ASSESSMENT OF HOUSING QUALITY OF SELECTED RESIDENTIAL ESTATES IN LAGOS STATE, NIGERIA

A Ph.D Thesis

By

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DECLARATION

I, Babalola, Daniel Olatunde, hereby declared that the work referred to in this thesis was carried out entirely by me under the supervision of Professor O.A. Olotuah (Main Supervisor) and Dr E.O. Ibem (Co-Supervisor) of Department of Architecture, Federal University of Technology, Akure, Ondo State and Department of Architecture, Covenant University, Ota, Ogun State, respectively. No portion of the contents has been submitted for a degree or qualification of this nature in any other university or institution of higher learning. All sources of information were duly and properly acknowledged.

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BABALOLA Daniel Olatunde

CERTIFICATION

This thesis entitled 'Assessment of Housing Quality of Selected Residential Estates in Lagos State, Nigeria' was carried out by Babalola, Daniel Olatunde under our supervision and meets the regulations governing the award of the degree of Doctor of Philosophy (Ph.D) in Architecture of the Covenant University, Ota, Ogun State, Nigeria. We hereby certify it satisfactory for its contribution to knowledge and literary presentation.

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Prof. Olukayode A. Olotuah   Dr Eziyi O. Ibem

Main Supervisor   Co-Supervisor

DEDICATION

To Almighty God, the only wise who endowed His creatures with wisdom for dominion and responsibility; He is the Divine author of Omni-quality, and wants it to permeate every sphere of His creation. Truly, this work is dedicated to Him for His benevolence and sustenance in totality.

To my Love, and Complement - Mrs. Joke Babalola; and my Children - Oluwasegun Samuel John, Iyanuoluwa Deborah and Oluwagbemiro Oluwanifemi Excellence

To my Parents - Pa James Babalola and Mama Elizabeth Babalola.

To my siblings and spouses, Dr (Engr) and Mrs Abayomi Babalola, Pastor (Barr.) and Pastor (Mrs) Oluyomi Philip Babalola and their wonderful families.

To all my family relations and friends.

Parents - Pa James Babalola and Mama Elizabeth Babalola who both passed on to be with the Lord God in glory for their care for me from babyhood to adulthood; I am eternally grateful for boarding their joint boat from celestial to this terrestrial realm; to my siblings and spouses, Dr (Engr) and Mrs Abayomi Babalola, Pastor (Barr.) and Pastor (Mrs) Oluyomi Philip Babalola and their wonderful families, Mr and Mrs F. Afolabi, my cousin-sister Mrs G.E. Rotimi and her loving family, Honourable (Dr) and Mrs O. Bolarin, Mr and Mrs F.O. Agbanah, Prof. and Mrs O.P. Ajagbonna, Mr and Mrs E.O. Ajayi, Mr and Mrs V.S. Adeyemi, Mr and Mrs A. Akolo, Mr and Mrs A. Alapo, Engr and Mrs I. Omiwale, Elder J.K. Ayo, Mrs Jegede, Mrs L. Alabi, Elder S.H. Igunnu, as well as all other persons too numerous to be listed in this thesis with all their contributions and concerns about this work and more. To everyone who contributed directly or indirectly to the process and production of this thesis, I say thanks and God bless you all.

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ABSTRACT

In the face of deteriorating quality of housing environment in urban areas in developing countries, including Nigeria, the need for strategies that can help reverse this trend cannot be overemphasised. It is in search for such strategies to improve the quality of residential environment that the assessment of housing quality in mass housing estates has continued to engage the attention of scholars and researchers within and outside Nigeria. However, there has been very little attempt to investigate and understand the quality of housing constructed solely by government agencies and that provided through the Public-Private Partnerships (PPPs) arrangement in Nigeria. This study assessed housing quality of selected residential estates in Lagos State, Nigeria, with a view to identifying how to improve housing quality in government and PPP residential estates. The research was based on a cross-sectional survey of randomly selected 379 household heads in fifteen housing estates for low, middle and high-income earners in the study area. The data were collected using questionnaire, observation schedule and photographic materials, and analysed with the help of the Statistical Package for Social Sciences (SPSS). The data were subjected to descriptive statistics, Kendall Tau, Kruskal Wallis, Median Tests and Categorical Regression (CATREG) analyses. The results revealed that a majority of the household-heads were educated, middle-aged, low-income earners and males living in rented 3-bedroom housing units. They rated their dwelling units, neighbourhood environment and overall quality of housing in the estates as good. Comparatively, the high-income housing estates were rated as having a better quality of housing than the middle and low-income residential estates, while the estates constructed solely by government agencies were also rated higher on the quality scale than those developed through the PPP arrangements. In addition, a significant relationship between the quality of dwelling units, neighbourhood environment and the overall housing quality was established in the estates. Furthermore, the CATREG analysis, which produced a model accounting for about 50 per cent of the variance in housing quality, identified eleven significant predictors of housing quality in the estates. Those with the greatest impact on housing quality include housing adequacy and satisfaction (β =0.337); estate conditions (β =0.203); number of bedrooms in the dwelling units (β= 0.169); and length of stay in the residences (β 0.169). The key implication of these findings is that the quality of housing in the residential estates developed by government agencies and through the PPPs can be significantly improved and if housing designers, developers and managers pay adequate attention to issues that promote qualitative adequacy of housing; higher levels of satisfaction by residents; access to adequate number of bedrooms based on household income; and homeownership among all categories of residents, especially the low and middle-income urban households in Nigeria.

CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

Housing quality (HQ) is generally referred to as the standard of housing environment. Housing quality is known to affect welfare, health and productivity of individuals and households (Coker, Awokola, Olomolaiye & Booth, 2007; Krieger & Higgins, 2002). Problems of housing in terms of quality appear to differ from place to place. This is due to the set of determinants, including the socio-cultural background of individuals, climate and relief, which make what is acceptable as the norm or standard in a place to be different from what is acceptable in other places. The quantitative inadequacies of housing also differ in magnitude between the developing and the developed countries and between the poor and the rich. It was on this premise that Ibimilua (2011) noted that the poor have inadequate access to quality housing, while the rich have greater chances of accessing good quality housing.

The quality of a residential area reflects a city's planning, development and resources allocation between socio-economic groups, and the quality of life of the residents (Coker *et al*, 2007). Hence, improving housing quality is a matter of great concern, especially in developing countries, including Nigeria (Olotuah, 2006d). In Nigeria, housing is generally qualitatively inadequate in the rural areas in and to some extent deficiency in the supply of the required number of units. On the other hand, the major problem in urban areas is inadequacy in both quantity and quality. Since housing has been known to be highly capital intensive, the investment by government and other stakeholders should be properly directed towards achieving good quality housing environment. This is very important in order to achieve value for money for their investments.

The National Housing Policy in Nigeria was formulated in 1991 to provide sustainable solutions to the qualitative and quantitative housing challenges confronting citizens of this country [Federal Government of Nigeria (FGN), 1991, 2002]. It was revised in 2004, 2006, 2012 (FGN, 2004, 2006, 2012; Olofinji, 2015). In spites of these efforts to develop a good and workable policy framework for the housing sector, millions of

citizens across Nigeria, including Lagos are living in sub-standard houses. This suggests that Nigeria as a country is yet to get it right in meeting the housing needs of her citizens and residents.

Numerous studies have highlighted the factors affecting housing quality (Fiadzo, Houston, and Godwin, 2001; Fiadzo, 2004; Olotuah, 2006d; Amole, 2007; Mallo and Anigbogu, 2009; Amao, 2012). From these studies it is evident that the factors determining housing quality (HQ) differ from one location to another. As Lawrence (1995) rightly observed housing quality is context-dependent. In the context of urban areas in Nigeria, rapid population growth, low economic status of most urban households, inadequate public resourcesand a general increase in the cost of houisng abound. Consequently, studies (Onokerhoraye, 1976d; Mabogunje, 1985; 1976; Diogu, 2002; Olotuah, 2003; Olotuah and Adesiji, 2005) have indicated that the deplorable quality of housing in this country has manifested in structurally unsound and substandard houses in urban and rural areas of the country. Although the UN-HABITAT (2006) report reveals that Lagos State has one of the most critical housing challenges in Nigeria with a huge quantity of very low quality housing, there is little published work on the specific determinants of housing quality in Lagos State. A better understanding of this subject can help policy makers and housing experts to deliver good quality housing in Lagos State and other states in Nigeria.

1.2 Statement of the Research the Problem

Previous studies have shown that the quality of housing has a profound influence on the well-being and productivity of individuals, households and communities. However, there has been very little attempt to investigate in order to understand the quality of housing constructed solely by government and those constructed through Public-Private Partnerships (PPPs) arrangements in Lagos State and Nigeria in general. Housing is regarded as one of the basic necessities of life that is known to be relatively expensive and requiring large capital investment. With increasing population and urbanisation, the supply of housing is not meeting the need of most people in many developing countries. Consequently, the cost of housing is on the increase and the rich can afford houses they desire, while the poor are often left with very poor quality housing. Access to quality housing is a multi-dimensional issue. Consequently,

availability, accessibility, demand, satisfaction, preferences, affordability and sustainability are among key factors usually considered in the provision of quality housing globally.

It has been observed that public housing as well as those provided by PPP appeared to be of differential qualities. Some of these housing which exhibited lower qualities in some neighbourhoods of the state have been worrisome because of the negative impact they portrayed on health and productivity. There seems also to be wide disparity in the housing conditions between the income classifications in many cases; and it is uncertain how the residents appreciate or will rate the quality of the various housing. The physical housing environments alone may not immediately reveal definite housing quality in the study area, since there are many dimensions and many factors that determine housing quality. The uncertainty of value rating by the respondents of the quality of the various housing of apparent disparity between the income housing classifications in terms of housing environment is important in the aggregation of housing quality in the state which has so many dimensions and factors impinging on it.

Lagos State has many unfavourable factors militating against the achievement of high housing standards attained by the developed nations. Some of these factors include dwindling national economy, poverty, unemployment, low educational level, low utilization of local building materials, and high costs of materials and labour. This study will reveal the reality of the situation as they relate to housing quality in the study area.

Housing quality (HQ) has been studied in the developed world and in many developing countries (Biondic & Sepic, 2002; CSH, 2009; Foster, 2000; Gandil, 1995; Goodman, 1978; HUD, 2011a; Krieger & Higgins, 2002; Lawrence, 1995; Needham & Verhage 1997; Son, Won & Moon, 2003; Thomas & King, 1972; Walker, 1981). In Nigeria few studies have been carried out on HQ or related issues in some cities/urban centres- like Ibadan, Oyo State; Port Harcourt, Rivers State; Akure, Ondo State; Osogbo, Osun State; Ilorin, Kwara State; and Jos, Plateau State (Coker, *et al*, 2007; Oguntoke, Muili, &Bankole, 2009; Olayiwola, Adeleye & Jiboye, 2006; Olotuah, 2003, 2006). However some authors (Ilesanmi, 2012; Jiboye, 2009; Oguntoke, *et al*, 2009) have argued that only few studies have been carried out on housing quality or related issues such as

morbidity pattern, satisfaction, correlates, the quality of life in Lagos State. From the literature, it is evident that there are limited recent researches on this subject matter, in the selected residential estates in Lagos State, since those that have been done were only in parts such as an organization or a particular housing estate/neighbourhood, or small sections of the state and not to the more comprehensive way in which this study is being conceived. This limited empirical data has obscured the understanding of the levels, characteristics and theoretical bases of housing quality of selected residential estates in the study area.

From the existing published works (Akinmoladun & Oluwoye, 2007; Jiboye, 2009; Fatoye, 2009; Ilesanmi, 2010), it is known that there are variations in the quality of housing in the different residential estates constructed by government in Lagos State. This is seen in the differences in the satisfaction levels by the residents. However, not much is known of the residents' perception of the quality of government constructed housing and the key factors that significantly influence this in Lagos. In addition, very little research attention has been given to examining the differences and similarities in the qualities of housing between different residential estates in Lagos State. In view of the fact that housing quality affects health, welfare and productivity of individuals, households and communities, it is pertinent to investigate and understand what aspects of residential environment that can be manipulated to achieve improved housing quality outcomes. It is against this background that the current study sought to pursue the research aim stated in the next section in the selected government constructed and public private partnership (PPP) residential estates in Lagos, Nigeria.

1.3 Aim and Objectives of the Research

The aim of the research was to investigate housing quality of public and PPP residential estates in Lagos State, Nigeria with a view to identifying the determinants, and providing framework for its assessment and improvement.

In order to achieve this aim, the study pursued the following objectives, which are to:

(i) examine the demographic and socio-economic characteristics of the residents

in the selected residential estates in the study area;

(ii) analyse the physical characteristics of housing units and neighbourhood environment of the selected residential estates in the study area;

(iii) evaluate residents' perception of the quality of housing in the selected residential estates in the study area; and

(iv) examine the determinants of housing quality in the selected residential estates in the study area.

1.4 Research Questions

In order to achieve the aim of this study, a number of research questions were asked for which the research sought to provide answers. The research questions are:

(i) what are the demographic and socio-economic characteristics of residents in the selected residential estates in Lagos State?

(ii) what are the physical characteristics of the housing units and surrounding neighbourhood environments in the selected government constructed and government-private partnership constructed residential estates in the study area?

(iii) how do the residents in these estates perceive the quality of their housing?

(iv) what are the determinants of housing quality in the selected residential estates in the study area?

1.5 Justification for the Research

The study was justified in three ways. The first was the need to understand how the quality of 'housing' constructed by government can be made to match costs of investments for the benefits of all stakeholders (investors, buyers, residents, professionals and public) cannot be over-emphasized. Second, was the need to assess the physical characteristics of the housing that have been provided, the personal attributes of the residents and the qualities attained as the outcome of the assessments.The dovetailing of these into establishing the relationship of these attributes was very important. The need to provide useful information to architects and other housing professionals for planning, designing and constructing residential

environments was also vital and need to be addressed. Third, the present study was of necessity in view of the magnitude of urbanization in the Lagos megacity which is being accommodated by Lagos State, leading to increasing population, acute shortage of housing (from literature), and the need to finding lasting solutions as may relate to housing quality issues in the Lagos State.

Therefore, this study sought to pursue the research aim in the study area. Generally, going by the fact that there are several dimensions of housing, this study focused on the physical characteristics of the dwelling units and neighbourhood environments as well as the perception of the residents of the quality of these two components of housing which is influenced by the residents' personal (demographic and socio-economic) characteristics.

1.6 Scope of the Study

The scope of the study was limited to residential estates in Lagos State, Nigeria. Lagos State was selected for this study because it was the former Federal Capital and national economic capital of Nigeria. These antecedents made Lagos to have a huge population resulting in high population density, residential density, and residential occupancy ratio. It is also the most urbanised State with the largest urban agglomeration in Nigerian nation and one of the two most populous in African continent.

It covered only government owned housing schemes/estates under various tenure systems and housing schemes/estates owned by government in partnership with private organisations in a Joint Venture (J.V.) scheme also known as Public Private Partnerships (PPP) under various tenure system. This implies that the study did not include housing constructed by individuals or private housing estate developers in Lagos State.

The housing schemes/estates investigated in this study are typologies for low, middle and high income earners. It does not cover the mixed typologies such as those for low-middle income earners, middle-high income earners or low-middle-high income earners.

Houses constructed between 1972 and 2013 were investigated in the study. This is because it was within this period Lagos State had the bulk of its housing construction programmes.

The study is specifically post occupancy evaluation (POE) of public housing provided by each of the Lagos State Development and Property Corporation (LSDPC), Lagos State Ministry of Housing (LSMOH) and Federal Housing Authority (FHA); as well as PPP housing between each of them and private investors or organisations.

1.7 Study Area

This section provides relevant information on the context of the study. It is discussed for understanding of the various settings for the study including, historical background, physical characteristics, demography, urban centres and human settlement pattern in Lagos State.

Although Lagos State has the smallest area of all the states, it is an administrative division of Nigeria, located in the south-western part of the country. It is also the second most populous state (after Kano State) and one of the most economically important states of the country. It accommodates the largest urban agglomeration in the country, Lagos megacity. The actual total population is disputed between the official Nigerian Census of 2006, and a much higher Figure claimed by the Lagos State Government (LSN, 2011). Lagos State population by the National Population Commission was 9.01 million (NPC, 2006) and by Lagos State Government was 17.55 million in 2006 (LP, 2006; Oshodi, 2010). The state has been governed since its creation in 1967, governor and a House of Assembly; Sole or Military Administrators at some other times (LSN, 2011). It is made up of five Administrative Divisions, which are subdivided into twentyLocal Government Areas (LGAs) (LSP, 2008).

1.7.1 Geographical and Spatial Characteristics of Lagos State

 Lagos State is in the south-west geopolitical area of Nigeria and lies between latitude 6° and 7° North of the equator, and longitude 2° and 5° east of the Greenwich Meridian. The State is bordered to the south by the Atlantic Ocean, to the east by Ondo State and to the north and the west by Ogun State and the Republic of Benin (LSBI, 2011). See Figure 1.1 for the Map of Nigeria showing the location of Lagos State in relation to other States in Nigeria. In terms of geographical size, it is the smallest State in Nigeria and occupies an area of 3,577km^2 with approximately 22% or about787km^2 of its area consisting of lagoons and creeks water. The city with a total

area of 1,090 km^2 with about 208 km^2 covered by water and mangrove swamps. It was the first Federal Capital of Nigeria until 1991 when the federal, capital was moved to Abuja. The metropolitan area of Lagos provides habitation for people of different ethnic, socio-cultural and economic backgrounds (LSBI, 2011). Lagos has major seaport and airports and commonly described as the commercial nerve centre of Nigeria. Historical facts show that up to the end of 18th century, the population of Lagos was about 5000 inhabitants. Since then, due to rapid urbanization this figure has increased over several decades to the present population (Mabogunje, 1985).
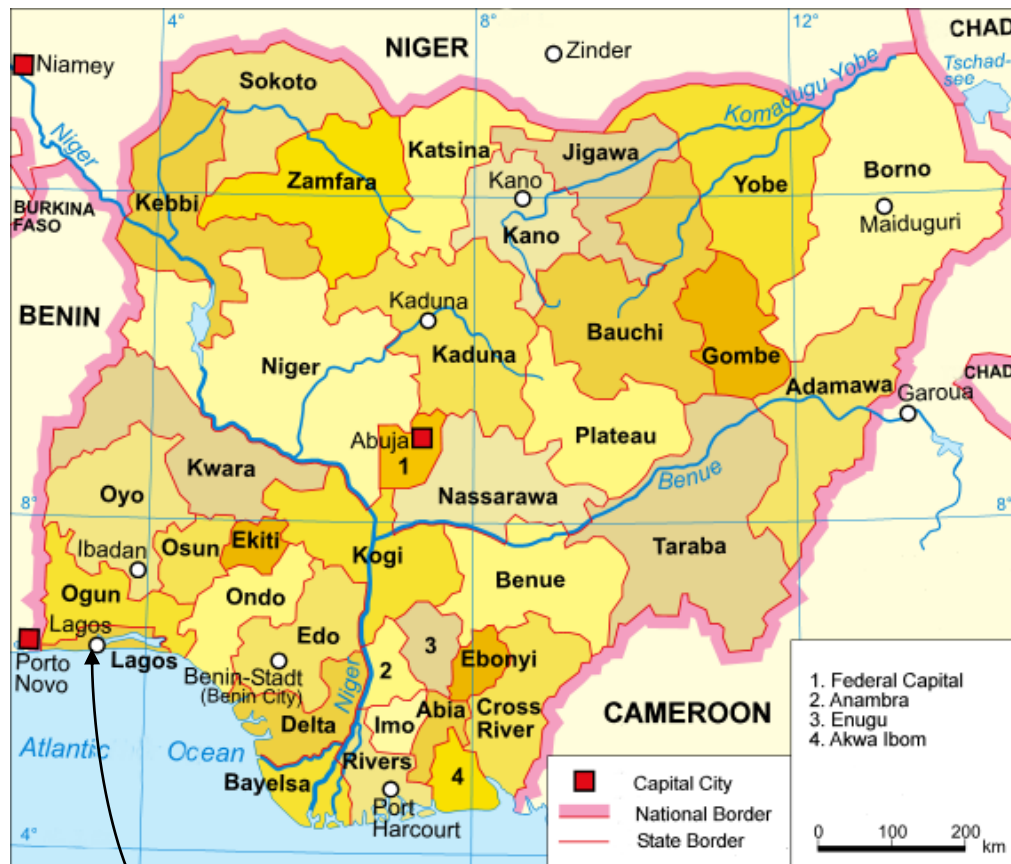
Figure 1.1: Nigeria Political Map showing Lagos and Other States
Source: Worldatlas (2012)

According to Oshodi (2010), Lagos State increased from a 4 square kilometre land mass on the Island and a population of about 28,518 in the year 1871 to a land area of about 63 square kilometre and a population of about 126,108 in the year 1931. In 1990, the population was said to be around 7.7 million. This increased to 10.28 million in 1995, 13.42 million in 2000 and 17.55 million in 2006. As at 2005, Lagos has

expanded in land mass to about 356,861 hectares of which about 21% equivalent to 75,755 hectares are wetlands and with estaimated population of between 9 million and18 million people annual growth rate of between 6% and 8% (HBR, 2005). Lagos urban agglomeration within Lagos State is the second most populous city in Africa (after Cairo in Egypt), one of the fastest growing city in Africa and the seventh fastest growing city in the world.

It is known that of those living in Lagos over 91% of them live in the metropolitan area. This high concentration of citizens resulted to about 20,000 persons per square kilometre as the population density. The occupancy ratio is also known to be between 8 persons and10 persons per room and with around 73% of households occupying one-room apartment (LSMOH, 2010). According to the estimate by the Lagos State Government (2004), high proportions of the citizens, that is about 54% of women and 51% of men, live below the poverty line of less than one United State Dollar (US$1) per day. This development can be attributed to the increase in number of unemployed (skilled or unskilled) and homeless migrants who move in to Lagos in search for greener pastures and live slum communities where is a dearth of basic social amenities and urban infrastructure as explained by Abosede (2006).

1.7.2 Demographic Characteristics

According to the 2006 Nigerian National Population census, Lagos has the second highest population next to Kano State in northern Nigeria (NPC, 2007). The census figure showed that out of about 140,003,542 people in the country then Lagos State was 9,013,534(LSN, 2011; NAU, 2007; NPC, 2006). However, the result of the 2006 National census has been contested by the Lagos State Government on the account that it did not capture the true population of Lagos State [Lagos State Government (LSP), 2008]. Although the National Census in 2006 has the result that the Lagos metropolis had 8,048,430, the Nigerian National Population Commission (NPC) asserted that the result was consistent the projections by United Nations and other population bodies. One of such that corroborated the NPC result was the Urban Agglommerations Report released by the Population Division of UN Department of Economic and Social Affairs, that in 2007 the population of Lagos was about

9.5million which undisputably made Lagos second most populous city on African continent. Further, according to the World (UN, 2008) report, the population of Lagos population will rise to 15.8 million in 2025. This stand international population bodies was at variance with that by the State government which estimated the metropolis to be 15.5million and the entire state to be 17,553,924.

The Lagos State recorded population of 17,553,924 (LP, 2006) is not supported by the United Nations projections. The provisional population figure of Lagos State as released by NPC (2006) is therefore 9,013,534 and not 17,553,924 as calimed by Lagos State government. Lagos metro area estimated population in 2003 was 11,135,000 (HBR, 2005). The above not withstanding, the population of Lagos was put at 12,830,000 suggesting that Lagos urban agglomeration occupied the 24th position of the global most populous city (Demographia, 2016). As earlier estimated the population rate of increase was about 275,000 persons per year and with a density of about 2,594 persons per square kilometre. In the urban area of the Metropolis the average population density of an average of about 8,000 persons per square kilometre (and up to about 55,000persons per square kilometre in densest parts of the metropolis). According to United Nations in 1999 Lagos was projected to have a population of about 24.5million by the year 2015 with consequence of being one of the top ten most populous global megacities.

1.7.3 Socio-economic Characteristics of the Residents

The socio-economic characteristics of residents can be explained based on empirical data earlier in the study area using age, educational attainment, length of stay of residents in the city, and occupation.

From the result of survey in the year 2010 , 39.1% aged below 40years (Nigeria had 49.8%); 51.6% and 48.4% were males and females (Nigeria had 51.4% and 48.6% were males and females), while it has 83.4% and 16.6% were male-headed and female-headed (Nigeria had 85.2% and 14.8% were male-headed and female-headed respectively). It had mean household size of 3.8 while Nigeria had 4.5. 40.9% were married or widowed (Nigeria had 39.5%). On tenure types, 25.4% and 60.0% were home owners and renters, while in Nigeria 68.0% and 16.1% were home owners and renters respectively (National Bureau of Statistics, 2013).

In another study earlier conducted in the State over 43% had *tertiary education* followed by those with secondary education (over 31%); most could not be identified with any job or not willing to disclose their job (The socioeconomic profile of residents, 1996).

A third study showed that the residents have lived in their residences for *over 19 years* and had *6 residents* per household occupying 3rooms or more (Aluko, 2000).

1.7.4 Definition of Terminologies

High-income housing as classified by government and in this thesis means 'housing for high income earners'.

Low-income housing as classified by government and in this thesis means 'housing for low income earners'.

Middle-income housing as classified by government and in this thesis means 'housing for middle income earners'.

Public: not private; open to or concerning the people as a whole.

Public facilities: are the facilities that are located within certain nationally accepted distance to serve the people, and that are to impact not only the local but broader community.

Residential estates: are carefully planned areas of residences, often constructed as a community by the stakeholders such as government, PPP, non-governmental

organisations, private investors, among others usually with incorporated basic amenities such as shops, for the comfort of the residents.

1.8 Structure of the Thesis

The structure of the thesis as shown in Figure1 is made up of background to the study with statement of the problem, research questions, aim and objectives, justification, scope and study area. It also includes literature review, research methodology culminating in data collection and analysis, presentation of findings/results, and discussion of results. The final part, however, is made up of the summary, recommendations and conclusions.

The Chapter one of this thesis presents background information of the research, statement of problem, the purpose (aim and objectives), research questions, as well as justification for the study. Chapter Two covers the theoretical background of the subject matters, major relevant issues and debates in housing, the theoretical foundations, models and concepts on which the study was carried out; an approach to the study of housing quality, based on the theories and culminating in the development of the conceptual framework for the study.

Chapter Three includes research design, the study population, sampling techniques, data collection- instruments, methods, validity and reliability of the research instrument, methods of data analyses, detailed methodology by objectives and limitations of the methodology. By design the research strategy adopted for this study was the survey method, with administration of questionnaires, interviews and observations. Chapter Four comprises of presentation of data from the field, various analyses and and results. Chapter Five comprises of discussion of results. Chapter Six comprised of summary of findings, recommendations and conclusion.

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                    │ Objectives, Research Questions,       │
                    │ Justification, Scope of the Study and │
                    │ Study Area                            │
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                    │  Literature Review and Theoretical   │
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| Concepts of Housing | Theoretical Background of Housing Quality | Issues Associated with Housing Quality | Dimensions of Housing Evaluation | Theoretical Foundations |

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                    │   Conceptual Framework of the Study  │
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| Research Design | Study Population | Research Strategy |

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                    │ Summary, Recommendations and         │
                    │ Conclusions                          │
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Figure 1.4: Structure of the Thesis
Source: Author's work (2016)

1.9 Summary of the Chapter

This Chapter of the thesis presents background information of the research, statement of problem, the purpose (aim and objectives) as well as justification for the study. It attempted to establish the fact that though several researches have been conducted on public housing in Lagos State, but none has jointly examined the quality of housing constructed by public agencies alone and those constructed through the puplic–private partnerships (PPPs) arrangements. It was established that the essence of this research was to actually brigde the existing research gap on the subject matter. This chapter also presents the research aim, objectives, the justification and its scope. In addition, a brief discussion was made on the study area in terms of geographic features and demographic characteristics. The Chapter ended with the presentation and brief summary of the structure of this thesis.

CHAPTER TWO
LITERATURE REVIEW AND THEORETICAL FRAMEWORK

The main focus in this chapter is to discuss and review many of the literatures on or relevant to housing quality as well as the theoretical framework, public housing, the methods for assessing quality, the key issues on housing quality the previous research have addressed up to date, methodologies by which housing quality has been studied and the key theories upon which the study was based. From the reviewed literatures, the existing gaps were identified which the current study attempted to address are identified. The Chapter also presents a review of the existing theories that have been used to understand houisng quality by different researchers and authors. The Chapter ends with a summary of the key issues discussed in this chapter.

2.1 Concepts of Housing

Housing has been described as the residential neighbourhood, micro-district or physical structure(s) that humans use for accommodation and the environment of the structure, as well as all basic facilities, equipment and devices required for the physical health and the social well-being of the family and individual (UN cited in Jolaoso, 2001 and Abosede, 2006). It was described as the provision of any physical structures usually used for shelter (WHO, 1961), and includes all facilities, equipment, services and devices needed or described for healthful living. It is also a shelter, which to a reasonable degree maintains, protects, and supports human health, in safe and sanitary conditions and an atmosphere of reasonable dignity. It helps to fulfil man's social needs such as privacy, social well-being and protection against hostile physical forces and disturbances. It also serves as an area for generating social relationships (Clark, 2009; Abosede, 2006). Housing infrastructures includes type of heating fuel (where necessary), water source, source of electricity, and sewerage. A common source supplying water to five or more units is classified as a 'public system', otherwise it is private. Housing units are either connected to a public sewer, a septic tank or cesspool, or are served by other means not specified. A public sewer may be operated by a government entity or a private organization. A housing unit is considered to be connected to a septic tank or cesspool when the unit is provided with an underground pit or tank for sewage disposal (Part Three Housing Infrastructure, 2011).

Public/social housing: *Public housing is a form of government-provided housing at low rent; managed by the government and at a relatively low rent as a form of public assistance* (Microsoft Encarta ME, 2009c); it is a form of housing tenure in which the property is owned by a government authority, which may be central/federal, state or local; in the U.S., it consists of houses or apartments built by the government for the poor people (Bullon, 2007; Collins, 2007). Although the common goal of public housing is to provide affordable housing, the details, terminology, definitions of poverty and other criteria for allocation vary. This is also closely related to Social housing, *which is a term referring to rental housing owned and managed by the local authorities- commonly called council housing- and more recently, by housing associations and other organizations which together form the voluntary housing movement.* These organizations are voluntary in the sense that, unlike the local authorities, they have no statutory obligation to provide housing. Generally, the essential characteristic of social housing is that it is provided by organizations which do not seek to make a profit (Golland & Blake, 2004). It is also an umbrella term referring to rental housing which may be owned and managed by the state, by not-for-profit organizations, or by a combination of the two, usually with the aim of providing affordable housing; in Britain, it consists of houses or apartments that the local government provides, which can be rented for a small amount of money (Bullon, 2007).

Several studies (Coker *et al*, 2007; Tibaijuka, 2008; Ibimilua, 2011) have revealed that there is inadequate supply of housing in the right quantity and quality in many developing countries, including Nigeria. The idea of using public funds to address housing supply deficit in Nigeria was initiated by the government when it established the Lagos State Executive Development Board in 1928. This government agency was initially given the task of combating housing-related bubonic plague in central area of Lagos at that time. Since that time, direct intervention by government in housing provision had increased as explained by Mbali & Okoli (2002). To further reduce the problem of housing inadequacy in Lagos, the Federal and Lagos State governments carried out housing developments for different categories of Nigerians in the

metropolitan area. But the effect of the Federal government's involvement in housing delivery was not felt in Lagos until 1973 when the Federal Housing Authority (FHA) was established. This was later followed by the establishment of the Federal Ministry of Housing, Urban Development and Environment. Jiboye (2010) explained that through these agencies a good number of public housing schemes executed by both the State and Federal governments exist in different locations across the states of the federation.

Although huge resources have been expended in realising several public housing projects since the 1920s, public opinion and findings from the existing studies (UN-HABITAT, 2006; Akinmoladun & Oluwoye, 2007; Ademiluyi & Raji, 2008; Jiboye, 2010) suggest that public housing projects have failed to meet the yearnings and aspirations of the people in terms of quality, satisfaction, affordability and adequacy among others. This has become more worrisome knowing that the National Housing Policy of 1991 had the ultimate goal of ensuring that all Nigerians owned or have access to decent, safe and sanitary housing accommodation at affordable cost by the year 2000 (National Housing Policy, 1991). It is also interesting to note that the Nigerian State was further enjoined by Section 16(1d) of the 1999 Constitution under the Fundamental Objectives and Directive Principles of State Policy: "to provide suitable and adequate shelter for all citizens". Both documents are pointers to the fact that all citizens and residents in Nigeria are entitled to good quality housing. It is however observed that more than sixteen years after the implementation of this constitution, this noble wish or dream is yet to be realized.

The problem of providing good quality housing for Nigerians, especially those living in urban areas has been a concern to the government, non-governmental organisations (NGOs), professionals and many other housing stakeholders. In most urban centres in this country, the problem is not only restricted to quantity but also poor quality of available housing units and the surrounding environment. These have manifested in overcrowding in houses as well as increasing pressure on available infrastructural facilities (FGN, 1991; Ademiluyi & Raji, 2008). As is true in many cities in developing countries, housing is generally inadequate in terms of quality and quantity

in rapidly growing cities like Lagos (Ibimilua, 2011). In fact, the UN-HABITAT (2006) noted that there is no urban agglomeration in Nigeria that urban housing crisis is more pronounced than in Lagos. The urban housing crisis in Lagos has been linked to a number of factors, including rapid growth in population which has contributed significantly in exacerbating the problems of inadequate and inefficient supply of housing and other basic infrastructural services (Akinmoladun & Oluwoye, 2007). Since research must precede any meaningful development in any field of human endaeavour, a study such as this may yield results that can give information on how to maintain or achieve high standard of housing (Oluwatayo, 2009).

2.2 Concepts of Housing Quality

In this section, the basic definitions and conceptions of housing quality are presented. This has become important because the concept of housing quality is multi-dimensional and multidisciplinary, and thus there is a need to clearly state how housing quality is conceived in this study. Generally, concepts are multidisciplinary and interdisciplinary do not have single meanings and interpretations; and thus it is important to clearly articulate the context in which athey are used so as to reduce any form of ambiguity in their interpretations by readers.

2.2.1 Basic Definition of Housing Quality

It is an established fact that housing quality has is a great concern to governments, policy makers, stakeholders and scholar in less developed countries (LDCs) [Olotuah, 2006a]. From the literature, there are several housing quality related concepts. These include satisfaction, choice, preference, tenure, affordability, ownership and sustainability.

In most LDCs, there are varied or differential abilities to pay for housing. This has resulted in lower-income households occupying cheaper, smaller, lower-quality dwellings while the higher - income households occupy larger, higher- quality dwellings with have better amenities and services (Walker, 1981). According to Foster (2000), good housing quality provides basic requirement to guarantee stable communities as well as social inclusion. Also So & Leung (2004) in a research found

that there exists a direct relationship exist between housing quality and 'quality of life (QOL), well-being and pleasantness with appearances of dwelling units'. Therefore, housing particularly the quality, seem to have influence on quality of life and residents' state of health.

It is an established fact that Africa has been suffereing from a persistent housing crisis in terms of quality and quantity (Tibaijuka, 2008). It is evdinent that in most countries in this continent substandard or low quality housing exist with adverse health implications on the people. In addition, the issue of substandard housing and homelessness adds to the psychosocial stress leading to mental health problems (Krieger & Higgins, 2002). Housing quality has therefore been regarded as subjective conception with its defining parameters determined by personal feelings and experiences.

Housing quality may be understood as the standard of the residential environment that provides residents with accessible, safe and beautiful accommodation, jobs, education, and health services in a sustainable manner (Erskine, 1998 cited in Osman & Lemmer, 2002). It may include the housing units, services and the surrounding environment (Needham & Verhage 1997). According to Lawrence (1995), quality of housing can be perceived in several dimensions, depending on the perspectives and intentions of researchers or the sponsor(s) and those who fomulate policies. Generally speaking, housing quality has been defined as the general standard, characteristics, attributes or degree of excellence of housing (Microsoft Encarta, 2009; Merriam-Webster Dictionary, 2011).

