (WHO, 1988).

Achieving the objectives of affordable housing discussed in section 2.6 depends largely on the policies set by government either at the state or national levels. Policies that restrict the housing market or building industry decrease housing supply. When there is a decrease in housing supply, an increase in demand driven by urbanization results in increase in housing prices hence affordability problems. Therefore, in order to achieve those objectives, governments have adopted policies ranging from land supply, housing finance to housing infrastructure and services.

2.7.1 Land Supply

Land tenure and administration are important to any meaningful policy on affordable housing delivery. Developed countries have various policies in order to enable easy delivery of land for housing developments, particularly to the low income group and people in the informal sector of their economies. On the other hand, land constitutes a major problem in home ownership or affordable housing development in developing countries. A review of the research of Rick, G. (2004) shows that land supply is one of the major problems associated with housing provision in developing countries especially in African. In many African countries, land ownership either traditional or customary is held on a tribal basis. Under these circumstances, decisions about land usage are made in accordance to the customs of the tribe. Hence, decisions may be taken individually by a chief or collectively within a council of elders, but in any event they are rarely recorded in writing and hence there is no evidential basis for use rights i.e. title deed. According to UAIC, (2007) and Rick, (2004), the implications of such constraints are:

a) Only minority of the people i.e. wealthy and influential will have access to formal land ownership. The lower income earners on the other hand will be left

with informal lands i.e. without title deeds. Hence the growth of an informal market in land.

b) They hamper the development of housing industry. This is because prospective developers will experience difficulties in securing a reliable supply of land especially with legal title.

The Mystery of Capital by Hernando De Soto (De Soto, 2000) also highlighted the problems associated with informal lands i.e. lands without title deeds. He claims that ensuring legal title deeds to land is the answer to why capitalism is a productive economic system. This means that the existence of informal lands in developing countries is the reason for the failure of capitalism in those countries. He also stated that property rights as embodied in titles are essential mechanism for converting assets to usable wealth. Titles, he argues, "capture and organize all the relevant information required to conceptualize the potential value of an asset and so allows us to control it" (p. 47). According to his estimates, if developing countries can provide secure property rights to residential property, they would effectively unlock $9.3 trillion worth of what he calls "dead capital."

Another problem associated with land supply in developing countries is the delivery process. Chipungu,(2005; p.11) noted that the housing land delivery process is "…riddled with bureaucratic and administrative procedures and processes that render the whole process cumbersome, slow and protracted…".

Due to the importance of land supply in the provision of affordable housing, developing countries have made and are still making changes in their policies towards facilitating easy supply of land. Tanzania is an example of such countries

where the recent land policy aims to; ensure that land is used in a productive way that enables rapid social and economic development. This will be done through equitable distribution and access to land, ensuring legal title deeds to customary lands and improving the efficiency of land delivery systems (MLHSD, 1997).

2.7.2 Housing Finance

Perhaps after the issue of land, the most critical challenge confronting affordable housing delivery is finance. This is because housing provision is capital intensive hence the need to develop a sustainable supply of finance to fund housing investments is an important part of any policy which aims at improving housing affordability. The need for finance can either be for new construction, refinancing existing homes or resale financing.

In developed countries such as United States, domestic policy on homeownership since after World War 2 has been encouraged via a combination of mortgage and tax. The sharp rise of homeownership in 1980s indicated the success of such policies (Rosen, 1984). In the 21 century however, the problems and opportunities confronting financial sector policymakers have changed according to Buckley et al. (2005). He argues that in the 1980s, the main mortgage finance problems had to with contracting problems and risks of high inflation rates. While in recent years, lower inflation rates, globalization and the ability of the financial sector to withstand economic shocks are more important concerns.

In the developed countries, reforms in mortgage markets have enabled it to integrate into the broader financial markets. Thus supply of mortgage credit and new financial instruments, such as securitization, are being increasingly used to provide broader access to mortgage credit. This enables easy financial access to affordable housing

developers and purchasers (Buckley, et al. 2005). The developing countries on the other hand though they now have access to market-based mortgage credit, they are faced with high interest rates and short loan repayment periods challenges. The ratio of repayments to incomes is many times the affordability level of average households. Hence these institutions are inappropriate for majority of the people (Rick, 2004). Perhaps the emergence of microfinance and its success in some developing countries offer the possibility of finance to low income families. An example is the Grameen Bank of Bangladesh which is one of the largest and most successful microfinance institutions. On its balance sheet, housing loans account for the largest single asset in the portfolio (Buckley, et al. 2005). This shows that microfinance tools can successfully finance shelter improvements of low income families.

Another policy towards financing affordable housing is the collaboration between public and private sectors known as public private partnership. Across the world governments have realized they alone cannot meet the housing needs of their citizens due to high cost of construction. Therefore States such as Florida in United States have made provision for private partnerships. According to Affordable Housing Study Commission report (1998), some of the policy stipulates:

a) The private sector, both for profit and nonprofit, is the primary vehicle for the production of affordable housing and governments should facilitate housing production by allocating financial resources, offering development incentives and implementing regulatory reform.

b) It can also work to eliminate unnecessary regulations that increase housing production costs, and provide incentives to developers to build affordable housing.

c) Encourage public-private partnerships to develop and manage affordable housing.

2.8 Summary

In this chapter, the meaning of affordable housing, how it evolved through three periods; industrial period, world wars periods, post war and modern periods were discussed. The types of affordable housing schemes; rent and ownership based schemes were also discussed together with the objectives in terms of labour market and social cohesion. And finally affordable housing policies in developing countries in terms of land supply and housing finance were discussed. The next chapter will discuss the concepts of sustainability and sustainable development, dimensions of sustainable development and indicators for affordable and sustainable housing for the specific case of Yola.

Chapter 3

SUSTAINABILITY AND SUSTAINABLE DEVELOPMENT

3.1 Introduction

The term sustainability is the word of the moment. It is used everywhere; in business, architecture, urbanism, politics etc. As a result of its recognition, the term is been misused as Choguill argues, "the term sustainability has become one of the most overused and all too frequently misused terms in the development literature" (Choguill, 2007: p. 144). Barton too highlighted that sustainability is more "honoured in the breach than in observance." He continued by saying "it is often used with casual abandon as if mere repetition delivers green probity" (Barton, 2000: p.6).

The term was first used in *limits to Growth* (1972) and has been widely applied in the field of architecture, urban planning, etc after the 1987 publication of the report of World Commission on Environment and Development which is also known as the Brundtland Commission (Wheeler, et al. 2004). However, the concerns related to unsustainable urban developments have a much longer history. This was discussed in the previous chapter where industrialization led to rapid urbanization of cities and as a result overcrowding and poor sanitary conditions in low income houses.

This chapter discusses sustainability and sustainable development, dimensions of sustainable development, relationship between sustainability and affordability and indicators for affordable and sustainable housing.

3.2 Definitions of Sustainability and Sustainable Development

Sustainability according to Oktay (2001; p.1), "is a way of thinking about one's relationship to the natural world in the context of time".

Newman (2002; p.1), defined sustainability as: "a global process that also tries to help create an enduring future where environmental and social factors are considered simultaneously with economic factors".

He also defines what sustainability will mean for housing:

a) Ensuring there is a roof overhead for the housing disadvantaged

b) Ensuring housing is more eco-efficient

c) Ensuring housing is well located or is part of a project to improve locational amenity (Newman, 2002).

Sustainable development on the other hand, is defined by the World Commission on Environment and Development as "development which meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987).

The commission (WCED) as set up to resolve the fundamental conflict of global politics between:

a) Ecologists who saw development as the cause of global ecological collapse, and

b) The poor of the world, who needed development to meet their basic needs for food, shelter and health (Newman, 2002).

Though this definition has been criticized for accepting conventional notions of continued economic growth as the path to improve human welfare, putting together two irreconcilable principles; environment stability and economic development hence two interpretations based on "ecocentric" which puts ecology first and "anthropocentric" which put human well being first (Barton, 2000 and Wheeler, et al. 2004), it is the generally accepted description of the term and subsequent interpretations originates from it.

Oktay (2001; p1), defined sustainable development as a "development which balances urban development with the conservation of environmental resources of land, air, water, forest, energy, etc".

Another interpretation of sustainable development based on World Commission on Environment and Development report is that of former UN Secretary-General Kofi Annan. He states:

> "Far from being a burden, sustainable development is an exceptional opportunity - economically, to build markets and create jobs; socially, to bring people in from the margins; and politically, to give every man and woman a voice, and a choice, in deciding their own future" (UNDES, 2005).

The differences in interpreting the term sustainable development mostly depends on how each of the three goals; environment, society, and economy are emphasized.

These dimensions will be discussed in details in the subsequent sections. Also the concern of balancing the needs of present and future generations and the intergenerational dimension are points of differences. However, the differences in interpretation of the term are not to polarize the meaning rather to seek solutions that successfully "marry human welfare and ecological robustness" (Barton, 2000; p.6).

3.3 Dimensions of Sustainable Development

The World Commission on Environment and Development report emphasized the need to preserve options for the future generations because they have the right to determine what their needs are. Therefore according to UN (1996 b), achieving sustainable development depends on meeting the following mutually dependent objectives: maintaining ecological integrity, attaining social self-sufficiency, establishing social equity and meeting human needs for food, shelter and health. These objectives can be grouped into social, economic and environmental objectives which are known as the three dimensions of sustainable development. Their relationships are shown on figures 3 and 4.
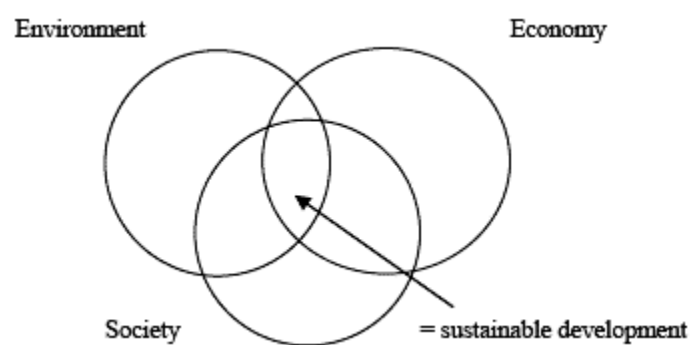
Figure 3: The Venn diagram
(http://www.scotland.gov.uk/Resource/Img/123822/0037578.gif)
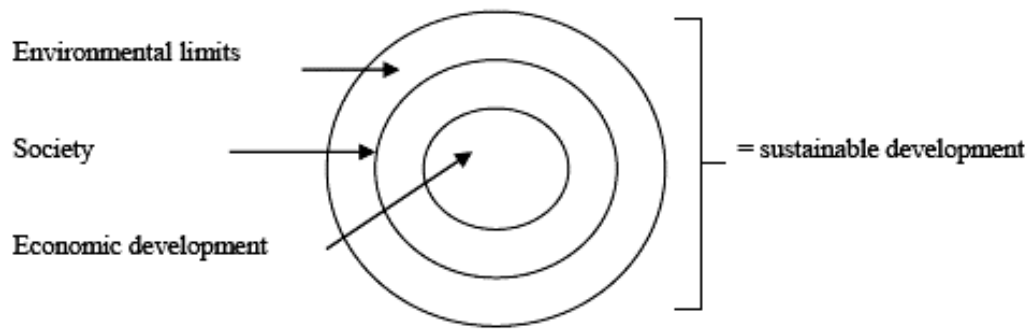
Figure 4: The Russian Doll Model
(http://www.scotland.gov.uk/Resource/Img/123822/0037579.gif)

3.3.1 Environmental Dimension of Sustainable Development

Sustainable development emphasized the need to protect environmental resources such as land, water, etc from the adverse effects of human's economic, physical and social pursuits. This according to MONE (2006) involves the conservation of biodiversity, attaining atmospheric balance, productivity of soil as well as other systems of natural environment which are usually classified as noneconomic resources.

In tackling sustainable development problems, Ian McHarg an environmentalist has laid out procedures for identifying and preserving sensitive environmental features. In his book *Design with Nature* (1969), McHarg noted that within a region, natural features vary but it is possible to select those to allow or discourage. He went on by saying "development should occur on valuable or perilous natural land only when superior values are created or compensation can be awarded" (Porter, et al. 2000; p13).

Environmental dimension of sustainable development promotes elimination of toxic substances, use of renewable raw materials, waste reduction, effluent generation, emissions to environment which will reduce impact on human health (Burak, 2006).

Therefore, this dimension means setting limits for consumption, population growth, pollution and production pattern i.e. wasting waters, deforestation, soil erosion, etc.

3.3.2 Economic Dimension of Sustainable Development

The economic and social dimensions of sustainable development at international stage are mostly focused on developing countries where most of the populations are poorly served by dysfunctional economies and unstable social and political institutions. The World Commission on Environment and Development report recognized that protection of environmental resources in such countries depends on upgrading social and economic conditions (Porter, et al. 2000).

Economically, sustainable development means providing economic welfare at present and in the future, while paying more attention to the "natural capital" i.e. natural resources of economic value such as plants, soil, animals, fish, and bio-environmental system such as air and water purification (MONE, 2006). Therefore, the economic aspect entails job opportunities and economic buoyancy. The Apollo Alliance (2009) describes this type of economic development as equitable development. Equitable development encourages local policies that create more affordable housing, mass transit systems, living wage jobs, quality education, and health care.

3.3.3 Social Dimension of Sustainable Development

Development is considered to be socially sustainable when it achieves social justice through equitable resource allocation, eradicates poverty, and provides social services, such as education, health, community safety, etc to all members of the society. Therefore, the social dimension of sustainable development is based on the concept that human being constitutes an important means of development and they

should strive to achieve that for both present and future generations (Barton, 2000 and MONE, 2006).

3.4 Affordable Housing and Sustainability

Although affordable housing has been a major topic of national policy in many countries, it is agreed by intellectuals that sustainable affordable housing is a poorly defined concept both in scientific literature and in policy and guidance documents (Brook, 2005; Priemus, 2005 cited in Salama, et al. 2009). The concept seems to mean everything; it is about ecology, environment, technology, social cohesion, community sustainability, citizen participation, lifestyles, etc (Salama, et al. 2009).