From another perspective, housing quality is viewed as theoretical or an abstract hence may not have real or specific concept/definition; and therefore it is not directly assessible, but has many observable indicators (Gandil, 1995; Goodman, 1978). For instance, a study in USA (HUD, 2011b) identified 13 variables that can be used to describe or measure housing quality standards (HQS). These are "*sanitary facilities; food preparation and refuse disposal; space and security; thermal environment; illumination and electricity; structure and materials;interior air quality; lead-based*

paint; access; site and neighbourhood; sanitary condition; water supply; and smoke detectors".

Corporation for Supportive Housing (CSH, 2009) in U.S. in their study, conceived housing quality using seven dimensions of *"administration, management, and coordination; physical environment; access to housing and services; supportive services design and delivery; tenant rights, property management and asset management; input, and leader-ship; data, documentation, and evaluation".*

From the foregoing, it is evident that housing quality is determined by a number of parameters, namely: (i) management and related issues; (ii) physical aspect of the housing and housing environment; (iii) social-cultural and psychological aspects; (iv) rights, rules and regulations and (v) location and study contexts.

Further, Son, Won & Moon (2003) were of the view that housing quality was a function of improved housing conditions such as increased average size of residence and area of residence per household and per person, and decreased number of persons per room, and the ratio of households living in a room. It is also known to be a function of increased number of households living in a house with modern toilet facilities and fitted with hot running water. Housing quality is also seen as a part of attributes of a resident's well-being and satisfaction (Campbell et al., 1976; Cummins, 1998; Diener et al., 1999; Naussbaum & Sen, 1993). These aspects include, among others, and residential environment, social network, health, work, family. Despite the fact that some authors have argued housing quality is not as important as QOL, others were of the opinion that QOL is affected by housing quality (Peck, Lee & Weber, 1984; Mares *et al.*, 2002; Ibrahim & Chung, 2003). This view agrees with the position of Biondic & Sepic (2002) which stated that quality of dwelling environment should be seen as all-encompassing. As Lawrence (1995) also opined that *"housing quality should be considered in terms of economic, political and ecological dimensions as well as architectural, technical and qualitative dimensions. The relative nature of these dimensions and of housing quality varies according to the societal context in which they occur".* As a result of this, housing availability, affordability and quality have

replaced the generalized concepts and normative criteria for definining housing quality. This view of integrating the three concepts of availability, affordability and quality also agreed with the views of Biondic & Sepic (2002) above.

There are several reasons for which housing quality may be assessed and defined. They include aesthetic value and use value; identifying housing targets for upgrade or those requiring replacement; to attempt to match household income with quality scale; and as part of assessment of wellbeing and health of the residents with respect to their housing (Lawrence, 1995). There has also been a lack of agreement on definition and assessment of housing quality.

Housing quality is subjective with a combination of diverse indicators for determination of its index. It is context-dependent, and with a set of values, indicators or variables; assessment is better carried out comprehensively or with an integrated approach. Paucity of housing attributes empirical data and non-agreement on housing quality definite assessment which has slowed down the rate of developments aimed at meeting people's housing needs in the developing countries was noted by Fiadzo, Houston & Godwin (2001). Also, not a great or appreciable number of housing quality studies have been successfully conducted within the developing countries that have had input to policy decisions. There has also been lack of required data on the subject in Ghana, where the constructed housing quality index identified its major factors or determinants, among other developing countries.

Insufficient or inappropriate data frequently have been noted as major shortcomings of housing policy analysis in Sub-Saharan Africa (Arimah, 1992 in Fiadzo *et al*, 2001). Inadequacies of required housing quality data have long hampered policy makers and planners from effectively formulating comprehensive housing policies consistent with current problems (Follainp & Jimenez, 1985 in Fiadzo, *et al*, 2001). With data from the Core Welfare Indicators Questionnaire (CWIQ) survey of 1997, the HQ Index identified the main determinants of housing quality in Ghana; one of which was access to QOL amenities. A nine-item HQ indicators was developed in the research (Fiadso, et al, 2001), thirteen-item HQ indicators (Arias & Devos, 1996), and three-item HQ predictors in an empirical study at Oba-Ile, Ondo State Nigeria by Olotuah (2006d).

Rapoport (1969, 1976) and Lawrence (1987) established relevant determinants of HQ; and that house patterns and traditional values are among the predictors of housing quality in some settings. Also, according to Gur (1994), house type, general physical properties of the house such as number of rooms/spaces, sewage system, house size, facilities within the house, alteration to the house, environmental problems, and possible misplaced spaces among others are variables that can affect housing quality. Quality results from subjective judgment (Jones, 1979; Anantharajan, 1983; Olayiwola, 1997). It obtained from perception of individuals in the setting and interest held on what they see as important elements of the setting at a given time, which to some degree is value judgment.

Housing quality therefore results from the overall perception of residents which depends on level of acceptability or non-acceptability. According to Abloh (1980), housing acceptability is considered from construction materials, design and size of spaces, construction type, and housing services. Other indices include ways of life, income levels, domestic habits, space arrangement, value and priorities, nearness to work place or town centre, adequate facilities within dwelling, privacy, design, function and aesthetics, noise, pollution, unfriendly neighbours and personal insecurity. Housing quality is a serious problem in Nigeria. Non-experts involvement in housing as one of building projects has been one of the reasons for poor housing (Awobodu, 2006).

There is a enormous good quality housing shortage in Nigeria resulting from problems experienced by the industry (Shimpi, 2005). Such challenges include *"credibility and capacity of real estate developers, transparency in carrying out transactions, professional approach, genuineness of title documents and government approvals, earning levels of average Nigerians, and high interest rates"*.Other challenges from literature costs of developing and prices of houses. Unfortunately, the housing situation in majority of Nigerian cities is laced with poor characterised with squatters, squalors, slums, and numerous inadequacies (Godwin, 1997; Jiboye, 2004).

Both qualitative and quantitative housing problems are the main issues in Nigeria. Qualitative aspect is related to the maintenance of existing housing, which is very important because of the need for preservation and upgrade of lower ones to acceptable national standards. Previous research results showed that housing problems remain one of the major problems facing this nation (Onibokun, 1985). Owing to rapid population growth, low economic capacity of most urban households, inadequacy of public resources, and a general increase in the cost of building, acute housing and environmental conditions abound in Nigrian urban areas (Olotuah, 2006).

Housing quality in Nigeria including Lagos was generally poor (Mabogunje, 1975 in Olotuah, 2006; Olotuah, 2003; Olotuah & Adesiji, 2005; Onokerhoraye, 1976), with a lack of basic infrastructures, high room occupancy ratio of four to five (4-5) residents per habitable room with some cases in which a whole family of up to 10-12 persons lived in a single room (H.F.P. Engineering Nigeria Limited, 2010; NHP, 1992). The deficiency in good quality housing is compounded by the fact that Lagos also serves as the business centre for the majority of local companies.

Housing quality is one of the housing conditions; hence, understanding the concept of housing is very important to the subject of its quality. Housing has been described by Abosede (2006) and Jolaoso (2001) in Section 2.1*; and* as physical structures provision for shelter; and such shelter includes all equipment and facilities as well as sevices required for the health and well-being of the residents. Clark (2009) defined housing as a "*shelter which to a reasonable degree maintains, protects, and supports human health; is safe and sanitary; and has an atmosphere of reasonable dignity*". According to Abosede (2006) "*housing fulfils man's social needs such as privacy, social well-being and protection against hostile physical forces and disturbances*". Bourne (1981) regarded housing as "*a physical facility, unit or structure, which provides shelter to its occupants and as an economic commodity; and a component of fixed capital stock means of producing wealth- thus serving as a governmental tool for regulating economic growth*".

However, according to the U.S. Department of Housing and Urban Development (US HUD, 2009), current housing quality instruments have not been validated as appropriate measures of housing quality. Housing refers to more than just a dwelling or mere shelter, as it also includes all that is within the dwelling Olayiwola, *et al* (2006). The house is perceived as secured private space protecting us from adverse weather; a form of artificial environment for household living, growth and development. This position is in agreement with the fundamental human right's stand on shelter and Coker *et al* (2007) in their findings that good quality housing is essential for good quality of life. Researchers have also shown that housing of good or poor quality has positive or adverse effects on well-being and health (including mental health) of residents (Page, 2002). Similarly, Oluwande (1983) concluded on Nigerian situation that children's progress is retarded by poor quality housing. Another study linked housing conditions to wealth and school performance (Coley, Leventhal, Lynch & Kull, 2013), and mntal health   (Krieger & Higgins, 2002). The research also asserted that most Nigerian cities including Lagos have poor quality housing and experienced inadequate infrastructural facilities over several decades.

From literature, it was found that there are several housing quality related concepts. These include satisfaction, choice, preference, tenure, affordability, ownership and sustainability. A careful analysis has revealad that there are a lot of similarities among these concepts as they are important in the assessment of housing quality and all the other related objective and subjective assessments of attributes of housing are involved in one form or the other in a survey (Amole, 2007, 2009; HUD, 2011a, 2011b; George, 2006; Jiboye, 2004, 2009; Oguntoke, Muili & Bankole, 2009; Olayiwola, Adeleye & Jiboye, 2006; Olotuah, 2004, 2006). However, certain cogent issues are peculiar to the subject and study area, which can only be deduced by an empirical study such as this.

2.2.2 Issues Associated with Housing Quality

Issues associated with housing quality are discussed in subsequent subsections. They include slums development, urbanisation, housing investment, housing finance, costs and affordability, housing accessibility, socio-cultural contexts, housing satisfaction and choice, housing ownership and tenure, health implications of housing quality.

2.2.2.1 Urbanisation

Housing quality is a product of the global phenomenon known as urbanisation. Urbanisation has been defined in many ways. It is a relocation or movement of dwellers from rural communities to urban areas and with a change in population in the urban area being equivalent to that of rural-urban migration (UGC, 2006). Urbanisation in Africa is one of the fastest of all the regions globally; and Nigeria has been at the forefront in its contribution to the rate. In fact, Lagos is Africa's second largest mega-city, according to a United Nations publication (UN, 2014). In specific terms, about fifty percent (50%) of Africa's populace will be dwelling in urban areas by 2030 (UN-Habitat, 2010).

Urbanisation is associated with and driven by industrialization; a process when mechanical and other sources of energy were utilised for enhancement of human productivity that resulted in increased surpluses in industry and agriculture. Aside traffic jams, street beggars, and multi-storeyed buildings, a central feature of Africa's rapid urbanization is poor-quality housing units within a slum environment (Kasarda & Crenshaw, 1991). As at 2010, Africa's slum population was estimated to be about 199.5 million people (UN-Habitat, 2010).

As urbanisation rate increases, the problem of affordable housing provision to citizens particularly the urban poor or low income earners became worse more in the developing countries including Nigeria. Owing to rapid population growth, low economic capacity of most urban households, inadequacy of public resources, and a general increase in the cost of building, acute housing and environmental conditions abound in urban centres in Nigeria (Olotuah, 2006b). As Odongo (1979) asserted, housing shortages have become an enduring feature of the urbanizing process in the Third World. According to Massoudi & Simonian (1978), factors that limit the number of housing units include high cost of land, insufficient funds, improper distribution of funds and improper management. In most LDCs there are varied differential abilities to pay for housing which result in lower-income households occupying cheaper, smaller

lower-quality dwellings closer to the city centre and major centres of employment (Olotuah, 2006a).

Higher-income households as stated Walker (1981 cited in Olotuah, 2006a), occupy larger, higher-quality dwellings, which have better facilities and public services but that are in short supply. Rapid growth in population is characterised with problems of inadequacy and inefficiency in supply of basic necessities, utilities and services for urban dwellers. Lagos is definitely under severe stress, due to its unprecedented rate of urbanisation. As the former capital of Nigeria is the second most populous state. With 9.1 million from the census result, it is expected to be well over twenty million by the year 2020 (NPC, 2007; Nwaka, 2005).

2.2.2.2 Slums Development

Slum is an area of a city with substandard housing and without tenure security. As a result of urbanisation, the population of slum dwellers, will likely increase from 1billion to 2billion between 2011 and 2030; with bulk of the increase fom developing countres including sub-Saharan Africa where eighty percent of those residing in urban areas live in slums characterised with higher than 3persons per small sub-standard room, implying a high room occupancy rate (R.O.R.). In such accommodation it is not just the R.O.R., inadequate or absence of basic facilities and amenity for comfortable living (AAC, 2011; Ngomba, 2011; Tibaijuka, 2008). Incidentally, the growth of slums within cities is being fuelled by government attitude to urban renewal which in many cases is accompanied by forced evictions. There must be complete overhaul of land administration and housing policy that have resulted in great housing deficit in Lagos State particularly the urban area if slums development always resulting in forceful eviction is to reduce significantly (Oshodi, 2010).

2.2.2.3 Housing Investment

The investments in the national housing projects are one of the greatest for any government involving two parts to the financing aspects. The first is the funds necessary to realize and complete a project; they are required before the units are put

on the market and sold to the public. To generate such funds, the national construction loan systems have to function. The healthiest system is created by involvement of the private financial institutions, such as private banks. The second is the financial system's ability to facilitate home ownership through the mortgage system. Through this system people can have decent shelters for themselves and their households. In Lagos, house rents are quite high and understandably so. The cost of completing a housing unit in Lagos State is high due to a combination of the following factors. Given the high rate of land reclamation in Lagos, the terrain is difficult and expensive to build on. Also, the processing cost of land title documents in the state is quite high due to the pressure on the few existing lands (Strategic Shelter Development Company, 2009).

2.2.2.4 Housing Affordability and Resident's Income

Housing affordability as a concept is a way of describing financial problems of households in their dwellings (Ademiluyi & Raji, 2008; UNCHS, 1996). While Robinson, Scobie & Hallinan (2006) asserted that the concept of affordability was difficult to be defined, it was explained by others that, to be able to 'afford' has been explained as ability to pay without financial stress based on standards (Collins Dictionary, 2007); and to have enough money to be able to buy or pay for something (Gadsby, 2007). Robinson, *et al* (2006) considered that point of financial difficulty was hard to be identified. There is a limit in terms of proportion of income for affordability; and that limit if exceeded defines the threshold of unaffordability of adequate shelter (Hulchanski, 1995).

Housing affordability has to do with ability of a family or household to pay not more than thirty percent of its gross annual income on housing. The housing costs generally include insurance for owners, taxes and utility costs, particularly in the U.S. and Canada, as in many other countries (Berry, 2003; USD HUD, 2009).When households pay higher than thirty percent of their income for residential concerns they are generally cost burdened and may find it difficult to buy other necessities as clothing, food, clothing, medicals as well as bear transportation costs (USD HUD, 2009). The term affordable housing is any type of residence in which the housing costs summation

is not stressful based on standardised proportion to the low, middle and high income earners; and is applicable to renters and owners or buyers of all income earnings.

Several authors have discussed housing inadequacy in Nigeria (Cohen, 1986; Agbola & Olatubara, 2003; Onibokun, 1990; Oyedele 2006). Generally housing adequacy can be described as residential environment with sufficient affordable dwelling units and infrastructure, such as potable water, electricity power supply for dwelling units and for street lighting, roads, drainages, sewage system, parks, recreation grounds, health centres, schools, markets, event halls, social services including security posts and post offices. Quality determines purchase or rental cost and other costs, which in combination with the socio-economic status of the residents affects housing affordability (Oyedele, 2009). The effect of affordability seems to manifest in people tending to go for low quality houses that are more readily affordable than otherwise; which always shows in their dissatisfaction in such housing.

With estimated Nigerian population of well over 170 million now , it has not been possible to have appropriate and affordable housing provided for the middle income earners and below which accounts for higher prorportion of the population despite all efforts of government in the face of numerous constraints militating against meaningful achievement, and this is in agreement with Adejumo (2008). The generally accepted definition of affordability is for a family or individual not to spend higher than three tenth of its gross annual income on housing.

In Nigeria, this involves a computation of cost of housing or house rent and services (electricity bills, cooking gas and/or fuels, water bills, refuse/garbage collection, private and/or general security, management/maintenance and any other levies, etc.) as a proportion of the household head's total annual income. The value should be within 30% to be described as 'affordable housing'. The second category is if the cost is higher than 30% but does not exceed 50% it is described as 'moderately cost burdened housing' while the worst category if the cost is higher than 50% it is described as 'severely burdened housing' otherwise the house is not affordable (Anderson, Charles,

Fullilove, Scrimshaw, Fielding, Normand, & Task Force on Community Preventive Services, 2003).

2.2.2.5 Housing Accessibility and Proximity

Accessibility is the ability to reach goods and services; destinations and activities with ease (El-Geneidy & Levinson, 2006). Factors affecting accessibility include: mobility; transportation options; transport affordability and options; land use accessibility; Connectivity among roads and paths; standard of telecommunication and parcel delivery services (Litman, 2008, 2015). Proximity on the other hand has to do with relative positioning of goods and services; destinations and activities in terms of distance or travelling time between any two being considered.

2.2.2.6 Socio-Cultural Context

The sociocultural characteristics of prospective beneficiaries are very important factors to be considered for success of housing schemes (Jiboye, 2004). Social as public housing are in some cases viewed as of low quality, with high proportion of unemployment, and low level of accessibility to common goods and services; destinations and activities (Twomey, 2007). Availability or non-availability of affordable housing is related to the sociocultural characteristics of target population (CRC, 2006).There is general scarcity of good quality housing due to high costs of housing (Shelter, 2007; Twomey, 2007).

Household size, residential crowding status, religion, sex, marital status, ethnicity, education, occupation status, income, state of origin, age of respondent, length of stay in the residence, family social status, family life cycle, family patterns, and tenure type of resident (or system) are very important sociocultural and economic factors that may influence housing quality indifferent contexts (Jiboye, 2004). Several studies have proved that sociocultural and economic factors are vital to success of housing schemes (Godwin, 1997; Gur, 1994; Gyuse, 1993; Jiboye, 2004; Muller, 1984; Olayiwola, *et al*, 2006; Onibokun, 1985; Rapoport, 1969).

Cultural structures, therefore, are integrals of civilization manifested in a system of behaviours, activities, praxis and life-styles at the individual and collective levels of the society (Olayiwola, *et al*, 2006). Every person's socio-cultural values is known to vary from one society or civilization to another and these values have both direct and indirect influences on man's habitation (Olayiwola, et al, 2006). For instance, in Nigeria, the predominant traditional house form is the compound house form, which varies in pattern with the different ethnic settings that make up the country- Yoruba, Ibo and Hausa (Mills-Tettey, 1989). These variations are the products of the socio-cultural factors and values peculiar to the different ethnic groups. Family (particularly household head's) sociocultural and economic statuses have strong influence on their housing (Mills-Tettey, 1989). This is because the house is seen as an important investment (Godwin, 1997). If the essence of a house is to be fully appreciated within the context of human habitation, continuous maintenance and sociocultural values must be must be greatly considered inshelter design and forms should not be predicated on emotional and overzealous rhetoric, but on the relationship between housing and cultural structures (Olayiwola, *et al*, 2006).

The relevance of culture in the determination of housing form and design cannot be over-emphasized. Several authors have defined culture in different ways in order to suit their research objectives. Culture can be described as learnt and/or refined behaviour and the thoughts of the individual and other development capable of influencing taste, choice, preferences (Gyuse, 1989). This implies their worldview, principles of social organizations such as family structure and their social behaviour as reflected in the daily cycle of activities.

2.2.2.7 Housing Choice, Adequacy and Satisfaction

Housing choice has to do with options available and the environment surrounding them; residential 'adequacy and satisfaction' have to do with its availability, meeting needs and the associated feeling of contentment or derived pleasure. From literature there appears to be a lot of similarities in the concept and measurement of the three issues here and housing quality, in that objective and subjective attributes of the

dwelling units/neighbourhood and respondents' personal characteristics are involved (Altas & Ozsoy, 1998; Fatoye, 2009; Fatoye and Odusami, 2009; Lawrence, 1995; Mohit, *et al*, 2010). However, the research designs details, including analytical methods are quite different from each other and unique to each of them.

2.2.2.8 Housing Tenure

This is a legal arrangement or otherwise, in which a household has right to dwell in a residence or a type of accommodation (Diaz, 2009). The types of tenure include free occupation, renting or tenancy, official quarters, family house, and home-ownership or owner occupancy (owner occupier), including homes owned outright and those on mortgage and cooperative, (Berry, 2003; Diaz 2009; PRLOG, 2010). Other forms are squatting, timeshare and co-housing.

Public housing is government-owned residence, provided for tenancy at standardised or subsidised rate, free, or owner occupancy basis. *Public Private Partnership housing* is housing jointly owned government and Private developers, investors or or organisations in a joint venture under certain tenure system. From literature, it was found that tenure type of residents influenced their assessment of housing conditions including quality. In the study area however, this can only be verified by empirical study.

2.2.2.9 Health related Issues in Housing

Poor health conditions and certain types of social exclusion, are linked to poor housing (Krieger, *et al*, 2002; Shelter 2007; and Twomey, 2007). It was also found in housing charity shelter that there exist certain relationships between overcrowding and strained relationships, sleep challenges, anxiety and depression (Reynolds, 2005). Oguntoke, *et al* (2009) in their study in Lagos metropolis, Nigeria, found that housing quality accounts for at least two-third of the morbidity pattern of pulmonary tuberculosis in the study area. Good housing is also linked to good health and wellbeing of residents (Johnson, *et al*, 2006).

Poor quality housing has been known to make contribution to dispersal of infectious diseases. It was observed that hazards are always present in temporary shelter for the the homeless particularly those for women and children (Krieger, et al, 2002). Also important is the neighbourhood can be designed to promote health by incorporating basic requirements such as recreational spaces, green spaces, satisfactory pedestrian side walks and street designs as well as accessibility and proximity of markets/shops, workplaces/business vocation and schools to housing.

2.2.2.10 Housing Need and Demand

Housing need can be described as the number of of dwelling units to provide shelter of not less than national minimum standard for household size and composition by age distribution without consideration of family's payment capability (Robinson, 1979). It should however be noted that in practice it is ensured that subsidies which enable decent housing to be provided are targeted towards households in greatest 'need' (Golland & Blake, 2004). There has been tremendous and continuous rise in housing need in the Less Developed Countries (LDCs) countries, due to rapid growth and urbanisation with infinitesimal low rate of increase in existing housing (Olotuah, 2006a; Payne, 1977; Lewin, 1981, cited in Olotuah, 2006a).

Housing need is the number of conventional dwellings that ought to be constructed, renovated or rehabilitated, in order to bring housing conditions of a particular point of time, to notionally adopted standards (Needleman, 1964), and these have many dimensions. As asserted by Awotona (1982) cited in (Olotuah, 2006) housing needs encompass among other things the numerical value of required shelter,types, quality, adequacy, proportional distribution across the sociocultural and economic groups, and associated environment.The magnitude of housing needs in Nigeria is manifested in the number of households residing in substandard housing units (Olotuah, 2005). This is a highly visible phenomenon in the urban areas where there are acute housing shortages and poor quality of existing housing stock (Olotuah, 2006). There is no doubt that the population of Lagos State is increasing at a geometric rate by the day. The last National population census (2006) puts Lagos at having a population of just

over 9million people, though this is being contested by the Lagos government and people who are estimating its population to be over 19 million. Whatever the number is, it is a known fact that the present population of Lagos State is far too heavy for the state both in terms of land mass and infrastructure. One noticeable effect of this population explosion in Lagos is that the growth is not commensurate with the increase in housing. A study puts the housing need in Lagos State at over 6 million units (Strategic Shelter Development Company, 2009).

On the other hand, housing demand is more usually associated with the requirements of individual households over and above the basic or minimum level of provision or 'need': whether, for example, the household requires an owner-occupied or a rented dwelling; whether it requires a semi-detached house or a flat; whether it requires a large garden and/or a garage (Golland & Blake, 2004). Housing demand is ultimately an issue which tells us more about the choices which households make in moving house or in gaining access to a new dwelling. 'Demand', often strongly associated with 'effective demand' is a demand supported by an ability to pay.

Household choice, which is indeed constrained by household income limits, is in practice, not available to all as King (1998) noted that, to some choice does not exist at all because of the way their housing was provided- directly, indirectly, by mortgage or through subsidy due to differential financial capability (King, 1998). Thus, income and ability to pay are the critical factors and it can easily be argued that those households with the highest incomes have the greatest housing 'choice'. Households with 'effective demand' back up their housing choices and decisions with the necessary financial resources. These households have no need for state financial support. All other forms of 'demand' can be argued to be purely 'aspirational': households that would like to have a better or different form of housing, if they had the ability to pay (Golland, et al, 2004).

2.2.2.11 Housing Standards

Housing quality is related to standard and its settings. Turner (1972) argued that housing value is to be assessed by its material standard, if perceived as a matrix of elemental material components. Baer (1977) however asserted that standard of housing is a determined state of excellence assessable by indicators from which the real determinants can be derived. For instance, overcrowding is a standard defining a socially unacceptable limit of crowding assessed using bedroom, room or household occupancy ratio indicators. Standards are products of culture of the concerned people. Standards represent baseline for judgment or assessment. Also where different standards exist, different goals are inevitable from different combinations of resources.

Standards must take into consideration functionality of design, based on (financial, materials and technological) resources availability and must be achieveable by the people (Baer, 1977; Fisher, 1959; Onokerhoraye, 1985; Wahab, 1985).

Onokerhoraye (1984) classified Nigerian standards into two. The first is the space standard that gives definition to intensity of housing development, by consideration of plot sizes, quantity of buildings on a plot or a unit area of land, and occupancy ratios such as building size per unit area. Secondly, performance standards, which has to do with environmental quality such as construction type and quality, construction materials, quality of surrounding environment and associated services. Building regulations, bye-laws and codes dealt with many other details such as water, wastes treatment, drainages, and electricity.

There are international, national and other local standards, these implied that there are variations between the different levels. There are some factors accounting for differential standards, such as urbanisation level and rate, sociocultural and economic development and predominant climate in the region or subregion. The United Nations Organisations (UNO) in 1969 explained that cultural development and attainment are vital in derivation of standards (UNO, 1969).

Federal Ministry of Housing and Environment (FMHE) in Nigeria had not released the national housing standard to the public (Coker, et al, 2007). In the absence of definite standard by the government, the way out is a consideration of those formulated by the developed regions or countries, like United Kingdom and America. For instance those released by the American Public Health Association (APHA) in 1945, 1946 and 1950 have been known to be reliable (APHA, 1945, 1946 and 1950). The APHA method emphasised objective measures and de-emphasised subjective measures for standardised results from different assessors based on standardised system. In assessing housing conditions such as quality, the APHA method utilises numeric penalty scoring.

2.2.2.12 Housing Sustainability

In this section housing quality is extended to the role of housing in optimising our existing resources and maintaining good balance   between ecology and environment. Housing design, construction techniques and location can affect environmental sustainability as well as conserve culture of the people (Erguden, 2001). Sustainability has to do with environmental responsiveness and resource efficiency (DOR, 2012). Sustainability has been defined as "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (IISD, 2013; UNECE, 2004).

The four pillars of sustainability identified and concretised are environmental, economic, social and cultural dimensions, each of which encompassed diverse issues of human endeavour (FCGB,2009; Manning, Boons, Hagen & Reinecke, 2011; Reinecke, Manning & Hagen, 2012; UNGA,2005).

In a study to find out the link of sustainability to quality of housing or correlation between them, principles from the Western Australian State Sustainability Strategy were adopted. These were fused into three major components: ensuring roof overhead for the homeless, eco-efficiency in housing provision and that the housing should be well located in order to improve location amenity.

Housing the homeless has to do with provision of more houses for those in need of public ones, and meeting needs of those requiring private rental assistance so as to have their residence. The eco-efficiency in design and construction great consideration is given to provision of essential facilities for habitable living with consequent reduction in energy, water and associated travel costs. The eco-efficiency is clearly for cost efficiency. The location aspect of the trio pillars of sustainability is associated with distance and access to: public amenity, city center, markets and shopping centers, employment/workplaces and open spaces.The integration of housing and sustainability has for many reasons over the years drawn attention to the concept of green buildings (Urban Land Institute Community Catalyst Report, 2007).

First the natural environment is impacted severely by the built environment. For instance, in the U.S. according to the U.S. Green Building Council (USGBC), buildings consume 65 percent of electricity, 36 percent of energy utilisation, 30 percent of greenhouse gas emmissions, 30 percent raw materials utilisation, 30 percent wastes generation (136million tons annually), and 12 percent of potable warer utilisation. Secondly, because of climate protection there has been increased interest in carbon emission reduction, which led to U.S. Conference of 770 Mayors that signed an agreement on calls for new construction to achieve neutrality by 2030. Thirdly, pairing affordable housing with green building (with reduced energy running cost and carbon emission) is one of the solutions to achieve the proposed target.

Sustainable Architecture and Housing Quality

Several works have been carried out on sustainability and related issues by organisations, with the leading one in the U.S. being the USGBC; and that has come up with standardised rating building design sustainability based on consensus and a third-party, independent measure - referred to as the Leadership in Energy and environmental Design (LEED) Green Building system of rating. The relevant rating systems are - (i) LEED for existing buildings (LEED-EB) and (ii) LEED for new construction and major renovations (LEED-NC) (Mehta, Scarborough & Armpriest, 2008).

Table 2.1: Relative importance of categories in LEED green building rating system

	Categories	Maximum score points
i	Sustainable sites	14
ii	Water efficiency	5
ii	Energy and atmosphere	17
iv	Materials and resources	13
v	Indoor environmental quality	15
vi	Innovation and design process	5
	Total	69

Source: Mehta, *et al* (2008)

The LEED system of rating is centered on the performance of the building under the following six categories- five topical categories and one for innovation and design (as shown in Table 2.1).

The measure of sustainability of a building obtained from the sum of all the score points, the rating which depends on which of the four categories of green as classified by the system which are generally referred to as LEED certification levels (Table 2.2). Also before being as signed to a category, based on the score points there are some criteria to be satisfied. Housing that is sustainable and of good quality must satisfy one of the first four ratings in Table 2.2, otherwise it is uncertified (DEHLG, 2007)

Table 2.2: LEED certification levels

S/N	Certification level	Points scored by the building	Percentage	Remarks
i	Platinum	52-69	75.36-100.00	Green building
ii	Gold	39-51	56.52-73.91	Green building
iii	Silver	33-38	47.83-55.07	Green building
iv	Certified	26-32	37.68-46.38	Green building
v	Non-certified	Below 26	Below 37.68	Non-green building

Source: Mehta, *et al* (2008)

Sustainability issues have some characteristics that must be considered. These include:

(i) The entire site should be sustainable in terms of circulation and ease of access to for housing dwellers, including the physically challenged. The housing should be capable of being adapted to meet changing needs of the dwellers durng their lifecycle stages.

Such a scheme should meet the wellbeing and health, with well resolved vehicular, cyclist and pedestrian traffics among other safety measures and sustainability requirements.

(ii) The mode of water supply must be efficient of quality and quantity.

(iii) The scheme must be buildable, maintainable and manageable in terms of cost effectiveness with respect to waste production, green gas emission into the atmosphere and energy utilisation.

(iv) Efficiency in the use of natural resources such as land,particularly the design incorporating renewable sources of energy and construction, as well as infrastructure and other types of energy. The location with respect to amenity, services and transportation. Good construction techniques and durable building materials that have been known to have service years of about 60 years without the need for replacement or major repairs.

(v) The indoor environmental quality (IEQ) must be within a range that is safe for the inhabitants. They include air and other gases and associated usually invisible particles. These are generally emitted or produced by office and household machines, construction activies, cigarette smokes, perfumes, and flooring materials such as carpets/rugs. IEQ focussed mainly on airborne contaminants, safety, comfort and health and aesthetics. (CDCP, 2011 & WBDG, 2011).

(vi) The sheme design should respond to the needs of the people through harmonious and aesthetical innovations appropriate to the environment that will promote good neighbourliness and cultural identity.

2.2.2.13 Dimensions of Housing Quality and Assessment

There are several ways of assessing housing quality, categorized as direct (such as assessment of various elements) and indirect assessment which was found useful in the field of psychology or the applied form (Ajzen, 2002). Housing has been evaluated from a number of perspectives and based on different ideas. For example, housing has been evaluated based on affordability, adequacy, quality, performance, structural stability, accessibility, satisfaction, among others. The issues normally measured in housing include quantitative aspects such as sizes, numbers (quantity), design,

location, performance and qualitative aspects such as perception- including personal or experiential assessment including the subjective attributes, choice and preference which are all rooted in environmental psychology.

Housing quality is a heterogeneous commodity (Gandil, 1995), and, therefore has been measured in one form or another through aggregation of several variables. Goodman (1978) concluded that housing quality is better measured through many indicators, rather than being measured directly.

Although, Corporation for Supportive Housing (CSH, 2009) found seven components of quality of housing, they seemed to have focused more on components of housing, rather than on housing quality. Included among them are: *(i) administration, management, and coordination; (ii) physical environment; access to housing and services; (iii) supportive services design and delivery; (iv) property management and asset management; (v) tenant rights, input, and leadership; (vi) data, documentation, and evaluation.*

However, from other literature, the following seem to be more common and focus directly on housing quality: (i) Management - Maintenance, management of Property/Asset, fees, rents, security, etc. (ii) Physical aspects or Physical environment, including functionality of structures and design technicalities, etc. (iii) social-cultural /psychological aspects - defined territories, privacy, etc.; (iv) rights, rules and regulations and (v) location, study contexts etc.

Methods of Assessing Housing Quality

Although there are several methods used in assessing housing quality, in this study, the focus is on post occupancy evaluation (POE). The following sub-sections are focussed on review of literature on POE.

-Post Occupancy Evaluation

Hassanain, Ahmed, Adamu & Saif (2010) noted that there abound different definitions on evaluation of Post Occupied Buildings (POE). It can be defined as activities undertaken for understanding of building performance based on the predetermined purpose and experience of the users of facility and the environment.

POE can be initiated as a research for feedback on how well architects design decisions met the users' requirements (Farbstein & Kantrowitz, 1989; Marans & Spreckelmeyer, 1981). 'Building pathology' was used for building appraisal concerned mainly with defects and required repairs (Watt, 2007). It can also be for determination of aesthetic, socio-cultural, economic, environmental or technical values or general evaluation of occupied/utilised facility (Preiser & Schramm 1998; Preiser & Vischer, 2004).

One of the characteristics of the POE concept is its mutability; that there are several interpretations that have been proposed in order to define the subject. One example is the notion as offered by the US Federal Facilities Council that POE is a method of carrying out post occupied building performance evaluation in a systematic way (Preiser, 2002; RIBA, 1991). In fact, Preiser (1998) suggestsed that POE involves data collection, unilateral and comparative analyses based on set standards. This perspective is bolstered by an elementary definition of POE as assessment of how effective occupied facilities for users (Zimring & Reizenstein, 1980).

POE comprises the: (i) As built drawings study/analysis (ii) Questionnaires for staff and management members in the facilities (iii) Walk-through evaluation by the POE team and (iv) Interviews of selected personnel by the POE team.