If the definition of sustainable development by World Commission on Environment and Development (WCED, 1987) is applied in to affordable housing, sustainable affordable housing will be defined as housing that meets the needs of the present residents without compromising the ability of the future residents to meet their own needs. Such housing according to Global Green USA (2007, p.1) "forges a strong link between social justice and environmental sustainability, and connects the wellbeing of people with the wellbeing of the environment, thus building on the core social and economic values of affordable housing".

As previously discussed, housing is at the core of long-term community welfare. It affects the three dimensions of sustainable development; social, economic and environment. Environment wise, housing development impacts are in terms of resource consumption for construction and lifestyle choices shaped by residential and commercial development patterns. According to Kozyra (2007), housing is a critical part of family security and future financial success hence it influences social equity.

And finally in terms of economy, its impact often stimulates local economies by increasing household net worth and creating private sector jobs. A study by Oregon Housing and Community Services (OHCS) in United States estimated that for every $1 invested in affordable housing development, it generates as much as $15 in economic benefits across the state.

However, the present conventional housing development practices i.e. construction and operation practices significantly contribute to the degradation of air and water quality, depletion of natural resources, and low density green field development. It is characterized by building design that emphasizes minimum construction costs. The US Environmental Protection agency estimates that the development and operation of buildings consumes 35% of the total US energy output, 35% of all materials produced in the US, and 25% of the world's harvested wood. This impact has played a significant role in the movement among developers and consumers to implement more sustainable development practices (Kozyra, 2007).

3.4.1 Characteristics of Affordable and Sustainable Housing

According to Pullen et al. 2009, characteristics of affordable and sustainable housing include;

a. A product where the rent or mortgage repayments do not exceed 30% of household incomes for the bottom 40% of income groups.

b. A product that is appropriately located.

c. A product that is of a suitable size and quality for its occupants.

d. A product that does not increase the incidence of housing stress over the lifecycle of the house.

e. A product where individual and government financial obligations can be met on an ongoing basis without policy change.

f. A product that is socially acceptable.

g. A product that does not increase social exclusion or polarization.

h. A product that is located on a site that minimizes biodiversity losses.

i. A product that is located on a site that maximizes low-energy transportation options.

j. A product that encompasses the following environmental features; Energy efficiency, passive solar design, sun shading, water conservation, appropriate waste management during construction, occupation and deconstruction (Pullen et al. 2009, p.25).

Characteristics a-d reflects the literature on affordability, e-f on economic sustainability, f-g on social sustainability and h-j on environmental sustainability.

3.4.2 Importance of Sustainability to Affordable Housing

Sustainability, when applied to affordable housing has both physical and social components. Physically, it promotes materials and energy efficiency in order to limit the waste of depleting global supply of resources. And it socially inspires the development of productive communities which promote the aspirations of lower income earners. Priemus (2005) highlighted that sustainability of housing relates to profitability in long term, affordability, people, and planet earth. Hence, it encompasses the three dimensions of sustainability: economic, social and environmental dimensions as earlier discussed. Thus, the objectives of sustainability and affordability in housing are similar in many ways hence mutually supportive.

Sustainability seeks to protect and enhance affordable housing environment through:

a) Energy; energy efficient built form and layout, promotes the use of renewable energy, walking and cycling.

b) Natural resources; local and recycled building materials, traffic reduction hence air and water quality improvement and it promotes higher densities hence reducing urban land intake.

c) Promoting designs that uses natural and built systems in holistic manner hence valuing and protecting the biodiversity of nature.

d) Improving occupants' health and well-being through natural lighting and ventilation. (Barton, 2000 and Porter, et al. 2000)

Sustainability seeks to meet the social needs of affordable housing through:

a) Equity and choice; housing access to all social group, facilities that are easily accessed by foot or public transport.

b) Community development; safe traffic calmed streets, neighborhood social balance and continuity i.e. social cohesion.

c) Health; pollution free environment.

d) Open spaces; parks, playgrounds, etc.

e) Valuing and protecting diversity and local distinctiveness hence strengthening local community and cultural diversity. (Alao, 2009; Barton, 2000 and Porter, et al. 2000)

Sustainability seeks to promote economic growth in affordable housing through:

a) Economic buoyancy; creating local economy through new markets and opportunities for sales growth, cost reduction through improved efficiency of resources.

b) Job opportunities; employment as a result of diversity of work and varied economic base.

c) Environmentally friendly economic growth. (Barton, 2000)

3.5 Affordable and Sustainable Housing Indicators

Over the years, several authors and organizations such as; American Institute of Architects (AIA), Global Green, United States Green Building Council (USGBC) Leadership in Energy and Environmental Design, Kozyra (2007), Oktay (2001), Pullen et al. (2009) have developed indicators/guidelines for sustainable developments. For the purpose of this research, indicators have been developed based on review of the above listed literatures.

Socio-Economic Indicators:

a) Socio-economic diversity

b) Housing diversity

c) Housing dispersal

d) Affordability

e) Community development

Environmental Indicators:

a) Density

b) Housing design and material

c) Diversity of uses

d) Variety of transport choices

e) Open spaces

3.5.1 Socio-Economic Indicators

a) Socio-economic diversity

Diversity in social and economic status encompasses diversity in household income, age, gender, household types (single person, young couple and family with children), education, tenure status, economic status, tribes, etc.

Nigeria is a country with over 200 different tribes. Hence for housing to be affordable and sustainable, it has to accommodate people of different socio-economic background or else it will promote ethnic enclaves hence promoting segregation / social exclusion. Ethnic groups are characterized by shared cultural characteristics such as: religion, language, cultural values, etc that not only differentiate them from other ethnic groups but also in many instances lead to development of unique ethnic enclaves within cities (Murdie et al. 2000). Such practice in the long run leads to residential segregation.

b) Housing diversity

Housing diversity occurs when different types of housing are located in an area/ neighborhood. In housing development design, Chrisna Du Plessis (1999, cited in Alao, 2009) highlighted that a range of housing options should be allowed to accommodate all classes. Because it will create a stronger and more diverse neighborhood, bring employment to the poor and it will promote social cohesion. Oktay (2001; p. 56), also highlighted that housing diversity "encourages community diversity and provides an opportunity for closer social contact among a wide range of community residents".

c) Housing dispersal

The location of affordable housing developments within a community plays an important role in determining how sustainable that housing development is.

Affordable housing that is available to different socio-economic groups and located in proximity to public transit, social and community services, employment opportunities, educational facilities, health care services, etc is sustainable. A report by Transportation Policy Project (2005) indicates that lower income households are burdened by higher transportation costs since transport expenditures claim a higher percentage of their budget. Therefore, proximity to supporting facilities means more walking, cycling and decrease in fuel consumption.

d) Affordability

Affordable housing simply means housing that is reasonably adequate in standard and location for lower or middle-income household and does not cost so much that such a household is unlikely to be able to meet other basic living costs on a sustainable basis (National Summit on Housing Affordability, 2006). According to Stone (2005 cited in Pullen et al. 2009), affordability is not a characteristic of housing per se, but rather, it is a relationship between housing and people that depends on answering three questions:

Affordable to whom?

On what standard of affordability?

For how long?

While there are different economic and social determinants of affordability as discussed in chapter 2, '30/40 split' (30% of household income is spent on housing costs for the bottom 40% of household incomes) is mostly used in measuring housing Stress.

e) Community development

Community development activities and participation enhances the social and economic well being of neighborhoods. As Montifiore highlighted (1979, cited in

Oktay, 2001; p.55), "people are social animals; they must be able to belong to a community".

The link between affordable housing and community participation is inextricable. This is because affordable housing needs are best defined by the people who work or live within such communities. According to Smart Communities Network (2010), community participation can create growth in housing or other infrastructural development because it is the responds of where and how the particular community wants to grow. Communities have different needs hence will emphasize some growth principles over others. Example those with robust economic growth may need to improve housing choices, others that have suffered from disinvestment may emphasize infill development, etc. Despite the differences in priorities, the common thread among all is that the needs of every community and the ways to address them are best defined by the people who live and work there.

Engaging community participation in affordable housing development can help create better quality houses and promote community understanding. As Alao (2009; p.61), highlighted "people usually have a sense of responsibility and a kind of place attachment to their environment when they are involved in the design, construction or even the finishing stage". Policies developed without strong community participation at best will not last long or at worst, create unhealthy, undesirable communities.

3.5.2 Environmental Indicators

a) **Density**

In housing, density means the number of dwelling per unit area. According to Oktay (2001), careful attention is needed to the concept of density in order to achieve a

more sustainable level of development and meet the local housing targets. Housing density plays an important role in achieving affordable housing. This is because high density means more units per acre which therefore lowers the cost of land per unit. A report by California Planning Roundtable (CPR, 2002), shows that smaller units cost less to build than larger ones and low density neighborhoods offer more expensive housing than high density areas. Therefore in order to encourage housing affordability, the report suggested higher densities needs to be promoted.

It is important to consider the differences in culture and environment when deciding on appropriate density. As Oktay (2001; p. 10) highlighted, "the density of a settlement does not mean much unless an appropriate contextual layout is considered as an entity within the changing context of the city". Hence users' needs, lifestyle and socio-cultural conditions should be considered.

Higher housing density can be achieved in two ways. Firstly from the size of the plot i.e. consumers may sacrifice the size of their plot but maintain the same size home. In this case, the housing density increases but the distribution of the sizes and type of homes remains constant. The second way is from changes in the sizes and types of homes. In this case, the number of multi-unit structures and townhomes may increase relative to the number of detached single-family homes. Multi-unit structures, such as condominiums and apartment buildings, by their nature, result in higher housing densities (Aurand, 2009).

Increased densities have been linked to improved environmental sustainability. This is due to the fact that as density increases, the costs of servicing key infrastructure drops, per capita energy consumption also drops, especially when residents make a

transition from private vehicles to public transport and increased levels of walking and cycling (Towers 2002 cited in Pullen et al. 2009).

b) Housing Design and Material

As highlighted by Oktay (2001; p. 33), "if we wish to exist in harmony with our environment, we must do by choice what our ancestor did out of necessity, design with the climate and with a sense of place". Therefore for housing to be sustainable and affordable i.e. green affordable housing, the American Institute of Architects (AIA, 2010) has outlined the following guidelines relating to building design and materials.

- Buildings should be insulated to minimize heat gain and loss and energy efficient windows should be used.

- Building should be oriented to enable passive heat gain and cooling/natural ventilation. Shading devices, operable windows, shutters, and thermal mass can be use to achieve such strategies.

- The use of windows and skylights for day lighting. Minimize glazing on east and especially west exposures to reduce heat gain.

- Build cool roofs which provide low heat absorption and high reflectivity roof assembly or green roofs (vegetated).

- Use fewer building materials through advanced framing techniques or other systems approach to building construction.

- Use recycled content such as:

    - High fly ash content concrete in foundations, flat work, wall systems, finish floors.

    - Cementitious siding, or stucco with high fly ash content

- Composite framing such as engineered joists instead of dimensional lumber

- Light-gauge steel in whole house or interior walls. Verify that thermal bridging is addressed if steel is used in exterior walls.

- Rapidly renewable resource materials for flooring and finishes such as wheat straw board and bamboo.

  - Specify insulation made of renewable, easily recyclable material or recycled content such as recycled newspaper (cellulose), soy based foam, cotton fiber etc

- Use locally available building materials such as:

  - Locally produced masonry or other earthen system

  - Recycled lumber or locally milled timber or other recycled materials

  - Recycled aggregate from demolition of existing site work or structure or nearby source (AIA, 2010).

c) Diversity of Uses

Diversity of uses simply means a mixture of residential, commercial and industrial land uses within a specified geographical area. Among smart growth advocates, it is often defined as a "diversity of compatible land uses that serve the needs of the local population" (Aurand, 2009; p.9).

Advocates for diverse land use have argued that the practice of land uses separation has led to excessive commute times, traffic congestion, air pollution, loss of open space and habitat, inequitable distribution of economic resources, job housing imbalance, and loss of sense of community (Smart Communities Network, 2010). Hence diverse land use is considered as a solution to such problems. It is argued that the integration of different functions such as; housing, retail, offices, commercial

services, industrial and civic uses, into communities is an important component of achieving better places to live. This is because it can promote transit supportive development, preserve open space and other landscape amenities, facilitate a more economic arrangement of land uses, encourage street activity to support retail businesses, help achieve regional housing and employment targets, reinforce streets as public spaces, encourage pedestrian and bicycle travel, and thereby create a sense of community (American Planning Association, 2010).

That being said, it is important to note that increasing mix of uses requires a sensitive analysis of demand for the existing area, because the greater the proximity of a variety of uses, the more difficult compatibility can be (Oktay, 2004).

d) Variety of Transport Choices

There is no doubt that communities with lot of job opportunities, housing, and access public transits, have houses that are often not affordable to low income groups. However, ensuring connectivity between pedestrian, bike, transit, and road facilities reduces the need to drive. With this system, households use public transportation, bikes etc thus saving money on the cost of their homes. A report in United States by Surface Transportation Policy Project (2005) shows that households in neighborhoods that have access to public transportation reap financial benefits from having affordable transportation options, even as gasoline prices rise. The report also indicated that lower income households are burdened by higher transportation costs since transport expenditures claim a higher percentage of their budget and also neighborhoods with access to public transit are losing less per household from the increase in gas prices than those without efficient transportation systems.

The fact that mobility is a necessity has lead to the need of excessive parking spaces. Hence developers are forced to use land for parking rather than affordable housing. To solve such problem and that of heavy traffic, Oktay (2001) suggested the use of 'woonerf' system as a means of controlling and integrating vehicular traffic with pedestrians. The system enables slow local traffic movement and the use of same space by households without causing hazard. This is achieved through curbs elimination (designation of different zones for vehicles and pedestrians) and combination of street furniture, vegetation, etc.

Another sustainable transport initiative is 'TravelSMART' which aims at reducing traffic congestion, greenhouse gas emissions and helping people change the way they travel, hence saving them time and money, improving their health and the environment. This is achieved through integrating public transport, pedestrian, bike, etc (Pitts, 2004). Such neighborhoods (transit and pedestrian) reduce the need of building parking spaces or use a car hence more spaces for affordable housing and cheap transportation.

e) **Open Spaces**

Public open and green spaces within neighborhoods or cities are valuable resources. This is because they improve the quality of life through human activities, have essential environmental functions, create a pleasant environment where people can live or work and can have economic benefits. In general, they promote social cohesion (Oktay, 2001 and Pitts, 2004).

Public open spaces where the community members can gather, children can play safely and semi public open spaces such as patios, front yards, porches, or balconies to encourage community interaction and provide eyes on the street surveillance

promotes social dimension of sustainability. While landscaping such as using plant species that thrive in local climate with minimal irrigation, evergreen and deciduous trees for shade, controlling wind, erosion control and noise reduction, etc promotes economic and environmental dimensions of sustainability.

3.6 Summary

In this chapter, sustainability and sustainable development, dimensions of sustainable development; environmental, social and economic, its importance to affordable housing and indicators for affordability and sustainable housing were discussed in terms of socio-economic indicators and environmental indicators. The next chapter will review affordable housing provision and policies in Nigeria from colonial era to the present era, and discuss the challenges associated with such housing schemes.

Chapter 4

A REVIEW OF AFFORDABLE HOUSING IN YOLA, NIGERIA

4.1 General Information about Nigeria

Nigeria, officially Federal Republic of Nigeria is a federal constitutional republic made up of 36 states and Abuja its Federal Capital Territory. It is located in West Africa and shares land borders with Republic of Benin, Chad, Cameroon and Niger in the west, east and north respectively. In the south, its coastline lies on the Gulf of Guinea on the Atlantic Ocean (figures 5 and 6).
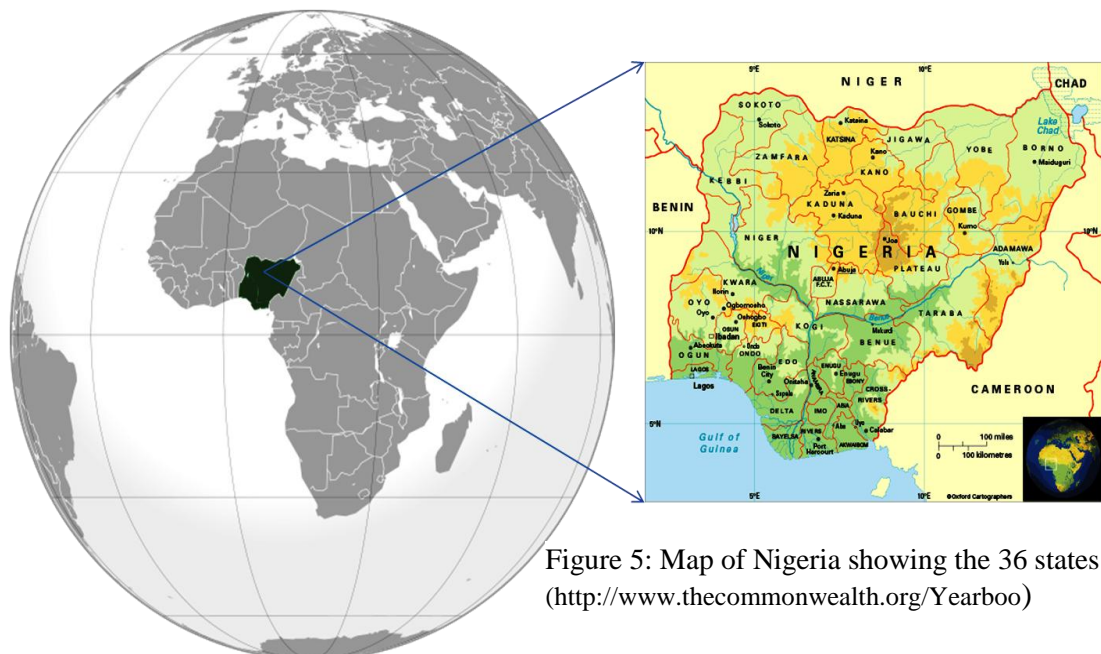
Figure 5: Map of Nigeria showing the 36 states
(http://www.thecommonwealth.org/Yearboo)

Figure 6: World map showing the location of Nigeria
(http://en.wikipedia.org/wiki/File:Nigeria_%28orthographic_projection%29.svg)

As previously discussed in the introduction chapter, Nigeria is the most populous country in Africa and eighth most populous country in the world with an estimated population of 140 million in 2006 and a growth rate of 2.38 percent (NPC, 2006). Its economy is the third largest in Africa and one of the fastest growing in the world, with a projected growth rate of 7 percent and 7.3 percent in 2010 and 2011 respectively (IMF, 2010). With ethnic groups of 250, Nigeria is one of the most ethnically diverse counties in the world. Its official language is English while Hausa, Yoruba and Igbo are the three main languages. In terms of religion, Nigeria is approximately split half and half between Muslims (mainly in the north and the west) and Christians (mainly in the south) with a small minority of those who practice traditional religions.

4.2 Review of Affordable Housing Provision and Policies in Nigeria

Urban development in Nigeria, like in most of its counterparts in the developing world, is influenced by rapid, one-directional (rural – urban), unbalanced and unplanned urbanization driven by socio-economic changes and development. The incidence of this urbanization has led to acute shortages of affordable dwelling units resulting in 15 million housing deficit (FHA, 2007).

In order to address the growing housing shortages and affordability problems, various policies have been strategized and implemented by both public and private sectors. However, various researches have shown that the housing situation of vast majority of Nigerians i.e. low income earners have had little improvement over the years. According to Raji (2008), government policies, deficiency of housing finance, high cost of building materials, amongst other problems are affecting housing delivery in Nigeria. This sub-chapter discusses some of the previous housing policies

implemented by government from pre-independence period to present modern period.

4.2.1 Pre-independence Period (1928 - 1960)

Housing in most Nigeria communities before colonial rule was delivered through a communal system. Groups of family members, peer groups, etc would turn out en masse on an appointed day to assist the builder in whatever task of the housing project. In return, the builder would provide meals while the project lasted and reciprocate the favor to others (Kabir, et al 2009).

Government intervention in housing began during the colonial period (1928 - 1960). Olotuah et al (2009), highlighted that after the occurrence of the 1928 bubonic plague in Lagos, the then colonial government established the Lagos Executive

Development Board (LEDB) with the mandate of clearing the affected area and development of housing. However, according to Kabir et al (2009), only civil servants benefited from such scheme.

In 1956, Nigerian Building Society was established with the aim of providing housing opportunities to a wider sector of the Nigerian populace i.e. both public and private sectors. However, the impact of the building society was felt mostly within Lagos. Hence few people outside Lagos benefited from the scheme (Kabir et al 2009).

In summary, policies implemented during this period were not aimed at tackling the national affordable housing problems, rather they were mostly aimed at providing housing for members of the colonial government and few selected native staff. The houses were developed in areas known as Government Residential Areas (GRAs)

with the aim of providing all the possible comfort to the expatriate administrators comparable to the best in their countries (Kabir, et al 2009; Olayiwola, 2005; Olotuah, et al 2009; Olotuah, et al 2009a).

4.2.2 Post-independence Period (1960-1985)

Government intervention in affordable housing delivery after independence (1960) had little improvement compare to the colonial period in terms of housing provision to a wider sector of the Nigerian populace (Abiodun, 1985). The subsidized Government Residential Areas (GRAs) used by the colonialists became the residential houses for the new national elites. Hence, such housing policy according to Olotuah et al (2009a) was not only retained, it was embraced and promoted with greater zeal. As a result, the policy had little or no impact neither on the housing stock nor on the housing problem.

However, from 1962, states and federal governments housing policies and programs were targeted at low, medium and high income Nigerian. The first, second, third and fourth National Development plans (1962- 1985) though their goals were not 100 percent achieved, they confirmed the attempts made by governments in tackling affordable housing problems in Nigeria.

Various housing provision institutions were also established during the same period i.e. 1962- 1985. Institution such as Federal Housing Authority was established in 1973 under Decree No. 40 to among other functions implement housing programs approved by the Federal Government; the establishment of Federal Mortgage Bank of Nigeria which became the apex institution of the Nigerian mortgage financial system; the establishment of Ministry of Housing, National Development and Environment with sole responsibility on housing. Also within the same period, a land

reform (Land Use Decree of 1978) aimed at improving land availability for housing development took place (Kabir, et al 2009; Olayiwola, 2005; Olotuah, et al 2009; Olotuah, et al 2009a; Onyike, 2008).

In summary, during this period government accepted to promote and provide affordable houses to all Nigerians regardless of income class. In the National Development Plan 1975-1980, the government stated that it:

> "…accepts it as part of its social responsibility to participate actively in the provision of housing for all income groups and will therefore intervene on a large scale in this sector during the plan period. The aim is to achieve a significant increase in the supply and bring relief especially to the low income groups who are the worst affected by the current acute shortage" (Federal Government of Nigeria, 1975, p.308).

Prior to this plan, the government had restricted itself to the limited provision of housing for government officials and some few slum clearance schemes as previously discussed.

4.2.3 Modern Period (1985- present)

The 21st century affordable housing problems i.e. rapid increase in slums and squatters as a result of 15 million housing deficit at 2007, have made federal and states governments realize that their previous housing policies have failed in providing adequate and affordable housing to the vast majority of Nigerians i.e. low-income earners. Hence in 2002, a committee on Urban Development and Housing was setup with the responsibility of reviewing the existing Urban Policy and formulate a new National Housing Policy. The main goal of the new national

housing policy is "to ensure that all Nigerians own or have access to decent, safe, sanitary housing accommodation at affordable cost with secured tenure" (Federal Government of Nigeria, 2002, p.7).

Based on the committee's recommendation, a Ministry of Housing and Urban Development was established with the aim of facilitating the objectives of housing provision for all Nigerians. According to Olayiwola (2005), the government also identified under the National Housing Policy a prototype-housing scheme, which was launched with the aim of increasing the national housing stock.

The recent study on home ownership in Nigeria is put at 10% compared to 72% USA, 78% UK, 60% China, and 92% Singapore and outstanding mortgage loans at 0.5% (2005) of GDP compared to 77% USA, 80% UK, and 61% Singapore (FSS, 2008). This shows that sustainable affordable housing delivery policies are needed if Nigeria wants to achieve the housing standards achieved in the developed countries. As highlighted by Malpass and Murie (1994), central to the achievement of adequate provision and distribution of housing is the issue of managing the relationship between the price of housing and the capacity of household to pay for their housing. Therefore, there is the need to pay attention to policy impacts on house price, rents, transaction costs and household income. Given the repeated failure of affordable housing delivery by governments, a closer attention should be paid to other forms of subsidies that could be more effective in providing decent housing to Nigerians.

4.3 Challenges of Affordable Housing in Nigeria

Affordable housing provision in Nigeria as discussed in the previous section (4.2) has been a major concern at the governmental level for a long period of time. Though

the public sector's involvement in housing has been more of policy formulation than housing delivery, various housing policies have been implemented with little success. This problem was also highlighted by Olotuah, et al (2009a). He argues that despite the huge amount of money allocated to the housing sector in the National Development Plans, very little was achieved in terms of meeting the specified housing construction targets.

Numerous studies have been carried out on the challenges of housing delivery in Nigeria. Olotuah (2008), highlighted reasons such as: wrong perception of the housing needs of the low-income earners, the proposal of housing prototypes to be implemented all over Nigeria despite the differences in climatic, cultural and socio-economic environments, improper planning and poor execution of housing policies and programs, unrealistically high cost of houses built for the low-income people, and insensitivity of government to the operations of the private sector in housing delivery. Other authors including Ajibola (2007), Mabogunje (2008), Windapo (2005), have highlighted factors which include: Inadequate access to land, inadequate access to finance, high cost of building materials, inadequate infrastructure and inadequate building technology.

According to Ndubueze (2009), unless there is an adequate availability of housing inputs (i.e. land, finance, construction materials, labor and basic infrastructure) to aid housing production, it will neither be possible to create a prosperous housing market nor to provide adequate affordable housing for the low income earners. Therefore, the challenges of affordable housing in Nigeria is ensuring adequate supply and access to such housing inputs within a framework that guarantees the supply of decent housing at affordable costs.

4.3.1 Inadequate Access to Land

Inadequate access to land is a major constraint to affordable housing delivery in Nigeria. As discussed in section 2.7.1, land tenure and administration are important to any meaningful policy on affordable housing delivery. Various studies have shown that the main problem of availability of land for affordable housing in Nigeria is that of accessibility, ownership and use. Thus the difficulties in making land easily accessible to prospective developers have resulted in land speculation, which often drives up land costs (Ndubueze, 2009).

In an attempt to tackle land accessibility problems and provide a uniform framework for land regulation and management, the government in 1978 formulated a Land Use Act. However, after three decades, the land use act has failed to achieve its objectives. This is because section 1 of the act proclaims that all land is vested in government to be held "in trust and administered for the use and common benefit of all Nigerians". The consequences of such policy according to Mabogunje (2008), is that the task of acquiring land for housing development has become a very daunting task. So also is the task of getting a genuine title to land even when houses have been built on them. Litigations and conflict over land are also constraints to affordable housing development in Nigeria.

The implication of land constraints in Nigeria means that only minority of the people i.e. wealthy and influential have access to formal land ownership. The lower income earners on the other hand are left with informal lands. Hence, the growth of an informal land market and low affordable housing developments because prospective developers will experience difficulties in securing a reliable supply of land especially with legal title.