On the levels of POE, Preiser (2002) showed that there are basic levels of POE. These are indicative, investigative and diagnostic POEs (see Plate 2.1 for a graphical illustration of the different components of these levels).
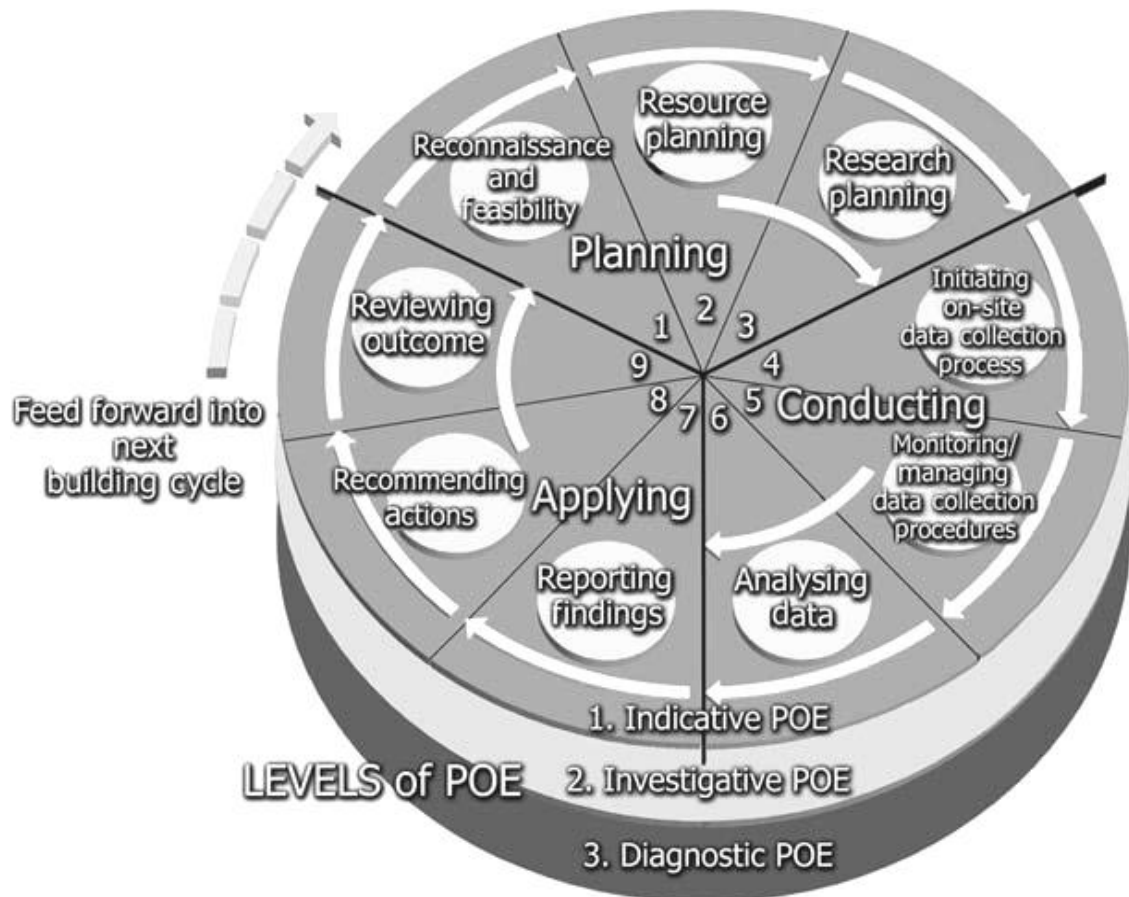
Plate 1: Post Occupancy Evaluation (POE) Process Model
Source: Yocis (2004)

From the foregoing, it seems evident that the real essence of POE is to investigate and understand the performance of buildings and their surrounding environment during occupancy using some predetermined parameters often referred to as performamce criteria or standards. This means that building performance evaluation (BPE) is one aspect of POE in which performance of buildings and their surrounding environment are investigated in meeting end-users needs, expectations and aspirations. Six performance criteria have been identified by Kian (2001) as very useful in BPE. These are: spatial (functional) comfort; indoor air quality; visual comfort; thermal comfort; acoustic comfort; and building integrity (structural and material performance).

The study by Yocis (2004) reveals that performance criteria have evolved into key areas of security, safety, health, function, psychological social, work flow and efficiency. Other areas are culture and aesthetics.

Relating this to housing, the performance of residential environment is a result of measurement housing quality performance and its satisfying users' needs (with all benefits) and expectations. At the inception of housing occupation, a consumer builds some expectations on the performance of the desired housing, the derived benefits benefits it will provide and the needs it should and needs fulfillment. The judgment begins immediately after occupation, and measures the satisfaction or dissatisfaction levels with housing. The extent to which residents are satisfied is often regarded as the measure of performance of the housing environment.

These may include residents' assessment of surroundings, accessibility to public amenities, quality of surrounding housing, pleasantness of the housing scheme and friendliness/pleasantness of the people in the immediate neighbourhood. The design and management of dwelling facilities that helps to improve the satisfaction of the users is a task that requires the explicit statements of performance requirements and effective management; such as:

> *(i) Minimum floor area for adequate space and privacy e.g. the Dwelling floor space for a household of four persons must exceed 37.0m^2. (ii) Facilities i.e. provision of basic services: Any housing lacking basic services and facilities such as running water, electricity or a sewage system is judged to be below standard.(iii) Structure and environment: Housing with poorly built structures such as tents, commercial huts, and barracks using inadequate building materials are also considered to be sub-standard.*

Hassanain, Ahmed, Adamu & Saif (2010) identified the indicators of performance requirements for assessing residential environment in two main categories: outdoor and indoor performance requirements, as enumerated below.

The outdoor performance requirements comprise of the following key areas:

(i)   spatial configuration

(ii)   parking

(iii) landscape

(iv) children playground

(v) support services/utilities

(vi) safety and security

The indoor performance requirements include the following:

(i) housing unit layout

(ii) visual comfort

(iii) thermal comfort and indoor air quality

(iv) finish systems and furniture

(v) support services/utilities

From the foregoing, it is obvious that the outdoor and indoor performance requirements comprise seventy performance indicators; and depending on the situation and circumstances as well as research contex, the final set of indicators may include part, all or more than the total number of performance requirement (with their indicators) listed above.

2.2.2.14 Housing Quality Indicators

The existing works, including Hassanain, Ahmed, Adamu & Saif (2010); Habib, Mahfoud, Fawaz, Basma & Yeretzian (2009); Meng & Hall (2006); Olotuah (2006d) and Fiadzo (2004) in their respective studies found several residential quality indicators that for measuring quality of dwelling units and surrounding environment. These include quality indicators related to location aspect; physical aspects (spatial configuration); functional aspects; infrastructure; indoor and outdoor ambient conditions; aesthetic aspects; economic aspects; safety and security aspects; ecological aspects and sustainability aspects (housing the disadvantaged, eco-efficiency, and location). Conley & McCray (1997) utilised tenure, availability and quality of public water and sewer facilities, age of housing stock, availability of complete plumbing facilities, crowding, and housing affordability (including value, rent, maintence and other housing expenditure) for housing quality assessment based on country profiles by census tracts.

There are also indicators derived from housing delivery system, construction method, cost of the housing, family life cycle; neighbourliness - relationship with co-residents in close proximity, housing need and demand- requirements. Also identified are health aspect; housing acceptability; housing maintenance; housing adequacy; protection of

territories; housing type; housing mobility. These authors further explained that management aspect; psychological aspect and physical morbidity; accessibility to goods, services, activities and destinations; political aspect; technological aspects ; crowding; housing tenure type; housing choice or preference; home ownership; housing availability; housing affordability; housing accessibility; housing design; housing satisfaction were very vital housing quality indicators. In addition, other HQIs include habitability; condition of building fabrics, domestic space utilization, availability of home-based enterprises; and recreational facilities. These indicators were investigated in this study.

2.2.2.15 Review of Approaches to Measuring Housing Quality

From literature qualitative and quantitative approaches or a combination of both have been used for assessing housing. But there are observed differences in the indicators considered, as well variables that are predictors of the dependent variable in each case. Some selected papers out of those reviewed are presented below and shown on Table 2.3.

Amao (2012) assessed quality of housing in nonformal residential areas and urban improvement in Ibadan, Nigeria by Survey Research Design method. Ten percent (10%) of the study population of 200 were selected as the sample size which resulted in 20 houses. These were selected by means of systematic random sampling technique, in which every 10th house from the study population was selected. Mallo and Anigbogu (2009) examined housing quality between residential neigbourhoods in Jos, Nigeria, by means of a survey of 400 households across 15 locations by using cluster sampling technique. Analysis involved Percentages, comparisons, etc.

Habib, Mahfoud, Fawaz, Basma & Yeretzian (2009) examined quality of housing (HQ) and poor health in an underpriviledged urban settlement in Beirut, Lebanon. With a population of 3881 in 788 households; survey of 100% study populatio using multivariate regression, descriptive statistics bivariate analyses and Chi-square test.

Clark (2009) assessed the performance of housing quality questionnaire (HQQ) a new Self-Report Measure for Public Health Assessment in USA. Methodology- American Housing Survey (AHS) as Expert-rated instrument; and HQQ as residents measuring instruments of physical aspects/ perceptions about their homes. Analyses- were by Rasch Measurement Models used to analyse the psychometric properties of the research instruments. Oguntoke, *et al* (2009) examined relationship between Morbidity pattern of pulmonary tuberculosis and quality of housing in Lagos, Nigeria by *Longitudinal survey* from 5 DOTS centres for periods 1997-2002; with 120 TB patients also sampled for more information. Analyses were by Regression model.

Olotuah (2006d) assessed housing quality in suburban areas, Oba–Ile, Akure, Ondo State, Nigeria by Cross sectional survey of 260 cases and a data matrix of 30 variables each. The stratified random sampling technique was used for administration of questionnaires. Analyses were by univariate analysis, frequency distribution analysis of each variable and chi-square tests, and step wise algorithm. Meng and Hall (2006) assessed quality of housing in Lima, Peru by a multi-criteria analysis- based (MCA) methodology. Leung (2005) assessed the Subjective Residential Environment and its impacts on Quality of Life among Hong Kong University Students, in Hong Kong, by means of a cross-section survey and a selection of 500 respondents drawn out of eight universities and out of a study population of 83,200 in Hong Kong in a convenient sampled survey. Fiadzo (2004) estimated the predictors of quality of housing in Ghana by means of standardised indicator questionnaire survey and the data were analysed using logistic and ordinary least square regressions.

Son, Won & Moon (2003) examined the changing conditions and housing quality in Korea by means of survey based on secondary data; and the data were analysed using quantitative ratios, factors, crowding, rental costs and percentages. Clark, Comrad & Lutz (2003) assessed quality of housing and the influence of a Representative Payee Program Chicago, USA using a survey of Sample population of 178 U.S. Veterans. Analyses conduced were Rasch measurement using the Rating Scale model techniques. Biondic & Sepic (2002) examined the link or correlation between standards and high-

quality housing in Croatia using longitudinal survey over four sessions of second year students of Architecture at Zagreb University from 1977/78 to 2001/2002 on a total population of 267 with the use of questionnaire which included both subjective and objective aspects assessed by the users. The data were analysed by means of descriptive statistics, including mean, standard deviation and ANOVA, as well as inferential statistical tools such as Pearson correlation and a predictive analysis. Lawrence (1995) looked into housing quality as an agenda for research in Geneva, Switzerland, using qualitative evaluation of journal articles on the subject. The main statistical tool used was Descriptive means. Table 2.3 presents the summary of the existing studies on the approaches to measuring housing quality reviewed in this thesis.

Table 2.3: Summary of existing works on housing quality and related issues

S/N	City/ Country	Authors/ Year	Title	Aim/ Objectives	Methodology	Tools of Analysis	Findings
1	Lagos, Nigeria	Ilesanmi, A.O./ 2012	Housing, Neighbourhood Quality, and Quality of Life in Public Housing in Lagos, Nigeria	Examined Housing andNeighbourhood Quality of Public Housing in Lagos, Nigeria	Cross sectional survey with experts rating, by means of penalty scoring and using a set of quality indicators derived from literature	Analysis was by means of descriptive statistics	Based on housing condition alone, about 34% of surveyed housing blocks were of poor quality and dilapidated, with two or more major defects. Based on Neighbourhood environment, about 65% and 30% of the low-income and middle-income estates respectively were of poorquality.
2	Beirut, Lebanon	Habib, R.R., Mahfoud, Z., Fawaz, M. , Basma, S.H.; and Yeretzian, J.S. 2009	HQ and Ill Health in a Disadvantaged Urban Community	Examined the association between HQ and chronic illness among household members	Population based cross-sectional survey with interviews Pop=3881 in 788 households Survey= 100% study pop	Multivariate regression Model Descriptive statistics, Standard deviation, Frequency distribution , Bivariate analysis, Chi-square test; Generalized estimation equation	50% of studied households reported chronic illnesses. @67% of individuals lived in households with more than 4 problems relating to housing conditions. There is significant positive association between housing conditions and chronic illness
3	USA	Clark, E.J. 2009	The Housing Quality Questionnaire (HQQ): Anew Self-Report Measure for Public Health Assessment	Validated current HQ Instruments as appropriate measures of HQ; and to identify the most significant content areas of the HQ Construct.	American Housing Survey (AHS) as Expert-rated instrument; and HQQ as residents measuring instruments of physical aspects/ perceptions about their homes.	Rasch Measurement Models used to analyse the psychometric properties of the research instruments	HQQ functioned as a unidimensional scale, but had several other deficiencies as a HQ instrument, and is a reliable tool for measuring HQ construct

Table 2.3 Contd.

S/N	City/ Country	Authors/ Year	Title	Aim/Objectives	Methodology	Tools of Analysis	Findings
4	Lima, Peru	Meng, G. and Hall, G. B. 19, Oct. 2006	Assessing housing quality in metropolitan Lima, Peru	Developed a housing quality model and index (HQI) for evaluating general housing quality conditions aggregated at the individual household and city block level. The index is targeted at cities in developing countries. However, the underlying model and index are sufficiently general and robust to be used in any geographic context\ .	An MCA-based methodology that explicitly facilitates input from local participants is used to integrate the first four categories of housing quality into the HQI for metropolitan Lima. Four criteria provide the basis for identifying indicators to produce a meaningful HQI, namely objective criteria, scientific/technical criteria, management criteria and social and cultural criteria.	Multi-criteria analysis (MCA) for the formation of an HQI In general, MCA includes the steps of problem definition, setting evaluation criteria, defining alternatives, setting criterion weights, stating decision rules, and decision making.	The HQI is calculated using micro-level census data (households) and is spatially aggregated to the city block level so that dwellings in the greatest need of improvements can be mapped and areas that are experiencing high housing quality inequity can be easily visualized. The case study in Lima demonstrates the effectiveness of the model and reveals the spatial distribution of housing quality in a typical Latin American mega-city.
5	Ghana, W.A.	Emmanuel Fiadzo June 2004	Estimating the Determinants of Housing Quality: The Case of Ghana	Examined the determinates of housing quality using the case of Ghana to add to the body of empirical knowledge.	Core Welfare Indicator Questionnaire survey.	Empirical analysis based on the logistic and ordinary least square regressions	Results revealed that tenure, age, income, gender, marital and employment status are significant determinants of housing quality in Ghana

Table 2.3 Contd.

S/N	City/ Country	Authors/ Year	Title	Aim/ Objectives	Methodology	Tools of Analysis	Findings
6	Hong Kong	Leung, N.S. Mar. 2005	Subjective Residential Environment and Its Implications for Quality of Life among University Students in Hong Kong	Investigated the respondents' perception of the residential environment and its implications for the quality of life (QOL).	500 respondents out of 83,200 were conveniently sampled from 8 universities in Hong Kong. Respondents were chosen as far as possible evenly spread throughout the day, at points of heavy student congregation such as student canteens and resting places. The data were gathered by means of personal interviews conducted on the campuses using a structured ques tionnaire. The interviewing middle was Chinese. The survey was conducted in May 2003.	One-way analysis of variance (ANOVA) and Pearson correlation analysis were employed Open ended and structured questionnaire 5-pt Likert scale utilized Chi-square test;	Overall Satisfaction score with the residential environment was 3.32 ± 0.90 It emphasized that development is for people, hence users assessment of their residential environment can contribute towards meeting the needs and aspirations of the community.
7	Korea	Son, J.; Won, Y. and Moon, C. Apr. 2003	Changing Conditions and HQ	Study focused on analysis of major trends and features of housing market and housing quality	Survey based on 2ndary data	Quantitative Ratios, Factors, crowding, rental costs and percentages.	Study revealed that the quantity and quality of housing stock for the average Korean have improved over the past 4 decades considered in the study (1960-2000) , due to government's extensive involvement in land development and price regulation.

S/N	City/ Country	Authors/ Year	Title	Aim/ Objectives	Methodology	Tools of Analysis	Findings
					Table 2.3 Contd.		
8	Chicago,USA	Clark, E.J.; Comrad,K. and Lutz, G. Nov. 2003	Assessing HQ and the Impact of a Representative Payee Program	Analyzed how the HQQ measured the HQ for the persons who received federal subsidized funding and who were diagnosed with Mental Illness and Substance Abuse (MISA) disorders To identify the 6 variables defining HQ.	Survey of Sample population of 178 U.S. Veterans. All subjects suffered from MISA disorders and the majority were living in in the institutional settings of a psychiatric hospital	Rasch measurement using the Rating Scale model techniques HQQ instrument included 29 items adapted from the HQ section of the American Housing Survey using 5Pt Likert Scale with higher pts of up to 87pts indicating inadequate/ poor HQ. 8 of the 29 items were useful for HQ of institutional setting; whereas all the 29 items were useful for HQ of veterans residing in community setting	Results at 6month showed an HQQ reliability of 0.85

Table 2.3 Contd.

S/N	City/ Country	Authors/ Year	Title	Aim/ Objectives	Methodology	Tools of Analysis	Findings
9	Croatia	Biondic, L. and Sepic, L. 2002	Analysis of the Relationship Between the High-Quality Dwelling and Standards	Established the relationship between standards, regulations, rules and HQ	Longitudinal survey over 4sessions of 2nd Year students of Architecture at Zagreb University 1977/78 to 2001/2002 on a total pop. of 267 Questionnaire included both subjective and objective aspects assessed by the users.	Mean, Standard deviation, ANOVA, Pearson correlation analysis Multivariate regression Model	Study emphasized that HQ should be all-encompassing in offereing all family needs; fulfil basic physical and physiological criteria, health, hygiene and the protection and socio-cultural/psychological values. Quest for HQ in countries with no housing shortage is justifiable than those with shortage which should be more concerned withuantity.
S/N	**City/ Country**	**Authors/ Year**	**Title**	**Aim/ Objectives**	**Methodology**	**Tools of Analysis**	**Findings**
10	Geneva, Switzerland	Lawrence, R.J. *July1995*	Housing Quality: An Agenda for Research	Fashioned new integrated outlook for HQ	Qualitative evaluation of journal articles on HQ;	Descriptive	Identified little consensus about the concepts, means and measures for HQ It proposed it is necessary to develop a contextual understanding based on the identification and then the aggregation of those contingent factors that are implicated in the provision, affordability, management and tenure of housing.

Table 2.3 Contd.

| 11 | Lagos, Nigeria | Oguntoke, O.; Muili, T. H.; and Bankole, M.O. 2009 | Morbidity pattern of pulmonary tuberculosis and housing quality in Lagos metropolis, Nigeria | Examined the pattern of TB morbidity in Lagos metropolis with the aim of identifying the explanatory factors. | Data on reported cases of pulmonary TB were collected by *Longitudinal survey* from five DOTS centres (1997 to 2002).

120 TB patients were sampled from the DOTS centres so as to provide additional information. | Regression model, | Results showed significant variation in the morbidity pattern of TB between residential areas in Lagos metropolis (p < 0.05). Furthermore, TB cases showed a rapid increase between 1997 and 2002. About 58% of TB cases were reported by males, age groups 21-30 and 31-40 accounted for 61.8% while 55.8% of the patients earn below N10,000 monthly. From the regression model, house quality accounted for 67.3% of the morbidity pattern of TB. |

Table 2.3 Contd.

S/N	City/ Country	Authors/ Year	Title	Aim/ Objectives	Methodology	Tools of Analysis	Findings
12	Nigeria	Amole, D. 2009.	Residential Satisfaction and Levels of Environment in Students' Residences.	Examined satisfaction at different levels of environment in the context of students' residences and Investigates the relationship between residential satisfaction and levels of the residential environment. Identified the levels of environment to which users respond in relation to satisfaction, how significant satisfaction is across levels of environment, and the dimensions of satisfaction across the levels.	Survey research design The study uses data collected from 1,124 students in 20 residence halls in four Nigerian universities. Responses to 49 satisfaction items about various attributes of the residence halls are subjected to factor analysis.	Responses to 49 satisfaction items about various attributes of the residence halls are subjected to factor analysis.	Three levels of environment, namely, the bedroom, the floor, and the hall emerge from the analysis, and satisfaction is significantly different across these levels. Although the experience of satisfaction is different, separate, and hierarchical at the different levels of environment, the users respond to similar dimensions of satisfaction at each level.

Table 2.3 Contd.

S/N	City/Country	Authors/Year	Title	Aim/Objectives	Methodology	Tools of Analysis	Findings
13	Oba–Ile, Nigeria	Olotuah, A.O. 2006	Housing Quality In Suburban Areas (An Empirical Study of Oba–Ile, Nigeria)	Examined HQ in a city suburb, Oba.Ile, Akure, Ondo State Nigeria.	Cross sectional survey of 260 cases And a data matrix of 30 variables each The stratified random sampling technique + administration of questionnaires.	Univariate analysis Frequency distribution analysis of each variable Chi-square tests Step wise algorithm A linear model was developed through multiple regression analysis for the prediction of housing quality of the buildings therein. The regression coefficients of the predictor variables described the values	Three independent variables were found to be predictors of the dependent or criterion variable; these were *Use of Toilet, Age of Buildings,* and *Frequency of Collection of Refuse.* by which the dependent variable HQ would change as a result of a unit change in any of the predictor variables. The model is thus pivotal in determining strategies for the improvement of housing quality in the study area.

Methodologies for Research in Housing Quality

This section specifically presents a review of the different research designs, method of data collection, sampling techniques and analytical tools used in housing quality research. As observed in the literature and those reviewed in 2.2.2.15 of this thesis, many of the assessment of housing quality are based on survey research design, with administration of questionnaires, obtained by random or stratified random sampling, and observation. Analyses were based on regression and multivariate analytical methods, multi-criteria analysis (MCA) of indicators, etc. by developing in some cases housing quality index (HQI) model.

George (2006) in the appraisal of methodology for assessing housing quality based on American Public Health Association (APHA), included evaluation of: (i) housing deficiencies (ii) surrounding environment (iii) use of system of numerical scores (iv) valid quantitative measurement of housing deficiencies. Meng and Hall (2006), in assessing quality of housing in Lima, Peru developed a housing quality index (HQI) model. In a Nigerian study, Olotuah (2006d) used multivariate analytical methods to study housing quality. Other methods include the qualitative approach as well (Lawrence, 1995).

2.2.2.16 Gap in the Literature

From the review of literature some gaps in knowledge were identified which this research attempted to fill. The identified gaps include:

(i) in Lagos State, only few researches have been conducted on issues related to the subject such as morbidity pattern, satisfaction and its correlates, the QOL, and quality of some housing schemes or those constructed by a particular organisation from literature (Jiboye, 2009; Oguntoke, et al, 2009), but not on the quality of Public and Public Private Partnership (PPP or Joint Venture) housing across major organisations in the state, which is the main focus in this study.

(ii) from literature, there appears to be high residential occupancy ratio and overcrowding resulting from urbanization in Lagos State that accommodates the largest urban agglomerations in the country and one of the largest two in the Africa, which may have resulted to high housing need that has influences on housing quality - the extent of which is to be unraveled in such a study as this.

(iii) theories focused directly on broad-based assessment of housing quality that can be applied directly to this study area are very rare.

(iv) majority of studies on housing quality focused on residents' assessment while few others in the past focused on experts' assessment, while both have certain merits and demerits, but for some reasons, such as experiential knowledge and benefiary of the assessment impact, this study adopted the former;and since only the bearer feels the weight.

(v) there is lack of consensus in the definition and assessment of housing quality as remarked by Lawrence (1995), among others due to contextual and socio-cultural differences. This study is to define housing quality and develop a framework for its assessment in the study area based on the contextual and socio-cultural peculiarity of the residents.

(vii) most of the studies (Aydinli, 2005; Biondic & Sepic, 2002; Lawrence, 1995) focused on dwelling conditions and access to public facilities which may be limited instead of a broad-based, comprehensive, more-encompassing or near holistic assessment of housing quality, not widely utilized that was adopted in this study. This involves consideration of all or major aspects relevant to housing quality, in the study area of the dwelling conditions including physical, functional, infrastructure (water, sanitation, electricity, etc.), economic, ecological, indoor ambient environment (temperature, ventilation, light), indoor environment management, aesthetics, security, sustainability, relevant Neighbourhood environment and personal characteristics of the respondents.

2.3 Conceptual, Applied and Methodological Issues of Environmental Psychology

Psychology tends to explain or offer dispositional explanations of human behaviour (Ajzen, 2002). Environmental psychology, as Oskamp & Schultz (1998) explained, has to do with effects of the environment on our psychology and our life outcomes; as humans shape their environments just as they are shaped (Churchill explained in Knock, 2012). This field particularly emphasised of the environmental characteristics, our behaviours and other influences and ways to improve and conserve the surrounding environment at micro and macro scales (De Young, 1999; EPLab, 2011; Fisher, 2011; Mathew, 2001).

Environmental aesthetics study preferences in terms of aesthetic judgments as well as some relevant topical issues including density and crowding, defensible space, behavioural attitudes in and towards the environment, cultural influences on environment, environment cognition, transportation, territoriality, place theory, and effects of noise (Evans, 1995; Oskamp & Schultz, 1998; Stokols & Altman, 1987). Some relevant areas in environmental psychology are: (i) Perception and cognitive maps (ii) Density and Crowding and (iii) Environmental stress and coping (Garling and Golledge, 1993; Kaplan & Kaplan, 1982; Krieger, *et al* 2002; SEP, 2005). (iv) Personal Space and Territory and (v) Environmental Cognition (BUILT, 2008).

Applied environmental psychology and environmental design professions impact on the built environment; Its agrees with principles of sustainability with consequent on how to make the environment fit more and more for human habitation (Mathew, 2001). Ultimately, environmental psychology as BUILT (2008) explained has effects on design professionals works and their works controls the environment which in turn define limits of behaviour and accounts for the degree of derived satisfaction (Evans, 1995; Fisher, 2011; Kopec, 2011; Mathew, 2001)

2.4 Influence of Environment on Behaviour

Influence of environment on behaviour is imminent as personality of individuals in a country or region is moulded or shaped by it, Moos (1976 cited in Mathew, 2001). They offered explanation on the fact that temperament is affected by climate as follows:

> *The cold climate presumably makes people 'Rajasik'. The hostile and scarce environment makes people aggressive and aggressiveness necessitates artificial moral control. In contrast, people in a very warm climate are likely to be 'Tamasik'. This kind of temperament is characterized by laziness and inertia. In a very hot place, it is unpleasant to keep working, because of perspiration and fatigue. The moderate climate is most conducive for the `Sathwik' temperament. This is characterized by an awareness of oneself and the relationship of the environment to one's adjustment. Consequently the Sathwik approach involves living in harmony with the environment. The insight into the role of the environment in our well being leads to a felt need to conserve the natural environment. The Sathwik temperament is holistic, intuitive and well balanced.*

Environmental psychology is more involved environment particularly neighbourhoods and the components. Study has shown that urbanisation has adverse effects on human behaviour (Baum, Singer, & Valins, 1978).

2.5 Concepts, Theories and Models

In this section, the theories or foundations upon which the understanding of this study was based were considered and discussed. A theory consists of explanations of causal or casual relationships, which have withstood considerable attempts of refutation and are, therefore, generally accepted as true (Agbola & Oladoja, 2004). It is also a system of thought, a set of rules or principles for the study of a subject. It is a statement of ideas held to explain an existing phenomenon to predict future occurrences or consequences (Agbola & Kassim, 2007). Housing, as a multidisciplinary and interdisciplinary subject, does not lend itself easily to the use of one or two sets of theories but many, so also is housing quality.

As earlier mentioned, housing quality has been assessed from economic, sociological, cultural, scientific, historical, psychological and political perspectives. On epistemological and ontological grounds, based on review of literatures in which subjective assessments are involved and emphasized, environmental psychology and its applications has been adopted as one of the disciplines for conducting this study. Also studied are the impact of mental constitution on individual's personality and various housing quality related concepts, theories and models as bases.

Theories play a very important role in housing studies as they guide development of research questions, methodologies to be utilized, interpretation of results and contribution to or advancement of knowledge in housing and related fields (Steggel, Binder, Davidson, Vega, Hutton, & Rodecap, 2003). The purpose of this section is to present related theoretical bases for the approaches to the study of housing quality. The theories, concepts and models considered among others to be relevant to the current study include: dramaturgical model; family life cycle model; theory of rent; conflict theory- crowding behaviour theories: needs theory; healthy cities (H.C.) concept; hedonic prices and demand for housing concept, behavioural symbol concept; group dynamics concept; residential mobility; and behavioural aspects: territoriality. In this section, discussion of each of these concepts and theories as they relate to housing quality assessment was made.

(i) Dramaturgical model

This is based on the premise that human conduct is shaped by acceptable impressions in the minds of those we deem important to us. We tend to be what we pretend to be (Garth, 2005). This explained why government evolved housing policies normally do not fulfil peoples' yearnings and expectations (Agbola & Kassim, 2007). This is relevant to the provision low to high quality public housing. The issue is that have they been able to deliver what they promised the people or have they been able to deliver what met the needs of the people?

(ii) Family life cycle model

Household changes in the sense that an individual and/or every family evolves through a lifecycle sequence that have an important impact on the housing market. These changes in household lifecycle generate mobility either by altering specific housing needs or by creating or eliminating demand for an independent housing unit (Agbola, et al, 2007). Gayle (2001) identifies six (6) stages in the family lifecycle grouped into three: (i) Pre-family Stage-Stage1 pre-family or unattached young adult (ii) Active Stages- Stages 2, 3 and 4 i.e. coupling, child bearing and child rearing and (iii) Post family Stages- Stages 5 and 6 i.e. post family and later life. The assessment of housing quality depends on the stage in the family lifecycle.

(iii) Theory of Rent

This covers rent on bare land and the structure therein. Rent is the reviewable periodic payment made regularly to property owners for the use of their house (or a good). In USA, for instance, the New York State Legislators enacted the War Emergency Tenant Protection Act (Rent Control Act), protecting tenants from WWII related housing shortages - which places maximum rental cost payable by tenants. Effects of rent control include: Reduction in the quality and quantity of available housing; Diverts new investment; It causes shortage and diminutions in quality of products; Causes spill over effect of rising cost in the uncontrolled sector; Can lead to destruction of quality housing as in N.Y. 1972-82 when about 30,000 apartments were left to decay and abandoned annually; Tenants enjoying no rental value as before (Agbola, et al, 2007). It is obvious from the foregoing that when the rental cost of housing is high, the residents or renters may not be interested in spending their own funds to even slightly improve the quality of their housing.

(iv) Class Theories

Social stratification is a sociological concept that both groups and individuals are viewed as occupying a range of classes or strata, determined by some generalized or specific attributes, characteristics or a set of them (George, 2006). This involves a

sort of ranking according to some accepted basis of valuation in the society, such as superiority - inferiority including and intermediate scales when necessary. Each scale or class has attached to it, different degrees of prestige and esteem. Some characteristics being used for class system include authority, power (political, economic, and military), education, property ownership and religion. The individuals in one stratum are more alike than persons in other strata, as there are common values, ideal, and behavioural patterns exhibited within a given stratum. The evolution of class structure was in the pre-industrial societies when there was the tendency for a great bulk of economic surplus to be used for the benefit of the rulers. This was the situation in Mexico and Egypt after A.D.900 and in some African Kingdoms of the 18th and 19th centuries- where their class structure was based on military might. One of such theories is Marxists conflict theory.

Marxists conflict theory named after Karl Marx (1818-1883) argued that there exists economic imbalance at core of all societies or that society is composed of economic classes that engaged in a ceaseless struggle with one another, to correct or maintain the imbalance or widen it. The occurrence of such in part explains the reason for segregation between the have and have-not brings about the types of conflict inherent in any given society - realistic and non-realistic conflicts. Examples include 'bourgeoisie and proletariat', 'guildmaster and journeyman', 'freeman and slave'. According to Marx (George, 2006), in the stratification in large metropolitan centre, people tend to associate with one another according to their economic levels. Max Weber's theory (1864-1920) argued that capitalism was geatly affected by religion and ethics; while Thorstein Bundle Veblen's theory (1857-1929) viewed society in two classes, the 'leisure or predator' group that owns/controls commerce and businesses; and the 'workers or industrious' group which is responsible for goods production. These two groups are also in ceaseless struggle as in Marx's theory.

The society is made up of pre-industrial and the industrial eras. In the pre-industrial society, individual was classified as belonging to upper or lower class; where the elite

occupied the top position and accorded superior status, while the masses occupied the bottom stratum. Some factors of class determination are income, occupation, residence location and family position. In the industrial society, individual was classified as belonging to upper, middle, or lower class; where the elite occupied the top position and accorded superior status and comprised of the oppressors, lords, bourgeoisie that occupy the top of the pyramid; they lived a distinguished life style coupled with easy accessibility to power and authority. The middle class have little productive capital and thus can invest only a small amount of their money on capital projects; while the lower class are the slaves, the oppressed and the proletariat, which have only little available for feeding, clothing and furnishing. Classification of the society is not static as a result of continuous global advancement and urbanization leading to class mobility.

These theories further re-iterate the fact that there exists different quality housing in all societies, since life is in phases and people are in different sizes according to their social, demographic, cultural, economic characteristics, and political status.

(v) Crowding Behaviour Theories

Behaviours, which are conscious/unconscious actions or reactions of an object or organism often to your surrounding or neighbourhood.They fall within a range, with some being commo san, unusual, and acceptable or outside acceptable limits. Density is a spatial concept while crowding is a state aroused by spatial, personal and social attributes. As observed by overload theories, crowding results when the resultant privacy is less impressive compared to the desired privacy (Stokois, Rall, Pinner & Schopler, 1983). People feel crowded when privacy mechanism is not functioning effectively; which exposes individual to the level of social contact higher than what he desires (Altman, 1975). This Altman's theory or model did not tie crowding to a particular spatial measure, as density, but crowding is as a result of the awareness that one is being observed. There are human personal, social and situational factors that independently and jointly interact to determine the amount of privacy that individual desires and the amount obtainable. Hence a shortfall in the desired privacy will lead to stress which will inevitably be followed by experience of crowding (Agbola, et al, 2007).

Altman (1975) used two main concepts, territoriality and personal space to explain the model. For instance an individual can mark, protect and secure his territory in such a way that intruders are kept off or away; the individual enjoys privacy and as such stress experience is minimal if not absent because there is no overload. In order to avoid overload and the attendant consequences, personal space behaviours, which can be used to regulate or eliminate communication, may be employed. Humans are constantly striving to master and control their environment. To achieve this, momentary setback and loss of control usually lead to unease, frustration and stress.

From Attribute theory, the first stage in experiencing crowding is violation of personal space which leads to arousal and stress; and this violation surprisingly may occur in high-density and low-density situations (Worchel & Yohai, 1978). It was also realized by attribute theorists that violations of personal space in places such as markets, parties, theatres, football games, concerts, beaches, etc. do not always lead to crowding. In order to explain the perceived contradiction, attribution theory, presumes that arousal leads people to look into the environment for possible causes of arousal. It believed that if arousal is brought about by the presence or closeness (invasion of personal space) of other people then, the individual will experience crowding, but if the arousal is not is a result of closeness of others, then crowding will not be experienced. Therefore crowding, as a theoretical construct most useful in housing management, depends on and is a function of what the individuals attribute as the cause of arousal (Fisher & Byrne, 1975).

(vi) Needs Theory

Maslow (1908-1970) propounded the need theory, which he called the hierarchy of needs theory or theory of human motivation (Mcleod, 2014). He stated that human needs are prioritized and the motivation to satisfy them per time is a function of the more overriding at that particular time. The needs are in hierarchy, from the lower level to the higher level, and one cannot move to satisfy the higher level need if the lower level ones are not satisfied. He recognizes five levels of human needs from bottom to the top in the order of expected satisfactions. These according to Mcleod (2014) are:

the physiological needs, safety needs, belongingness/love needs, esteem needs, and self-actualization needs.

In applying the theory to housing, one will look at the following: the effect of individual's state of mind and his/her reaction to the environment; and the economic implication of the behavioural theories to housing, especially in areas of housing: demand, supply and distribution. Thus a person belonging to a particular hierarchy of needs and occupying housing of not less than the level/status is likely to rate such housing high in terms of quality, etc. than if it were the other way round.