4.3.2 Inadequate Access to Finance

As discussed in section 2.7.2, the most critical constraint of affordable housing delivery after land is finance. This is because housing provision is capital intensive hence the need to develop a sustainable supply of finance to fund housing investments is an important part of any policy which aims at improving housing affordability.

In an attempt to make housing finance system in Nigeria more effective, the 1990 national housing policy was restructured. The new policy created a two-tier housing finance structure: Federal Mortgage Bank of Nigeria with the aim of monitoring and wholesale (bulk lending to other mortgage institutions) and the Primary Mortgage Institutions at the lower-level with the aim of retailing mortgage lending portfolio. National Housing Fund was also established with the aim of creating and making cheap and long term housing finance more readily available for individuals and corporate developers who participate in the scheme (Ndubueze, 2009). Such changes were expected to make mortgage banking services in Nigeria more accessible. However, the main question is to what extend have such restructuring succeeded in making loans affordable and available to either low income individuals or affordable housing developers?

According to Sanusi (2003), some of the problems associated with mortgage finance in Nigeria include: low interest rate offered by the National Housing Fund hence low level of participation in the scheme, the macroeconomic environment i.e. high inflation rate, the non-vibrancy of some Primary Mortgage Institutions, cumbersome legal regulatory framework for land acquisition and the structure of bank deposit liabilities.

4.3.3 High Cost of Building Materials

Studies have shown that the cost of building materials in Nigeria constitutes about 60 percent of the entire building cost. This is as a result of the usage of imported building materials such as cement, steel, etc. In spite of government policies encouraging the use of local materials such as cement stabilized blocks from laterite soils, bricks and blocks from mineral and industrial wastes, etc most approach towards affordable housing development have tended to depend on imported materials which makes the end products expensive hence unaffordable to majority of Nigerians. The use of imported building materials in Nigeria and Africa at large according to Mabogunje (2008), is due to the fact that industrial production of local materials have not been pursued with the needed commitment i.e. few African countries have policies of mass housing production on a sustainable basis.

4.3.4 Inadequate Infrastructure

The inadequate provision of basic infrastructure such as electricity, educational and health facilities, etc as a result of weakness in urban planning, urban management and urban governance is also among the challenges facing affordable housing delivery in Nigeria. According to Mabogunje (2008), the absence of basic cadastres and databases in most African cities meant that very weak information is used for planning and managing those cities. This has resulted not only in a brief approach to service delivery but also affecting the municipal revenue mobilization on the basis of either tenement rates or property taxes. The absence of important database also makes it difficult to measure the progress made or implement effective strategies to reduce slum areas by affordable housing provision (Mabogunje, 2008).

4.4 General Information about Yola

Yola is a traditional Nigerian city and like other cities in the country, it existed long before the emergence of British colonial rule. It was established in 1841 as the capital of Fulani State until taken over by the British in 1901. Presently, the city of Yola is the capital and administrative center of Adamawa State, one of the 36 states of Nigeria which was formed in 1991 from part of Gongola State. Located on River Benue i.e. north eastern part of Nigeria (figures 7 and 8), it lies approximately on latitude 9.23' north of the Equator and longitude 12.46' east of the Greenwich Meridian (Adamawa State of Nigeria, 1992).
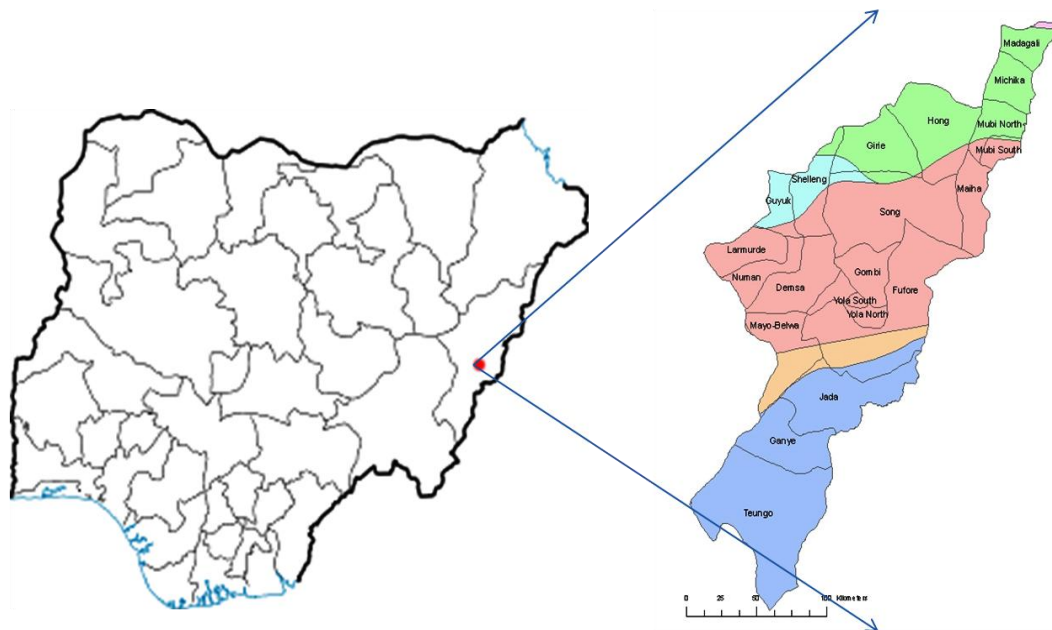
Figure 7: Map of Nigeria showing the location of Adamawa State
(http://upload.wikimedia.org/wikipedia/commons/1/18/Nigeria_location_map.svg)
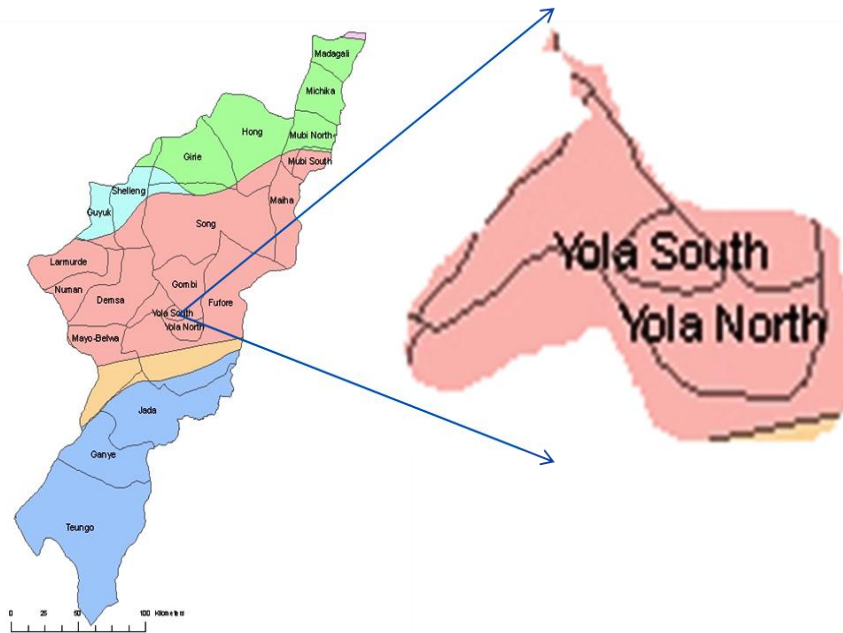
Figure 8: Map of Adamawa State showing the location of Yola.
(http://upcinn.com/images/adamawa_state.jpg)

As discussed in the introduction chapter, the city of Yola is a medium sized urban center with a population of about 395 thousand (NPC, 2006). Like most urban cities in Nigeria, its morphology has changed since after it became the administrative capital of Adamawa State. This is as a result of rapid population growth due to rural – urban migration driven by increase in socioeconomic activities. Therefore, various housing schemes have been implemented by both governments at state and federal levels with the aim of providing affordable housing to the low income groups.

4.5 Affordable Housing in Yola

The city of Yola has severe affordable housing problem primarily due to low supply of affordable housing. A recent study by Federal Ministry of Housing (FMH & UD, 2009) puts the deficit at approximately 17,500. The inadequate availability of housing inputs (i.e. land, finance, construction materials, labor and basic infrastructure) to aid housing production means increase in housing cost that are outpacing low income earners wages. A report by Vision 2020 National Technical Working Group on Housing (2009) highlighted that there is a genuine shortage of

properties in the formal sector, and accordingly rents and house prices are very high. The report also identified some of the factors hindering affordable housing development to include:

a) Inefficient mechanisms for transferring property,

b) The dearth of long term housing finance for home buyers,

c) The absence of a clearly stated foreclosure law,

d) Lack of adequate infrastructure,

e) Inadequate urban planning system,

f) Weak enforcement of development control covenants,

g) Lack of adequate capital for mass housing projects

h) Absence of enabling operational environment

i) Lack of identifiable model/system of housing delivery that best suits Nigeria

j) Most projects are not end user driven

k) Lack of post construction management in planning projects

l) Absence of basic standards for both specifications and building materials

m) Over reliance on imported building materials as a result of inadequate development of local building materials

n) Lack of adequate capital for mass housing projects

o) Absence of enabling operational environment and

p) Absence of basic standards for both specifications and building materials.

These challenges are enormous and unfortunately government's recourses are scare however, there are "imaginative ways of seeking the rational and efficient use of scare resources" (Zulficar 1990, p19). In an attempt to tackle some of the affordable housing challenges in Yola especially the issues of land and housing finance, the

state government has established numerous parastatal organizations which include Adamawa Homes and Savings LTD and Adasolids Properties Limited.

- **Adamawa Homes and Savings LTD:**

Adamawa Homes and Savings is a primary mortgage institution with the objectives of granting loans with low interest rates to individuals for purchasing, building, improvement or extension of dwellings/commercial houses. Among its other objectives includes: engaging in property trading (land acquisition and disposal), engaging in housing development through loan syndication, etc (Adamawa Homes and Savings, 2008). Since its inception in 2002, over 1000 civil servants and other qualified tenants have benefited i.e. have become home owners and it has embarked on developing various units housing estate (Thisday Newspaper, 2004).

- **Adasolids Properties Limited:**

Adasolids Properties is medium used by Adamawa state government for the purpose of developing affordable houses. It was incorporated in 2005 with the objectives of becoming property developers and property managers i.e. acquiring lands, buildings and real estate to hold, improve, develop, rent or sell.

Despite these parastatal organizations, informal houses formation is on the increase in the city. This is because the organizations have failed in providing the less privilege group with sustainable and affordable houses due to ignorance from the general public, corruption, government bureaucracy, etc.

4.6 Summary

In this chapter, affordable housing provision and policies in Nigeria from colonial era to the present era were reviewed. The challenges associated with such housing

schemes were discussed in terms of housing inputs i.e. land, finance, construction materials, labor and basic infrastructure. Finally, it was discussed that the inadequate availability of housing inputs due to government policies has resulted in low supply of affordable housing. The next chapter analyzes the selected case studies in Yola namely Bekaji, State low cost, 80 Units and 400 Units housing estates in terms of socio-economic and environmental issues.

Chapter 5

THE CASE STUDIES

5.1 Introduction

As discussed in previous chapters, when sustainability is applied to affordable housing, it has both physical and social components. Socially, it inspires the development of productive communities which promote the aspirations of lower income earners while the physical aspects promotes materials and energy efficiency in order to limit the waste of depleting global supply of resources. This section analyzes the four selected affordable housing in Yola namely 'Bekaji', 'State low cost', '80 Units' and '400 Units' housing estates in terms of socio-economic and environmental issues. Since governments (states and federal) are the main developers of affordable housing in Yola, the case areas are selected on that basis.

5.2 Methodology

As discussed in section 1.3, both qualitative and quantitative data collection methods were used in collecting data. Questionnaire survey was used for collecting quantitative data while for qualitative data collection, the case areas were analyzed in terms of density, compactness, housing diversity, diversity of use, access to public transportation, public spaces, housing dispersal and community development.

5.2.1 Questionnaire Survey

Questionnaires were distributed to residents in order to examine their socio-economic levels i.e. householders income, cost of rent, rooms occupied by respondent, conditions of housing units, etc.

5.2.1.1 Questionnaire Format

Foutas (2005) highlighted that the validity and reliability of data collected using questionnaire are affected by the design and contents of such questionnaires. That being said, table 2 shows the questionnaire content and their relationship to affordable and sustainable housing.

Table 2: Questionnaire format

	CONTENT	RELATIONSHIP TO AFFORDABLE AND SUSTAINABLE HOUSING
PART A (A1-A3)	Residential history	Designed to identify how long the respondents have lived in the houses and the reasons why they moved in to such neighborhood
PART B (B1-B13)	Housing	Designed to identify the socio-economic status of the respondents (householders income, cost of rent, etc) in order to evaluate if the houses are affordable
PART C (C1-C6)	Neighborhood and neighboring	Designed to understand respondent's perception and their relationships with neighbors. Hence enabling to identify if such development promotes community interactions which are vital to any sustainable development
PART D (D1-D5)	Public Services and Transportation	Designed to identify how the respondents feel about public transport and how often they use them

According to Faddy (1994), for data to be accurate, the respondents must understand the questions the way intended by the researcher (cited in Foutas, 2005). Hence the wording, typing and questions used in the questionnaire were adapted in a way that it would be easily understood by the respondents. The types of questions used were:

- List of multiple choice

- Ranking

- Categories

- Quantity

Table 3: Sample questions used in the survey (see appendix A for full table)

A3) Here are some reasons why people move to a particular neighborhood. How

important was each of the following in the decision to move here?

	1 Very Important	2 Important	3 Not Important
A3a) Close to work	☐	☐	☐
A3b) Low rents	☐	☐	☐
A3c) Costs/ good value for money	☐	☐	☐
A3d) Size of the community	☐	☐	☐
A3e) Familiar with the area	☐	☐	☐
A3f) Openness or spaciousness of the area	☐	☐	☐
A3g) Close to family and friends	☐	☐	☐

B9a) What percentage of your salary/wage goes to these costs? _____

D3) How often do you use public transportation?