(vii) Healthy Cities (H.C.) Concept

Health, as set out in World Health Organization's Constitution W.H.O. (2006; 2015a), is defined as a state of complete physical, mental and social well-being, and not merely absence of infirmity; it includes general well-being, peace and security. Healthy cities should continually create and improve environments associated with social and physical aspects and with resources of the community guaranteeing assistance to citizens for potential maximization (W.H.O., 2015b). That was why urban areas were described as centres where wealth, production and innovation concentrate Barra (1997). Cities are well placed to cater for their populations' basic necessities because these are generally made and supplied to them at low per capita cost and at higher quality than other areas because of high concentration of citizens. According to Agbola (1993) cities are ecosystems which have structures that are patterned in peculiar ways. He further explained, that with urbanization there has been massive rural to urban migration in Nigeria, which created environmental challenges including housing inadequacies, overcrowding, inadequate potable water supply, erratic electricity supply, among others. Social poblems resulting from these inadequacies are muder, alcoholism, juvenile delinquency, prostitution and spread of infectious diseases. From these developments, Giroult (1993) noted that Healthy Cities (HC) model is the answer to these needs. The aim of HC concept is mainly for improvement of city dwellers' well-being and health (Aregbeyan, 1993).

The ideal, perfectly healthy city does not exist; it is only a dream, a vision towards which the process of developing a healthy city is directed. Among the outlined qualities of a healthy city are: (i) achieving good level in provision of basic necessities such as potable water supply, electricity supply, drainages, roads, work and income generation/distribution, among others and (ii) achieving good level in maintaining clean, secure/safe environment and good quality environment for dwelling, working and recreation.

From the foregoing, it can be seen that the dramaturgical model explains why there are likely to be differential quality of public housing; while the family life cycle model explains the variation of family housing requirements as the family move along the identified cycle which may affect their need (requirements), perception and assessment of the housing, such as quality, satisfaction. Similarly, the rent theory provides insight into how the quality of housing may be affected if the rental cost is high especially when it becomes unaffordable, as the residents or renters may not be interested in spending their own funds to even slightly improve the quality of their housing. Conflict theory explained economic imbalance at core of all societies, which partly accounted for the existence of segregation and ceaseless struggles between them. It further re-iterated the fact that there exists different quality housing in all societies, since life is in phases and people are in different sizes according to their social, cultural, demographic, economic and political status.

Further, crowding behaviour theories, including density, crowding, territoriality and personal space, and attribute theory have become useful in housing management, as they help us to understand what the individuals attribute as the cause of arousal. These theories result from invasion of personal space and perception of causes of arousal. Needs theory, stated that human needs are prioritized, and their perception of their housing environment is influenced by them. Healthy Cities (H.C.) Concept is mainly to improve the health and well-being of city dwellers (Aregbeyan, 1993).

Validation of the models, concepts and theories and their relevance are discussed in Section 4.5 by the results of the study.

2.6 Conceptual Framework

In view of the fact that there is no single theory that can be considered to be the underpinning framework of this study coupled with the fact that a number of concepts have been identified as being relevant to the current study, attempt was made to develop a conceptual framework of this study. The three major ingredients in social research includes the building-up of theory, development of methods for data collection, and data collection by means of instruments. All of these must be right if the research is to yield interesting results (Gilbert, 2001).

2.6.1 Analogy of Theoretical Bases and Conceptual Frameworks

Ojo (2005) was of the view that in any field of study, there are many theories that have been put forward to understand certain phenomena. A theoretical framework is a system that explains in simplified form the assessment, analysis and prediction of certain issues with respect to what is being investigated by considering assumptions, postulations and existing direct or related theories. Agbola & Oladoja (2004) explained that a theory consists of explanations of casual relationships, which have withstood considerable attempts of refutation and are, therefore, generally accepted as true. A theory highlights and explains something that one would otherwise not see, or would find puzzling. It often answers the question about the cause or intention underlying an action (Gilbert, 2001). On the other hand, concept or construct has been explained as inferred or derived idea about issues being studied including a behavioural phenomenon, among others and that the primary purpose is to simplify thinking by a merging compressing several events into few subheading under a general heading; it also provides a common language, which enables researchers to communicate with one another.

The conceptual foundations, also known as frameworks, consist of a body of language peculiar to the broad fields of environmental sciences (including architecture, urban planning, estates management, building, quantity surveying, geography, etc.), engineering, environmental psychology, economics and sociology, and may include

some terms, phrases, words, and abbreviations involved in communications therein. The conceptual framework is also considered from the fact that housing is a special field involving architecture and other related discipline; hence it could primarily be likened to a body with several functioning appendages, each of which can be held or felt. An in-depth study of any of the appendages in the similitude of an indicator is capable of elucidating the factors or determinants of the housing quality as the dependent variable. It also tends to discuss the overall idea and understanding of the subject matter as well as relate the dependent variable, housing quality to all identifiable external influences-known as its indicators from which the predictor independent variables will be determined.

2.6.2 Conceptual Framework for the Study

Conceptual framework for the study is based on findings in literature that quality of housing is a construct, made up up so many components influenced by many variables and capable of being assessed in diverse ways including many indicators available in literature. As found from literature, objective attributes, subjective attributes, personal characteristics of the residents are the key components for measuring the subject and other associated issues. Objective attributes of residential environment are those that are concrete, measurable and not influenced by personal characteristics of the assessors, whereas subjective attributes of residential environment are those that are influenced by personal characteristics of the assessors. In the latter case, influences of environmental psychology/behaviour come to the fore.

Figure 2.1 shows the graphical illustration of the conceptual framework of the current study developed based on literature. It clearly indicates among other things, the relationship between the two environmental attributes and housing quality. As found in literature, it emphasized the need for a broad-based, near holistic, or broad-encompassing interdisciplinary conceptual framework for dwelling quality measurement in within the study area. The conceptual framework has three key components: (i) Subjective attributes and (ii) Objective attributes of housing environment; and (iii) Household personal characteristics- such as education, income,

| | **Category** | **Index** |

Objective Attributes of Residential Environment (OARE):
Age range of house, Dwelling type, Use of Facilities in the building, Toilet Type, Total number of bedroom(s) in apartment/residence or number of rooms occupied by family/household, Room occupancy rate, and Availability of Home Based Enterprises (HBEs)

Subjective Attributes of Residential Environment (SARE)

Housing Adequacy and Satisfaction (AS)

Housing Services (SE)

Housing Accessibility and Proximity (AP)

Estate Conditions (EC)

Housing Affordability (AF)

Indoor Ambient Conditions (IAC)

Dwelling Units State of Repairs (SR)

HOUSING QUALITY INDEX (HQI)

Household Personal Characteristics (HPC):
State of Origin, Ethnic Groups, Religion, Sex, Age of respondent, Length of stay in the residence, Marital status, Household size, Adults proportion in the household, Highest Level of Education of respondent, Occupation/Economic Activity, Average monthly income, and Tenure type of residence

Figure. 2.1 Conceptual framework of housing quality

age, family size, gender, marital status, occupation (demographic/socio-economic attribute of residents. The framework, shows the direct and indirect relationships among the different components, and presents the basis for the research methodology.

From the review of literature, it was found that assessment of certain dwelling attributes based on respondents' personal characteristics becomes 'subjective attributes'forming a part of components assessment as the basis for 'housing quality indices' for the different categories of consumers 'dwelling quality index' for all consumers in the research population in the study area.

The identified three components above each consists of specific measures in nine categories that form final components for the housing quality index of the conceptual framework are shown in Appendix 10.

2.7 Summary of the Chapter

In this Chapter attempt was made in reviewing related literature on a range of issues in housing quality and housing. It was established that housing quality studies have been carried out based on theoretical and conceptual approaches, with the latter stemming out from the former. Theoretical foundations were also studied for deep understanding of the concepts, theories and models for such studies as this. A finding from literature showed that showed that quality of housing is usually based on subjective and objective issues such as attributes assessments etc. It was also found that most previous studies on housing quality were at different levels-including individual housing units, sections, schemes, neighbourhood, community and organizational levels, and on physical/spatial, social, socio-spatial, psychological and economic dimensions.

Therefore, this study focused on broad-based or near holistic assessment and on state level rather than the lower levels; which also include housing units and neighbourhoods within the study area. Also conceptual, context and objective factors were identified as having influence on various methods for assessing housing including quality. Most of the previous works reviewed adopted household survey method in examining issues on housing, particularly its quality. Hence, in this research

the cross-sectional survey of the selected (public and public private partnership) housing and the residents was adopted also in the study area. The methodology adopted for the study in terms of the step by step procedures necessary for valid and unbiased result with high degree of confidence in the overall outcome based on the developed framework in Section 2.5 is presented in the next chapter.

CHAPTER THREE
RESEARCH METHODS

In this chapter the brief discussion of the methodology adopted in this study in order to address the problems or issues being investigated were presented. It discussed the procedures on research design. Next to this is the study population which includes sampling frame, sample size, the variables, data and data collection instruments/method, level of significance, validity, and degree of reliability of data collection instruments. Also discussed are the methods of analyses adopted to realise each objectives, detailed methodology by objectives and limitations of the study.

3.1 Research Design

From literature, many of the previous studies adopted survey while some others adopted qualitative approach. But considering the study aim and objectives, the merits/demerits of various approaches, survey using questionnaire administration combined with observation were adopted. This survey method affords the researcher the opportunity to draw inferences about the characteristics of a population being studied and it is one in which the sampled subjects and variables were observed as they were without any control or manipulation by the researcher or anyone (Ojo, 2005; Oyeku & Ayodele, 2010).

3.2 The Research Population

The research population is made up of 26,207 dwelling units in Public and PPP Housing Estates/Schemes in Lagos State with household-head as the respondents. They are made up of 25,051 government and 1,156 Joint Venture constructed housing units, respectively. Table 3.1 (Appendix 3) is the entire research Population; Table 3.2 presents a summary of 'Public and Public private partnership (PPP) housing projects in Lagos State, each with household head respondents; and Table 3.3 presents a summary of Selected Housing Estates by Typologies.

There were a total of seventy-nine (79) housing estates as classified below.

(i) By income earners typologies: 44Low Income, 25Middle Income, and 10High Income earners housing;

(ii) By delivery strategy: 70Public, and 9PPP

(iii) By housing provider organisations: 56LSDPC, 18LSMOH, and 5FHA

3.2.1 Sampling Frame

The sampling frame, made up of a list of housing estates from which the sample is selected, consists of 15 out of a total of 79 Housing Estates in the State and with a total of 4,449 housing units (i.e. 3,496 government built and 953 Joint Venture schemes respectively), across the three organizations (LSDPC, LSMOH and FHA), housing classifications (Public and Joint Venture) and housing typologies (High, Middle and Low)/Table 3.3 and Table 3.4, location of housing frame Table 3.5.

Multi-stage sampling was adopted. The first was stratified random sampling, in which the research population was grouped into strata by organisations, and income earners housing classifications (for discrete typologies), which resulted in a total of 14strata. One (1) estate was selected from each of the 14strata, but in one of them an additional estate was randomly selected because the first estate was not sufficient for the proportional sample size in that stratum. The first and second selected from that stratum are 'Estate 5 (Ojokoro Middle Income earners housing) and Estate 6 (Iloro Middle Income earners housing)'.

Thus, there were a total of 15 housing estates in the Sampling frame as classified below.

(i) By income earners typologies: 5Low Income, 7Middle Income, and 3High Income earners housing;

(ii) By delivery strategy: 10Public, and 5PPP;

(iii) By housing provider organisations: 5LSDPC, 6LSMOH, and 4FHA.

Table 3.2: Public and Public private partnership (PPP) housing projects in Lagos State

S/N	Organization	Date/ Period	Income Type			No. of Units	Estates
			High	Middle	Low		
	PUBLIC HOUSING						
1	LSDPC	1972-2013	1180	2338	18,097	21,615	50
2	LSMOH	1999-2013	260	120	2716	3096	16
3	FHA	1973-2013	38	235	67	340	4
	Sub-Total		**1478**	**2693**	**20,880**	**25,051**	**70**
	PPP HOUSING						
4	LSDPC	1999-2013	-	120	210	330	6
5	LSMOH	2004-2013	-	72	200	272	2
6	FHA	1973-2013	-	554	-	554	1
	Sub-Total		-	**746**	**410**	**1156**	**9**
	Grand Total		**1478**	**3439**	**21,290**	**26,207**	**79**

Sources: FHA (2010d); LSDPC (n.d.a); and LSMOH (n.d.) – with updates up to 2013
Note: The 79 Estates are enumerated in Appendix3

Table 3.3: Sampling frame

S/N	Organization	Income earners housing Typologies			Estates
		High	Middle	Low	
	PUBLIC HOUSING				
1	LSDPC	1	1	1	3
2	LSMOH	1	2	1	4
3	FHA	1	1	1	3
	Sub-Total (Public)	**3**	**4**	**3**	**10**
	PPP HOUSING				
4	LSDPC	-	1	1	2
5	LSMOH	-	1	1	2
6	FHA	-	1		1
	Sub-Total (PPP)	-	**3**	**2**	**5**
	Grand Total	**3**	**7**	**5**	**15**

Source: Table 3.1 in Appendix 3

	Housing estates	Total Housing Units represented	Proportion (%)	Sampling Frame	Provision based on No. of Housing Units	Sample Size/final (Provision based on Occupancy)	Proportion (%)
HIGH	1. LSDPC 3 Ogudu Phases I & II Duplexes (P)	1180	4.50	126	17	25	6.60
	2. LSMOH 4 Marimpex Estate, GRA Ikeja (P)	260	0.99	34	4	8	2.11
	3. FHA 1 Satelite II High Income Housing (P)	38	0.15	38	1	3	0.79
	Sub-Total (High Income)	**1,478**	5.64	198	22	36	9.50
MIDDLE	4. LSDPC 15 Middle Income Estate IV, Ogba-Ijaiye: 4-Bedr Semi-detached Bungalows (12); 4-Bedr Flats (324) …(P)	2338	8.92	336	34	49	12.93
	5. LSMOH 6 Ojokoro II Housing Scheme Block A & Blocks B-J, Ijaiye, Ojokoro LGA (P)	120))	0.46))	80	1	1	0.26
	6. LSMOH 7 Iloro Housing Estate (Blocks A-D)/(P)			32	1	1	0.26
	FHA 2 Abesan IMiddle Income Housing Scheme (P)	235	0.90	179	3	7	1.85
	LSDPC 20 Goshen Beach Estate (4-BedrDetached House(57); 5-Bedr Detached House-17,etc. (PPP)	120	0.46	85	2	5	1.32
	LSMOH8 Cortex Scheme, Ikota, Eti-Osa LGA(PPP)	72	0.28	72	1	3	0.79
	FHA 4 Diamond Estate, Isheri Olofin	554	2.11	554	8	14	3.69
	Middle Income Housing (PPP)						
	Sub-Total (Middle Income)	**3,439**	13.13	1338	50	80	21.10

		Total Housing Units represented	Proportion (%)	Sampling Frame	Provision based on No. of Housing Units	Sample Size/final (Provision based on Occupancy)	Proportion (%)
LOW	LSDPC 34 Iba Low Income Housing (P)	18,097	69.05	2400	261	190	50.13
	LSMOH 13 Millennium Housing Scheme, Shasha, Alimosho LGA (P)	2716	10.36	204	39	56	14.78
	FHA 5 Abesan II Low Income Housing, Ijaiye, Ojokoro LGA (P)	67	0.26	67	1	4	1.06
	LSDPC 55 LSDPC Low Income Housing, Isolo (BlocksA-G): 7Blocks x 3-Bedr Flats (PPP)	210	0.80	42	3	7	1.85
	LSMOH 18 Millennium Housing Scheme, Ewu-Elepe, Ikorodu LGA (PPP)	200	0.76	200	3	6	1.58
	Sub-Total (Low Income)	**21,290**	81.23	2913	307	263	69.40
	Grand Total	**26,207**	**100**	**4,449**	379	379	**100.00**

Sources: FHA (2010d); LSDPC (n.d.a); and LSMOH (n.d.) – with updates up to 2013

3.2.2 Sample Size

For the realisation of the set objectives for the study, the systematic random sampling technique was adopted, with first randomly selected and then every fifth housing unit; since certain degree of homogeneity is maintained within each stratum (Ojo, 2005; Okoko, 2001; Saliu & Oyebanji, 2004). The random or probability sampling was designed to grant each element in a study population equal chance of being included in the draw.

In order to determine appropriate sample size in this study, although there are many methods and statistical formulae for calculating the sample sizes, two approaches are common, the practical and and statistical approaches. The latter as given by Cochran (1977) was adopted.

The research population is 26,207 (25,051 government and 1,156 Joint Venture schemes construced housing units, respectively), with the household head respondents, had the sample sizes calculated by two stages formulae as shown below:

(i)Stage1 for infinite population has the formula

$$n_0 = [t^2 \text{ x } (p) \text{ x } (q)]/d^2 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.(1)$$

Where n_0 = first stage of Sample Size; t = value of selected alpha level of .025 in each tail= 1.96 for 95% confidence level; the alpha level of .05 indicates the level of risk taken despite the fact that true margin of error may exceed the acceptable margin of error.

pq = estimate of variance= .025;

d= acceptable margin of error for proportion of being estimated= .05 (error the researcher is willing to except).

Therefore, for a population of 26,207 (25,051 government built and 1,156 Joint venture schemes respectively), the required Sample size (n_0) is 384.

(ii) Stage2 for finite population has the formula

$$n_1 = n_0/[1 + n_0/Pop] \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots. (2)$$

Where, n_1 = Second and final stage of Sample Size; Pop = population of 26,207

By imputing n_o and Pop, the required Sample size (n_1) is 379, which is the study population; and which represents the number of government built and Joint Venture housing units sampled through questionnaire from a sampling frame of 4,449 (being 3,496 of government built and 953 of Joint Venture schemes respectively) by the residents; with housing unit as unit of analysis. Table 3.5 in Appendix4 presents the estate distribution and sampling frame location, and Table 3.6 summary of sample size by organizations and typologies and Table 3.7 the selected estates and codes

Table 3.6: Summary of sample size by organizations and typologies

S/N	Scheme	Type	No Represented	%	No. of Housing Units in Scheme	Provision based on Total No Represented	Provision based on Occupancy (final)	%
	High Income							
1	LSDPC	P	1180	4.50	126	17	25	6.60
2	LSMOH	P	260	0.99	34	4	8	2.11
3	FHA	P	38	0.15	38	1	3	0.79
	Middle Income							
4	LSDPC	P	2338	8.92	358	34	49	12.93
5	LSMOH	P	120)	0.46)	80	1	1	0.26
6	LSMOH	P	)	)	32	1	1	0.26
7	FHA	P	235	0.90	179	3	7	1.85
8	LSDPC	PPP	120	0.46	85	2	5	1.32
9	LSMOH	PPP	72	0.28	72	1	3	0.79
10	FHA	PPP	554	2.11	554	8	14	3.69
	Low Income							
11	LSDPC	P	18,097	69.05	2400	261	190	50.13
12	LSMOH	P	2,716	10.36	204	39	56	14.78
13	FHA	P	67	0.26	67	1	4	1.06
14	LSDPC	PPP	210	0.80	42	3	7	1.85
15	LSMOH	PPP	200	0.76	200	3	6	1.58

Sources: FHA (2010d); LSDPC (n.d.a); and LSMOH (n.d.) – with updates up to 2013

3.3 Variables and Data Collection Instruments

The eighty-three (83) variables (derived from literature and applicable to study area) used in investigating housing quality are presented in Table 3.9 in Appendix 10. Data were primarily collected from the field (the housing estates) through questionnaire surveys (with respondents being household heads), location plans, layout plans and/or

floor plans observations and photographic materials. Visitations were made to organisations charged with the responsibilities for housing provisions in the State. These organisations are the Lagos State Development and Property Corporation (LSDPC) at Ilupeju, Lagos State Ministry of Housing (LSMOH) at Alausa Secretariat Ikeja, and Federal Housing Authority (FHA) at FESTAC. Also base maps, street guides, and photographs were used to support explanations on the work.

Table 3.8 column 3 is the Questionnaire 'A' distribution. Although from Table 3.6 housing provision in the State are LSDPC (83.74%), LSMOH (12.85%), and FHA (3.41%), the sample sizes provision based on occupancy are LSDPC (72.82%), LSMOH (19.79%), and FHA (7.39%).

Table 3.8: Summary of research instrument

		Questionnaires 'A'	*Percentage (%)*
1	LSDPC	276	72.82
2	LSMOH	75	19.79
3	FHA	28	7.39
	TOTAL	**379**	**100.00**

3.3.1 Questionnaire Design

The questionnaires were administered to household heads to obtain relevant data on variables affecting housing quality. These are made up of a set of closed-ended questions which are structured and from which choices were selected from the given options. The questionnaire for residents is made up of four sections; with the first section (I) items1-13, dealing with the demographic and socio-economic characteristics of the residents; the second section (II) items14-20, has a set of questions about the physical characteristics of the dwelling units and internal facilities provision; and the third section (III) items21-81, has questions about indicators of housing quality; and (IV) items 82 and 83, has a set of questions about overall assessment related to dwelling unit and neighbourhood environment. A total of 83

variables (divided into the four sections) as shown in Questionnaire 'A' in Appendix 9 were assessed. Also specially designed questionnaire were distributed in housing provider organisations to obtain information on the research subject.

3.3.2 Observation

This method was used to obtain data on housing quality assessment, activity patterns and conditions within the estates, their socio-economic activities and general performance of the housing schemes; Observations with graphical data recording were also used in this research.

3.4 Method of Data Collection

Required data were collected at specific periods (between 7.00A.M. -7.00P.M. daily) on the sampled housing to facilitate meeting the respondents at their residence. The establishment/organizational surveys were conducted during office hours with another designed questionnaire for information on housing quality, however based on advice from Supervisors these were not reported in this thesis. Ten field assistants were employed, trained and each encouraged to administer not more than 10 questionnaires per day. Because of the wide distribution or dispersion of the study population and other technicalities, administration and collection of questionnaire and other data were carried out between April and July 2014 (within16weeks) as earmarked during planning stage for field work. Distribution and collection of some questionnaires in some estates, observation and data collection with photographic materials in all the sampled estates were also carried out by the researcher, who also coordinated all fieldwork. Constant interactive sessions were held with field assistants to proffer solutions to problems arising from the fieldwork during data collection, such as non-cooperation and lack of interest from residents in some estates.

A set of well-structured multiple choice questions mainly based on 5-point Likert type of scale were adopted. The measurements on such 5-point scale range from Strongly Agree or Very Good with five (5) indicating positive statements, three (3) indicating

Neutrality, Average or Uncertain statements to Strongly Disagree or Very Poor with a score of (1) to indicate negative statements. The measurements on such 3-point scale range from Agree or Good with three (3) indicating positive statements, two (2) indicating Neutrality, Average or Uncertain statements to Disagree or Poor with a score of (1) to indicate negative statements. All non-responses were coded as appropriate. Other scales are variants of the five-poin five-points or three points Likert scales. The closed-ended questions are arranged according to the classifications of the variables in the various sections. Primary data for the research were obtained by administration of questionnaires to household-heads within the calculated sample size, drawn from the sampling frame (within the research population).

3.5 Validity and Reliability of the Research Instruments

Validity of the research instrument is vital to the success of the study since it must measure precisely what it was intended for. Reliability on the other hand is to ensure that there is internal consistency in the instrument if administered for the same subject at any other time with a guarantee of similar results.

Cronbach's alpha coefficient is one of the indicators for reliability test. In the reliability test carried out on the main instrument of data collection, Questionnaire 'A' (with 83variables) in Appendix 9. The result showed that Cronbach's alpha coefficient of .87 was obtained which is higher than the acceptable minimum value of .70. This showed that there is good consistency in the main research instrument. It has been a known fact that there is a direct relationship between validity and reliability.

3.6 Level of Significance and Statistical Techniques

Level of Significance refers to a statistical level for acceptance or rejection of outcomes of various settings. It is also the probability that a particular conclusion in the research work is not based on chance, but thinking that the observed result which could be the difference between two groups is due to the inherent differences in the

characteristics or parameters of the variables being measured. The confidence with which a result is rejected or accepted depends upon the significant level used for that purpose. The 0.05 level of significance (allowing 5% error margin and 95% confidence of the result, or conclusion inferred from the study) has been set for acceptance or rejection of outcomes in this study, as commonly used in social research.

The statistical tools used in analyses are Kendall Tau and Kruskal Wallis correlations, and Median test and Crosstabs, as well as the multi-variate analysis.

3.7 Methods of Data Analyses

Data processing was employed with the aid of computer and appropriate Statistical Package for Social Science (SPSS). Data obtained from the field were analysed using relevant statistical methods including univariate (descriptive and inferential statistics-percentages by means of tables). Bi-variate and multi-variate analyses were also used. The multi-variate was the categorical multiple regression (CATREG) analysis which was carried out with the aid of computer-based SPSS17 to evaluate the relationship between the dependent variable (overall housing quality) and the numerous independent variables.

The data obtained from the retrieved questionnaires from the respondents-indicating their assessment of variables of housing quality was analysed using correlation and categorical multiple regression analysis. The significant levels of association were determined at 0.05 levels. The results enabled inferences to be drawn on whether or not, that there is significant difference in housing quality between the three discrete income earners housing, between housing stock by different providers, and between the two delivery strategies.

3.8 Detailed Methodology

To provide answers to the research questions in order to achieve the stated aim of this research and the specific objectives, the following methodologies have been carefully outlined for them:

(i) to examine the demographic and socio-economic characteristics of the residents in the selected residential estates in Lagos State

Data characteristics: Some of the data for this objective are qualitative, while others are quantitative in nature and they describe the personal attributes of residents in the study area. The required variables investigated are enumerated in Table 3.10.

Data source: Required data were obtained from responses to questionnaires instrument.

Data analysis: Data were analyzed using descriptive statistics (univariate analysis), with frequencies distributions, using proportions in percentages, modes for categorical variables and means for continuous variables.

Table 3.10 Investigated demographic and socio-economic variables

S/N	Variable Description	Code
1	State of Origin:	STORIG
2	Ethnic group	ETHNIC
3	Religion	RELIGR
4	Sex	SEXRES
5	Age of respondent	AGERES
6	Length of stay in the residence	LTRESD
7	Marital status	MARSTA
8	Household size	HHSIZE
9	Adults proportion in the household	ADPROP
10	Highest Level of Education of respondent	EDUQLF
11	Occupation/Economic Activity	OCUPRE
12	Average monthly income	INCOMR
13	Tenure type of residence	TENTYP

(ii) to analyse the physical characteristics of housing units and neighbourhood environments in the selected residential estates

Data characteristics: Some of the data for this objective are qualitative, while others are quantitative in nature and they describe the physical characteristics of the housing

units in the study area. The required variables investigated are enumerated in Table 3.11. and Appendix8 Items 77-81.

Data source: Required data were obtained from responses to questionnaires instrument, observations and photographic documentation.

Data analysis: Data from questionnaire were analyzed using descriptive statistics (univariate analysis), with frequencies distributions, using proportions in percentages, modes for categorical variables and means for continuous variables.

Table 3.11 Investigated housing units' physical characteristics variables

S/N	Variable Description	Code
1	Age range of house	HSGAGE
2	Dwelling type	DWETYP
3	Use of Facilities in the building	FACUSE
4	Toilet Type	TOITYP
5	Total number of bedroom(s) in apartment/residence or number of rooms occupied by family/ household	NBEDRM
6	Room occupancy rate	RMOCUP
7	Availability of Home Based Enterprises (HBE):	AVLHBE

Data from observations and photographic documentation were analyzed by qualitative means using description of cases.

(iii) to evaluate residents' perception of the quality of housing in the estates

Data characteristics: The data for this objective are quantitative in nature and they describe the perception of quality of housing in the estates. The required variables to be investigated are enumerated in Appendix10 Table 3.13 A-G Items 1-53 and K Items 74 and 75 shown in Table 3.10

Table 3.12 Investigated overall housing quality variables

S/N	Variable Description	Code
74	Overall quality of your dwelling unit/micro-environment	OQLDUE
75	Overall quality of your Neighbourhood/macro- environment	OQLNHE

Data source: Required data were obtained from responses to questionnaires instruments in the conducted surveys.

Data analysis: Data were analyzed using descriptive statistics (univariate analysis), with frequencies distributions, proportions, percentages and medians for the ordinal variables. Here computation of the housing quality from residents' perception of the housing quality was made. Kendall Tau, Kruskal Wallis, and Median tests were also carried out on the data. The various analyses were carried out with the aid of SPSS17.

(iv) to examine the determinants of housing quality in the selected residential estates in the study area

Data characteristics: Some of the data here are objective, while others are subjective in nature and they describe the determinants of housing quality in the research population. The variables investigated are S/N 21-40, 42, 44-75, 82 and 83 in Table 3.6 (Appendix 8)

Data source: The data set was obtained from responses to questionnaires instruments in the conducted surveys.

Data analysis: Data were analyzed using descriptive statistics (univariate analysis), means for the continuous variables, frequencies distributions, proportions, percentages and modes for categorical variables, while medians were also used for ordinal variable. These were carried out with the aid of SPSS17 using Categorical multiple regressions (CATREG), and ANOVA. The results were then examined.

Administration and retrieval of questionnaires were carried out in the morning, evening and week-ends, when most of the resident respondents were available. Scheduled and unscheduled visits were made to the study areas weekly during the fieldwork to collect retrieved questionnaire or to issue same to supervisors or assistants. Full specification of all housing quality variables are in Table 3.9 (Appendix 8).

3.9 Summary of the Chapter

The survey methods, using: (i) in residents' survey, a sample size of 379 drawn by systematic random sampling out of a sampling frame of 4,449 (3,496 government built and 953 Joint Venture schemes respectively) drawn by stratified random sampling from the total research population of 26,207 (25,051 government built and 1,156 Joint Venture schemes respectively).

A total number of 379 questionnaires were administered and retrieved, indicating a return rate of 100% for questionnaire, however examination of the responses to the questions showed not higher than 11 ommission in any of the returned questionnaires, indicating a response rate of over 97%   in terms of number with complete resposes.

A combination of the following research instruments: questionnaires, observations and photographic materials were utilised as the data collection instruments. The data collected with these instruments were analyzed with a variety of statistical tests, descriptive statistics, and inferential statistics (Kendall Tau, Kruskal Wallis, Median Test and Categorical Multiple Regression or CATREG analyses) using the SPSS17 packages.

CHAPTER FOUR
DATA PRESENTATION AND ANALYSES

This chapter deals with data presentation being summary of response rate to the administered questionnaires on the population samples; univariate, as well as the relevant multivariate analyses performed on them. The first section focused on demographic and socio-economic characteristics of the residents, followed by housing characteristics, Residents' perception of housing quality, and determinants of housing quality.

4.1 Demographic and Socio-Economic Characteristics of the Residents

This section deals with summary of response rate to the administered questionnaires 'A' on the population samples on demographic and socio-economic characteristics by the 379 resident-respondents. Not more than five (5) of the resident-respondents however did not respond to the questions in this section, which yields a response rate of over 98%.

It presents data on the subject obtained from fieldwork, the relevant analyses and discusses the findings. They include, state of origin, ethnicity/tribe, religion, sex, age of respondent, length of residency, marital status, household size (persons), household composition/age ranges showing adults proportion in household, highest level of education/academic qualification of house-head/respondent, occupation/economic activity (nature of employment), average monthly income, tenure type and room occupancy rate; which are all to provide us with adequate background of the residents (See Questionnaire 'A' Section I in Appendix 10). The obtained data are then analysed as shown in the following sub-sections. It is pertinent to note that where 'Not Sure' occurred in Questionnaire and analysis, it implied more of 'intermediate option such as average' between two opposite extremes, than uncertainty.

4.1.1 State of Origin

The study examined the State of Origin of the respondents in the survey. The result shows that 56.0% of the research population was from Lagos State, 43.5% were from

Other States in Nigeria while only 0.5% were foreigners. This result indicates that majority (56%) of the residents were Lagosians, followed by those from Other States in Nigeria (over 43%), while foreigners were less than 1%; which confirms the fact that in public or semi-public good, there is normally catchment area peculiar to the location of the housing (Lagos State) which supply the highest number of beneficiaries.

4.1.2 Ethnic Group

The study examined the ethnic group of the resident respondents. Table 4.1.1 presents this and reveals that 61.5% of the research population were Yorubas, 26.9% were Igbos, 5.0% were Hausa/Fulani, while the remaining 6.6% were of Others stock/ Aliens.

This result indicates that majority (over 61%) of the residents were Yorubas, followed by those of Igbos stock (almost 27%); while Hausa/Fulani with Others stock/Aliens were the minority constituting less than 12%; which confirms the fact that in public or semi-public good such as housing, there is normally a catchment area peculiar to the location which supply the highest number of beneficiaries, which in this case, Yoruba land in South west Nigeria.

Table 4.1.1**: Respondents' Ethnic group**

	Percent	Cumulative Percent
Other	6.6	6.6
Hausa/Fulani	5.0	11.6
Igbo	26.9	38.5
Yoruba	61.5	100.0
Total	100.0	

4.1.3 Religion

The study examined the religion of the respondents. Table 4.1.2 presents this and reveals that 66.7% of the research population were Christians, 26.7% were of Islamic

faith, 4.2% were believers in Traditional religion, 1.6% were Free Thinkers or had no religion, while the remaining 0.8% were adherents of other Religions.

This result indicates that majority (over 66%) of the residents were Christians, followed by almost 27% that were Muslims; those of Other Religions and Free Thinkers constitute the minority with almost 7%; which confirms the fact that in public or semi-public good, there will normally be dominant of one or two main religions (compared to others) among the beneficiaries.

Table **4.1.2: Religion of the respondents**

	Percent	Cumulative Percent
None/Free-Thinker	1.6	1.6
Other	.8	2.4
Traditional	4.2	6.6
Islam	26.7	33.3
Christianity	66.7	100.0
Total	100.0	

4.1.4 Gender of the Respondents

The study examined the gender of the household heads who participated in the survey. The result shows that 67.0% of the research population were males while the remaining 33.0% were females.

This result indicates that majority (67%) of the residents were males, while the minority (33%) were females. This is of course at variance with Nigerian national census of 2006 (NPC, 2006) which indicates that gender were at about 51% and 49% for males and females, respectively.

4.1.5 Ages of the Respondents

The study examined the ages of the respondents in the research population. The result presented in Table 4.1.3 reveals that respondents in ages brackets of between 31years

and 40years constituted 38.2% of the respondents followed by those 18years and 30 years constituted 30.1%, those between 41years and 50years represented 19.3%, and respondents of ages between 51years and 60years were 8.2%, while those that are above 60 years constituted 4.2% of the research population.

This result indicates that majority (over 68%) of the residents were younger generation of ages between '18years and 40 years', while the least recorded (less than 5%) were the retired who are of ages 60years and above.

Table 4.1.3: Ages of the respondents

	Percent	Cumulative Percent
18-30yrs	30.1	30.1
31-40yrs	38.2	68.3
41-50yrs	19.3	87.6
51-60yrs	8.2	95.8
Above 60yrs	4.2	100.0
Total	100.0	

4.1.6 Length of stay in the Residence

The study examined the length of stay in the residence by the respondents in the various housing estates for adequate understanding of their knowledge-base on the various aspects of their housing/estates and neighbourhood, and their attitude towards housing conditions. Table 4.1.4 shows the result on the length of stay for the respondents in their residences.

It is evident from this result that 63.0% of the respondents had lived in their residences between 4years and 6 years; followed by 13.7% who claimed that they had lived in the estates for less than four years. Also 12.7% had lived in the estates for between 7 years and 9 years, while 10.6% indicated that they have been residing in the estates for between 10 years and above.

This result indicates that majority (over 86%) of the residents were those whose length of stay in their residences were between 4years and above while the least (almost 14%) were those with who had lived in their residences for less than 4years. The result also

implied that the majority of the residents in the research population have lived in their housing for reasonable number of years (at least 4years) and are thus qualified to provide reliable empirical data for assessing the quality of housing in the residential estates.

Table 4.1.4: Length of stay in the residence

	Percent	Cumulative Percent
3yrs & Below	13.7	13.7
4-6yrs	63.0	76.7
7-9yrs	12.7	89.4
10-12yrs	5.3	94.7
13yrs & Above	5.3	100.0
Total	100.0	

4.1.7 Marital Status of the Respondents

From the result of analysis on the marital status of the research population, it is evident that 68% of the respondents were married, while 32% were not in marriage relationship at the time of the survey. This clearly shows that the majority of the research population were the married.

4.1.8 Households Size

The study examined the household size of the household-head respondents in their housing in the various estates for understanding of their basis of their assessment of various aspects of their housing/estates and Neighbourhood, and behavioural disposition of the residents. Table 4.1.5 provides the result data on age profile of the residents in the studied housing estates and reveals that houses with less than five residents was the highest with 76.0%, followed by houses with residents of between 5 persons and 8 persons with 22.4%, while houses with 9 residents and above was 1.6%.

This result indicates that majority (76%) of the houses were those with less than five occupants while the least (almost 2%) were those with more than 9 residents and above.

Table 4.1.5: Household size

	Percent	Cumulative Percent
1-4 Person(s)	76.0	76.0
5-8 Persons	22.4	98.4
9 Persons & Above	.6	100.0
Total	100.0	

4.1.9 Adults Proportion in the Households

The study examined the proportion of adults in each household sampled in the various estates. The result reveals that households with between 41% and 100% adults was 88.4% of the research population; while those with below 41% of adults constituted 11.6%.

This result indicates that majority (over 88%) of the houses were those with adult population of between 41% and 100%, while the minority (almost 12%) were those with less than 41% adults.

4.1.10 Highest Educational Qualification of the Respondents

The highest educational qualification of the household-heads of research population in the survey was also examined. As shown in Table 4.1.6 household-heads with 'Tertiary Educational' as highest educational qualification constituted around 50.7%. This is followed by those with Secondary Education constituting around 44.0% and those with Primary education constituting 3.4%. Those with no formal education accounted for 1.9%.

This result indicates that majority (over 50%) of the houses in the research population were those whose household-heads have Tertiary Education while the least (less than 6%) were those with either 'Primary' or 'No Formal Education'.

Table 4.1.6: Highest educational qualification of the respondents

	Percent	Cumulative Percent
No Formal Education	1.9	1.9
Primary	3.4	5.3
Secondary	44.0	49.3
Tertiary	50.7	100.0
Total	100.0	

4.1.11 Occupation of the Respondents

The study examined the occupation of the respondents. Table 4.1.7 shows the result of the analysis. It is evident from this result that public sector employee constituted 38.0% of the research population, followed by the self -employed constituting 35.6%; and the private sector employees contributed around 12.4% and the unemployed were 11.6%; while those who were retirees constituted 2.4%.

This result indicates that majority (over 50%) of the houses were those whose household-head respondents are either public sector or private sector employees, while the least (less than 3%) were those whose household head respondents are the retired.

Table 4.1.7: Occupation of the respondents

	Percent	Cumulative Percent
Unemployed	11.6	11.6
Self Employed	35.6	47.2
Retired	2.4	49.6
Private Sector Employee	12.4	62.0
Public Sector Employee	38.0	100.0
Total	100.0	

4.1.12 Average Monthly Income of the Respondents

The study examined Average monthly income of the household-head respondents in their housing in the various estates for understanding of their economic background/ behavioural disposition and possible linkage to their assessment of various aspects of their housing/estates and Neighbourhood. Table 4.1.8 reveals that households whose house head respondent Average monthly income was Below ₦18,000 ranked highest and constituted 30.9% of the research population; followed by those whose Average monthly income was ₦18,000- 38,000 constituting 26.6%; this was followed by those whose Average monthly income was ₦71,001-145,000 constituting 16.6%; followed by those whose Average monthly income is ₦145,001 and above constituting11.9%;

followed by those whose Average monthly income is ₦38,001-44,000 constituting 7.1%; while those whose Average monthly income is ₦44,001-71,000   constituted 6.9%.

With the low income of ₦44,000 &Below, middle income range of ₦44,001-145,000, and high income of ₦145,001 & Above, this result indicates that majority (over 64%) of the houses were those whose household-head respondents' Average monthly income was low, less than 24% was in the middle income range, while the least less than 12% were those whose household-head respondents' Average monthly income could be classified as high income.

Table 4.1.8: Average monthly income of the Respondents

	Percent	Cumulative Percent
Below ₦18,000	30.9	30.9
₦ 18,000 - 38,000	26.6	57.5
₦ 38,001 - 44,000	7.1	64.6
₦ 44,001 - 71,000	6.9	71.5
₦ 71,001 - 145,000	16.6	88.1
₦ 145,001 & Above	11.9	100.0
Total	100.0	

4.1.13 Housing Tenure Type

The study examined tenure type of the respondents in the survey. Table 4.1.9 reveals that households whose household-heads were renters constituted 62.0% of the research population; followed by the owner occupiers constituting 27.3%; and those on free occupation comprised of 4.6%. Occupants of official quarters were 3.7%; while the family house occupiers constituted 2.4%.

This result indicates that majority (62%) the respondents are renters, while the least were those whose households were living in family house. The result also indicates that majority (over 72%) the respondents are non-Owner Occupiers, while the minority (less than 28%) the respondents are Owner Occupiers.

Table 4.1.9: Housing tenure type

	Percent	Cumulative Percent
Free Occupation	4.6	4.6
Renter	62.0	66.6
Official Quarters	3.7	70.3
Family House	2.4	72.7
Owner Occupier	27.3	100.0
Total	100.0	

4.2.14 Room Occupancy Rate

Room occupancy rate in each of the dwelling units was investigated. Table 4.2.1 provides the result of the room occupancy rate in each dwelling unit in the research population. The result in Table 4.1.10 shows that over 72% of the dwelling units had occupancy rate of 1 person per room; over 26% had higher than 1 person but not more than 2 persons, while only less than 1% of the dwelling units had more than 2 persons per room.

This result indicates that majority (over 72%) of the houses had 1 person per room; implying that the occupany rate in most of the dwelling units is within the acceptable standard (Shelter, 2015 and UK, 1985) which allowed over1.8 (rounded up to 2) persons per room for at least the modal number of bedroom per dwelling unit illustrated in Figure 4.2.4. That is, over 99% of the research population had occupancy rate of not higher than 2.0 persons per room. This is in agreement with research by Aluko (2000) in the study area with occupancy rate of less than 2.0 persons per room.

Table 4.1.10: Room occupancy rate

	Percent	Cumulative Percent
Above 2.00	.8	.8
1.01-2.00	26.4	27.2
Not higher than 1.00	72.8	100.0
Total	**100.0**	

4.2 Housing Characteristics

4.2.1 Physical Characteristics

Physical characteristics of housing are described using architectural and other non-architectural attributes related to economic, historical, psychological, sociological, cultural, anthropological, geographical features. Therefore, this section presents and discusses the result of analyses of data obtained from observation schedule and part of the residents survey questionnaire. It examines the characteristics of housing provided through the two delivery strategies: Public and the Public Private Partnership (PPP) also known as the Joint Ventures (JV). It begins with the presentation and discussion of the result of analyses of physical characteristics of housing.

On of the research population, 94.20% were provided through the public housing delivery strategy, while the remaining 5.80% were provided through the PPP housing delivery strategy. This section also presents the summary of response to the questionnaire administered in the research population to assess residential attributes.

Out of the 379 dwelling units sampled, not more than five (5) of the respondents however did not respond to the questions in this section. This translates to over 98% response rate among the respondents on the physical characteristics of housing investigated, which includes age range of house; dwelling type, use of facilities in the residence, type of toilet facilitiues in the residences; number of bedroom(s) in the apartment/residence or number of rooms occupied by family/household, Availability of Home Based Enterprises (HBE), flooring materials, walling materials, roofing materials, external main doors, and windows (See Questionnaire 'A' Section II in Appendix 10).

4.2.1.1 Ages of Houses

The study examined the age range of the houses in the various estates. The result in Table 4.2.1 reveals that houses above 30 years constituted around 52.2% of the sampled housing units. This is followed by those whose ages are below 11years,

(20.3%), those between 21years and 30 years (14.5%), houses between 11years and 20 years (8.2%); while those whose ages are 'Unknown' to the respondents constituted only 4.8%.

This result indicates that majority (over 52%) of the houses which constitute the research population are above 30 years; while over 43% are not older than 30 years.

Table 4.2.1: Ages of houses

	Percent	Cumulative Percent
Unknown	4.8	4.8
Below 11yrs	20.3	25.1
11-20yrs	8.2	33.3
21-30yrs	14.5	47.8
Above 30yrs	52.2	100.0
Total	100.0	

4.2.1.2 Dwelling Types

The study also examined the dwelling types in the various estates. It is evident from Table 4.2.2 shows that semi-detached (multi-flats-block of 3 or more flats) ranked highest and constituted around 81.1% of the sampled houses. Next to this are semi-detached (duplex, maisonette), constituting 5.5% and detached (bungalows), constituting 4.92%. Single room houses contributed around 3.4% of the sample; two room houses constituted 2.6%; and detached houses (maisonette) contributes around 2.4% of the sampled housing units. Typical floor plans are in Appendix 14.

Table 4.2.2: Dwelling types

	Percent	Cumulative Percent
Single Room Occupancy	3.4	3.4
Two Room Occupancy/ Room and Parlour	2.6	6.0
Semi-Detached (Multi-Flats-Block of 3 or more Flats)	81.1	87.1
Semi-Detached (Duplex, Masionnette)	5.5	92.6
Detached (Bungalows)	5.0	97.6
Detached (Masionnette)	2.4	100.0
Total	100.0	

This result indicates that majority (over 81%) of the houses, constituting the research population were semi-detached houses (i.e multi-flats-block of 3 or more flats); while the least were detached houses (maisonette).

4.2.1.3 Types of Toilet in the Dwelling Units

The types of toilet facilities in the various dwelling units in the housing estates were examined. Table 4.2.3 provides the result on this.

From this result, houses with exclusively squat/water closet constituted around 88.6% of the research population; followed by those with shared squat/w. c., constituting 7.1%; followed by those whose toilet type is Pit/V.I.P. latrine, constituting 2.1%. Next are houses with bucket/pail type of toilet (1.9%) and 0.3% of dwelling units without toilet facilities.

Table 4.2.3: Types of toilet in the dwelling units

	Percent	Cumulative Percent
None/Bush	.3	.3
Bucket/Pail	1.9	2.2
Pit/V.I.P. Latrine	2.1	4.3
Shared Squat/W.C. system	7.1	11.4
Private Squat/W.C. system	88.6	100.0
Total	100.0	

This result indicates that over 88% of the houses have private w.c.-fitted toilet facilities, even though there still exists a strange occurrence in the standard of sanitation in the residential estates in the study area with regards to the use of bucket/pail type of toilet (almost 2%) and houses without toilet at all (being less than 1%), which had long been outlawed in the State.

4.2.1.4 Number of Bedroom(s) in the Residences

The number of bedroom(s) in each dwelling unit sampled in the housing estates was examined. Table 4.2.4 reveals that 62.3% of the houses had 3 bedrooms; around 15.9%

had 4 bedrooms, 15.4% had 2 bedrooms, 6.1% had 5 bedrooms and above, while only 0.3% had 1 bedroom. Typical floor plans are in Appendix 14.

This result is an indication that the majority (over 62%) of houses sampled were 3 bedroom apartments; indicating that emphasis was laid on the construction of 3-bedroom houses in mass housing projects in the research population.

Table 4.2.4: Number of bedroom(s) in the residences

Number of bedroom(s)	Percent	Cumulative Percent
1	.3	.3
2	15.4	15.7
3	62.3	78.0
4	15.9	93.9
5 & Above	6.1	100.0
Total	100.0	

4.2.1.5 Use of facilities in the Residences

The study investigated the use of facilities (toilet and/or bathroom, and/or kitchen) in the residences. The focus was the extent to which facilities in the residences are shared among the households and their members. The result revealed that 95% of the dwelling units have exclusive use of facilities by household members, while 5% of the residences have occupants sharing facilities with households other than theirs.

This indicates that the majority of the dwelling units are self-contained apartments and in which their housedholds do not share facilities with other households.

4.2.1.6 Availability of Home Based Enterprises (HBEs)

The study investigated 'availability of home based enterprises (HBE)', such as retail shops, restaurant, business centres, among others, in the residences. The essence was to examine the extent to which they are available in providing the desired services to the residents of the estates. The result revealed that over 55% of the residents asserted that they were not available in or around their housing, while less than 45% of the

residents affirmed that the HBEs were available in their current residences. This indicates that in majority of the dwelling units did not have Home Based Enterprises (HBEs).

4.2.2 Construction Materials

The housing quality variables investigated in this section are shown in Questionnaire 'A' Section III in Appendix 10. Out of the 379 dwelling units sampled, not higher than five (5) of the respondents did not respond to the questions in this section. This translates to over 98% response rate among the respondents on the physical characteristics of housing investigated, which includes flooring materials, walling materials, roofing materials, door materials and types of windows (See Questionnaire 'A'Section II in Appendix10).

4.2.2.1 Flooring Materials

Beginning with the floors materials used in the houses, the result (Table 4.2.5) shows that over 56% of the houses had cement screed floor finish; followed by 15% that had terrazzo/grano, stone tiles finishes; those with ceramic tiles constitute14.1%; the 'PVC tiles floor finishes were 12.5%; while those with 'mud/ earth-based materials as floor finishes, constituted only 1.9%.

Based on this result, it can be inferred that most of the houses constituting the research population have concrete/cement/sand screed-based floor finish. This result is a clear indication of the trend in the use of modern materials as floor finishes in housing construction in the study area.

Table 4.2.5: Flooring materials

	Percent	Cumulative Percent
Mud/ Earth	1.9	1.9
Concrete/ Cement/ Sand Screed	56.4	58.3
PVC Tiles	12.5	70.8
Ceramic Tiles	14.1	84.9
Terrazzo/ Grano, Stone Tiles, e.t.c	15.1	100.0
Total	**100.0**	

4.2.2.2 Walling Materials

The study examined the walling materials used in each of the sampled dwelling units in various estates. Table 4.2.6 reveals that houses in which the walling is of 'sandcrete

blocks constituted 67.0%; followed by those constructed of cement/laterite bricks (29.0%) and houses constructed with mud only (2.9%). This result indicates that majority of the houses are those constructed with sandcrete blocks.

Table 4.2.6: Walling materials

	Percent	Cumulative Percent
Mats/ Thatch/ Sticks	.8	.8
Mud Only	2.9	3.7
Mud/ Clay Bricks	.3	4.0
Cement/ Sandcrete Blocks, Manufactured Bricks	29.0	33.0
Sandcrete Bolcks	67.0	100.0
Total	**100.0**	

4.2.2.3 Roofing Materials

Regarding the roofing materials used in the research population, Table 4.2.7 presents the result on the different roofing materials identified in the housing estates investigated.

It is evident from the result that around 58% of the houses were roofed with corrugated cement-asbestos materials; around 34% were roofed with corrugated long span aluminium sheets, metals and tiles; 7% had corrugated galvanized iron roofing sheets and 1.3% had concrete roofs.

This result clearly indicates that most of the houses were roof with cement-asbestos based materials and corrugated long span aluminium materials.

Table 4.2.7: Roofing materials

	Percent	Cumulative Percent
Thatch/ Grass	.5	.5
Corrugated Cement Asbestos	57.5	58.0
Concrete Deck	1.3	59.3
Corrugated Galvanized Iron Sheets	6.9	66.2
Corrugated Aluminium Sheets, Metals, Roofing Tiles, e.t.c.	33.8	100.0
Total	**100.0**	

4.2.2.4 Door Materials

The types of external doors in each of the housing units were also investigated and the result presented in Table 4.2.8.

As shown in Table 4.2.8, over 78% of the houses have external doors made from timber. This is followed by about 13% of houses with external doors made from 'glazed aluminium materials and 6% having steel casement doors and almost 3% of the housing glazed steel casement doors. It can be inferred from this result that most of the houses in the study area had external doors predominantly made from timber products.

Table 4.2.8: Door materials

	Percent	Cumulative Percent
None/ Thatch/ Grass	.5	.5
Wooden	78.3	78.8
Steel Casement	5.9	84.7
Glazed Steel Casement	2.7	87.4
Glazed Aluminium hinged/ Swing/ sliding,	12.6	100.0
Total	**100.0**	

4.2.2.5 Types of Windows

The different types of materials used for windows of the houses were examined. The result in Table 4.2.9 reveals that almost 48% of the houses had 'glazed steel casement/louvred/fixed light windows, followed by 30.3% that had glazed aluminium casement/ sliding/fixed light/projected windows; 18% had timber windows and only 2.1% of the houses had steel casement windows.

This result indicates that majority of the houses (almost 80%) were those whose 'windows materials are made of steel, aluminum and glass materials; which shows the usefulness of these materials in the construction of windows in this part of the world.

Table 4.2.9: Types of windows

Types of Window	Percent	Cumulative Percent
None/ Thatch/ Grass	1.9	1.9
Wooden	18.2	20.1
Steel Casement	2.1	22.2
Glazed Steel Casement/ Louvre/ Fixed Light	47.5	69.7
Glazed Aluminium Casement/ Sliding/ Fixed Light, e.t.c	30.3	100.0
Total	100.0	

4.2.3 Characteristics of Housing Estates

In this section, description of the fifteen (15) sampled housing estates is presented.The data presented in this section were obtained through direct observations made in then housing estates during the field. Observations were made, analysis of the data and the findings are presented in the subsequent sections.

4.2.3.1 Housing Estates Features

Descriptions of the physical characteristics of each of housing estates investigated are presented with the aid of location plans, layout plans, and floor plans shown in Appendices 14 to 36, and photographs as Plates 2 to 42.

(i) Ogudu GRA Duplexes (OGD)

This scheme which is a housing project for high income earners was developed in the 1980's (1981-1989) by the Lagos State Development and Property Corporation (LSDPC) at Ogudu, Kosofe Local Government Area. This housing estate is over 30 years old.The scheme is made up of two phases (known as Phases I and and Phase II), which are both linked to Lagos-Oworonshoki-Ibadan express road at Ogudu before Alapere, and Apapa-Ojuelegba-Ikorodu road at Ojota. The Phase I and Phase II of this scheme comprise 4-bedroom and 5-bedroom semi-detached and detached duplexes for over one hundred and twenty households on initial development. The Location plan was as shown in Appendix 14.

These have developed further to accommodate more households. The estates are fenced and also many of the individual family housing units, with good paved access and estate roads as well as fairly good stormwater drainage facilities (see Plate 3). The roads lead to gated entrances manned by security officers. The soft and hard landscapings within the estate are in very good conditions. Within the estates are Primary and Secondary Schools, standard recreation/event center (see Plate 4), auto-mechanical and related workshops, retails shops, minishops among other facilities Plates 2-4 show some of the described features.

Plate 2: Ogudu GRA duplexes and paved estate road

Source: Author's Fieldwork (2014)

Plate 3: Ogudu GRA recreation center environment with two duplexes at extreme end
Source: Author's Fieldwork (2014)

Plate 4: Ogudu GRA recreation center with paved environment
Source: Author's Fieldwork (2014)

(ii) Marimpex Imperial Housing Estate

This estate is also a residential development for high income earners constructed in the 2000's (2001-2009) by the Lagos State Ministry of Housing (LSMOH) by means at Ikeja GRA, Ikeja Local Government Area. It was completed in 2007; and thus, it is classified as one of the estates below 11years.

The scheme is linked to Lagos-Abeokuta express road at Shogunle, and Apapa-Ikorodu road at Maryland, both of which are 'Trunk A' roads within about three and eight kilometres respectively. It is also linked to Maryland-Airport Road near Ayinke General Hospital Ikeja within eight kilometres. The estate is made up of Semi-Detached (Multi-Flats-Block of 3 or more Flats); Semi-Detached (Duplex, Maisonette) including Terraced houses; and Detached (Maisonette) for thirty-four (34) families as shown in Plates 5-7. The Location plan and Layout plan were as shown in Appendices 15 and 16 respectively.

The estate has perimeter fencing with good paved access and internal roads with demarcated parkings and fairly good stormwater drainages (see Plate 8). The estates roads lead to gated entrances manned by security officers (see Plate 9). The soft and hard landscapings within the estate are satisfactory.

**Plate 5: Marimpex Imperial duplex, block of flats
and rear side of masionnette located far away**
Source: Author's Fieldwork (2014)

Plate 6: Marimpex Imperial Masionnette
Source: Author's Fieldwork (2014)

Plate 7: Marimpex Imperial terraced house
Source: Author's Fieldwork (2014)

**Plate 8: Marimpex Imperial parking area and
paved internal road**
Source: Author's Fieldwork (2014)
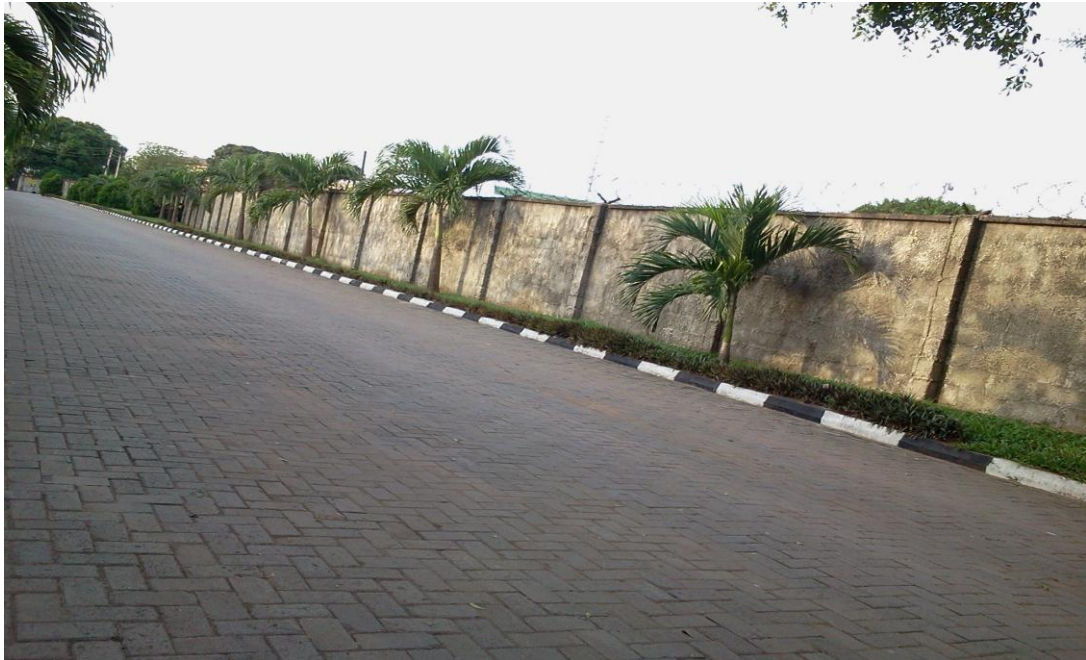
**Plate 9: Marimpex Imperial paved internal road leading to
main entrance gate**
Source: Author's Fieldwork (2014)

(iii) Satellite II Housing Scheme

The Satellite II Housing Estate located at Satelite Town, Ojo Local Government Area is another residential development for high income earners investigated. It was developed by the federal government of NIgeria in the 90's (1991-1999) through Federal Housing Authority (F.H.A.). It is classified as housing scheme that is between 11years and 20 years old.

Access to this estate is through the Mission and Marwa Roads, Waterside area of Satellite Town to Lagos-Badagry at Abule-Edo and FESTAC last gate. The Location plan was as shown in Appendix 17. The estate is made up of Semi-Detached (Duplex, Maisonette) providing accommodation for over thirty households (Plate 10). The estate is fenced with good paved access/driveway to the estate; and estate roads led to gated entrances manned by security officers (Plate 11 and Plate 12). The soft and hard landscapings within the estate are fair. Within the estate is a healthcare facility. Retail shops adjacent and auto-mechanical workshops are located very close to this estate.

Plate 10: Satellite II duplexes and paved access road with estate fencing
Source: Author's Fieldwork (2014)

Plate 11: Satellite II paved access road with fenced frontage garden
Source: Author's Fieldwork (2014)

Plate 12: Satellite II duplexes and partially paved internal road with landscaped hedges and internal fencing
Source: Author's Fieldwork (2014)

(iv) Ogba Middle Income Estate Phase IV

Ogba Middle Income Estate Phase I is a residential estate for middle icome earners at Ogba-Ijaiye, near Pen Cinema of Ifako-Ijaiye L.G.A. developed by the Lagos state government between 1991 and 1999 through LSDPC. It is classified as being between 20years and 30year. The scheme is linked directly to Ogba-Pen Cinema Road, and Lagos-Abeokuta Road at Abule Egba. The Location plan and Layout plan were as shown in Appendices 18 and 19 respectively. The initial development of over fifty dwelling units grew to encompass housing units constructed later to accommodate well over three hundred households. The estate has bungalows (not shown) and semi-detached (multiple blocks of 3 or more flats) as shown in Plate 13 and Plate 14.

The estate is fenced with good paved access/driveway and estate roads and has good stormwater drainages. The estate roads lead to gated entrances manned by security men (see Plate 15). The soft and hard landscapings within the estate are fair. Within the estates are retail shops, recreational facilities. There are market and auto-mechanical workshops, in close proximity to this estate.

Plate 13: Ogba Medium Income Estate paved internal road and landscape
Source: Author's Fieldwork (2014)

Plate 14: Ogba Medium Income Estate showing the block of flats
Source: Author's Fieldwork (2014)

Plate 15: Ogba Medium Income Estate security post and paved internal road
Source: Author's Fieldwork (2014)

(v) Ojokoro II Housing Scheme Blocks A-J

This scheme is also a residential development for middle-income earners constructed by the Lagos State government. Completed in 2010 by the LSMOH, the scheme is located at Ojokoro, Ifako-Ijaiye L.G.A. The scheme is less than 10 years old and comprises two estates (within about 80 metres apart) on opposite sides of the same access road (known as Community road) are linked to Ojokoro-Ijaiye Road off Lagos-Abeokuta Express Road. The Location /Layout plan and Typical floor plan were as shown in Appendices 20 and 21 respectively. The estates have 10 Blocks of eight 3-Bedroom flats earnmarked for 80 households (Plate16). Whereas the first one has 4 blocks, the second has 6 Blocks. Each estate of the estates is fenced with good paved access/driveway and estate roads as well as fair stormwater drainages as shown in Plate17.

The estate roads lead to gated entrance manned by security men. The soft and hard landscapings within the estate are fair. There are retail shops, mini-market, auto-mechanical workshops, and youth development/recreation centre in close proximity to the estates (Plate18).

Plate 16: Ojokoro II Housing Scheme Estate1 blocks of flats, security block, and paved access road
Source: Author's Fieldwork (2014)

**Plate 17: Ojokoro II Housing Scheme Estate2 security block,
blocks of flats and paved access road**
Source: Author's Fieldwork (2014)

**Plate 18: Ojokoro II Housing Scheme Estate2 blocks of flats, and security block of
youth development center (sharing boundary with the estate)**
Source: Author's Fieldwork (2014)

(vi) Iloro Housing Estate Blocks A-D

This is also an estate developed for middle- income earners by the Lagos state government completed in 2010 by the LSMOH in Iloro, Agege L.G.A. It is classified as below 11years old in this study. The estate has Ishola Yusuf and Humani via Pen Cinema-Agege and Lagos-Abeokuta highway at Iyana Ipaja as its access roads. It consists of 4 blocks of eight 3-Bedroom flats earnmarked for 32 households (Plates19). The Location /Layout plan and Typical floor plan were as shown in Appendices 22 and 21 respectively.

The estate is fenced with good paved access/driveway and estate roads as well as fair stormwater drainages as shown in Plates19. The estate roads lead to gated entrance manned by a team of security officers (see also Plates20 and Plates 21). The soft and hard landscapings within the estate are fair.

Plate 19: Iloro Housing Estate 2 of the 4 blocks of flats, security block/gate, and paved access road
Source: Author's Fieldwork (2014)

**Plate 20: Iloro Housing Estate showing 3 of the 4 blocks of flats,
security gate and fence**
Source: Author's Fieldwork (2014)

Plate 21: Iloro Housing Estate showing 2 of the 4 blocks of flats
Source: Author's Fieldwork (2014)

(vii) Abesan I Housing Scheme Meiran

The Abesan I Housing Scheme, Meiran, Shalolo is housing scheme of the Federal Government of Nigeria for middle income earners developed between 1991-1999 by the F.H.A.The scheme is classified as between 11 years and 20 years in this study. It

comprise of two estates (about 2 kilometres apart) on opposite sides of the same access road linked to Abeokuta-Lagos hoghway at Meiran. The estates have a total of 179 dwelling units consisting of 3-Bedroom, 4-Bedroom, and 5-Bedroom detached bungalows (Plates22). The Location plan and Typical floor plan were as shown in Appendices 23 and 24 respectively.Each estate is fenced with good paved access/driveway (see Plate 23 and Plate 24). The estate roads lead to gated entrance manned by a team of security officers. There are retail shops and auto-mechanical workshops in close proximity to the estates

Plate 22: Abesan I Housing Scheme showing 2 of the bungalows
Source: Author's Fieldwork (2014)

Plate 23: Abesan I Housing Scheme showing 3 of the bungalows, a property fencing and unpaved internal road
Source: Author's Fieldwork (2014)

**Plate 24: Abesan I Housing Scheme showing 1 of the bungalows,
a property fencing and unpaved internal road**
Source: Author's Fieldwork (2014)

(viii) Goshen Beach Estate Lekki

This scheme, which is a development for middle-income earners, was constructed between 1999 and 2003 by the Lagos state government through the Lagos State Development and Property Corporation (LSDPC) under the 'Public Private Partnership (PPP) arrangement at Lekki, Eti-Osa L.G.A. It is between '11years and 20 years old.

The scheme is linked through other roads to Lagos-Epe 'Trunk A' road at Lekki. The Location plan was as shown in Appendices 25. The initial development has grown to encompass more recently constructed housing units designed to accommodate over 80 households in 4-Bedroom and 5-Bedroom detached (Maisonette) houses. The estate is fenced with partially paved access/driveway and well-paved estate roads as well as good stormwater drainages (Plate 25). The estate roads lead to gated entrances manned by a team of security officers. The soft and hard landscapings within the estate are satisfactory as shown in Plate 26.

**Plate 25: Goshen Beach Estate showing the detached houses,
estate fencing and partially paved access road**
Source: Author's Fieldwork (2014)

**Plate 26: Goshen Beach Estate showing the detached houses
and paved internal road**
Source: Author's Fieldwork (2014)

(ix) Cortex Housing Scheme, Ikota

The Cortex Housing Scheme, Ikota in Eti-Osa L.G.A was developed in 2010 as a residential estate for middle- income earners by the Lagos state government under the PPP housing delivery system. The scheme is linked to Lagos-Epe expressway at Ikota bus stop beside Bethel Ministies Incorporated, Ajah. The Location /Layout plan was as shown in Appendix 26. It consists of 12 blocks of six 4-bedroom flats earnmarked for seventy-two households.

The estate is fenced with well-paved internal roads and has good stormwater drainages as shown in Plates 27 and Plates 28 The estate has gated entrances manned by a team of security officers. The soft and hard landscapings within the estate are quite fair.

Plate 27: Cortex Housing Scheme showing 3 of the blocks of flats, perimeter fence/gate and paved access road
Source: Author's Fieldwork (2014)

**Plate 28: Cortex Housing Scheme showing 5 of the blocks of flats,
Perimeter fence and paved access road**
Source: Author's Fieldwork (2014)

(x) Diamond Estate Isheri Olofin

This estate was developed for middle income earners by the Federal Government of Nigeria through the F.H.A through the 'PPP housing delivery system. It is located at Isheri Olofin, Alimosho L.G.A. of Lagos and it is classified as below 11years old.The estate is serviced by LASU-Idimu road, which is a major road linking Abeokuta-Lagos expressway at Iyana Ipaja to Lagos-Badagry highway at Iyana Iba. The Location plan was as shown in Appendix 27. The estate has blocks of flats and detached bungalows of 2-bedroom, 3-bedroom, and 4-bedroom apartments for hundred households.

The estate has perimeter fence, well-paved access/driveway and internal roads as well as good stormwater drainages. The main entrance to the estate has security post manned by a team of security officers. The soft and hard landscapings within the estate are fair as shown in Plate 29 and Plate 30.

**Plate 29: Diamond Estate showing administrative block, elevated water tank,
some of the blocks of flats (right), perimeter fence (left)
and paved internal roads**
Source: Author's Fieldwork (2014)

**Plate 30: Diamond Estate showing administrative block, overhead water tank,
paved internal roads and canopy at security gate**
Source: Author's Fieldwork (2014)

(xi) Iba Low- Income Housing Estate

Iba Low- Income Housing Estate, Iba in Ojo L.G.A is a housing scheme developed for low-income earners by the Lagos State government (1981-1989) through LSDPC. It is over 30 years old. The estate is accessed through LASU-Idimu Road, which is a major road linking Abeokuta-Lagos expressway at Iyana Ipaja to Lagos-Badagry highway at Iyana Iba. The Location plan, Layout plan, Typical floor plan and Front elevation were as shown in Appendices 28, 29, 30 and 31 respectively. The initial development consisted of over 1500 dwelling units have been increased by recent construction to be adequate to accommodate 2400 households. The houses are at least 200 blocks of twelve 3-bedroom flats (see Plates 31 and 32).

The estate is fenced (see Plate 33) and has well-paved access/driveway, partially paved and unpaved internal roads as well as evidence of some stormwater drainages. Within the estates are vital services such as clinic, primary and secondary schools, recreation/event center, offices, churches, mosque, playgrounds, auto-mechanical and related workshops, mini-markets, retails shops and minishops (see Plate 34)**.**

Plate 31: Iba Low Income (L.I.) Estate showing
some of the blocks of flats (old)
Source: Author's Fieldwork (2014)

**Plate 32: Iba L.I. Estate showing some of the blocks of flats (new)
and internal road**
Source: Author's Fieldwork (2014)

**Plate 33: Iba L.I. Estate showing estate perimeter fencing
And unpaved road**
Source: Author's Fieldwork (2014)

Plate 34: Iba L.I. Estate showing market stalls with large open area
Source: Author's Fieldwork (2014)

(xii) Millennium Housing Scheme Shasha

This scheme is also a residential development for low-income earners by the Lagos State Government completed in 2007 through LSMOH at Shasha Alimosho L.G.A. This scheme is less that 11years old and it is serviced by Toyin Giwa Street and Bayo Odeyemi Street that is linked to other roads through the Abeokuta-Lagos expressway at Dopemu. The Location /Layout plan was as shown in Appendix 32. It consists of 17 blocks of twelve 2-Bedroom flats, each in three floors designed to accommaodate 204 households (Plate 35).

The estate is fenced and has partially paved access/driveway (Plate 36) and estate roads as well as good stormwater drainages. It has security post at the entrance and large open spaces for different kinds of social events and parking as shown in Plate 37

Plate 35: Millennium Housing Scheme Shasha showing blocks of flats and Perimeter fencing
Source: Author's Fieldwork (2014)

Plate 36: Millennium Housing Scheme Shasha showing blocks of flats, security fence/gate and partially paved access road
Source: Author's Fieldwork (2014)

Plate 37: Millennium Housing Scheme Shasha showing blocks of flats, paved internal road, and open space used for parking and social events
Source: Author's Fieldwork (2014)

(xiii) Abesan II Housing Scheme, Ijaiye

The Abesan II Housing Scheme, Ijaiye, is a housing project of the Federal Government of Nigeria for low- income earners developed between 1991 and 1997 by the F.H.A. The Location/Layout plan was as shown in Appendix 33. It was officially commissioned in 1997 and has 11blocks of five 2-bedroom flats and three blocks of four 2-bedroom flats 67 households. The buildings are mainly single story buildings as shown in Plates 38 and 39. The estate is accessed through the Abeokuta-Lagos expressway; and it is fenced with unpaved (or paved but worn out) internal roads (Plate 40).

**Plate 38: Abesan II Housing Scheme showing 2 blocks of flats
and estate unpaved internal road**
Source: Author's Fieldwork (2014)

Plate 39: Abesan II Housing Scheme showing a block of flats
Source: Author's Fieldwork (2014)

**Plate 40: Abesan II Housing Scheme showing blocks of flats,
unpaved internal road and transformer substation**

(xiv) Low- Income Housing Scheme, Isolo

This scheme, which is a housing development for low income earners, was contructed by the Lagos State Government under Bola Ahmed Tinubu's second term in office as Governor of Lagos State (2003-2007). The project was executed by the LSDPC under the PPP housing delivery system in Oshodi-Isolo L.G.A. The Location /Layout plan and Typical floor plan were as shown in Appendices 34 and 35 respectively. The scheme is made up of seven blocks of six 3-bedroom flats in three locations with type 'A' being 3-blocks, types 'B' and 'C' are each 2-blocks on either sides of class 'A' and within a distance of about 500 metres, that is, all are within a distance of about one kilometer. The developments of the three classes were made on parcels of land available in the estate. Each block is made up of 2 flats of 3 floors is for 42 households (Plates 41 and 42).