1. Often   ☐   2. Rarely   ☐   3. Never   ☐

Go to E4

5.2.1.2 Questionnaire Data Analysis

A total of 220 questionnaires were distributed (in June 2010) using drop and collect
method. Of the 220, 120 were distributed to Bekaji households, 50 to State low cost
and 50 to 80 Units households. Questionnaires were not distributed to 400 housing
households because at the time of this survey, it was under construction. 176
households responded (91 from Bekaji, 45 from State low cost and 40 from 80 Units)
resulting in 80 percent response rate. The data collected from the questionnaires were
analyzed using SPSS version 17.0.1. At the end of the analysis, a chart was produced
for graphical representation of each question.

5.2.2 Site Analysis

As for the site analysis, indicators used for analyzing the selected cases were
developed through examination of indicators/guidelines for sustainable developments

by American Institute of Architects (AIA), Global Green, United States Green Building Council (USGBC) Leadership in Energy and Environmental Design, Kozyra (2007), Oktay (2001) and Pullen et al. (2009) as discussed in section 3.4.3. Each indicator was chosen to represent a component of each of the three dimensions of sustainability i.e. economic, social and environment. By aligning the indicators with the dimensions of sustainability, it would highlight the potential impacts and benefits of these developments on the residents, neighborhood, and the broader Yola community. Table 4 provides a brief definition of the indicators and describes the types of measurements used in each of the categories.

Table 4: Socio –economic and environmental indicators

	DEFINITION	MEASUREMENT
SOCIO-ECONOMIC INDICATORS	Socio-economic diversity: Diversity in social and economic status.	Household income, age, gender, household type (single person, young couple, family with children,..), education, tenure status, economic status, etc.
	Housing Diversity: The variety of housing types and densities.	Percentage of single person housing, Percentage of young couple, percentage of family housing prices, rental rates, etc.
	Housing dispersal: The location of affordable or low-income housing developments throughout the community	Proximity to other housing developments, number of subsidized units per block group, tenure status (ownership /rental), etc.
	Community development	Play areas, community facilities, childcare facilities, common outdoor spaces (parks, etc.)
	Affordability	Rent/ mortgage, utility costs.
ENVIRONMENTAL INDICATORS	Compactness: cohesive urban pattern and walkability	Average block size, average parcel size, distances to school, shopping centre, etc.
	Variety of transport choices: Efficiency of bus service, availability of bike routes, appropriateness of spatial quality, appropriate scale for walking and availability of car parking in close vicinity.	Distance to bus stop, distance to bike path network, square meters of bike path within block group, etc.

Socio –economic and environmental indicators (continuation of table 4)

Higher density: The number of actual dwelling units in a given area.	Ratio of dwelling units/land area and population density.
Diversity of uses: Diversity of planned and current use.	Diversity of functions in a walkable scale (fine-grain mixed-use).
Housing design and material	Natural ventilation, access to daylight, use of recycled or renewable materials
open spaces: parks / recreational areas	parks/square meter

5.3 The Cases

As previously stated, the cases include: Bekaji, State low cost, 80 Units and 400 Units housing estates. This section analyzes these affordable housing projects using the following format:

- Project Overview: description of the development overall, the location within the community, target population and parcel size.

- Indicators Application: each indicator (socio-economic and environment indicators) is applied to the case study.

- Summary of the analysis

PROJECT
OVERVIEW

Location
Address:
Opposite State
Polytechnic
Staff quarters,
Jimeta, Yola.

Site
Parcel Size:
50 Hectares.
Units per
hectare: 10
dwellings per
0.4 Hectare.

Design Team
Designed and
developed by
Gongola State
ministry of
works and
housing

Figure 9: Aerial view showing Bekaji Housing Estate.
(Google earth)
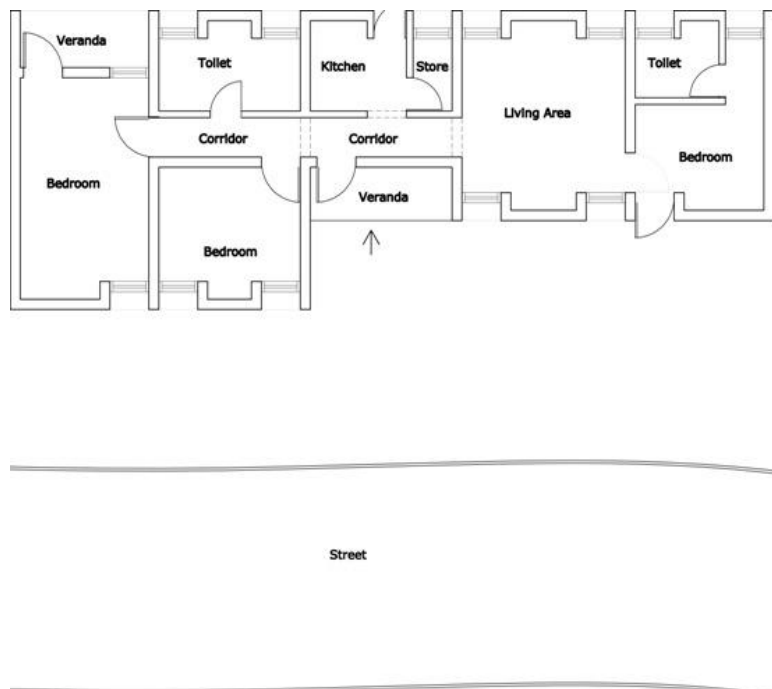
Figure 10: Typical house plan

CASE 1: BEKAJI HOUSING ESTATE

Project Features

300 affordable housing units targeted at young couples and families with children at or below 50 % income.

Mixed-use development includes commercial, educational and social facilities.

Figure 11: Bekaji housing entrance perspective (1) (personal archive)

Figure 12: Bekaji housing entrance perspective (2) (personal archive)

Bekaji housing entrance perspective (3) (Personal archive)

a) Socio-Economic Indicators

▪ **Socio-Economic Diversity**

The results from the questionnaire distributed to the households indicate that of the 300 houses, all are 3 bedrooms occupied mostly by families with children. The age distribution in the entire housing estate is diverse, with 40-64 age groups making up the largest category and 65+ the smallest (fig. 13).
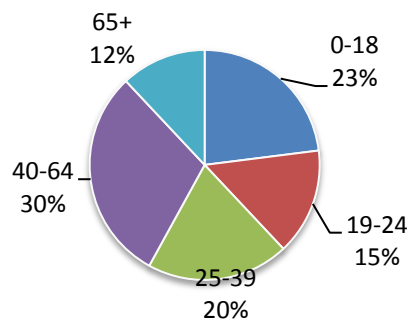
Figure 13: Bekaji housing age distribution (User survey)

In terms of tenure status, 20% of the households are renting the houses. While the remaining 80% of the households owns or are buying the houses through an owner occupier schemes facilitated by Adamawa Homes and Savings. Income wise, the households have diverse levels of income. About 14% earn below N 20,000 (133 US dollars) while 32 % of the households earn between N 60,000 – 100,000 monthly (fig. 14).
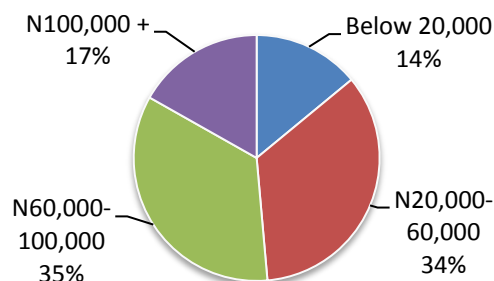
Figure 14: Bekaji housing income levels (User survey)

▪ **Housing Diversity**

Survey results indicate that there is no housing diversity in terms of types. All the 300 houses are of equal numbers of bedrooms (3 bedrooms) and square areas. Rent wise, the 20 % households that are renting are paying similar rent rates because all the houses are of equal room number and have same location. Despite lack of diversity in the housing units, there is diversity in the occupants. Perhaps is due to the fact that the houses were allocated to various social classes regardless of whether you are civil servant or not.

▪ **Housing Dispersal**

The housing estate is located in a mixed use area. This means that proximity to other facilities such as educational, commercial etc is close. Due to close proximity to such facilities, about 30% of the households said it was the most important reason why they moved into this particular neighborhood (fig 15).
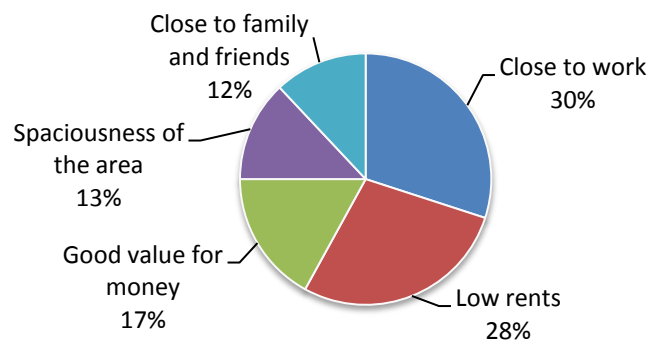
Figure 15: Reasons why people moved in to Bekaji housing estate (User survey)

▪ **Community Development**

Facilities that promote community development such as play areas, community facilities, childcare facilities, common outdoor spaces (parks, etc), etc are not available. However, there is a Bekaji tenant association where residents lay there complains.

- **Affordability**

As previously discussed, 80% of the households owns or are buying the houses through an owner occupier schemes facilitated by Adamawa Homes and Savings. Subsidizes from Adamawa state government and mortgages with interest rate of 6% from Adamawa Homes and Savings (primary mortgage institution) helps in reducing the purchasing cost of the houses. For the remaining 20% households that are renting, survey results indicate that they are paying above 30% of their monthly income as rents which suggests that the residents may be experiencing housing cost burden.

b) Environmental Indicators

- **Compactness**

Bekaji housing estate is located in the commercial zone of Jimeta. Accordingly, the housing blocks and parcels are smaller than those in the suburban and rural zones. Hence the distance to facilities such as banks, shopping centers, schools etc, is shorter in comparison to other affordable housing estates.

- **Variety of Transport Choices**

An urban layout with small blocks and fewer dead end streets makes it easy to use walking as a mode of transportation. That being said, Bekaji housing neighborhood has little access to alternative modes of transportation such as bus, bike, etc. There are no bus stops, no provisions for pedestrians and cyclist because emphasis was placed on the use of cars and motorcycles. The survey result indicates that vast majority of residents commute with private cars and motorcycles (fig 16).
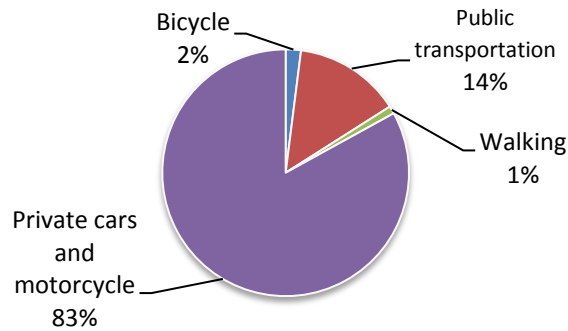
Figure 16: Bekaji housing mode of transportation (User survey)

▪ **Density**

With an average of 10 dwelling per acre and building height of 4.5 meters, Bekaji
housing is characterized with low density in vertical dimension and medium density
in horizontal dimension.

▪ **Diversity of Uses**

There is a diversity of functions in the housing estate. Facilities such as Bekaji
primary school, Bekaji shopping center and Bekaji Police station are all in walking
distance. Hence, due to its integration with other neighborhoods, Bekaji housing
helps in linking people and places together.

▪ **Housing Design and Material**

Though windows have no shading devices, they allow cross ventilation and natural
light due to proper opening and building orientation. Material wise, non-recyclable
material i.e. reinforced concrete structure and concrete blocks were used for both
exterior and interior walls.

▪ **Open spaces**

As discussed in community development, common outdoor spaces that foster social
cohesion such as parks are not available in Bekaji housing estate. The only open
spaces between the buildings are lost and unused spaces lacking qualities which can
promote social cohesion within the residents. They are often dry earth surfaces with

neither grasses nor trees and therefore cannot be used by people and lack climatic comfort, as grasses can help in reducing storm water effects during raining season and trees can provide shades during hot afternoons.

- **Summary of the Analysis**

Table 5: Summary of Bekaji housing analysis in terms socio-economic and environment factors

CASE 1		BEKAJI HOUSING ESTATE	Poor	Fair	Good
SOCIO-ECONOMIC INDICATORS		Socio-economic diversity			●
		Housing diversity	●		
		Housing dispersal			●
		Community development	●		
		Affordability		●	
ENVIRONMENTAL INDICATORS		Compactness		●	
		Variety of transport choices	●		
		Density		●	
		Diversity of uses			●
		Housing design and material		●	
		Open spaces	●		

Poor: 4 Fair: 4 Good: 3

At the end of this analysis, Bekaji housing estate is rated fair in terms of sustainability. However, it is expensive for most low income earners in Yola.

PROJECT OVERVIEW

Location

Address: Opposite Adamawa State Urban Planning Commission, Jimeta, Yola.