Though Ikotun-Isolo access road to the estate is paved, the internal road from gate to this scheme was still under construction at the time of the field work. The drainage around the housing is in bad condition, and thus needs improvement. The internal

estate roads lead to gated entrance manned by a team of security officers. Within the estates clinic, primary and secondary schools, recreation/event center, recreation centre, offices, churches, mosque, playgrounds, auto-mechanical and related workshops, 2 mini-markets, retail shops and minishops.

**Plate 41: Isolo Low Income (L.I.) Housing Scheme showing
3 blocks of flats (A) and estate unpaved internal road**
Source: Author's Fieldwork (2014)

Plate 42: Isolo L.I. Housing Scheme showing 1 of the 2 blocks of flats (C)
Source: Author's Fieldwork (2014)

(xv) Millennium Housing Scheme, Ewu-Elepe

The Millennium Housing Scheme, Ewu-Elepe, Ikorodu L.G.A is a development by the Lagos State Government for low income earners. It was completed in 2004 by the LSMOH by a PPP housing delivery system and it is classified as below11years in this study. The Location plan was as shown in Appendix 36. The estate is made up of buildings of 2-bedroom flats and 2-bedroom bungalows for 200 households. It has perimeter fencing, paved access road- Ikorodu-Elepe access/driveway and internal roads as well as fair stormwater drainages. There is a security gate at the entrance manned by a team of security officers; and the soft and hard landscapings within the estate are quite fair.

In adition to the physical characteristics of the 15 housing esates, the study also collected data on the ages of the estates. Table 4.2.10 presents the result on this. As shown in Table 4.2.10, it is evident that over 53% of the esates were below 11years; this is followed by almost 27% that were between 11years and 20years. Houses above 30 years constituted over 13% of the sample, those between 21years and 30 years constributed almost 7% of the estates. This result suggests that majority (over 53%) of the housing estates are below 11years.

Table 4.2.10: Estates ages (summary)

Age	Frequency	Percent
Below 11yrs	8	53.3
11-20yrs	4	26.7
21-30yrs	1	6.7
Above 30yrs	2	13.3
Total	15	100.0

4.3. Assessment of Housing Quality in the Residential Estates

In attempt to examine the quality of housing in the research population in the study area, the following aspects were investigated in the 15 housing estates selected by random sampling. They include (i) estate conditions (ii) housing services, (iii) accessibility to key neighbourhood facilities (iv) adequacy of key activities area in

residential units (v) satisfaction with key housing features; and (vi) housing affordability.

This section deals with summary of response rate to the administered questionnaires 'A' on the population samples on perception of housing quality by the 379 resident-respondents. Not higher than eleven (11) of the resident-respondents however did not respond to the questions in this section, which yields a response rate of over 97%.

Location plans, layout plans, and floor plans on housing estate features were as shown in Appendices 14 to 36 and photographs as Plates 2 to 42 in section 4.2.3.1.

4.3.1 Estate Conditions

In this section, five variables, including layout of the estates; availability of space for planting of hedges; availability of good perimeter fencing; quality of landscape design for safe driving in the estate; and appearance of buildings in the estate were investigated. The result is presented in this section of the thesis.

4.3.1.1: Layout of the Housing Estates

The study examined of layout of each of the housing estates sampled in terms of their spaciousness. Table4.3.1 shows that in terms of spaciousness, over 76% of the respondents were of the view that the housing estates were spacious. This is followed by over16% who were not sure whether the estates were spacious or not, while almost 8% noted that the the layout of the estate can be best described as being compact. This result indicates that the majority of the estates have spacious layout design.

Table: 4.3.1: Layout of the Housing Estates

Response	Percent	Cumulative Percent
Compact	7.5	7.5
Not Sure	16.3	23.8
Spacious	76.2	100.0
Total	100.0	

4.3.1.2 Availability of Space for Gardening and Hedging in the Estates

Table 4.3.2 presents the result on the availability of space for gardening and planting of hedges in the housing estates. It can be seen form this result that over 83% of the respondents were of the view that there was adequate space for gardening and hedging in their housing estates; almost 13% were not sure of availability, while higher than 4% claimed that there was no space for gardening and hedging in their housing estates. It can be inferred from this result that there are adequate spaces of gardening and plantingof hedges in these housing estates.

Table 4.3.2: Availability of space for gardening and hedging in the estates

Response	Percent	Cumulative Percent
Unavailable	4.0	4.0
Not Sure	12.7	16.7
Available	83.3	100.0
Total	100.0	

4.3.1.3 Availability of Good Perimeter Fencing for Estates

In view of the fact it was observed that all the housing estates had perimeter fences, it was important to examine the conditions of the fences identified in the estates from the perspective of the residents. Hence, the respondents were asked to rate the conditions of the perimeter fences in their respective housing estates. Table 4.3.3 shows the respondents' responses on the availability of good perimeter fencing in the section of the estates their dwelling units are located.

The result (Table 4.3.3) reveals that around 78% said that there was good perimeter fencing in their housing estates; 18% were not sure of availability, while 4% claimed that there was no good perimeter fencing in the part of the housing estate they are living. This result indicates that majority of the housing estates have good perimeter fencing.

Table: 4.3.3: Availability of good perimeter fencing for the estates

Response	Percent	Cumulative Percent
Unavailable	4.0	4.0
Not Sure	17.9	21.9
Available	78.1	100.0
Total	100.0	

4.3.1.4 Quality of Landscape Design in the Estates

The quality of landscape design of estates was investigated. From the result in Table4.3.4, it is evident that almost 80% of the respondents in the survey were not sure of the quality of landscaping of the estates, over17% rated the quality of landscape to be high, while more than 3% claimed that the quality of landscaping of the estates was low.

This result is a clear indication that, while the majority of the respondents could not rate the quality of landscaping of their housing estates, it is only the minority (more than 3%) that rated the quality as low.

Table: 4.3.4: Quality of landscape design for safe driving in the estate

	Percent	Cumulative Percent
Low	3.2	3.2
Not Sure	79.7	82.9
High	17.1	100.0
Total	100.0	

4.3.1.5 Appearance of Buildings in the Estates

The respondents in the survey were asked to rate the appearance of buildings in the estates. The result presented is Table 4.3.5.

The result shows that 79% of the respondents were not sure of how the buildings were looking like in terms of beauty; over 14% said the building were looking beautiful, while almost 7% said the buildings in their estate were actually looking ugly. This

result indicates that majority (79%) of the residents were not sure of the beauty or urgliness of the houses in the research population as they adopted an intermediate position.

Table 4.3.5: Appearance of buildings in the estates

	Percent	Cumulative Percent
Ugly	6.6	6.6
Not Sure	79.1	85.7
Beautiful	14.3	100.0
Total	100.0	

4.3.2 Housing Services

In this section, the five housing service variables used in assessing housing quality in are main source of electricity power supply, main source of drinking water, frequency of refuse collection, sewage treatment/disposal and condition of storm water drainages outside building(s).

4.3.2.1 Sources of Electricity Power Supply

The study examined the main sources of electricity in the dwelling units in estates in the study area. From the result (Table 4.3.6) it is evident that almost 56% of the dwelling units have private electricity generating sets as their main source of electricity; followed by over 38% that claimed that power supply from the National Grid was their main source of electricity, while over 6% indicated that candle/ kerosene/paraffin was their main source of power supply.

Table 4.3.6: Sources of electricity power supply

Sources of	Percent	Cumulative Percent
Candle/Kerosene/Paraffin	6.1	6.1
Private Generating Plant	55.6	61.7
Public Supply	38.3	100.0
Total	100.0	

This result suggests that the majority of the households in the research population use private electricity generating set as their main source of power supply in their homes. Typical electricity substations were shown in section 4.2.3.1 (vi) Plate 19 and (xiii) Plate 40.

4.3.2.2 Sources of Water Supply

The study also examined the main source(s) of domestic water supply in the residences. Table 4.3.7 shows that over 53% of the households indicated that their main source(s) of domestic water supply was water vendors; followed by almost 34% that said boreholes/protected wells was their main source of water supply; 6% of the households sourced their water from the public water supply system within or outside their dwelling units; 4% had unprotected wells as their main source of water and over 3% of the households sourced their water from river, lake or ponds.

This result clearly indicates that the majority (over 53%) of the residents in the research population depend on water vendors for their daily supply of water in their dwelling units.

Typical overhead water storage tanks being fed by boreholes were shown in section 4.2.3.1 (v) Plate 17 and (x) Plate 29.

Table 4.3.7: Sources of water supply

Sources of Water	Percent	Cumulative Percent
River, Lake or Pond	3.2	3.2
Unprotected well	4.0	7.2
Vendor/Truck	53.1	60.3
Borehole/Protected well	33.8	94.1
Public outdoor tap/ Pipe into dwelling	5.9	100.0
Total	100.0	

4.3.2.3 Frequency of Refuse Collection from the House or Deposit Point

The frequency of refuse collection from the deposit point in each dwelling unit in the housing estates was investigated in this study. The result shown in Table 4.3.8 reveals that the respondents over 56% of the household heads claimed that refuse collection in the estates was done once every 16 days or more; about 22% were of the view that this

was done once every 5days; over12% said that it was once every 6 days to 10days; almost 7% claimed that the frequency of refuse collection from the deposit point was once every 11 days to15 days, while less than 3% of the household heads claimed that there was no refuse collection in the estates.

It is evident from this result that the majority (over 56%) of the households in the research population had the frequency of refuse collection from the deposit points in the estate was once every 16 days or more.

Table 4.3.8: Frequency of refuse collection

Responses	Percent	Cumulative Percent
None	2.4	2.4
Once every 16 or more days	56.7	59.1
Once every 11-15days	6.9	66.0
Once every 6-10days	12.4	78.4
Once every 5days	21.6	100.0
Total	100.0	

4.3.3 Accessibility to Neighbourhood Facilities

Eleven variables were used to access residents' access to neighbourhood facilities within and around their housing estates. These include access to workplace; market/shopping facilities and ease of identification of dwelling units.

4.3.3.1 Accessibility to Workplaces

The study assessed accessibility to workplaces from of the dwelling units by the residents in the different housing estates. Table 4.3.9 shows that over 76% of the respondents were of the view it was easy for them to access their place of work from their housing estates; almost12% said it was difficult accessing their places of work from their residences, while almost12% were not sure of how easy it was to get to their places of work from their residences.

This result is an indication that majority (over 76%) of the residents in these housing estate have easy access to their place of work or business from their homes.

Table 4.3.9: Accessibility to workplaces

	Percent	Cumulative Percent
Difficult	11.9	11.9
Not Sure	11.9	23.8
Easy	76.2	100.0
Total	100.0	

4.3.3.2 Accessibility to Market/Shopping Centre

On accessibility to market or shopping facilities, the result (Table 4.3.10) shows that almost 82% of the residents indicated that they have easy access to markets and shopping facilities from their homes.

Table 4.3.10: Accessibility to market/shopping facilities

	Percent	Cumulative Percent
Difficult	8.7	8.7
Not Sure	9.3	18.0
Easy	82.0	100.0
Total	100.0	

It is also evident from this result that over 9% of the respondents were not sure of how easy it was to gain access to markets and shopping facilities from their homes, while almost 9% of the respondents said it was difficult accessing markets and shopping facilities from their residences.

This result indicates that the majority (82%) of the residents in the research population have easy access to market and or shopping facilities from their houses.

4.3.3.3 Ease of Identification of Housing Units in the Estates

The study assessed the ease at which residents can identify their housing units in the estates. It was observed that almost 84% of the residents said it was easy to identify

their homes in the estate, over 10% were not sure of this; while over 6% claimed that it was difficult locating their dwelling units in the estates.

From this result, it is evident that majority (almost 84%) of the residents find it easy to locate their homes in their estates.

4.3.5 State of Repairs of Housing Units

The section presents result on the state of repairs of the dwelling units in the research population. Three variables, namely condition of floor materials conditions, walling materials and roofing materials were investigated.

4.3.5.1 Condition of Flooring Materials

Table 4.3.11 is an illustration of the result on the assessment of the condition of flooring materials in each of the housing units in the estates.

Table 4.3.11: Conditions flooring materials

	Percent	Cumulative Percent
Very Serious Defects/ Deflection with Cracks/ Peeling of Over 20% Floor Finishes, etc.	12.4	12.4
Serious Defects/ Deflection with Cracks/ Peeling of 16-20% Floor Finishes, etc.	38.0	50.4
Moderately Serious Defects/ Deflection with Cracks/ Peeling of 11-15% Floor Finishes, etc.	14.8	65.2
Mild Defects with Cracks/ Peeling of 6-10% Floor Finishes, etc.	12.9	78.1
Very Mild Defects with Cracks/ Peeling of Not Exceeding 5% Floor Finishes, etc.	21.9	100.0
Total	100.0	

It is evident from this result that 38% of the dwelling units has **Serious defects**, 22% had **Very mild defects**; 15% had **Moderately serious defects**. Also 13% of the

dwelling units have **Mild defects**, while over 12% of the houses have **Very serious defects**.

This result indicates that majority (over 65%) of the dwelling units have at best **Moderately serious defects** or in relatively poor conditions; as against less than 35% of the dwelling units in relatively good conditionsth (being with **Mild Defects or no defect at all**).

4.3.5.2 Condition of Walling Materials

Table 4.3.12 illustrates the result on the condition of walling materials in each of the housing units in the estates.

Table 4.3.12: Condition of walling materials

	Percent	Cumulative Percent
Very Serious Defects/ With Cracks/ Peeling of Over 20% Wall Finishes, etc.	8.7	8.7
Serious Defects/ With Cracks/ Peeling of 16-20% Wall Finishes, etc.	35.9	44.6
Moderately Serious Defects/ with Cracks/ Peeling of 11-15% Wall Finishes, etc.	14.3	58.9
Mild Defects with Cracks/ Peeling of 6-10% Wall Finishes, etc.	20.8	79.7
Very Mild Defects with Cracks/ Peeling of Not Exceeding 5% Wall Finishes, etc.	20.3	100.0
Total	100.0	

It can be seen from this result that 36% of the dwelling units had **Serious defects**; 21% of the houses had **Mild defects**; while 20% of the houses had **Very mild defects**. The result also showed around 14 % of the dwelling units had **Moderately serious defects** and around 9% of the houses had **Very serious defects**.

This result is an indication that the walling materials in the majority (over 58%) of the buildings have at best **Moderately serious defects** or in relatively poor conditions; as

against less than 42% of the dwelling units in relatively good conditions (being with **Mild Defects or no defect at all**).

4.3.5.3 Condition Roofing Materials

The study also examined the condition of roofing materials in each of the dwelling units in the study area. The result in Table 4.3.13 shows that over 34% of the houses have **Serious defects**.

Table 4.3.13: Condition of roofing materials

	Percent	Cumulative Percent
Very Serious Defects/ Deflection with Leakages and Removal/ Peeling of Over 20% Roof Finishes, etc.	7.1	7.1
Serious Defects/ Deflection with Leakages and Removal/ Peeling of 16-20% Roof Finishes, etc.	34.3	41.4
Moderately Serious Defects/ Deflection with Leakages & Removal/ Peeling of 11-15% Roof Finishes, etc.	10.8	52.2
Mild Defects with Leakages & Removal/ Peeling of 6-10% Roof Finishes, etc.	21.4	73.6
Very Mild Defects with Leakages & Removal/ Peeling of Not Exceeding 5% Roof Finishes, etc.	26.4	100.0
Total	100.0	

This is followed by over 26% with **Very mild defects**, followed by over 21% that had **Mild defects**, followed by almost 11% of the houses with **Moderately serious defects**. The least was over 7% of the houses with **Very Serious Defects**.

It can be inferred from this result that the majority (over 52%) of the houses have roof materials that at best with **Moderately serious defects** or in relatively poor conditions, being incapable of adequately protecting the inhabitants and their property from adverse weather conditions; as against less than 48% of the dwelling units in relatively good conditions (being with **Mild Defects or no defect at all**) and capable of protecting the inhabitants and their property from adverse weather conditions.

4.3.6 Adequacy of Basic Features of Dwelling Units

In this section of the thesis, the result on residents' evaluation of adequacy of main activities areas in their dwelling units, namely, bedrooms, living/dining spaces, kitchen and bathrooms is presented.

4.3.6.1 Location of Bedrooms

The study assessed residents' perception of the location of bedrooms in their dwelling units. The result shows that over 66% indicated that the location of their bedrooms in the houses was good, almost 33% said the location was fair, while almost 1% said their bedrooms were badlly located.

This result indicates that the majority (over 66%) of the residents like the location of their bedrooms in their houses.

4.3.6.2 Adequacy of Number and Sizes of Bedroom(s)

The study also assessed the adequacy of the number of bedroom(s) in each of the dwelling units in the housing estates in the study area. The result shows that over 68% indicated that the number of bedrooms in their houses was adequate in meeting their domestic space needs; over 28% were undicided on the adequacy of the number of bedrooms in their homes, while less than 4% said the number of bedrooms in their homes was inadequate in meeting their needs. This result indicates that in the majority (over 68%) of the houses in the study area, rated the number of bedrooms as adequate in meeting the households' need for sleeping.

Regarding the adequacy of the size of bedroom(s) in the residences, the result also reveals that over 73% of the residents were not sure of the extent to which the size of their bedroom(s) was adequate in meeting their need; almost 23% said the size of their bedroom(s) was adequate, while 4% viewed the size of their bedroom(s) as not being adequate in meeting their need. It can be inferred from this result that the majority

(over 73%) of the household head were not able to assess the extent to which the size of their bedroom(s) was adequate in meeting their needs.

4.3.6.3 Adequacy of Size of Living/Dining Space(s)

Result of the assessment of adequacy of the size of living/dining space is presented in Table 4.3.14.

It is evident from the result (Table 4.3.14) that over 77% of those sampled indicated that the size of living/dining space in their residences was adequate, 13.3% were not sure, while 9.3% evaluated the size of living/dining as inadequate for their families.

This result clearly shows that the majority of the household heads viewed the size of living/dining space as adequate in meeting their need.

Table 4.3.14: Adequacy of Size(s) of living/dining space(s)

	Percent	Cumulative Percent
Inadequate	9.3	9.3
Not Sure	13.3	22.6
Adequate	77.4	100.0
Total	100.0	

4.3.6.4 Adequacy of Number and Size(s) of Bathroom(s)

It was also of interest in this study to understand residents' perception of the adequacy level of the number and sizes of bathrooms in their homes. The result reveals that over 83% of the respondents noted that the number of bathrooms in their homes was adequate, 9% of them were not sure of this, while about 8% said the number was not adequate in meeting their need for bathrooms.

Similarly over 14% of the household heads sampled rated the size of their bathroom to adequate, over 74% were not sure of this, while 11% rated the size of bathrooms in their residences to be inadequate.

This result shows that a high majority (89%) of the household heads in the housing estates evaluated the number and size of their bathrooms as not inadequate in meeting their households' needs.

4.3.6.5 Adequacy of Size of Kitchen(s)

The adequacy of size of kitchen in the dwelling units was also investigated in the current study. It was observed that over 75% percent of those who participated in the survey were not sure of the adequacy of size of kitchen in their homes, 18% indicated that the size was adequate, while almost 7% claimed that the size of their kitchen was inadequate in meeting their need for the preparation of food for their family members.

This simply means that the size of kitchen in the majority (over 93%) of dwelling units was not inadequate in meeting households need.

4.3.6.6 Adequacy of Circulation Space in the Dwelling units

The study examined adequacy of circulation space in the dwelling units. Table 4.3.15 shows that almost 88% of the residents indicated that circulation space in the dwelling unit was adequate; over10% of them were not sure of this, while over 2% claimed that circulation space in their dwelling units was inadequate.

This result indicates that majority (almost 88%) of the houses have adequate internal circulation spaces.

Table 4.3.15: Adequacy of circulation space in the dwelling units

	Percent	Cumulative Percent
Inadequate	2.1	2.1
Not Sure	10.1	12.2
Adequate	87.8	100.0
Total	100.0	

4.3.7 Indoor Ambient Conditions

The three variables in this section are Obstruction to ventilation/free air circulation, size of open-able windows, and obstruction to natural lighting.

4.3.7.1 Obstruction to Ventilation

The study examined the obstruction to ventilation' in the dwelling units in the study area. Results on this revealed that houses in which the 'Obstruction to ventilation' is classified as 'Not Sure' by the resident respondents ranks highest and constitutes over 79% of the housing units; followed by those classified as 'Low', constituting almost 13%; while those classified as 'High', considered as worst constituted almost 8 % .

This result indicates that minority of the houses (almost 8%) were those whose 'Obstruction to ventilation' is classified as 'High' or worst condition.

4.3.7.2 Obstruction to Natural Lighting

The study examined the 'Obstruction to lighting' in the dwelling units in in the study area. Table 4.3.16 provides data on this and revealed that houses in which the 'Obstruction to lighting' is classified as 'Not Sure' by the resident respondents ranks highest and constitutes over 79% of the sampled housing; followed by those classified as 'Low', constituting over 14%; while those classified as 'High', considered as worst constituted only less than 7%.

This result indicates that minority of the houses (almost 7%) were those whose 'Obstruction to lighting' is classified as 'High' or worst condition.

Table 4.3.16: Obstruction to natural lighting

Responses	Percent	Cumulative Percent
High	6.3	6.3
Not Sure	79.4	85.7
Low	14.3	100.0
Total	100.0	

4.3.8 Housing Satisfaction

Housing satisfaction was one of the constructs used in assessing housing quality in this study. In doing this, four key variables related to internal layout of rooms in housing, the noise level around housing, building materials used for housing, satisfaction with

frequency of garbage collection in the estate, satisfaction with security of lives and properties in the estate were used. The result is presented in this section of the thesis.

4.3.8.1 Satisfaction with Internal Layout of Rooms in the Dwelling Units

Table 4.3.17 shows the result on sataisfaction with internal layout of rooms in the residences. It can be seen from this result that around 46% of the respondents felt that they were moderately satisfied with the internal layout of rooms in their dwelling units; 34.3% were satisfied; 16% said they were very satisfied, 4% were dissatisfied, while only very small proportion (0.5%) of the respondents claimed that they were very dissatisfied with the internal layout of rooms in their dwelling units.

This result indicates that a high majority (over 95%) of the respondents are not dissatisfied with the internal layout of rooms in their houses.

Table 4.3.17: Satisfaction with internal layout of rooms

	Percent	Cumulative Percent
Very Dissatisfied	.5	.5
Dissatisfied	3.7	4.2
Average	45.7	49.9
Satisfied	34.3	84.2
Very Satisfied	15.8	100.0
Total	100.0	

4.3.8.2 Satisfaction with the level of Noise in Residences

The study also examined residents' satisfaction with the level of noise in their residences. The result (Table 4.3.18) reveals that 45.4% of the respondents felt satiafied, 32.5% were moderately satisfied, almost 12% were very satisfied, 7.1% were very dissatiafied and 3.4% were dissatisfied with the level of noise around their place of abode.

This result indicates that a high majority (over 89%) of the respondents are not dissatisfied with the level of noise in their residences, meaning there is no problem of noise pollution in the housing estates in the study area

Table 4.3.18: Satisfaction with the level of noise in residences

	Percent	Cumulative Percent
Very Dissatisfied	7.1	7.1
Dissatisfied	3.4	10.5
Average	32.5	43.0
Satisfied	45.4	88.4
Very Satisfied	11.6	100.0
Total	100.0	

4.3.8.3 Satisfaction with Frequency of Garbage collection in the Estates

Table 4.3.19 presents the result on satiafaction with the frequency of garbage collection in the estates.

Examination of this result showed that over 49% of the respondents expressed satisfaction with the frequency of garbage collection in the estates; 26.2% were moderately satiafied with this, 22.2% were very satisfied, almost 2% were very dissatisfied, while less than 1% said they were very dissatisfied with the frequency of garbage collection in the estates.

This result indicates that a high majority (over 97%) of the respondents are not dissatisfied with the frequency of garbage collection in the estates.

Table 4.3.19: Satisfaction with frequency of garbage collection in the estates

	Percent	Cumulative Percent
Very Dissatisfied	.5	.5
Dissatisfied	1.9	2.4
Average	26.2	28.6
Satisfied	49.2	77.8
Very Satisfied	22.2	100.0
Total	100.0	

4.3.8.4 Satisfaction with Security of Life and Property in the Estates

The study also examined residents' satisfaction with security of life and property in the housing estates. The result is presented in Table 4.3.20.

From this result (Table 4.3.20) , it is evident that almost 45% of the respondents were satisfied with the level of security of life and property in the housing estates; 30.3% were moderately sataisfied, 22.4% were very satisfied and 1.6% and 1.1% were dissatisfied and very dissatisfied with this, respectively.

This result indicates that a high majority (over 97%) of the respondents are not dissatisfied with the level of security of life and property in the estates.

Table 4.3.20: Satisfaction with security of life and property in the estates

	Percent	Cumulative Percent
Very Dissatisfied	1.1	1.1
Dissatisfied	1.6	2.7
Average	30.3	33.0
Satisfied	44.6	77.6
Very Satisfied	22.4	100.0
Total	100.0	

4.3.9 Housing Affordability

The three variables were used to measure housing affordability in this study. These are cost of maintenance of housing per annum compared to resident's income; cost of housing or rent compared to resident's income, and proportion of households' monthly income (MI) spent on housing.

4.3.9.1 Cost of Maintenance of Housing per annum compared to Resident's Income

Table 4.3.21 shows the result of the residents' evaluation of the cost of maintenance of their houses in relation to their income. It is evident form this result that 79.4% of the respondents rated it as '11-20%' of their income, 13% said the cost of maintenance compared to their income was 'Up to 10%', while almost 8% evaluated the cost of maintenance of their dwelling units compared with their income as '21% and Above'.

It is evident from this result that majority (87%) of the respondents may be beyond reasonable limit of 'Up to 10%' for maintenance in the study area.

Table 4.3.21: Cost of maintenance

Responses	Percent	Cumulative Percent
21% & Above	7.6	7.6
11-20%	79.4	87.0
Up to 10%	13.0	100.0
Total	**100.0**	

4.3.9.2 Cost of Housing or Rent compared to Resident's Income

The residents were also asked to compare the amont their spent on buying or renting the house with their income. The result presented in Table 4.3.22 showed that majority (75%) of the respondents rated it as '11-20%' of their income. However, almost 20% said that this was '21% and Above', while almost 6% claimed that the cost of acquiring or renting their dwelling units compared to their income was 'Up to 10%'.

Again, this result indicates that most of the respondents (over 94%) of the respondents may be beyond reasonable limit of 'Up to 10%' for cost of housing or rent compared to resident's income in the study area.

Table 4.3.22: Cost of housing or rent

Responses	Percent	Cumulative Percent
21% & Above	19.4	19.4
11-20%	75.0	94.4
Up to 10%	5.6	100.0
Total	100.0	

4.3.9.3 Proportion of Household-head Income Spent on Housing

It was also important to investigate the perception of the respondents on the proportion of households' monthly income spent on housing. The result is as presented in Table 4.3.23.

Table 4.3.23: Proportion of household-head income spent on housing

Responses	Percent	Cumulative Percent
61% & Above	12.3	12.3
31-60%	41.0	53.3
'Up to 30%'	46.7	100.0
Total	**100**	

Table 4.3.23 shows that over 12% of the respondents spent more than 60% of their income on housing and are 'severely cost burdened ' ; 41% of the respondents claimed that they spent between '31% and 60%' of the income on housing and are 'moderately cost burdened'; while almost 47% spent not higher than 30% of their income on housing and are considered affordable.

It is also evident in Table 4.3.23 that almost 47% of the respondents spent at most 30% of their income on housing, indicating that less than one-half of the research

population felt that their housing was affordable, while the majority (over 53%) felt that their housing was unaffordable.

4.3.10 Overall Housing Quality in the Estates

This section of the thesis deals with the presentation of the result on the assessment of the overall housing quality in all the residential estates in the study area. The data was obtained from the responses of the 379 respondents randomly selected from the residents in the research population, as previously highlighted in Chapter 3 of this thesis.

As stated earlier, the assessment of housing quality was carried out at two levels. The first level is at the dwelling unit level (i.e. micro environment), while the second is the neighbourhood level, which is the macro environment. The questionnaire that helped the researcher to collect data from the residents is shown in Appendix 8.

4.3.10.1 Quality of Dwelling Units and Neighbourhood Environment

Table 4.3.24 presents the result of the quality of the dwelling units sampled in this study.

A careful examination of this result (Table 4.3.24) showed that the majority (over 57%) of the respondents believed that the quality of their dwelling units was good; over 27% viewed the quality as average, over 12% said it was very good; while almost 3% and less than 1% said the quality was poor and very poor, respectively. This result indicates that most (nearly 70%) of the respondents rated the quality of dwelling units in the research population to be at least reasonably good.

Table 4.3.24: Quality of dwelling units

Quality Assessment	Percent	Cumulative Percent
Very Poor	.3	.3
Poor	2.6	2.9
Average	27.4	30.3
Good	57.3	87.6
Very Good	12.4	100.0
Total	100.0	

Regarding he quality of neighbourhood environment of the housing estates, the result Table 4.3.25 also shows that almost 48% of the respondents rated the quality of neighbourhood environments in the estates as good; over 37% rated it on the average scale, over 12% said it was very good, while less than 2% and almost 1% rated the quality of neighbourhood environrnments in the estates as poor and very poor, respectively.

Again this result indicates that most (almost 60%) of the respondents felt that the quality of neighbourhood environments in the research population was at least reasonably good.

Table 4.3.25: Quality of neighbourhood environment

Quality Assessment	Percent	Cumulative Percent
Very Poor	.8	.8
Poor	1.9	2.7
Average	37.4	40.1
Good	47.5	87.6
Very Good	12.4	100.0
Total	100.0	

4.3.10.2 Overall Housing Quality in the Residential Estates

Having examined the quality of both the dwelling units and neighbourhood environments in the housing estates, it was also important to investigate the overall housing quality in all the residential estates in the study area. The analysis was carried out by means of SPSS17 as average quality of both environments of both environments, assessed in the questionnaire.

The result of the analysis of the overall housing quality in the research population shows that over 49% of the respondents were of the opinion that the overall housing

quality was at good; almost 39% perceived the quality to be average, over 8% said the quality was very good, almost 3% perceived the quality to be poor, while only less than 1% of the respondents rated the quality as very poor (see Table 4.3.26 for the details of the result).

It is evident from this result that a majority (almost 58%) of the residents felt that the overall housing quality in the research population was at least good standard required in meeting their housing needs of members of their families. This means that the quality of dwelling units and neighbourhood environments are above the minimum standard for decent life among the residents of these estates.

Table 4.3.26: Overall housing quality

Quality Assessment	Percent	Cumulative Percent
1.00 (Very Poor)	-	-
1.50	.8	.8
2.00 (Poor)	1.3	2.1
2.50	1.3	3.4
3.00 (Average)	24.0	27.4
3.50	14.8	42.2
4.00 (Good)	41.9	84.1
4.50	7.7	91.8
5.00 (Very Good)	8.2	100.0
Total	100.0	

In addition to the result presented, the relationships between the quality of dwelling units and neighbourhood environment as well as the overall housing quality were investigated. To achieve this goal, the tests of differences or relationships between each pair of quality of dwelling units and quality of neighbourhood environment and overall housing quality was carried out using Kendall's tau_b correlation Tests.

Table 4.3.27: Test of relationships between the quality of dwelling units, quality of neighbourhood environment and overall housing quality

			Overall quality of dwelling unit/micro-environment	Overall quality of your neighbourhood/macro-environment/entire estate	Overall housing quality
Kendall's tau_b	Overall quality of dwelling unit/micro-environment	Correlation Coefficient	1.000	.691**	.862**
		Sig. (2-tailed)	.	.000	.000
		N	379	379	379
	Overall quality of your neighbourhood/macro-environment/entire estate	Correlation Coefficient	.691**	1.000	.893**
		Sig. (2-tailed)	.000	.	.000
		N	379	379	379
	Overall housing quality	Correlation Coefficient	.862**	.893**	1.000
		Sig. (2-tailed)	.000	.000	.
		N	379	379	379

**. Correlation is significant at the 0.01 level (2-tailed).

The result is as presented in Table 4.3.27 and it can be seen from this result that the relationship between the quality of dwelling units and quality of the neighbourhood environment was significant at 5% sig. level with 'P being less than 0.05' (P< 0.05), and Correlation Coefficient (r) of .691; suggesting that a strong relationship exists between these two variables. Similarly, the result also shows that the relationship between the quality of dwelling units and overall housing quality was significant at 5% sig. level 'P being less than 0.05' (P< 0.05) and r = .862. This also suggests that there is a very strong relationship between quality of dwelling units and overall housing quality in the residential estates.

It was also found that the relationship between the quality of neighbourhood environment and the overall housing quality was significant at 5% sig. level with p<

0.05 and r = .893. This suggests that a very strong relationship exists between the quality of neighbourhood environment and the overall housing quality. From this result, it can be inferred that in the research population, there is a significant relationship between the quality of dwelling units and neighbourhood environment as well as the overall housing quality.

4.3.10.3 Comparison of Housing Quality across the Estates

The overall housing quality in all the estate put together as evaluated by the residents was found to have the median score of 4.0, meaning that housing quality is good in all the estate put together as previously presented. In addition to the result on the overall housing quality, the quality of housing in the different residential estates was investigated; hence, this section presents the result on the comparison of the quality of housing in the fifteen residential estates based on Kruskal Wallis and Median Tests.

A Kruskal Wallis Test revealed a statistically significantdifference in housing quality levels across the fifteen different estates (Est1 , n=25: OGDHS , Est2 , n=5: MARHS, Est3, n=3: SATHS , Est4, n=49:OGBHS , Est5, n=1: OJKHS, Est6, n=1: ILRHS , Est7, n=7: ABSH1, Est8, n=5: GSBHS, Est9, n=3: CTXHS , Est10, n=14: DMDHS, Est11, n=190: IBAHS, Est12, n=56: SHAHS, Est13, n=4: ABSH2, Est14, n=7: ISLHS, Est15, n=6: EWLHS), X^2(14, n=379)= 105.22, p= .000.

From the result in Table 4.3.28, and Table 4.3.29 (Appendix11) and Table 4.3.30 (Appendix12) it is evident that two housing estates- OGDHS (high income estate) and GSBHS (middle income estates) have the highest median quality score (Md=4.5); and thus considered to have the highest quality of dwelling units and neighbourhood environment- as they were ranked 1st and 2nd. These two estates are followed by a set of five estates, namely SATHS (high-income), OJKHS (middle-income), CTXHS (middle-income), IBAHS (low-income) and OGBHS (middle-income), with median score (Md=4.0)- ranked 3rd, 4th, 4th, 5th, and 6th respectively. The next group of estates with median quality score (Md=3.5), and include DMDHS (middle-income), and ILR (middle-income), and are ranked 7th, and 8th position respectively. In the fourth category one housing estate ABSH2 (low-income) with median quality score

(Md=3.25)- ranked 9th position; while in the fifth category are housing estates with median quality score (M=3.0), and include four housing estates drawn mainly from low-income developments. They are MARHS (middle-income), ABSH1 (middle-income), SHAHS (low-income) and ISLHS (low-income)-ranked-10th, 11th, 12th, and 13th position respectively. At the sixth category or lowest run of the scale is EWLHS (low-income) that has median quality score (Md=2.75)- ranked-14th position.

From observation, there is a wide margin between the two estates with highest median quality(OGDHS and GSBHS) and other estates, but only very narrow one between all estates with median quality score of less than 4.0.