Site

Parcel Size: 5 Hectares

Units per hectare:

Design Team

Designed and developed by Gongola State ministry of works and housing

Figure 17: Aerial view showing State Low-cost Housing Estate (Google earth)
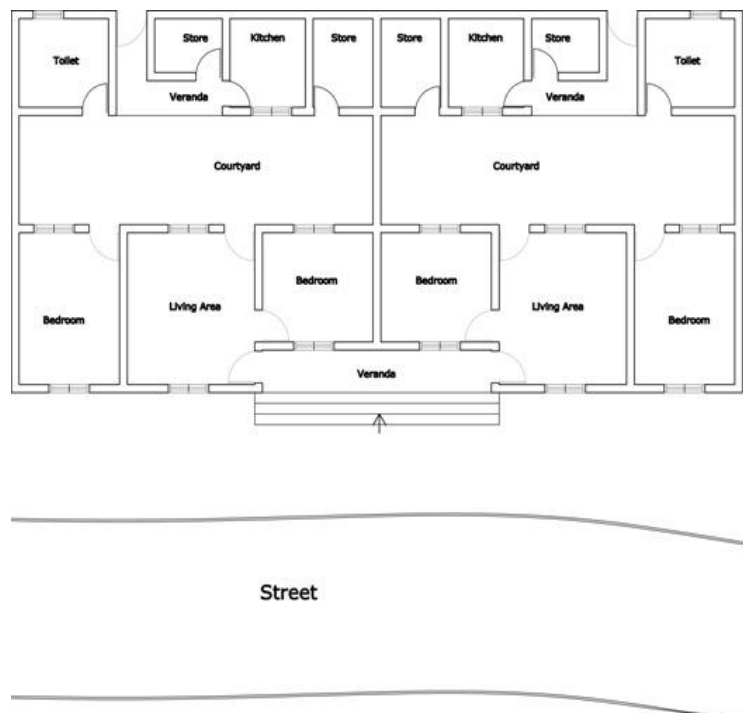
Figure 18: State Low-cost Housing typical semi-detached plan

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CASE 2:
STATE
LOW-COST
HOUSING
ESTATE

Project

Features

111 semi-
detached
affordable
housing units
targeted at
young couples
and families
with children
at or below 40
% income.

Figure 19: State Low-cost Housing typical entrance
(personal archive)

Figure 20: State Low-cost Housing entrance perspective
(personal archive)

Figure 21: State Low-cost Housing street perspective
(personal archive)

a) Socio-Economic Indicators

▪ **Socio-Economic Diversity**

Survey results indicate that of the 111 semi-detached units, all are 2 bedrooms occupied mostly by families with children. The age distribution in the housing estate is fairly diverse, with 40-64 age groups making up the largest category and 65+ the smallest (fig. 22).
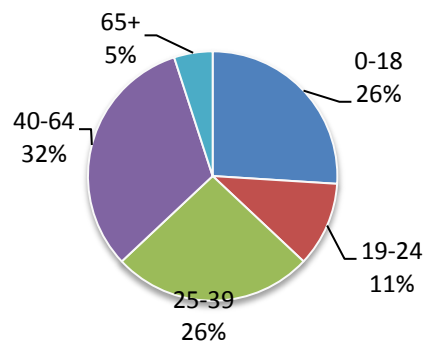
Figure 22: State Low-cost Housing age distribution (User Survey)

In terms of tenure status, all the households own or are buying the houses through an owner occupier schemes facilitated by Adamawa Homes and Savings. And in terms of income, the households have very low diverse levels of income. This is perhaps due to the fact that the houses were allocated to a specific social class in the state civil service thereby promoting social segregation and alienation. 1% of the households earn above N 100,000 (667 US dollars) while about 71 % of the households earn between N 20,000 – 60,000 monthly (fig. 23).
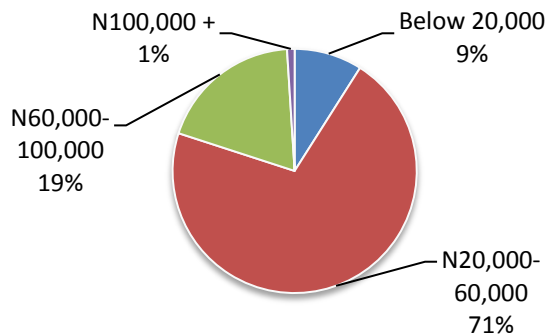
Figure 23: State Low-cost Housing income levels (User Survey)

- **Housing Diversity**

Concerning housing diversity, there is no housing variety in State low-cost housing estate. The survey indicates that all the 111 houses are semi- detached of equal numbers of bedrooms (2 bedrooms) and square areas. The lack of diversity in the housing units causes monotony in the housing estate, hence residents that have completed their mortgage payment have made changes on the housing facades and some have even added extra bedrooms. In terms of mortgage rate, the households are paying similar rates because all the houses are of equal room numbers and have same location.

- **Housing Dispersal**

The housing estate is located near a commercial area (Jimeta shopping complex, Bishop Street, etc). Hence proximity to such facilities (shopping, business centers, hospital, etc) is close. Due to close proximity, about 40% of the households said it was the most important reason why they moved into this particular neighborhood. While 31% said it was due to low rents (fig 24).
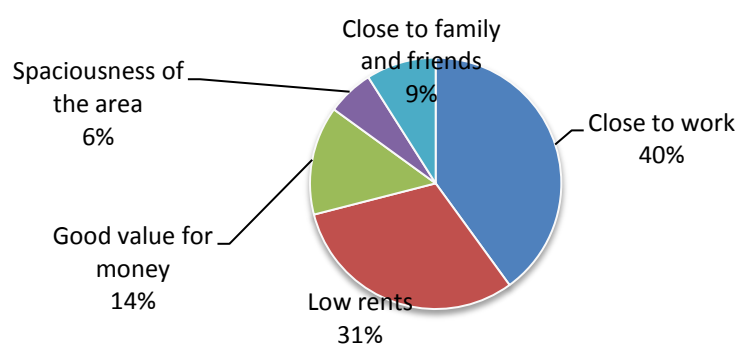
Figure 24: Reasons why people moved in to State low-cost housing estate
(User survey)

- **Community Development**

Similar to the first case study (Bekaji housing estate), facilities that promote community interactions such as play areas, parks, squares, childcare facilities, etc are not available.

- **Affordability**

As previously discussed, all the residents own or are buying the houses through an owner occupier schemes facilitated by Adamawa Homes and Savings. Adamawa state government has subsidized the houses because the residents are civil servants working in various ministries in the state. And also with an interest rate of 6% from the mortgage bank (Adamawa Homes and Savings), the cost of the houses are affordable to the households.

b) Environmental Indicators

- **Compactness**

State low-cost housing is located in the commercial zone of Jimeta. Accordingly, the housing blocks and parcels are smaller than those in the suburban and rural zones. Hence the distance to facilities such as shopping centers, schools etc, is short i.e. reduction in fuel consumption for travelling, as homes, work, leisure facilities, etc are closer together.

- **Variety of Transport Choices**

State low-cost housing neighborhood has little access to alternative modes of transportation such as bus, bike, etc. There are no provisions for neither bus stops nor pedestrians and cyclist because emphasis was placed on the use of private cars and motorcycles. However, residents have access to public motorcycles and it is the only form of public transport available to the commuters of this neighborhood. Survey

result indicates that vast majority (64%) of residents commute with private cars and motorcycles and 34% use public transportation (fig 25).
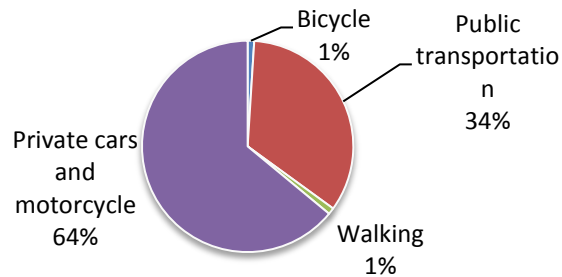
Figure 25: State low-cost housing mode of transportation (User survey)

- **Density**

With an average of 10 dwelling per acre and building height of 4.5 meters, State low-cost housing is characterized with low density in vertical dimension and medium density in horizontal dimension.

- **Diversity of Uses**

As discussed in compactness, because State low-cost is located within the commercial zone of Jimeta, it is surrounded by neighborhoods of various facilities business centers, schools, hospitals etc

- **Housing Design and Material**

Openings allow cross ventilation and daylight due to proper location and courtyard. In terms of material, non-recyclable material i.e. reinforced concrete structure and concrete blocks were used for both exterior and interior walls, while steel was used for openings.

- **Open spaces**

Similar to the situation in Bekaji housing estate (Case 1), common outdoor spaces which foster communication and exchange between neighbors such as park are not available in State low-cost housing estate. The only open spaces available apart from

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untarred streets with neither trees nor street furniture are the unused spaces created

by the housing blocks and such spaces lack qualities which can promote social

cohesion within the neighborhood.

▪ **Summary of the Analysis**

Table 6: Summary of State low-cost housing analysis in terms socio-economic and
environment factors

CASE 2		STATE LOW-COST HOUSING ESTATE	Poor	Fair	Good
SOCIO-ECONOMIC INDICATORS		Socio-economic diversity	●		
		Housing diversity	●		
		Housing dispersal			●
		Community development	●		
		Affordability			●
ENVIRONMENTAL INDICATORS		Compactness		●	
		Variety of transport choices	●		
		Density		●	
		Diversity of uses			●
		Housing design and material		●	
		Open spaces	●		

Poor: 5 Fair: 3 Good: 3

At the end of this analysis, State low-cost housing is rated fair in terms of

sustainability and it is affordable to majority of Yola residence (low income earners).

PROJECT OVERVIEW

Location

Address: Dougirei, Jimeta, Yola.

Site

Parcel Size: 15 Hectares Units per hectare: 5 units per hectare

Design Team

Designed and developed by Gongola State ministry of works and housing

Figure 26: Aerial view showing 80 Units Housing Estate (Google earth)
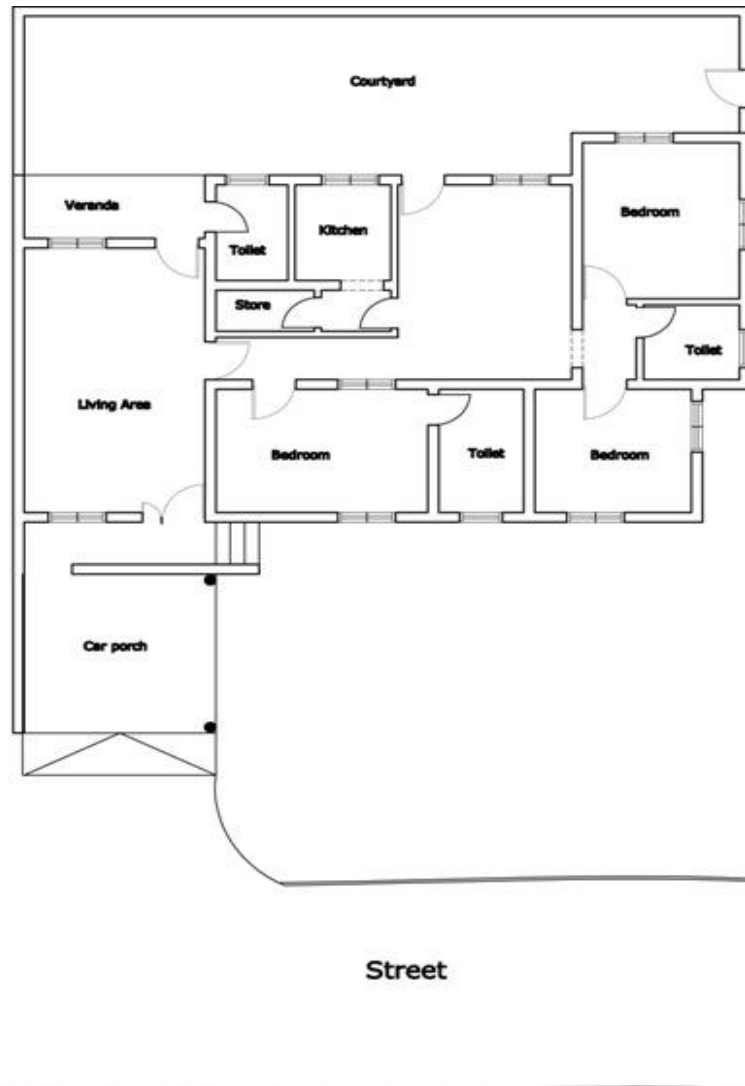
Figure 27: 80 Units Housing typical plan

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CASE 3: 80 UNITS HOUSING ESTATE

Figure 28: 80 Units housing typical entrance elevation
(personal archive)

Project Features

80 semi-detached affordable housing units targeted at young couples and families with children at or below 40 % income.

Figure 29: 80 Units housing perspective 1
(personal archive)

Figure 30: 80 Units housing perspective 2
(personal archive)

a) Socio-Economic Indicators

▪ **Socio-Economic Diversity**

Survey results indicate that of the 80 semi-detached units, all are 3 bedrooms occupied mostly by families with children. Similar to the previous two cases (Bekaji and State low-cost housing) the age distribution in 80 Units housing estate is diverse with age groups of 40-64 making up the largest category and 65+ the smallest (fig. 31).
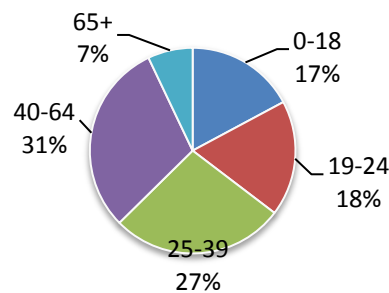
Figure 31: 80 Units housing age distribution (User Survey)

In terms of tenure status, all the households have bought the houses through an owner occupier schemes facilitated by Adamawa Homes and Savings. And in terms of income, the households have very low diverse levels of income. This is due to the fact that the houses were allocated to a specific social class in the state civil service similar to State low-cost housing (case 2). About 66 % of the households earn between N 60,000 – 100,000 (400 - 667 US dollars) monthly while 0% earn below N 20,000 (fig. 32).
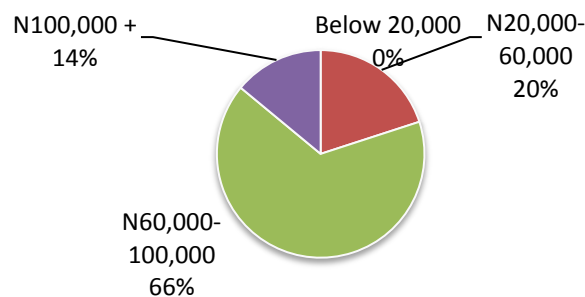
Figure 32: 80 Units housing income levels (User Survey)

- **Housing Diversity**

80 Units housing estate is also similar to Bekaji and State low-cost housing estates (case 1 and 2) in terms of housing diversity. Survey results indicate that there is no housing variety in the units. All the 80 semi- detached houses are of equal numbers of bedrooms (3 bedrooms) and square areas. The lack of diversity in the housing units means that single persons are excluded because the houses are targeted at families with children.

- **Housing Dispersal**

The housing estate is located in a suburban residential neighborhood. Therefore, proximity to facilities such as shopping, business centers, hospital, etc is far. When asked why people moved into this particular neighborhood, 38% said it was due to the spaciousness of the area while 6% said it was due closeness to work (fig 33).
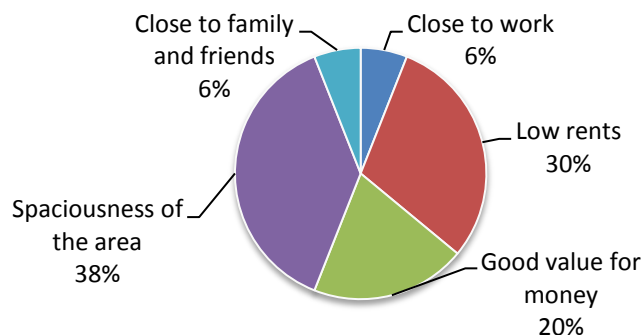
Figure 33: Reasons why people moved in to 80 Units housing (User survey)

- **Community Development**

Similar to previous cases i.e. Bekaji and State low-cost housing estates, facilities that promote community development such as play areas, community facilities, childcare facilities, common outdoor spaces, etc are not available.

- **Affordability**

As discussed in socio-economic diversity, all the residents have bought the houses through an owner occupier schemes facilitated by Adamawa Homes and Savings. Similar to case 2 (State low-cost), Adamawa state government has subsidized the purchasing cost of 80 units houses because the residents are civil servants.

b) Environmental Indicators

- **Compactness**

Located in a suburban neighborhood, the housing blocks and parcels are larger than those in the urban neighborhood. Therefore, facilities such as shopping centers, schools etc, are not in walking distances. Accordingly, fuel consumption for travelling is increased and people's time is wasted as facilities are not in close proximity.

- **Variety of Transport Choices**

Unlike the previous two cases (Bekaji and State low-cost housing estates), 80 Units is located near a major bus transit route in Yola. However, only 30% of the residents commute with public transports, perhaps this is due to inefficiency of the public buses. Vast majority (69%) of residents commutes with private cars and motorcycles (fig 34).
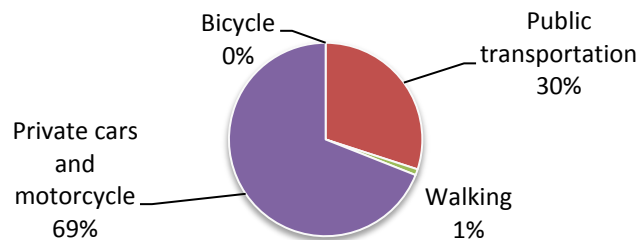
Figure 34: 80 Units housing mode of transportation (User survey)

- **Density**

With an average of 5 dwelling per hectare and building height of 4.5 meters, 80 units housing is characterized with very low density both in vertical and horizontal dimensions.

- **Diversity of Uses**

In terms of diversity of uses, 80 Units housing is predominantly residential with no mix to other functions such as commercial, educational, etc. Unlike case 2 (State low-cost) that is mainly residential but located in a mixed-use neighborhood, 80 Units is located in mainly residential neighborhood with access to other functions in far proximity. Hence some households have allocated part of their homes for commercial functions selling basic necessities such as groceries.

- **Housing Design and Material**

Windows have shading devices and allows natural light and cross ventilation due to proper opening and courtyards. Material wise, non-recyclable material i.e. reinforced concrete structure and concrete blocks were used for both exterior and interior walls, while steel was used for doors.

- **Open spaces**

Similar to the previous cases, common outdoor spaces which could promote social cohesion such as park are not available in 80 Units. Despite the spaciousness of the neighborhood, the opens spaces lack qualities. They are left unmaintained with grasses and shrubs (35a& b).

<center>(a)   (b)</center>

Figure 35: (a) and (b) Unmaintained open spaces in 80 Units housing

(Personal archive)

- **Summary of the Analysis**

Table 7: Summary of 80 Units housing analysis in terms socio-economic and environment factors

CASE 3	80 UNITS HOUSING ESTATE	Poor	Fair	Good
SOCIO-ECONOMIC INDICATORS	Socio-economic diversity	●		
	Housing diversity	●		
	Housing dispersal	●		
	Community development	●		
	Affordability			●
ENVIRONMENTAL INDICATORS	Compactness	●		
	Variety of transport choices			●
	Density	●		
	Diversity of uses	●		
	Housing design and materials		●	
	Open spaces	●		

<div align="right">Poor: 8 Fair: 1 Good: 2</div>

In conclusion, 80 Units housing is rated poor in terms of sustainability and is only affordable mostly to high income earners.

CASE 4: 400 UNITS HOUSING ESTATE

PROJECT OVERVIEW

Location

Address: Jimeta, Yola.

Design Team

Designed and developed by Adasolids Properties Limited.

Project Features

400 affordable housing units targeted at single persons, young couples and families with children at or below 40 % income.

Figure 36: 400 Units housing front entrance perspective (personal archive)

Figure 37: 400 Units housing back entrance perspective (personal archive)

Figure 38: 400 Units housing street perspective (Personal archive)

a) Socio- Economic Indicators

- **Socio-Economic Diversity**

400 Units housing estate is under construction but when completed, it will be occupied by all types of households (single persons, young couples and families with children) and will be allocated to a diverse social classes unlike the previous case 2 and 3 (state low-cost and 80 units housing) that were targeted at a specific social class and civil servants . Hence there will be diversity in age groups and households income levels. Tenure wise, the houses will either be rented or sold through mortgage facilities from Adamawa Homes and Savings.

- **Housing Diversity**

Unlike the previous cases (1, 2 &3), 400 Units housing estate will have diversity in housing types. Of the 400 units, 12 are for 1 bedroom semidetached, 243 for 2 bedrooms bungalow and 145 for 3 bedrooms bungalow. Hence there would be no problem of monotony.

- **Housing Dispersal**

The housing estate is located in a rural part of Yola. Therefore, other supporting facilities (working, leisure, etc) are in distant.

- **Community Development**

Though 400 Units is still under construction, facilities that encourage neighborhood interaction (play areas, common outdoor spaces, etc) are not included in the master plan.

b) Environmental Indicators

- **Compactness**

Located in a rural neighborhood, the housing blocks and parcels are larger than those in the urban and suburban neighborhoods. Therefore, facilities such as shopping

centers, schools etc, are not in walking distances i.e. increase in fuel consumption for travelling, as facilities are not in close proximity.

- **Variety of Transport Choices**

Due to its location, distances to bus transit routes are far. The only form of public transport in close proximity is motorcycles hence, majority of the occupants may have to rely on private cars and motorcycles.

- **Density**

400 units housing is characterized with very low density in vertical dimension and medium density in horizontal dimension.

- **Diversity of Uses**

In terms of diversity of uses, 400 Units housing will be similar to case 3 (80 Units housing) i.e. predominantly residential with no mix to other functions such as commercial, educational, etc. If sustainable affordable housing is meant to foster social cohesion through friendship, exchange of information, culture, skills, knowledge, etc then the future occupants of 400 Units housing will have problem on achieving social cohesion. Because that can only be achieved when a housing neighborhood is located in mix other facilities (commercial, leisure, etc) i.e. such facilities in a reasonable walking distance.

- **Open spaces**

Similar to case 1, 2 & 3, common outdoor spaces which could promote social cohesion are not available in 400 Units housing master plan.

- **Summary of the Analysis**

Table 8: Summary of 400 Units housing analysis in terms socio-economic and environment factors

CASE 4	400 UNITS HOUSING ESTATE	Poor	Fair	Good
SOCIO-ECONOMIC INDICATORS	Socio-economic diversity			●
	Housing diversity			●
	Housing dispersal	●		
	Community development	●		
	Affordability			
ENVIRONMENTAL INDICATORS	Compactness	●		
	Variety of transport choices	●		
	Density		●	
	Diversity of uses	●		
	Housing design and material		●	
	Open spaces	●		

Poor: 6 Fair: 2 Good: 2

At the end of this analysis, 400 Units housing is rated poor i.e. unsustainable hence unaffordable in the long run for low income earners.

Table 9: Analysis summary of the selected case studies

		BEKAJI HOUSING ESTATE	STATE LOW -COST HOUSING ESTATE	80 UNITS HOUSING ESTATE	400 UNITS HOUSING ESTATE
SOCIO- ECONOMIC INDICATORS	Socio-economic diversity	Highly diversified	Less diversity	Less diversity	Highly diversified
	Housing diversity	No diversity	No diversity	No diversity	Highly diversified
	Housing dispersal	located in an urban mixed- use neighborhood	located in an urban mixed- use neighborhood	located in a suburban residential neighborhood	located in a rural residential neighborhood
	Community development	No user participation due to lack of community facilities	No user participation due to lack of community facilities	No user participation due to lack of community facilities	Based on the master plan, there will be no community facilities
	Affordability	Affordable due to government subsidizes	Affordable due to government subsidizes	Affordable due to government subsidizes	Still under construction
ENVIRONMENTAL INDICATORS	Compactness	Fairly compact and other supporting facilities are in walkable distance	Fairly compact and other supporting facilities are in walkable distance,	Sparsely arranged and other supporting facilities are in distant	Fairly compact but other supporting facilities are in distant
	Variety of transport choices	Insufficient and inefficient public transportation, more emphasis given to private vehicular systems, no proper provisions for neither pedestrians nor cyclist	Insufficient and inefficient public transportation, more emphasis given to private vehicular systems, no proper provisions for neither pedestrians nor cyclists	Sufficient but inefficient public transportation, more emphasis given to private vehicular systems, no proper provisions for neither pedestrians nor cyclists	Still under construction but based on the master plan, more emphasis given to private vehicular systems, no proper provisions for neither pedestrians nor cyclists

Analysis summary of the selected case studies (Continuation of table 9)

	Density	low density in vertical dimension and medium density in horizontal dimension	low density in vertical dimension and medium density in horizontal dimension	low density in both vertical and horizontal dimensions	low density in vertical dimension and medium density in horizontal dimension
	Diversity of uses	Housing with commercial and educational facilities	Predominantly housing with other supporting facilities in close proximity	Predominantly housing with other supporting facilities in distant	Predominantly housing with other supporting facilities in distant
	Housing design and material	Cross ventilation and natural light achieved due to proper opening and building orientation. Material wise, non-recyclable material.	Cross ventilation and natural light achieved due to proper opening location and courtyard. Material wise, non-recyclable material.	Cross ventilation and natural light achieved due to proper opening location and courtyard. Material wise, non-recyclable material.	Cross ventilation and natural light achieved due to opening and building orientation. Material wise, non-recyclable material.
	Open spaces	Lack of common outdoor spaces	Lack of common outdoor spaces	Lack of common outdoor spaces	Lack of common outdoor spaces

Chapter 6

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Literatures on affordable housing in Nigeria prove that the challenges of housing the urban populace especially low-income group are enormous. The challenge comprises issues related to housing finance, land supply and government bureaucracies as discussed in the previous chapters.

This thesis analyzed four affordable housing projects in terms of socio-economic and environmental issues in order to determine the challenges of affordable and sustainable housing in Yola. Research methods included questionnaire survey and site analysis. 220 questionnaires were distributed to the households of the selected cases and a response rate of 80 percent was achieved. As for the site analysis, indicators as discussed in section 5.2.2 were chosen to represent a component of each of the three dimensions of sustainability, i.e. economic, social and environment. By aligning the indicators with the dimensions of sustainability, it highlighted the potential impacts and benefits of these developments on the residents and their neighborhoods. The following are the research findings:

a) **Socio-economic diversity**

Bekaji and 400 Units housing estates (case 1&4) are highly diverse in terms of socio-economic profile. These neighborhoods promote social cohesion because it accommodates households of different ages, gender, education, tenure status,

economic status, tribes, etc hence creating a stronger and more diverse neighborhood. However, case 2 and 3 (State low-cost and 80 Units housing estates) where the households are of specific socio-economic background, i.e. low income and high income earners respectively promote social exclusion, and in the long run, it may lead to insecurity and social conflict.

b) Housing diversity

The variety of housing types, rental rates, and so forth in 400 Units housing (case 4) means households of different types (single persons, young couples and families with children). However, the lack of housing diversity in case 1, 2 &3 (Bekaji, State low-cost and 80 Units) causes monotony and exclusion of single persons household type because they are targeted at young couples and families with children, hence promoting segregation. According to UNECE (2006 a and b), such practice, i.e. the failure to establish a political, economic, social and physical environment with adequate standard of living for all inhabitants in a community may contribute to higher societal costs, political instability, homelessness etc which may lead to social exclusion.

c) Housing dispersal

As discussed in section 3.5.1, affordable housing location within a community plays an important role in determining how sustainable that housing development is. Bekaji and State low cost housing (case 1&2) are located in a mixed use area i.e. close to commercial services, educational facilities, health care services, etc. Hence, more walking, cycling and decrease in fuel consumption. However, 80 Units and 400 Units housing (case 3&4) are located in a non-mixed use neighborhood hence supporting facilities are in distant. These result to increase in fuel consumption and

transportation cost burden on low income households because transport expenditures may claim a higher percentage of their income.

d) Affordability

Affordability is a relationship between housing and people that depends on answering three questions: affordable to whom, on what standard of affordability and for how long? (Stone 2005 cited in Pullen et al. 2009).