Table 4.3.28: Housing quality across the fifteen sampled estates

SN	Estates (Developers)	Delivery Strategy	Median Quality Score	Rank (from Kruskal Wallis Test* and Median Test **)	Quality Remarks
A	**HIGH-INCOME**				
1	OGD (LSDPC)	P	4.50	1st	Good
2	MAR (LSMOH)	P	3.00	10th	Average
3	SAT (FHA)	P	4.00	3rd	Good
B	**MIDDLE-INCOME**				
4	OGB(LSDPC)	P	4.00	6th	Good
5	OJK (LSMOH)	P	4.00	4th	Good
6	ILR(LSMOH)	P	3.50	8th	Average
7	ABSI (FHA)	P	3.00	11th	Average
8	GSB(LSDPC)	PPP	4.50	2nd	Good
9	CTX (LSMOH)	PPP	4.00	4th	Good
10	DMD (FHA)	PPP	3.50	7th	Average
C	**LOW-INCOME**				
11	IBL (LSDPC)	P	4.00	5th	Good
12	SHX(LSMOH)	P	3.00	12th	Average
13	ABSII (FHA)	P	3.25	9th	Average
14	ISL(LSDPC)	PPP	3.00	13th	Average
15	EWL(LSMOH)	PPP	2.75	14th	Poor

*Kruskal Wallis Test (Appendix11) and ** Median Test (Appendix12)

Further examination of these and other results in this study showed that the high-income housing estates had median quality score of 4.00; the middle-income estates and the low-income housing estates each had aggregate median quality score of 3.50. This results indicates that in terms of quality, all the high-income estates have the

higher quality, than the middle-income and low-income residential estates. This result is not suprising going by the physical characteristics of the housing estates as well as the dwelling units characteristics in each cohort of housing estates as previously presented.

Comparing the quality of housing provided by the different organizations, it can be seen from Table 4.3.28 that houses provided by the LSDPC (4.00) was rated higher on the quality scale; followed by that provided by the FHA (3.50) and lastly housing provided by the LSMOH (3.00). This indicates that the quality of housing by LSDPC seemed to be better than those of FHA and LSMOH. Also across the two housing delivery strategies used in the development of the housing, the result in Table 4.3.28 shows that the result of housing quality by Public delivery system had median quality score of 4.00, while the PPP strategy seems to have delivered housing with median quality score of 3.50. Although these figures are very close, they belong to different ranks, and the Public strategy can be considered to have delivered higher quality housing than the PPP delivery system.

4.4 Determinants of Housing Quality in the Residential Estates

From literature, studies have been carried out on housing quality in diverse contexts, using combinations of two or more parameters for measuring housing conditions, neighbourhood environment, housing infrastructure, residents' socio-cultural characteristics, housing satisfaction and estate conditions, have been used for assessing housing quality (CABE, 2010; Garcia-Mira, 2005; Habib, et al, 2009; Kazaz, et al, 2005; Mares, 2005; Olayiwola et al, 2006). Dwelling units state of repairs, indoor ambient conditions, housing accessibility and proximity, housing affordability, and housing services have been used for assessing housing quality in diversed contexts (Aderamo *et al*., 2010; CABE, 2010; Garcia-Mira, 2005; Habib *et al*., 2009; Ilesanmi, 2012; Olotuah, 2006).

The significance of some of these depends on the research context. That is to say, some determinants that were significant in one context were all not significant in the context of this study and vice versa. Therefore in line with some of the previous

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studies, a total of 27 independent indicators were used to investigate the determinants of housing quality as a dependent variable. The independent variables consisted of 14 variables related to the housing characteristics and 13 personal characteristics of the residents (Table 4.4.1 and Appendix 11).

The indicators were entered as independent variables in a Categorical multiple Regression (CATREG) analysis carried out to investigate the determinants or predictors of overall housing quality. The overall housing quality, which was entered as dependent variable was computed as the average of the responses of the residents on the overall dwelling unit quality and the overall neighbourhood quality. The results revealed eleven (11) determinants that significantly predict the overall housing quality $F_{[(61, 254)]} = 12.761$, p= .000], R^2= .503, Multiple R= .709 and Adjusted R Square 0.429. This means that the model accounted for about 50% of the variance in housing quality of the research population in the study area.

Table 4.4.1 shows the coefficients from the CATREG analysis. It is evident from this result that 16 of independent variables were excluded from the model, while each of the remaining eleven (11) determinants entered into the model determined by the sig.

being less than .05 (p< .05). The ability of each in predicting the dependent variable is measured by its *Beta* value (standardized coefficient); the higher the (absolute) value, the greater is the contribution of the independent variable in the prediction of the dependent variable (Pallant, 2007).

Based on this, housing adequacy and satisfaction was the greatest predictor of overall housing quality (Beta= .337, p=.000), followed by estate conditions and number of bedrooms Beta= .203, p=.001 and Beta= .169, p=.026; respectively. Then length of stay in residence (Beta= -.169, p=.000) and housing services (Beta= -.153, p=.025) were next in terms of influence and exerted reverse influence on the housing quality. Religion (Beta= .154, p=.001); was followed by availability of home-based enterprises (Beta=.119, p=.023) and dwelling type (Beta=.118, p=.000); tenure type of residence and ethnicity/tribe (Beta= .094, p=.024 and Beta= .090, p=.039 respectively) were next; while occupation/economic activity (Beta= .066, p=.028) had the least influence on residents' ratings of overall housing quality.

Table 4.4.1 Coefficients for Overall Housing Quality (OAHQL)

SN	Independent Variables	Standardized Coefficients		Df	F	Sig.
		Beta	Bootstrap (1000) Estimate of Std. Error			
1	*Housing Adequacy and Satisfaction*	**.337**	.076	4	19.871	.000*
2	*Estate Conditions*	**.203**	.077	2	6.970	.001*
3	*Number of Bedroom(s)*	**.169**	.075	1	5.022	.026*
4	*Length of Stay in residence*	**-.169**	.056	3	8.969	.000*
5	*Religion*	.154	.072	4	4.571	.001*
6	*Housing Services*	-.153	.086	3	3.156	.025*
7	*Availability of Home Based Enterprises (HBE)*	.119	.052	1	5.182	.023*
8	*Dwelling Type*	.118	.042	5	7.787	.000*
9	*Tenure type of residence*	.094	.056	4	2.835	.024*
10	*Ethnic Group*	.090	.044	1	4.302	.039*
11	*Occupation/Economic Activity*	.066	.039	4	2.756	.028*
12	Housing Accessibility and Proximity	.016	.144	3	.012	.998
13	Housing Affordability	-.028	.103	2	.073	.930
14	Indoor Ambient Conditions	.081	.103	2	.616	.541
15	Dwelling Units State of Repairs	-.135	.149	1	.818	.366
16	Age of the house	.057	.156	1	.134	.715
17	Use of Facilities in the building	.022	.040	1	.312	.577
18	Toilet Type	.067	.049	4	1.853	.118
19	State of Origin	.082	.067	2	1.487	.227
20	Sex	.061	.038	1	2.630	.106
21	Age of Resident respondent	-.069	.133	2	.271	.763
22	Marital Status	.017	.038	1	.197	.657
23	Household Size	-.009	.080	2	.012	.988
24	Adults in household	.044	.044	1	.998	.318
25	Highest Educational Qualification	-.037	.081	2	.207	.813
26	Average Monthly Income	.119	.144	2	.682	.506
27	Room Occupancy	-.029	.082	2	.127	.881

Dependent Variable: Overall housing quality * significant at 0.05

The eleven predictors of perception of housing quality as shown in Table 4.4.1 include housing adequacy and satisfaction, estate conditions, number of bedrooms, religion, and availability of home-based enterprises, dwelling type, tenure type of residence, ethnicity/tribe and occupation/economic activity are those with positive *beta* values; while length of stay in the residence and housing services are those with negative *Beta* values.

Religion and ethnicity/tribe are some of the socio-cultural variables also found to have significant influence on housing quality in Osogbo, Nigeria (Olayiwola *et al*., 2006). About occupation/economic activity, it is known that as people are more gainfully employed, their affordability levels would rise with consequence of increased fund out of their income being available for housing expenditures, and for improved housing quality. About tenure type of residence, majority (over 72%) of the residents were non-owners, which explains why they may not be committed to spending more funds on improving their housing conditions.

Housing adequacy and satisfaction and estate conditions, have been used for assessing housing quality (CABE, 2010; Garcia-Mira, 2005; Habib, et al, 2009; Kazaz, et al, 2005; Mares, 2005; Olayiwola et al, 2006). Number of bedrooms and dwelling types are two of the attributes of housing. Housing attributes have been known to influence housing quality, such as found in Olotuah (2006d) where age of building was one of the predictors of housing quality. The importance of availability of home-based enterprises (HBE), such as retail shops, stalls, mini-markets, food stalls, restaurants, and hairstyling salon, cannot be over-emphasized, since they complement residency in the housing estate by virtue of supportive services offered by them. Only little or no time and money are spent on accessibility to them when located within or in close proximity to the estate.

On the other hand, housing services has the characteristics of being, the higher the provision the more expensive they are, for the residents that are already overstressed due to unaffordability of the housing in the study area; hence the more negative the effect on their opinion on housing quality. The challenge may be to determine the

optimal services required by the residents; which will definitely require another study or set of analyses to be unravelled. The length of stay in the residence has two dimensions. Firstly, those who packed in newly, tend to upgrade the standard of their housing than those who have been living there for longer duration, who generally felt unconcerned about improving their housing standard since they are non-owners and because of the unaffordability of their housing. Secondly, newer housing (which generally are of certain standard before degeneration with ageing) tend to have higher number of those with shorter length of residency; it is therefore not surprising that these younger or newer housing have more of higher quality recorded than the older ones with predominantly longer length of stay in the residence. Consequently, an increase in length of stay in the residence and housing services led to a reduction in overall housing quality rating. The results obtained in this study are in agreement with many previous studies on the subject.

4.5 Validation of Concepts, Theories and Models

In this section, validation of Concepts, Theories and Models in Section 2.4.6 are presented. In SPSS17 transformation/computation of ordinal variables on different levels/or scales in (i) and (vii), sorting in (iv) and crosstab analyses in (ii) and (iii), and (v) (vi), the results are presented in this section. Also the housing quality has been classified where applicable into three categories namely, At least Good (4.00-5.00), Average (3.00-.3.99), and At most Poor/or Below Aveage (1.00-2.99).

(i) Dramaturgical model

From Dramaturgical model, Government's intent was to have delivered to the public decent (implying high quality), affordable, safe and accessible housing based on Nigerian National Housing Policy (FGN, 1991, 2006, and 2012).

What was delivered as rated by the residents was Good (4.00) quality, unaffordable, averagely Safe and Secured, and very Accessible housing- which on the overall standard from SPSS is in 'Average (3.50) category'.

Table 4.5.1: Delivered housing value

SN	Housing Conditions	Government/Providers intention	Delivered
1	Decent(implying high quality)	Very Good quality'(5.00)	Good quality(4.00)
2	Affordable	Better category of Affordability (2.00)	Unaffordable (1.00)
3	Safe housing	Best category of Safety (3.00)	Average category of Safety (2.00)
4	Secured housing	Best category of Security (5.00)	Good category of Security (4.00)
5	Accessible housing	Best category of Accessible housing (3.00)	Best category of Accessible housing (3.00)
	Overall	Very Good (5.00) category	Average category (3.50)

(ii) Family life cycle model

From Family life cycle model, the identified six (6) stages in the family lifecycle grouped into three categories are: (i) Pre-family Stage-Stage1 pre-family or unattached young adult (ii) Active Stages- Stages 2, 3 and 4 i.e. coupling, child bearing and child rearing and (iii) Post family Stages- Stages 5 and 6 i.e. post family and later life. But by research design, the three categories can be fairly tested, (i) Pre-family Stage-Stage1 or unattached young adult, represented by the unmarried, (ii) Active Stages-Stages 2, 3 and 4 i.e. coupling, child bearing and child rearing represented fairly (not absolutely) by those of Ages of 31- 60years and (iii) Post family Stages- Stages 5 and 6 i.e. post family and later life represented clearly (not absolutely) by the retired i.e. Ages of Over 60years.

Table 4.5.2: Family life cycle stages versus housing quality

SN	HQ	Pre-family Stage	Active Stages	Post-family Stages	Remarks
1	At least Good (4.00-5.00)	64.7%	52.4%	62.5%	52- 65%
2	Average (3.00-.3.99)	30.7%	44.4%	37.5%	31-44%
3	At most Poor (1.00-2.99)	4.3%	3.2%	0.0%	0-4%

Of those in Pre-family Stage, majority (almost 65%) rated their housing as 'At least Good (4.00-5.00) quality', majority (over 52%) of those considered in Active Stages rated their housing quality (HQ) as 'At least Good (4.00-5.00) whereas majority (almost 63%) of those considered in Post-family Stages rated their housing quality (HQ) as 'At least Good (4.00-5.00)'.

This result indicates that in each group stage of Family life cycle majority rated their housing quality (HQ) as 'At least Good (4.00-5.00); also as the ladder of Family life cycle is ascended, majority (over 62%) rated their housing quality (HQ) as 'At least Good (4.00-5.00) for Pre-family Stage and Post family Stages, whereas for Active Stages over 52% rated their housing quality (HQ) as 'At least Good (4.00-5.00). The slight reduction is due to higher housing quality expectations by the by the Active Stages responsibilities and activities. The results also showed that assessment of housing quality fairly depends on the stage in the family lifecycle.

(iii) Theory of Rent

On the basis of Theory of Rent, by research design, Costs of housing or rent compared to income were tested using the three options, (i) High cost of housing or rent (21% and Above)   (ii) Average cost of housing or rent (11-20%) and (iii) Low cost of housing or rent (0-10%).

Table 4.5.3: Cost of housing or rent versus housing quality

SN	HQ	High cost of housing or rent	Average cost of housing or rent	Low cost of housing or rent	Remarks
1	At least Good (4.00-5.00)	44.6%	60.4%	71.1%	45-71%
2	Average (3.00-.3.99)	50.0%	37.0%	22.6%	23-50%
3	At most Poor (1.00-2.99)	5.4%	2.6%	6.4%	3-6%

Of those who considered cost of their housing or rent Low cost, 71% rated their housing as at least good quality whereas less than 45% of those who considered it High cost of housing or rent rated their housing as at least good quality. These results indicate that High cost of housing or rent implied lower housing quality rating by the residents; and Low cost of housing or rent implied higher housing quality rating.

The reason for this trend is similar to that given in Section 5.1.4. That those who considered cost of housing or rent High have little left for housing quality improvements. This is coupled with the fact that the mean value of monthly income of the residents as stated earlier was N38,001- N44,000 which is less than middle income range of N44,001- N71,000. Also majority (over 73%) of the household heads were not the 'owners', and therefore were not committed to going extra mile on spending more fund to enhance the quality of their housing. Whereas those who considered cost of housing or rent low, may be able to afford improving their housing conditions through self-efforts hence enhanced housing quality; hence the result has validated the Theory.

(iv) Class Theories

From Class theories, three income housing typologies, were subjected to five housing quality rating scales which resulted to evolution of three distinct housing quality classes- Good, Average and Poor; and with the overall housing quality in a single class- Good. These are presented in Table 4.5.4.

From Table 5.4, classification of housing quality of estates showed that:

 (a) Of the estates on 'Good' quality rating, 2 out of 7 (or over 28%) are high income (HI), 4 (or over 57%) are medium income (MI); while the remaining 1 (or less than 15%) is of low income (LI). On the whole 46.67% of the housing estates in the study area are of Good quality.

(b) Of the estates on 'Average' quality rating, 1 out of 7 (or over 14%) are high income (HI), 3 (or less than 43%) are medium income (MI) while the remaining 3 (or less than 43%) are low income (LI). On the whole 46.67% of the housing estates in the study area are of Average quality.

Table 4.5.4: Classification of housing quality of selected estates/or schemes

SN	Estate	HQ Scale	Composition	Quality Class	Overall Quality Class
		Very Good (5)	-	-	-
1	OGD (LSDPC/P)	Good (4)	2HI		
	GSB (LSDPC/PPP)		4MI	**Good**	**Good**
	SAT (FHA/P)		1LI	(7Estates;	
	OJK (LSMOH/P)			46.67%)	
	CTX (LSMOH/PPP)				
	OGB(LSDPC/P)				
	IBL (LSDPC/P)				
2	DMD (FHA/PPP)	Average (3)	1HI		
	ILR(LSMOH/P)		3MI	**Average**	-
	ABSII (FHA/P)		3LI	(7Estates;	
	MAR (LSMOH/P)			46.67%)	
	ABSI (FHA/P)				
	SHX(LSMOH/P)				
	ISL(LSDPC/PPP)				
3	EWL(LSMOH/PPP)	Poor (2)	1LI	**Poor**	-
				(1Estate; 6.66%)	
		Very Poor (1)	-	-	-

 (c) Of the 'Poor' quality rating, only 1 low income (LI) estate is in this category. On examination, the median value of 2.75 for the only estate in the Poor quality class (less than 7% of the sampled estates), which is only slightly less than 3.00 for Average quality. On the whole 6.66% of the housing estates in the study area are of Poor quality.

Although there are fifteen sampled estates in the study area with housing quality assessed on 5 points Likert Scale rating from (1) Very Poor, (2) Poor, (3) Average, (4) Good, and (5) Very Good, based on class theory, they have streamlined into three classes- the 'Good quality', 'Average quality' and 'Poor quality', each being over 46%; over 46%; and less than 7% respectively of the sampled estates.

These results indicates that on the overall assessment based on class theory, housing in the research population have streamlined on primary level into only one class- the 'Good quality', and three classes- the 'Good quality', 'Average quality' and 'Poor

quality'on a secondary level; hence the theories have been validated by the occurrences.

(v) Crowding Behaviour Theories

On the basis of Crowding Behaviour Theories, by research design, Overcrowded and Acceptable Room Occupancy Rate (ROR) were tested with results shown in Table 4.5.5.

Table 4.5.5: Room occupancy rate versus housing quality

SN	HQ	Overcrowded ROR (Above 2.00)	Acceptable ROR (2.00 & Below)	Remarks
1	At least Good (4.0-5.0)	33.3%	57.95%	33-58%
2	Average (3.0-.3.99)	66.7%	38.69%	39-67%
3	At most Poor (1.0-2.99)	0.0%	3.36%	0-3%

In addition to noting that 0.8% and 99.2% of the housing in the study area being Overcrowded and Acceptable Room Occupancy Rate (ROR) respectively, majority (over 57%) of those that are on Acceptable Room Occupancy Rate (ROR) assessed the HQ as at least good, whereas only the minority (Less than 34%) of those that are overcrowded rated the HQ as at least good.

From overload theories, crowding or overcrowding results when the achieved privacy is less than the desired privacy; this result indicates that Overcrowding is associated with lower housing quality rating, while Acceptable Room Occupancy Rate (ROR) is associated more with higher housing quality rating in the research population.

(vi) Needs Theory

From Maslow's (1908-1970) the needs theory or hierarchy of needs theory, which stated that human needs are prioritized and the motivation to satisfy them at any point in time will depend on which of them is more overriding at that particular time, the recognized five levels of human needs from bottom to the top in the order of expected

satisfactions are the physiological needs, safety needs, belongingness/love needs, esteem needs, and self-actualization needs. But by research design, these were regrouped into three categories which can be fairly tested, (i) Psychological and Safety needs (18-30Years) (ii) Belongingness/Love needs (31-40Years) and (iii) Esteem and Self actualisation (41Years& Above).

Needs based on the research design and results are related to two attributes for establishment, namely, 'Ages' and 'Income' of household-heads respondents.

Ages of household-heads:

Table 4.5.6: Human needs by ages versus housing quality

S N	HQ	Psychological and Safety needs (18-30Years)	Belongingness/Love needs (31-40Years)	Esteem and Self actualisation (41Years & Above)	Remarks
1	At least Good (4.00-5.00)	69.0%	52.5%	53.6%	Over50%
2	Average (3.00-.3.99)	26.9%	44.3%	43.6%	Below 45%
3	At most Poor (1.00-2.99)	4.1%	3.2%	2.8%	Below 5%

Three category identified on the basis of Ages are Psychological and Safety needs; Belongingness/Love needs; and Esteem and Self actualisation.

In the First category, almost 70% rated HQ as good; in Second category, almost 53% rated HQ as good; while in the Third category, almost 54% rated HQ as good.

This result indicates that only 2 classes emerged. Those of Ages 18-30years with almost 70% rated HQ as good; and those of Ages 31Years & Above with at least 52% rated HQ as good;

Income of household-heads:

Three categories identified above are also applicable to Income. In the First category, over 64% rated HQ as good; in the Second category, 61% rated HQ as good; while in the third category, almost 47% rated HQ as good.

Table 4.5.7: Human needs by income versus housing quality

SN	HQ	Psychological and Safety needs (N38,000 & Below)	Belongingness/Love needs (N38001-44000)	Esteem and Self actualisation (N44001 & Above)	Remarks
1	At least Good (4.00-5.00)	64.2%	61.0%	46.8%	Over 46%
2	Average (3.00-.3.99)	34.0%	34.2%	47.7%	Below 48%
3	At most Poor (1.00-2.99)	1.8%	4.9%	5.5%	Less than 6%

This result indicates that as the ladder of success on the basis of income is ascended higher quality expectations became important, hence only 47% of those on 'N44,001 & Above' rated HQ as good compared to those on lower levels of income with at least 61% that rated HQ as good. Hence expectations based on needs must correspond to the status level for one to be satisfied with the HQ; which has validated the the needs theory.

(vii) Healthy Cities (H.C.) Concept

Healthy Cities (H.C.) Concept requirements: (i) Meeting of basic needs (for food, water, shelter, income, safety and work) and (ii) Clean and safe physical environment of high quality (including housing quality) were examined. Based on the research design and results of integrated relevant aspects to the housing quality perception by household-head respondents, it was clear that housing quality was just a part of the basic feasible requirements of healthy cities, that is, achievement of clean and safe physical environment of high quality (including housing quality); and meeting basic needs of- water, electricity, shelter, and safety. These essentials were presented in Table 4.5.8.

Water source which is one of the components showed that majority of the residents depend on vendors/trucks as against the best category which is public supply.

From Healthy Cities (H.C.) housing requirements, results from SPSS indicate that an Overall Good (4.00) delivery category was attained.

Table 4.5.8: Healthy cities requirements versus delivered housing

S N	Healthy Cities (H.C.) requirements	Expected Standard	Delivered
1	Clean physical environment	Best category of clean environment (5.00)	Good category of Cleanliness (4.00)
2	Safe and secured physical environment	Best category of Security(5.00)	Good category of Security(4.00)
3	Decent (implying high quality) housing	Very Good quality (5.00)	Good quality (4.00)
4	Electricity source/or frequency	Best frequency of electricity supply (5.00)	Average category of frequency (3.50)
5	Shelter- using thermal comfort	Best category of thermal comfort (3.00)	Best category of thermal comfort (3.00)
	Overall standard	Very Good category (5.00)	Good category (4.00)

The preceding discussion has shown how the results of this research have validated all the Concepts, theories and models earlier discussed. These are Dramaturgical Model, Family Life Cycle Model, Theory of Rent, Class Theories, Crowding Behaviour Theories, Needs Theory, and Healthy Cities (H.C.) Concept.

4.6 Summary of the Chapter

In this chapter, the presentation of result of the different analyses carried out was made. The univariate analysis focussed mainly on description of personal characteristics of residents, residential attributes, and housing quality variables; the bivariate analyses were carried out to examine the relationship between major quality variables of housing environment; while multivariate analysis on the other hand was to identify the predictors' of housing quality in the study area. From the result, the following key findings were identified:

i. The majority of respondents in the survey were educated Christian male household heads from Lagos State between 30 years and 60years and had lived the housing estates for between 4years and 6years. Almost one-half of the respondents worked outside the public sector and earned less than N40, 000.00 and were renters with households of adult population.

ii. Most of the houses sampled were over 30 years old and were mainly 3-bedroom apartments having water closet type of toilet used exclusively by members of one household and room occupancy rate of one person per room and not sharing facilities.

iii. The majority of the dwelling units were constructed with conventional building materials such as cement, aluminium, steel, timber and glass, ceramics products, and the building elements such as floor, walls, windows, doors and roofs were relatively in good conditions.

iv. The housing estates are located along major highways accessible from the different parts of Lagos, have paved roads, perimeter fence, security gates, storm water drainage system, open spaces and were connecetd to the national grid for the supply of electricity.

v. The main source of power supply was private electricity generating sets, while a majority of the households relied on water vendors for their domestic water supply.

vi. The majority of the respondents indicated that they had easy access to their place of work or businesses, market and/or shopping facilities from their homes and can easily locate their dwelling units within the estates.

vii. Most of the respondents claimed that they liked the location of bedrooms and that the number of bedrooms, size of living/dining spaces, number and size of bathrooms, size of kitchen and circulation space in their different dwelling units were adequate in meeting their household's needs.

viii. Most of the respondents were satisfied with internal layout of rooms in their houses, the level of noise, frequency of garbage collection, security of lives and property in the research population.

ix. More than one-half of the households in the research population spent '31% and above' of their monthly income on housing, suggesting that most of the residents viewed their housing as unaffordable.

x. The respondents evaluated the quality of housing units and neighbourhood environment as being good and acceptable; hence they concluded that the overall housing quality in the research population was good and of acceptable standard required in meeting the housing needs of members of their families.

xi. The result also revealed that there was a significant relationship between the quality of dwelling units and neighbourhood environment as well as the overall housing quality of the research population.

xii. Among the different categories of housing estates, the high-income estates have the higher quality, than the middle-income and low-income housing estates.

xiii. By organisations, the quality of housing by LSDPC seemed to be better than those of FHA and LSMOH.

xiv. In terms of ranking, the public delivery strategy appeared to have delivered housing of higher quality than the PPP strategy.

xv. Eleven variables were identified as the predictors of housing quality among residents within the research population. These are (i) housing adequacy and satisfaction (ii) estate conditions (iii) number of bedrooms (iv) length of stay in the residence (v) housing services (vi) availability of home-based enterprises (vii) dwelling type (viii) tenure type of residence (ix) ethnicity (x) religion and (xi) occupation of the residents.

xvi. The results of this research have reasonably validated all the considered concepts, theories and models: Dramaturgical Model, Family Life Cycle Model, Theory of Rent, Class Theories, Crowding Behaviour Theories, Needs Theory, and Healthy Cities (H.C.) Concept (Section 4.5).

Thus, in the study area, after attaining ease of accessibility and close proximity, average indoor ambient conditions, and average dwelling units state of repairs, housing quality can be defined as the standard of residential environment characterized by 'housing adequacy and satisfaction, good estate conditions, and availability of services, sufficient number of bedrooms in the dwelling units to achieve uncrowded housing; availability of home based enterprises (such as market, retail shops/stalls and workshops) to be centralised in estate, and appropriate dwelling type reflective of the

family demographic and socio-economic status.; with influences of residents' personal characteristics (length of stay of the occupants in the residence, religion, tenure type as well as the ethnic group, and occupational inclination of the residents).

CHAPTER FIVE
DISCUSSION OF RESULT AND IMPLICATION OF FINDINGS

This section of the thesis is the discussion of the findings of the data based on the four objectives of the study. The discussion follows the order in which the objectives were presented in Chapter One. The discussion here attempts to relate the findings of the study with those of the previous studies as highlighted in the review of literature. Emphasis is on the areas of similarities and differences between findings of this study and previous ones. Attempt was also made at offering explanation to the key findings of this study to provide a better understanding of the contribution of this thesis to knowledge.

5.1 Discussion of Findings and Application

5.1.1 Socio-economic Characteristics of the Residents

From the result, it was observed that a high majority of the households who participated in the survey were educated male Christians from Lagos State who work in the private sector and are low-income earners. This result is generally in line with the previous studies by Jiboye (2009) and Ilesanmi (2012) as previously highlighted. In fact, the mean household size range is between 1person and 4 persons and constituting size higher than between 1person and 4persons constituted almost 24% of the sample.

The average family size of 1person to 4persons appears to be abnormal and does not reflect the typical African family with inclination towards polygamous and extended family structure leading to higher family size of more than five person as presented by Muller (1984). However, going by the fact that the majority of households who participated in the survey were Christians, one can argue that believe in one man, one wife among Christians can help to explain this result.

Regarding the marital status of the respondents, it is obvious that a high majority were in marriage relationship. This result is not a surprise going by the value Africans attach to marriage. Further, the result shows that although Lagos is a cosmopolitan city, with different ethnic nationality residing it, it was surprising to find that more than half of the household heads had Yoruba ethnic affiliation. Interestingly, the result however

shows that a reasonable proportion of the household heads were from other ethnic groups in Nigeria and non-Nigerians. This shows the fact that the population of Lagos is a mixture of different people, tribes and races. It was also interesting to see that more than half of the respondents had tertiary education, which is an indication that there high adult literacy in Lagos. This was to be expected given that Lagos had early contacts with Missionaries that brought Western Education to Nigeria, hence, there is a high concentration of higher institutions of learning that provide opportunity for people to acquire higher education.

On housing tenure type of the residents, over 27% of the residents were in the 'owner occupier' category. The housing quality in the study area could have been higher than what was found in this study but for the fact that majority (almost 73%) of the household heads were not the 'owners'. The finding of this study shows a majority of the households in the estates were renters, while less than one-third were owner occupiers. This result is in agreement with the finding by the study by Olotuah (2006c) on the state of repair of buildings in Akure, Nigeria where tenure type was one of the eight predictors of state of repair of buildings.The result is however contrary to the finding by the study by Ibem (2012) indicating that the majority of households in public housing in Ogun State were owner-occupiers.

The fact that the majority of household heads identified in the current study were low-income earners may help to explain why they were also mostly renters. Going by the cost of housing in most urban areas in Nigeria, it is obvious that low-income earners are not able to buy houses on their own, and thus, they see renting as the last resort. Of course renting has been identified as one of the viable options to meeting the housing needs of low-income urban residents as explained by the UN-HABITAT (2006). This implies that the providers mass housing in the study area are consciously promoting renting rather than owner-occupation.

5.1.2 Physical Characteristics of the Residential Estates

5.1.2.1 Physical Characteristics of Houses in the Residential Estates

Based on assessments of the physical characteristics of housing in the study, of the six variables investigated, only two were found to be a significant predictor of housing

quality. They are number of bedroom(s) in the dwelling units and dwelling types. Previous studies on this subject have shown that the significance of any of these characteristics in the prediction of housing quality also depends on the context of study. For instance, in the study carried out in Ilorin, Nigeria (Aderamo & Ayobolu, 2010), none of the physical attributes of housing was reported to have influence on housing quality, except material quality and other components. This result is in agreement with the finding by the study by Olotuah (2006c) on the state of repair of buildings in Akure, Nigeria where number of bedroom(s) in the dwelling units was one of the eight predictors of state of repair of buildings. It is on this premise that this study is therefore considered to be in agreement with other previous studies on this subject.

Regarding the age of the houses, Olotuah (2006d) found age of buildings as one of the three predictors of housing quality. Regarding the age of the houses from where the respondents were drawn from, the result revealed that most of the houses were categories as being above 30years. This means that most of the houses were constructied in the 1980s. Despite the age of the houses, majority of the housing units were physical and structurally sound and had room occupany ratio of not more than one person per room. This result is an indication in terms of physical condition and occupancy rate, which can be used to assess the quality of housing; the dwelling units can be considered neither to be in the state of dilapidation nor overcrowded. One possible explanation for this is that most of the housing units were constructed with conventional and durable materials as shown in the different pictures of the houses presented in Chapter Four of this thesis. It is also possible that the houses are properly maintained by the residents. This finding can help to explain why a high majority of the residents in the study area evaluated the quality of dwelling units in the estates to be good and acceptable, but not necessarily the highest quality as classified in this study.

In support of previous study (Ibem, 2012a) the housing estates have different housing typologies, including semi-detached (multi-flats- Block of 3 or more Flats), 2-bedroom or room and parlour, semi detached (duplex, masionette) and detached (bungalows)

having modern toilet facilities with the majority of them being 3-bedroom apartments. This simply means that mass housing developers in Lagos and Ogun State southwest Nigeria place more emphasis on the construction of 3-bedroom apartments than any other size of housing units. In fact, the current study reveals that most of the household heads in the study area indicated that the number of bedrooms in their dwelling units was adequate in meeting the current housing needs of their respective families. This suggests that 3-bedroom apartment is the most demanded housing typology in the study areas. This has implication for architects and real estate developers involved in the business of mass housing development in Lagos and its environs.

5.1.2.2 Physical Characteristics of the Environment of the Residential Estates

In addition to the dwelling units' characteristics, the physical characteristics of the housing estates were also used to assess the quality of housing in the estates. From the result, it was observed that most of the estates are located along major access routes, have good layout, access and internal roads, open spaces, perimeter fence, security posts and storm water drainage facilities. Facilities for shopping, recreation and education were also found in some of the estates, while those without them have easy access to them in their respective locations. However, there was inadequate supply of basic social amenties such as electricity and water from the public supply system; hence residents had to rely on private sources to meet their utility needs. Despite this development, the result shows that most of the respondents rated the quality of neighbourhood environment as good. This is probably because a majority of them were satisfied with access to their places of work; market/shopping facilities from their homes; and were also satisfied with the level of noise; frequency of garbage collection as well as security of lives and property. This suggests that although some of these facilities and services are not located within the residential estates, residents of these housing estates have easy access to them within their neighbourhoods.

Also it is not particularly surprising that the residents were happy with the locations of the housing estates in relation to key neighbourhood facitlities. This is because most of the housing estates sampled can easily be accessed through major highways. Similarly, the result on satisfaction with the level of security of lives and property in the estates was to be expected going by the fact that all the housing estates have perimeter fences

that are in good conditions as well as security post manned by security personel. It is also possible that the existence of Community Development Associations (CDAs) in the estates has contributed to promoting security of lives and property of residents in the different housing estates. The study by Ibem (2012b) revealed that the presence of CDAs in public housing Estates in Ogun State contributed to the level of security of lives and property in those estates. It was also found out that the residents were contented with the frequency of collection and disposal of refuse (domestic waste) from the estates. This suggests that there is no issue of pile upof refuse at the dumpsites in the estates; hence there is high level of hygiene and cleanliness of the environment. As shown in the pictures of the different estates presented in Chapter Four of this thesis, the streets were clean and devoid of refuse, and thus the residents evaluated the environment of the estates as having good quality and acceptable standard.

5.1.3 Overall Quality of Housing in the Residential Estates

From result of analysis, the overall housing quality was good; and both the quality of dwelling units and neighbourhood environment were good for housing estates constructed by government agencies alone and those developed through the PPP arrangement.

The study also found out that residential crowding was not a challenge as majority (over 72%) of the research population had 'room occupancy rate' of 1 person per room, another over 26% had 'room occupancy rate' of 1.01-2.00. This implied that majority (over 99%) of the dwelling units had 'room occupancy rate' within acceptable standard of not exceeding 2.00 (Shelter, 2015 and UK, 1985). The standards allowed over1.8 (rounded up to 2) persons per room for at least the modal number of bedroom per dwelling unit (Section 4.2.1.5). This is in agreement with research by Aluko (2000) in the study area with occupancy rate of less than 2.0 persons per room. But from earlier analysis on affordability, based on proportion of income on housing, majority (over 53%) of the residents described their houses as unaffordable, that is spending higher than 30% of their income on housing; this position was corroborated by the over 94% area'of the respondents that described the cost of their housing as 'may be

beyond reasonable limit of Below10% of resident's income'; while 87% also described housing maintenance cost as 'may be beyond reasonable limit of Below10% of resident's income' in the study area.

The majority have described their housing as unaffordable, that means that they are already financially over-stressed by reason of their residency; This is coupled with the fact that the mean value of monthly income of the residents as stated earlier was ₦38,001- 44,000 which is less than middle income range of ₦44,001-145,000; It is the minority residents in the 'owner occupier' category that may be committed to going extra mile on spending more fund to enhance the quality of their housing. A situation in which majority are not committed (by reason of their tenure type, low monthly income, and housing unaffordability) to improving the quality of their housing, what are the expectations? Of course, housing quality lower than the highest category; which was what abounds in the research population in the study area.