All the cases analyzed are affordable due to heavy subsidize from state government and low interest rate mortgage facilities from Adamawa Homes and Savings. However, in terms of affordable to whom, despite the subsidies and low interest rate mortgage Case 1 and 3 (Bekaji and 80 Units) are only affordable because most of the residents are senior civil servants i.e. not affordable to the majority of people in Yola (low income group). Hence case 2 (State low cost) is the only housing development among the selected cases that is affordable to low income earners.

Affordable for how long? Cost such as transportation, utility, etc. have substantial impact on households. This is because a home may be affordable to purchase but after some period, its occupants may spend the same value as the initial purchase price in excessive transportation and other costs. That being said, Bekaji and State low cost (case 1&2) residents spend less on cost such as transport due to their locations (mixed use neighborhood). However, 400 Units housing future residents (still under construction) will have to spend a high percentage of their incomes on transportation because it is located in an urban fringe. Hence it may not be affordable in the long run.

e) Community development

There is no doubt that community development activities and participation create better quality houses, promote community cohesion and spirit, social interaction, etc. hence enhance the social capital and economic well being of neighborhoods. However, facilities that promote such activities i.e. childcare facilities, common outdoor spaces, etc. are not available in the selected cases. Perhaps that is the reason why neighborhood interaction is low in some of the cases. The absence of mixed housing in case 1, 2 and 3 discourages community diversity hence the opportunity for social contact among diverse range of residents is lost.

f) Density

As discussed in section 3.5.2, density plays an important role in achieving affordable housing because high density means more units per acre which therefore lowers the cost of land per unit. Bekaji, State low cost and 400 Units housing estates (case 1, 2 &4) are characterized with low density in vertical dimension and medium density in horizontal dimension. This is fair when relating it to wider urban context of Yola. However in the case of 80 Units housing (case 3), it is characterized with low density in both vertical and horizontal dimensions. Such neighborhood (low density) is linked to unsustainable housing environment because as density decreases, the costs of servicing key infrastructures increases and so also the per capita energy consumption.

g) Housing design and material

Proper building orientation and openings location in all the selected cases and the use of courtyard in case 2 & 3 (State low cost and 80 Units) enable natural ventilation and day lighting in the houses. However, in terms of materials, non-recyclable and

perhaps imported materials such as cement, steel, etc were used in all the selected cases.

h) Variety of transport choices

Although the environmental impacts of automobile is widely recognized, all the selected cases are private cars and motorcycles orientated developments. This is because there are fewer provisions for public transport except in case 3 (80 Units housing) where it is linked to a major bus transit route. However, very few percentages of the residents use such service due to inefficiency of the buses. In terms of pedestrians and cyclists, they have neither proper demarcation i.e. pavements nor green buffer zone to protect from vehicles.

i) Open spaces

Public open spaces within a neighborhood where its members can gather, children can play safely, etc. encourage community interaction hence promote social dimension of sustainability. Whereas green landscape provides shade, controls wind, erosion, noise reduction, etc. promoting economic and environmental dimensions of sustainability. Unfortunately, the open spaces in the selected cases lack such qualities. They are usually left over spaces with neither grasses nor trees except in case 3 (80 Units) where grasses exits but left unmaintained hence they appear as isolated spaces. Streets are in dilapidated state with neither tarmac nor street furniture except in case 4 (400 Units) that is under construction.

As discussed in section 1.2, the main questions this research intends to find answers to are as follows:

a)   Can housing in Yola be both affordable and sustainable?

b)   Why are the affordable housing schemes implemented in Yola not sustainable hence not affordable to majority of people (i.e. low-income earners)?

c)   How can sustainability help in providing affordable housing in Yola?

The research findings reveal that houses in Yola can be both affordable and sustainable and some of the reasons why they are not sustainable hence unaffordable in long term are due to inadequate availability of housing inputs (land, finance, infrastructure, labor and materials), inefficient transport facilities, lack of diversity (in terms of housing types and socio-economic diversity of households), lack of user participation and improper location. The last research question i.e. "how sustainability can help in providing affordable housing in Yola?" will be discussed in the next section (6.2).

6.2 Recommendations towards Affordable and Sustainable Housing

Although numerous affordable housing policies have been developed and implemented over the last decades, today's evidence suggests that housing affordability will always be a problem to majority of Nigerians in the foreseeable future. The concept of sustainability was developed to provide solutions to such problem. When applied into housing, it does not only deal with issues of affordability but also ability of the households to meet their basic needs, i.e. food, shelter and health, their relationships with neighbors and physical environment. Therefore it connects the wellbeing of people with the wellbeing of the environment, hence creating a housing that is not only affordable but also sustainable. That being said, in order to achieve affordable and sustainable housing in Yola and Nigeria at large the following recommendations should be taken into consideration:

▪   Houses should not be allocated to a specific social class. It should accommodate people of various demographic backgrounds i.e. income, occupation, tribe, etc. thereby enhancing socio-economic diversity.

- Houses should be diversified in terms of types and tenure, hence providing accommodation options to a broader range of residents and creating a diverse and vital neighborhood.

- Proximity to supporting facilities (commercial, educational, health, etc) should be considered when examining potential sites for locating housing development because close proximity reduces transport and infrastructure cost.

- Housing inputs (land, finance, infrastructure, labor and materials) should be adequately available in order to make houses affordable. This means developing an efficient land administration system to make land ownership available, accessible and easily transferable at affordable cost, creating adequate and affordable housing finance by developing an efficient mortgage system, promoting the use of local materials and developing both skilled and unskilled manpower.

- Users should be engaged in housing development process in order to create better quality houses that are socially and culturally appropriate. This will help create or enhance community cohesion and spirit as well.

- Designing of houses according to natural climate should be encouraged while local building materials such as bricks, cement stabilized blocks from laterite soils, etc. should be studied and improved to render them suitable for producing cost-effective and durable houses.

▪ Access to efficient public transport system should be considered when examining potential sites for locating future housing developments. For pedestrian and cyclist modes of transportation, more emphasis should be given to them. They should have proper demarcation and greenery buffer for protection against vehicles.

▪ Public open spaces should be well designed and integrated with landscape elements, hence creating open spaces with climatic comfort (shade and wind from trees) which will attract people of different background fostering community interaction.

The above listed recommendations when taken into consideration during housing design and construction stages will not only make the end product affordable but also sustainable. However, for that to be achieved, governments (both state and federal) need to have the political will of solving the housing problems discussed in the previous and present chapters. Although they have so far been engaged with other essential priorities such as energy, food, economic growth, etc. firm commitments towards affordable and sustainable housing provision are needed.

Unfortunately there are no simple, ready-made or uniform solutions to affordable housing problems. However, as discussed in section 4.5 Zulficar (1990, p19) advocates that there are "imaginative ways of seeking the rational and efficient use of scare resources". Based on this conception, it can be suggested that for houses in Yola to be affordable and sustainable, governments' housing commitments should include reforming and devising policies for community involvement in housing provision, providing easy access to land with legal title deeds, easy access to housing finance, infrastructure, etc.

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APPENDICES

Appendix A: Research Questionnaire

CHALLENGES AND PROSPECTS OF AFFORDABLE AND SUSTAINABLE HOUSING IN YOLA, NIGERIA

Please kindly complete the questionnaire below and mail or e-mail it to:

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QUESTIONNAIRE

Section A: Residential History

A1) Name of housing estate:_____

A2) How long have you lived in this house? _____ Years OR Since:

_____ OR All of life: _____

A3) Here are some reasons why people move to a particular neighborhood. How important was each of the following in the decision to move here?

	1 Very Important	2 Important	3 Not Important
A3a) Close to work	☐	☐	☐
A3b) Low rents	☐	☐	☐
A3c) Costs/ good value for money	☐	☐	☐
A3d) Size of the community	☐	☐	☐
A3e) Familiar with the area	☐	☐	☐
A3f) Openness or spaciousness of the area	☐	☐	☐
A3g) Close to family and friends	☐	☐	☐

A3h) Of the reasons we've talked about, which one was the most important for you?

(Choose only one) _____

A3i) Besides the reasons on the list, are there other reasons why you moved to this particular neighborhood?

_____

_____

_____

Section B: Housing

B1)Type of household: Single person ☐ Couple ☐   Family ☐   Other _____

B2) Type of accommodation: Flat ☐ Detached house ☐ Semi-detached house ☐ Terraced house, ☐ Bungalow   Other _____

B3) Number of rooms occupied (hallways and bathrooms excluded)?

B4) How would you describe the size of the rooms?

   1. Too Large ☐   2. Too Small ☐   3. Normal ☐ 4. Mixed ☐

B5) How would you describe the size of the house/ flat?

   1. Too Large ☐   2. Too Small ☐   3. Normal ☐

B6) Physical condition of house / flat: Good ☐   Fair ☐   Poor ☐

B7) Do you own this (house/ flat), pay rent or none of the above?

   1. Owns or is buying   2. Pays rent   3. Neither owns nor rent

       ☐   ☐   ☐

       ↓   ↓   ↓

      Go to B8   Go to B9   Go to B10

B8) Think of the costs of this (house/ flat), such as the maintenance costs, utilities, etc. Overall, would you say that for a (house/ flat) such as this one these costs are:

   1. Very low ☐ 2. Low ☐ 3. Moderate ☐ 4. High ☐ 5. Very high ☐

B8a) What percentage of your salary/wage goes to these cost? _____

B9) Think of the costs of this (house/ flat), such as the rent, utilities, etc. Overall, would you say that for a (house/ flat) such as this one these costs are high, moderate or low?

   1. Very low ☐ 2. Low ☐ 3. Moderate ☐ 4. High ☐ 5. Very high ☐

B9a) What percentage of your salary/wage goes to these cost? _____

B10) How is that?

_____

_____

_____

B11) To be able to understand household's financial situation, approximate monthly or yearly incomes are needed. Hence could you please thick the category that best describe your monthly household income?

1. Less than N 20,000 ☐   2. N 20, 000 – 60, 000 ☐   3. N 60,000-100,000 ☐   4. N 100, 0000 an d above

B12) How satisfied are you with this house/ flat?

1. Very satisfied ☐   2. Satisfied ☐ 3. Neither satisfied nor dissatisfied ☐
4. Dissatisfied ☐   5. Very dissatisfied ☐

B13) If you have a choice, would you move from this (house/ flat) or stay?

1. Move ☐   2. Stay ☐

B13a) Why?

_____

_____

_____

<div align="center">Section C: Neighborhood & Neighboring</div>

C1) which of these best describes your "neighborhood" as it seems to you:

1. 5-6 houses nearest my house ☐   2. My street ☐   3. My district ☐
4. My region ☐

C2) Do you think of this neighborhood as your home, or just a place you happen to live in?

1. Home ☐   2. Just a place to live ☐

C3) How often do you interact with your neighbors either for a chat or a social visit?

1. Often ☐   2. Rarely ☐   3. Never ☐

C4) Below is a list of problems that exist in some neighborhoods in Yola. For each, please tell me what do you think?

	1 Big Problem	2 Somewhat of a Problem	3 Not a Problem
C4a) Too many unsupervised teenagers	☐	☐	☐
C4b) Illegal drugs	☐	☐	☐
C4c) Abandoned building or vehicles	☐	☐	☐
C4d) Poorly kept vacant land	☐	☐	☐
C4e) Poorly kept streets	☐	☐	☐
C4f) Unfinished constructions	☐	☐	☐
C4g) Noisy neighbors	☐	☐	☐

C5) Below are some statements about neighbors and neighborhoods. For each, please tell me what do you think?

	1 Strongly Agree	2 Agree	3 Neither Agree nor Disagree	2 Disagree	3 Strongly Disagree
C5a) You have little to do with people who live in this neighborhood.	☐	☐	☐	☐	☐
C5b) There is a strong sense of community in this neighborhood.	☐	☐	☐	☐	☐
C5c) You feel like you belong to a community.	☐	☐	☐	☐	☐
C5d) Your neighbors are friendly people.	☐	☐	☐	☐	☐

C6) All things considered, how satisfied or dissatisfied are you with this neighborhood as a place to live?

1. Very satisfied ☐   2. Satisfied ☐   3. Neither satisfied nor dissatisfied ☐

4. Dissatisfied ☐   5. Very dissatisfied ☐

Section D: Public Services and Transportation

D1) Is there any form of public transportation available to you here?

1. Yes ☐   2. No ☐

Go to E3   Go to E2

D2) How would you feel about having a public transportation for people who live around here?

1. Strongly in favor ☐   2. Somewhat in favor ☐   3. Not in favor ☐

D3) How often do you use public transportation?

  2. Often ☐ 2. Rarely ☐ 3. Never ☐

<div align="right">↓
Go to E4</div>

D4) How difficult would it be for you to get around without public transportation?

  1. Very difficult ☐ 2. Somewhat difficult ☐ 3. Not very difficult ☐

D5) Overall, how good is the public transportation for people who live around here?

  1. Very good ☐ 2. Good ☐ 3. Neither good nor bad ☐ 4. Bad ☐

  5. Very bad ☐

Appendix B: Observation Form

Case	
Density	Relationships between development and wider urban context
	Entity/ cohesion
	Settlement density in two- dimension
	Settlement density in three-dimension
Housing diversity	Percent single family housing
	Percent multi-family
	Housing prices
Housing design and material	Construction materials
	Building orientation and massing
	Shading and natural ventilation
Mixed land use	Mix for own convenience (housing/ commercial)
	Housing mix (small units vs. big units, etc)
	Public – private interface
Public transportation and pedestrian friendly streets	Access to commonly used facilities within waking and cycling distances
	Integration with existing transportation routes (vehicular, Pedestrian and Public transport)
	Different movement integration (car, bike, foot etc)
	Traffic calming measures
	Efficiency of transportation
	Disabled access
Open spaces for urban activities and landscaping	Provision and use of common outdoor spaces
	Use of exterior spaces (terraces, balconies, etc)
	Access to nature
	Access to edible landscape
Community participation	Play areas
	Sports and childcare facilities
	Community facilities