5.1.4 Determinants of Perception of Housing Quality

In this study, eleven (11) 'determinants/or predictors' of 'housing quality' have been identified. They include housing adequacy and satisfaction, estate conditions, number of bedroom(s), length of residency, housing services, religion, and availability of home based enterprises (HBE), dwelling type, tenure type of residence, ethnicity, and occupation/economic activity. These are all to be looked into based on their contributory dynamics and knowledge of the housing practitioners for determining housing quality status.

Residential 'adequacy and satisfaction' which refer to 'meeting needs and the feeling of contentment' when one has or achieved housing needs or desires (Mohit, *et al*, 2010) and housing quality are two of the dimensions for assessing housing performance, with utilization of some additional indicators (Altas & Ozsoy, 1998; Fatoye, 2009; Fatoye & Odusami, 2009). In some cases housing services were combined with housing conditions and in some cases with other factors (Habib, *et al*., 2009; Lai, 2009; Meng, *et al*, 2006; and Kanz & Birgonul, 2005) for assessment of housing quality. A great number of the researchers combined housing conditions,

estate or neighbourhood conditions with housing services and users' characteristics (Aderamo & Ayobolu, 2010; Bender, *et al.*, 1997; Evans, *et al*, 2001; Hassanain, 2010; Ilesanmi, 2012; Jiboye, 2004; Lawrence, 1995; Maliene *et al*., 2009; Mira, *et al*, 2005; Olayiwola, et al, 2006; Olotuah, 2006a, 2006c, 2006d; Sengupta, *et al*, 2007; Turunen, *et al*, 2010; Walsh, 2010). Therefore this study with the number and distribution of the determinants/predictors is in agreement with many of the previous researches, particularly those already cited in this section.

Based on the findings of this study, the key residents' personal characteristics influencing 'housing quality' in the study area are five (5) out of the 13 variables in this section, and they are length of stay in the residence, religion, tenure type of residence, ethnic group, and occupation/economic activity; being predictor variables. Several studies on housing quality have been carried out in different contexts and in Nigeria in some other contexts. For instance Olayiwola, *et al* (2006) in their study on housing quality in Osogbo, Osun state Nigeria, age, religion and marital status were found to have significant influence on it. Mares, Desai and Rosenheck (2005) in Connecticut, found age, education and income as some of those significantly associated with at least two measures of subjective quality housing. None of these characteristics was reported to be signicicant in some researches (Evans, 2008 and Olotuah, 2006d). The recent study by Ibem (2012a) shows that socio-economic characteristics of the respondents such as age, education, marital status, employment sector, income, and tenure status as well as housing characteristics-including residence type, state of repairs of the building and spatial deficiencies in housing units were all significant predictors of housing quality. The finding of the current study is similar to that by Ibem (2012) in identifying tenure; occupation or employment and some housing characteristics the predictors of the quality of public and PPP housing. From this analysis, it can be inferred that the significance of any or all of these variables in predicting housing quality depends on the context of the study and peculiarity of the people. In this study, with eleven of the determinants/predictors investigated emerging as significant predictors of housing quality, it is therefore evident that part of the findings here is in agreement with many of the previous studies on this subject.

5.2 Framework for Improving Housing Quality in the Study Area

Because of its importance, the quality of residential environments need to be examined periodically with the possibility of improving or maintaining their standards, as well as for refining the design criteria used in developing future housing estates/schemes, thereby increasing the fit between people and place (residential environment). Based on the result of analysis and conceptual framework of the study presented in Figure 2.1, the graphical illustration of a framework for understanding and improving housing quality is presented in Figure. 5.1.

This framework posits that a combination of the objective attributes of residential environment (number of bedroom, availability of home based enterprises and dwelling type); and subjective attributes of residential environment (housing adequacy and satisfaction, estate conditions and housing services) with the influence of household/personal characteristics of residents (length of stay in the residence, religion, tenure type, ethnicity, and occupation); housing quality can be better examined and understood.

To achieve a significant improvement of housing quality, thorough examination of the eleven predictors of housing quality is important. Crosstab analyses of some of the determinants (obtained from CATREG) versus housing quality are hereby discussed. From the findings of this study housing adequacy and satisfaction, and estate conditions need to be improved upon for enhanced housing quality; Improved housing services are required, but such must be economical to be effective in reducing reverse effect of services on housing quality.

Objective Attributes of Residential Environment (OARE):
Number of bedroom(s), Availability of Home Based Enterprises (HBEs) and Dwelling type,

Subjective Attributes of Residential Environment (SARE)

Housing Adequacy and Satisfaction (AS)

Housing Services (SE)

Estate Conditions (EC)

HOUSING QUALITY INDEX (HQI)

Household Personal Characteristics (HPC):
Length of stay in the residence, Religion,
Tenure type of residence,
Ethnic Group, and Occupation/Economic Activity

Figure 5.1: Framework for determination of the housing quality

Based on Crosstab of each predictor and the dependent variable the following deductions were made. About average number of bedrooms per household, the more of '5bedooms and above', '3bedooms', and perhaps '4bedooms' family housing the higher the assessed housing quality; hence for enhanced housing quality, the proportion of dwelling types with these number of bedrooms may have to be increased compared to others in the research population. On 'availability of home based enterprises (HBE)', the result of analysis showed that they are unavailable, in majority of the housing in the study area. Therefore more centralized provisions of HBEs in many of the housing estates are required for improvement of housing quality. About dwelling type, the more of 'Semi-Detached (Duplex, Masionnette)', and 'Detached (Masionnette)' family housing constructed the higher the assessed housing quality. Both of them constitute almost 8% of the state housing against the 'Semi-Detached' (Multi-Flats-Block of 3 or more Flats) that constitutes as high as 81%. On the length of stay in the residence, 4-9years is the optimum range for perception of good quality housing as against any other range such as '3years and below' and '10years and above' with resultant decline in perception of housing quality in the study area. Therefore, for improved quality of housing in the study population and other mass housing estates, there must be continuous phased developments for an estimated projected life of the housing estate so that the variable is not increased beyond the optimum range but maintained within it, in order to derive long enhanced housing quality. On religion on the other hand, showed that over 66% , almost 27% and over 4% of the residents are of Christian faith, Islamic faith, and Traditional faith respectively. The more of the residents that are adherents of Christian faith, Islamic faith, and Traditional faith compared to other two categories, the higher the assessed housing quality. On tenure type of residence, the more the home owners and renters in the estates the better the housing quality; and furthermore, enhanced tenure security the proportion of home owners (which was 27% at the time of survey) will need to be increased for improved housing quality. About ethnicity, the less of 'Others' in the categories as classified in the study and the more of 'Yoruba, Igbo, or Hausa/Fulani' living in the housing in the study area the higher the perceived quality. About Occupation the more 'employed, self employed and public employed' the higher the perceived quality.

For high level of improvement, all the eleven (11) of the determinants identified in Table 4.4.1 are to be improved upon to highest level; and such improvement must be adequate to reverse downward trend in housing quality by length of stay in residence and housing services.

For gradual or phased improvement, not all the eleven determinants identified in preceding paragraph and Table 4.4.1 need to be improved to highest level; it could be any one to ten of them that are improved upon to highest level for each or all the eleven are improved upon but not to highest level for all.

The extent of improvement on overall housing quality will depend on the strength of the predictor's contribution to the model determined by its '*Beta*' value. Therefore it is these determinants/predictors of overall housing quality that needs to be examined for maintenance of status quo or for improvement based on their contributory dynamics if the overall housing quality in the study area is to be enhanced infinitesimally, moderately or significantly. By the framework, if at any point in time, the eleven determinants/or predictors are assessed, housing quality in the study area can be determined or if any of them changed, over time, the effect of it on housing quality can be predicted.

5.3 Implications of Findings of the Study

The study found that dwelling units and neighbourhood environments are inevitably very important in the determination of housing quality; and this suggests that planners, architects, engineers, policy makers and all concerned about housing provision should avoid focussing on neighbourhood environment at the expense of the dwelling units environment, but rather on the duo aspects.

The study revealed how people can differ in their values, perceptions, experiences and assessment of quality of their housing. The importance of residents' personal characteristics came to the fore as they are responsible for five of the ten determinants/predictors of housing quality. That is to say, certain things that are

important to one demographic and socioeconomic characteristics group may not be important to another group with respect to their assessment of their housing. Hence the need for incorporation of changing demographic and socioeconomic profiles and population values into the framework for housing quality determination. The key profiles are length of stay in the residence, religion, tenure type of residence, ethnicity, and occupation/economic activity.

Housing affordability is a latent issue affecting the ability, attitude, concern and commitment of the residents to improving quality of their housing; hence; ensuring affordability for residents is highly desirable. Therefore government, concerned authorities and organizations need to look into how 'cost of housing or rent, maintenance cost and other costs on housing' which all determine the proportion of income on housing expenditures can be lowered generally to within affordability level for the residents.

There is no doubt that findings of this study have a number of implications for policy, practice and research. For policy, findings of this study, particularly, the ones on the quality of housing in the different estates provided through public delivery system and the PPP can contribute to policy formulation on the most appropriate strategy for providing quality housing for the citizens. The findings on the framework for improving housing quality can also inform policy on the way forward in meeting the housing needs of different socio-economic groups in Lagos State in particular and Nigeria in general.

For practice, as the findings have revealed that over 50% of the predictor variables are design related, architects and other professionals in the building/construction industry, particularly the built environment, need to pay special attention to achieving very good HQI by specially focusing on the specific determinants/predictor variables for application (in planning, design considerations/decisions, and specifications), purchase and incorporation as appropriate in proposed, on-going or existing residential environment (where renovation or rehabilitation works are to be carried out).

In terms of research, this study has shown that housing quality is not only concerned with the quality of the dwelling units but also the estate/neighbourhood environment; based on result presented in section 4.3.10.2 and Table 4.3.27 which showed that there was strong correlation between the two environments and between the overall housing quality and each of the two environments in the residential estates. In this study area as in any location, not all possible variables impinge on housing quality, but specific combinations as found out in this study, some of which may or may not influence housing quality assessment in any other context.

5.4 Summary of the Chapter

In this chapter, the discussion of the result in line with the study objectives was presented. Specific issues discussed were the findings and their implications. Attempt was also made to relate the findings of the study with those in previous studies in order to identify the areas of similarities and differences. Also presentation of the framework for improving housing quality in the study area and implications of the findings for policy, practice and research were discussed.

CHAPTER SIX
SUMMARY, RECOMMENDATIONS AND CONCLUSION

Though the preceding Chapter Five was devoted to general results discussion of findings/application and their implications from which generalizations are made, this chapter which is the concluding part of this Thesis report on the study conducted has been classified into three major groups, namely, Summary, Recommendations and Conclusion.

Others including Chapter one focused on general introduction including the purpose (aim and objectives) of the research, and the study area. Chapter two focused on review of relevant and related literature centred on theoretical background of the subject matters (housing quality), related issues and debates in housing; and detailed discussion on theoretical/conceptual frameworks for the study, Chapter three was the detailed discussion on the methodology involving the procedures adopted in carrying out the entire research; while Chapter four was the data presentation and interpretation of the results.

6.1 Summary of Findings

6.1.1 General Summary

The main focus of this research was to investigate housing quality of public and PPP residential estates in Lagos State, Nigeria with a view to identifying the determinants and providing framework for its improvement.

    i.   It has been established by this study that of the thirteen (13) socio-economic and demographic characteristics of the residents investigated, only five (5), that is, length of stay in residence, religion, and tenure type, ethnicity, and occupation are predictors of housing quality in the study area.

   ii.   Of the six (6) housing physical characteristics considered, only three (3), that is, 'number of bedroom(s)' dwelling type and home based enterprises (HBE) which is an employment generator are predictors of housing quality in the study area. The importance of HBE to the residents can not be overemphasised, hence, they should be centralised in one or more appropriate location(s),

depending on the size of the estate and to avoid development of slums or unpleasant consequences of their proliferation in or around dwelling units.

iii.   The median housing quality score of the research population in the study area obtained from residents' perception was 4.00; suggesting that the quality is 'Good'. Efforts of of the housing providers, professionals, managers, private partners and other stakeholders in Lagos State housing, are highly commendable because in 14 out of all the 15 sampled estates over 93% of the housing estates were either rated as having average quality or good quality and only 1 estate (less than 7%) had the housing quality rated slightly below average. Specifically, seven of the fifteen estates (2 high-income, 4 middle-income and 1 low-income) or 46.7% are of 'Good' quality category; another seven estates (1 high-income, 3 middle-income and 3 low-income) or 46.7% are of 'average' quality; while the remaining one low-income estate or 6.7% are of poor quality category. These percentages indicate the proportions housing classifications in the research population.

The housing quality (HQ) value for the study area obtained from residents' perception is reliable since it was derived from broad-based or near-holistic design. Real HQ assessment is not just about getting the value, but about understanding the dynamics for maintenance and improving its diverse aspects. In this study area, if a new study is derived from broad-based or near-holistic design or from previous near-holistic research conducted on HQ, the result is expected to yield acceptable result.

iv.   Regarding the determinants/predictors of housing quality, the study identified a total of eleven (11) determinants/predictors in the research population in the study area. They are 'housing adequacy and satisfaction, estate conditions, availability of services, dwelling type, number of bedroom(s), availability of home based enterprises (HBE), length of stay in residence, religion, and tenure type of residence, ethnicity, and occupation/economic activity'. Hence, housing quality as found out in this study in the research population and in the study area has been defined as a function, integration or interplay of these eleven (11) determinants.

v.   Summary of Findings on 'Demographic and Socio-Economic Characteristics of the Residents', Residents' Perception of the Environment of the Estates, and 'Characteristics of Housing Units in the Estates' are in Appendix 13.

6.1.2 Contribution to knowledge

This study contributes to knowledge in housing which would complement the existing understanding of the subject in the following areas:

i.   It improved understanding of the quality of housing in the selected residential estates in Lagos State, by providing methodological approach to its determination, empirical data on its characteristics, by comparing the quality of housing across delivery strategies, provider organisations and housing income classifications; and thus provides a benchmark for assessing the performance of public and PPP housing in the study area. By these, housing providers are better informed on which approach to adopt in order to achieve better housing quality for the masses than what was found in the research population; and order of housing outcomes by organisations; and order of housing outcomes by housing-income typologies.

ii. Furthermore, the study has contributed to understanding by identifying the determinants or predictors of housing quality and developed a framework for assessing and predicting effect of changes in any of them in Lagos State which accommodates Lagos as a typical global megacity in the global south. The study has also contributed to the 'housing adjustment and adaptation theory' by showing that housing quality was being influenced by some socio-economic and demographic characteristics of the residents. The understanding of how housing quality can be improved is vital for the purpose of improving existing housing stock and for designing, constructing and operating housing in future. This has implications for practice, research and education particularly in housing studies and architecture in general in the study area; hence, architects, planners and housing developers and managers have grasp of the specific aspects of housing delivery process that can enhance housing quality outcome.

6.2 Recommendations

Based on the findings of this research the following recommendations are made.

i.   First, in view of the result showing that over 63% of the predictors of housing quality are related to design aspect of housing, management, Tenure type of residence, Job creation , and locational aspects; while less than 37% are linked to and residents' personal characteristics, therefore more attention should be paid to the design parameters by architects on public housing programmes among others in the study area.

ii.   Second, it is also suggested that steps be taken to improve the quality of housing schemes targeted at the middle and low income earners. This is in view of the fact that among the three income categories of housing estates investigated, the estates designed for the middle-income and the low-income people were rated lower on the housing quality scale than the high-income types in the study area. This can be achieved by adopting the public housing delivery option more in the development of housing for the middle and low income earners. This suggestion is hinged on the finding of this study that housing provided solely by government agencies in the research population were rated higher on the quality scale than the PPP housing by the residents.

iii. Third, the finding of this study indicates that houses in all the estates were constructed using conventional building materials with attendant high housing cost or rent, high maintenance cost and other housing expenditures; which cumulatively led to the housing being considered to be 'unaffordable' by the residents. For this reason, it suggested that housing developers should explore into how to make housing affordable to the people. This can be achieved by: (a) bringing down the cost of housing, (b) using durable materials and construction solution that will minimize maintenance frequency, (c) providing accessible basic amenities, services and public facilities and at minimum cost in the study area.

iv.   Fourth, it is obvious from the study that although most of the housing estates are connected to the national grid for the supply of electricity, the main source of power supply was private electricity generating sets, which depend most on fossil fuel and has adverse environmental and health implication. In view of the current

electricity supply crisis in Nigeria, it is imperative housing developers explore the integration of alternative sources of clean energy such as 'solar' into the design and construction of mass housing.

v.   Fifth, the situation where most of the households depend on water vendors for the supply of water for domestic consumption is very worrisome as this has serious health implications. It is therefore recommended that this should be addressed. On of the ways for achieving this for the residents Community Development Associations (CDAs) to partner with housing providers to set up efficient water supply systems in the estates by sinking (more) boreholes and constructing water reservoirs. This can ensure constant supply of good drinking water for residents of these housing estates. New schemes should consider incorporating alternative sources of water supply.

vi.   In new residential estates, provision of centralised HBEs in one or more appropriate location(s), depending on the size of the estate should planned as part of schemes to avoid development of slums or unpleasant consequences of their proliferation in or around dwelling units and any open spaces due to desire of residents in them.

6.2.1 Areas for Further Research

The study recommended that empirical studies be carried out on other areas outside the scope of this study. These include:

(i) Influence of housing environment on the well-being of residents in the estates; housing conditions; and environmental sustainability of the housing schemes; of Public and PPP residential estates across the three housing providers on: discrete, mixed, and all (discrete and mixed) typologies in the study area.

(ii) Housing quality of Public and PPP residential estates across the three housing providers on: mixed, and all (discrete and mixed) typologies.

(iii) Housing quality of Public and PPP residential estates across the three housing providers on: discrete typologies as has been done in this study for comparison now or after a short duration;

(iv) Influence of housing environment on the well-being of residents in the estates; housing conditions; and environmental sustainability of the housing schemes; Housing quality; of non-governmental residential estates in Lagos State across the three income earners on: discrete, mixed, and all (discrete and mixed) housing typologies in the study area, among others.

Each of the enumerated areas for further research could also be carried out on differential basis that can be aggregated for the entire research population.

6.3 Conclusion

From the findings of this study presented in the Chapter four of this thesis, the following conclusions can be made. First is that most household heads in the research population were between the ages of 30 and 60 years and Christians from Lagos State working in the public or private sector, low-income earners and renters.

The second conclusion is that majority of the housing estates are located along major highways accessible from different parts of Lagos and have paved roads, perimeter fence, security gates, storm water drainage system, and open spaces. Consequently, the residents were satisfied with access to their places of work or businesses; market/shopping facilities from their homes, security of lives and property; the level of noise, frequency of garbage collection and layout of the estates. However, the residents had poor access to constant power and water supplies as the main source of electricity and domestic water were through private electricity generating sets and water vendors respectively.

The third conclusion is that majority of the dwelling units comprising 3-bedroom apartments were over 30 years old and were constructed with conventional cement, aluminium, steel, timber and glass, as well as ceramics-based products. In spite of their ages, the building elements such as floor, walls, windows, doors and roofs were found to be relatively in good conditions. Therefore, majority of the respondents in the survey were satisfied with the location of bedrooms and that the number of bedrooms, size of living/dining spaces, number and size of bathrooms, size of kitchen and circulation space in their different dwelling units were adequate in meeting their households' needs. However, most of the residents viewed the cost of housing in estates to be unaffordable.

The fourth conclusion from this study is that the quality of housing units, the quality of neighbourhood environment, that of overall housing in the research population were all good and acceptable. However, the quality of housing in the high income estates was better than those in the middle and low income housing estates. Based on this result, this study has shown there is a significant relationship between the quality of dwelling units, neighbourhood environment and overall housing quality in the study area.

The fifth conclusion is that the overall assessment can be seen as that of aesthetic values and/or use values of the residential estates; the identification of targets for upgrading the performance of the existing housing stock; thereby facilitating prioritization of limited resources; and the identification of priority predictors to maintain or improve the housing quality or to achieve high quality housing in the study area.

The last conclusion of this study is that the predictors of housing quality from end-users' perspective are: housing adequacy and satisfaction; estate conditions; number of bedrooms in the dwelling units; dwelling type; length of stay of the occupants in the residence; availability of housing services, and home-based enterprises; tenure type as well as the ethnic, religious and occupation inclination of the residents.

The study has a number of implications, as earlier discussed, on policy formulation, practice and research. The findings would inform policy on part of the future pathways for meeting the housing needs of different socio-economic groups in Lagos State in particular and Nigeria in general; for practice they have revealed that, over 50% of the predictor variables are design related, hence architects and other professionals in the building/construction industry need to give adequate attention to the aspects of housing design to achieve improved quality; and for research the quality of the dwelling units and that of the estate/neighbourhood environment are vital in housing quality assessment.

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Appendix 1:

Lagos State Base Map
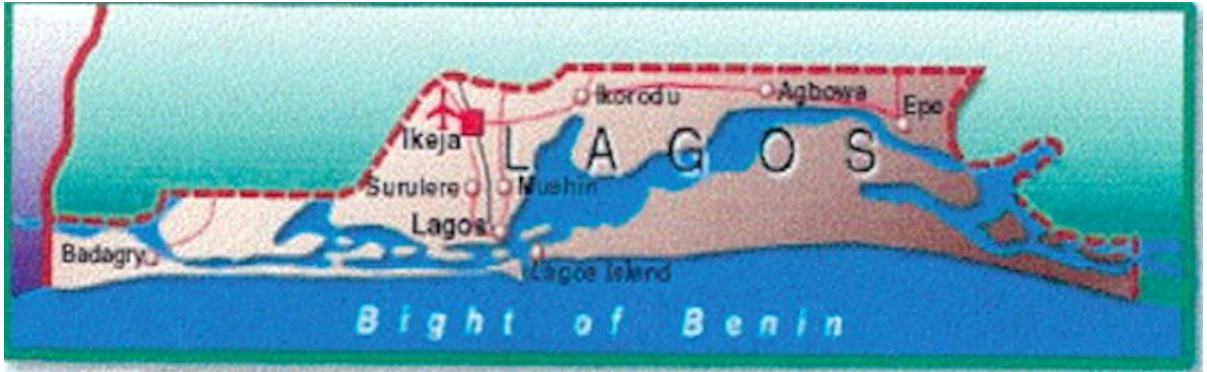
Figure 1.2: Map of Lagos State, Nigeria

Source: RLE FM (2012)

Appendix 2:

Lagos State Base Map: Subdivision

Figure 1.3: Map of Lagos State and Local Government Areas

Source: Nigerianmuse (2014)

Appendix 3: Table 3.1: Lagos State Selected Estates/Schemes and Housing with Study Population

			LSDPC	LSMOH	FHA	Total	Proportion (%)	1st Stage Selection	Sampling Frame
	HIGH								
A1	**LSDPC**								
1	LSDPC 1 Amuwo Odofin Phase I Duplexes	P	114						
2	LSDPC 2 Amuwo Odofin Phase II Duplexes	P	142						
3	LSDPC 3 Ogudu Phases I & II Duplexes	P	126					126 (1st)	126
4	LSDPC 4 Dolphin Phases I Duplexes	P	656						
5	LSDPC 5 Raji Rasaki Housing Estate Amuwo Odofin (4-Bedr Duplexes)	P	142					142 (2nd)	
						1180	2.72		
B1	**LSMOH**								
6	LSMOH 1 Oba AdeyinkaII, Lekki I, Eti-Osa LGA	P		114				114 (2nd)	
7	LSMOH 2 Lekki II Housing Scheme, Eti-Osa LGA	P		88					
8	LSMOH 3 Millennium Housing Scheme, Ilupeju, Mushin LGA	P		24				24	
9	LSMOH 4 Marimpex Estate, GRA Ikeja	P		34				34 (1st)	34
				260		260			
C1	**FHA**								
10	FHA 1 Satelite II High Income Housing	P			38			38	38
					38	38	0.09		
	Sub-Total (High Income)					**1,478**			

			LSDPC	LSMOH	FHA	Total	Proportion (%)	1st Stage Selection	Sampling Frame
	MIDDLE								
A2	**LSDPC**								
11	LSDPC 6 Alapere Middle Income Housing	P	140						
12	LSDPC 7 Alaka Middle Income Housing	P	16						
13	LSDPC 8 Opebi Middle Income Housing	P	120						
14	LSDPC 9 Ogba Phase II Middle Income Housing	P	28						
15	LSDPC 10 Omole Middle Income Housing	P	100						
16	LSDPC 11 Opebi Middle Income Housing	P	20						
17	LSDPC 12 Amuwo Odofin Middle Income Housing	P	36						
18	LSDPC 13 Ijaiye Middle Income Housing	P	796						
19	LSDPC 14 Ebute Metta Middle Income Housing	P	528						
20	LSDPC 15 Middle Income Estate IV, Ogba-Ijaiye: 4-Bedr Semi-detached Bungalows (12); 4-Bedr Flats (324)	P	336					336 (2nd)	336
21	LSDPC 16 Ogba Phase II Middle Income Estate: 4-Bedr Flats (56)	P	56					56 (1st)	
22	LSDPC 17 LSDPC Middle Income Estate Phase II Alapere: 4-Bedr Flats (32)	P	32						
23	LSDPC 18 Femi Okunnu Estate III, Lekki (Middle Housing): 3-Bedr Luxury Flats	P	126					126 (3rd)	
24	LSDPC 19 LSDPC Middle Income Estate Phase II Alapere: 3-Bedr S emi-detached Bungalow (4)	P	4						

			2338			2338			
			LSDPC	LSMOH	FHA	Total	Proportion (%)	1st Stage Selection	Sampling Frame
B2	**LSMOH**								
25	LSMOH 5 Igbogbo III Housing Estate, Igbogbo, Bayeku Ikorodu LGA	P						8	
				8					
26	LSMOH 6 Ojokoro II Housing Scheme Block A & Blocks B-J, Ijaiye, Ojokoro LGA:	P						80 (1st)	80
				80					
27	LSMOH 7 Iloro Housing Estate (Blocks A-D)	P						32 (2nd)	32
	Middle Income Housing			32					
				120		120			
C2	**FHA**								
28	FHA 2 Abesan IMiddle Income Housing Scheme	P			179			179 (1st)	179
29	FHA 3 Abesan IV Middle Income Housing	P			56			56	
					235	235	0.54		
A3	**LSDPC**								
30	LSDPC 20 Goshen Beach Estate	PPP	85					85(1st)	85
	4-Bedr Detached House(57);								
	5-Bedr Detached House-17, etc.								
31	LSDPC 21 Alapere 4-Bedr Flats (15)	PPP	15					15 (2nd)	
32	LSDPC 22 Alaka Estate 4-Bedr Flats (4)	PPP	4					4	
33	LSDPC 23 Ijaiye Middle Estate I & II								
	4-Bedr Flats (16)	PPP	16						
			120			120	0.25		

B3	LSMOH								
			LSDPC	LSMOH	FHA	Total	Proportion (%)	1st Stage Selection	Sampling Frame
34	LSMOH 8 Cortex Scheme, Ikota, Eti-Osa LGA	PPP		72					72
				72		72			
C3	**FHA**								
35	FHA 4 Diamond Estate, Isheri Olofin	PPP							
	Middle Income Housing				554				554	554
					554	554	3.45		
	Sub-Total (Middle Income)					**3,439**			
	LOW								
A4	**LSDPC**								
36	LSDPC 24 Abesan Low Income Housing	P	4272						
37	LSDPC 25 Abule-Nla Low Income Housing	P	90						
38	LSDPC 26 Agarawu Low Income Housing	P	18						
39	LSDPC 27 Akerele Low Income Housing	P	18						
40	LSDPC 28 Amuwo Odofin Low Income Housing	P	2068						
41	LSDPC 29 Anikantamo Low Income Housing	P	714						
42	LSDPC 30 Badagry Low Income Housing	P	6						
43	LSDPC 31 Bank Olemoh Low Income Housing	P	36						
44	LSDPC 32 Diary Farm Low Income Housing	P	708						
45	LSDPC 33 Epe Low Income Housing	P	30						
46	LSDPC 34 Iba Low Income Housing	P	2400					2400 (1st)	2400
47	LSDPC 35 Ikorodu Low Income Housing	P	78						

			LSDPC	LSMOH	FHA	Total	Proportion (%)	1st Stage Selection	Sampling Frame
48	LSDPC 36 Iponri Low Income Housing	P	1002						
49	LSDPC 37 Isolo Low Income Housing	P	3632						
50	LSDPC 38 Itire Low Income Housing	P	42						
51	LSDPC 39 Lawanson Low Income Housing	P	30						
52	LSDPC 40 Oko-Oba Low Income Housing	P	48						
53	LSDPC 41 Ojokoro Low Income Housing	P	534						
54	LSDPC 42 Surulere Low Income Housing	P	24						
55	LSDPC 43 T.O. Benson, Ikorodu Low Inc. Housing	P							
	3-Bedr Terrace Bungalows (58)								
	2-Bedr Terrace Bungalows (229)		287						
56	LSDPC 44 LSDPC Low Cost Housing Estate, Isolo	P							
	3-Bedr Semi-detached Bungalows (614)								
	3-Bedr Flats (54)		668						
57	LSDPC 45 (Low Income) Housing Estate, Ojokoro	P							
	3-Bedr Flats (90)								
	2-Bedr Flats (6)		96						
58	LSDPC 46 LSDPC Flats Games Village, Surulere:	P							
	3-Bedr Flats (12)		12						
59	LSDPC 47 Affordable Housing Estate, Odonla Ikorodu								
	3-Bedr Bungalows (40)								
	3-Bedr Flats (312), 2-Bedr Flats (216)								
	1-Bedr Expandable Bungalows (52)	P							

			LSDPC	LSMOH	FHA	Total	Proportion (%)	1st Stage Selection	Sampling Frame
	1-Bedr Flats (52)		672					672 (2nd)	
60	LSDPC 48 Oko-Oba IV Affordable Housing Estate: 2-Bedr Flats (180)	P	180						
61	LSDPC 49 Palm View Estate II, Oko-Oba (Oko-Oba II): 3-Bedr Terraces (34)	P	34						
62	LSDPC 50 Joseph Shyngle Terrace Houses, Surulere: 3-Bedr Terrace Houses (12)	P	12						
63	LSDPC 51 Amuwo Odofin Housing 3-Bedr Terrace Houses (38)	P	38						
64	LSDPC 52 Housing Estate, Agege 3-Bedr Flats (108) 2-Bedr Flats (54)	P	162						
65	LSDPC 53 Oko-Oba Estate III 3-Bedr Flats (144)	P	144					144	
66	LSDPC 54 LSDPC Low Income Estate, Isolo 3-Bedr Flats Sites (i) & (ii) – 42	P	42						
			18,097			18,097	39.73		
B4	**LSMOH**								
67	LSMOH 9 Abraham Adesanya Housing Scheme, Ajah, Eti-Osa LGA	P		1,057					
68	LSMOH 10 Millennium Housing Scheme, Ibeshe, Ikorodu LGA	P		160					

No	Scheme	Type	LSDPC	LSMOH	FHA	Total	Proportion (%)	1st Stage Selection	Sampling Frame
69	LSMOH 11 Millennium Housing Scheme, Ayangburen, Ikorodu LGA	P		163				163 (3rd)	
70	LSMOH 12 Millennium Housing Scheme, Oko-Oba Agege LGA	P		138					
71	LSMOH 13 Millennium Housing Scheme, Shasha, Alimosho LGA	P		204				204 (2nd)	204
72	LSMOH 14 Millennium Housing Scheme, Alaagba, Agege LGA	P		96					
73	LSMOH 15 Millennium Housing Scheme, Oke-Eletu, Ikorodu LGA	P		306					
74	LSMOH 16 Oba Adeboruwa Housing Estate, Igbogbo, Bayeku Ikorodu LGA	P		256					
75	LSMOH 17 Odoragunshin Housing Estate, Epe LGA	P		336				336 (1st)	
				2716		2716	2.60		
C4	FHA								
76	FHA 5 Abesan II Low Income Housing, Ijaiye, Ojokoro LGA	P			67			67	67
						67	0.15		
A5	LSDPC								
77	LSDPC 55 LSDPC Low Income Housing, Isolo (BlocksA-G)= 7Blocks x 3-Bedr Flats	PPP							
			42					42	42
78	LSDPC 56 LSDPC Low Income Housing, Iba (BlocksA-G)= 14Plots x 2Blocks x6No. 3-Bedr Flats	PPP	168					168 (2nd)	
			210			210			

		LSDPC	LSMOH	FHA	Total	Proportion (%)	1st Stage Selection	Sampling Frame
79	LSMOH 18 Millennium Housing Scheme, Ewu-Elepe, Ikorodu LGA	PPP	200				200	200
			200		200			
	Sub-Total (Low Income)				**21,290**			
	Grand Total				**26,207**			4,449

Sampling frame selected by stratified random sampling =15 Housing Estates by picking without replacement

Sources: FHA (2010d); LSDPC (n.d.a); and LSMOH (n.d.) – with updates up to 2013

Note: P= Public housing; PPP= Public Private Partnership housing

Appendix 4

Table 3.5: Selected housing estate distribution and sampling frame location

S/N	Division		LGA	Housing Estates Location	Sample Frame Location
		1	Agege	9	1
		2	Alimosho	2	2
		3	Ifako-Ijaiye	13	4
1	Ikeja	4	Ikeja	3	1
		5	Kosofe	5	1
		6	Mushin	1	-
		7	Oshodi-Isolo	4	1
		8	Shomolu	-	-
		9	Apapa	-	-
		10	Eti-Osa	6	2
2	Lagos	11	Lagos Island	2	-
		12	Lagos Mainland	3	-
		13	Surulere	10	-
		14	Ajeromi-Ifelodun	-	-
		15	Amuwo-Odofin	6	-
	Badagry	16	Ojo	3	2
		17	Badagry	1	-
	Ikorodu	18	Ikorodu	9	1
	Epe	19	Epe	2	-
		20	Ibeju-Lekki	-	-
				79	15

Source: Table 3.1 in Appendix 3

Appendix 5

Table 3.7: Selected Housing Estates/or Schemes and codes

	Estates/or Schemes	
SN		**CODE**
	HIGH	
A1	**LSDPC**	
1	LSDPC 3 Ogudu Phases I & II Duplexes (P)	OGD
B1	**LSMOH**	
2	LSMOH 4 Marimpex Estate, GRA Ikeja (P)	MAR
C1	**FHA**	
3	FHA 1 Satellite II High Income Housing (P)	SAT II
	MIDDLE	
A2	**LSDPC**	
4	LSDPC 15 Middle Income Estate IV, Ogba-Ijaiye: 4-Bedr Semi-detached Bungalows (12); 4-Bedr Flats (324) ……(P)	OGB
B2	**LSMOH**	
5	LSMOH 6 Ojokoro II Housing Scheme Block A & Blocks B-J, Ijaiye, Ojokoro LGA ……..(P)	OJK
6	LSMOH 7 Iloro Housing Estate (Blocks A-D) Middle Income Housing ……..(P)	ILR
C2	**FHA**	
7	FHA 2 AbesanI Middle Income Housing Scheme (P)	ABS I
A2.1	**LSDPC**	
8	LSDPC 20 Goshen Beach Estate (4-BedrDetached House(57); 5-Bedr Detached House-17,etc. (PPP)	GSB
B2.1	**LSMOH**	
9	LSMOH8 Cortex Scheme, Ikota, Eti-Osa LGA(PPP)	CTX
C2.1	**FHA**	
10	FHA 4 Diamond Estate, Isheri Olofin Middle Income Housing (PPP)	DMD
	LOW	
A3	**LSDPC**	
11	LSDPC 34 Iba Low Income Housing (P)	IBL
B3	**LSMOH**	
12	LSMOH 13 Millennium Housing Scheme, Shasha, Alimosho LGA (P)	SHX
C3	**FHA**	
13	FHA 5 Abesan II Low Income Housing, Ijaiye, Ojokoro LGA (P)	ABS II
A3.1	**LSDPC**	
14	LSDPC 55 LSDPC Low Income Housing, Isolo (BlocksA-G)= 7Blocks x 3-Bedr Flats (PPP)	ISL
B3.1	**LSMOH**	
15	LSMOH 18 Millennium Housing Scheme, Ewu-Elepe, Ikorodu LGA (PPP)	EWL

Source: Table 3.1 in Appendix 3

Note: Sample Sizes were actually obtained from above listed estates

Appendix 6:
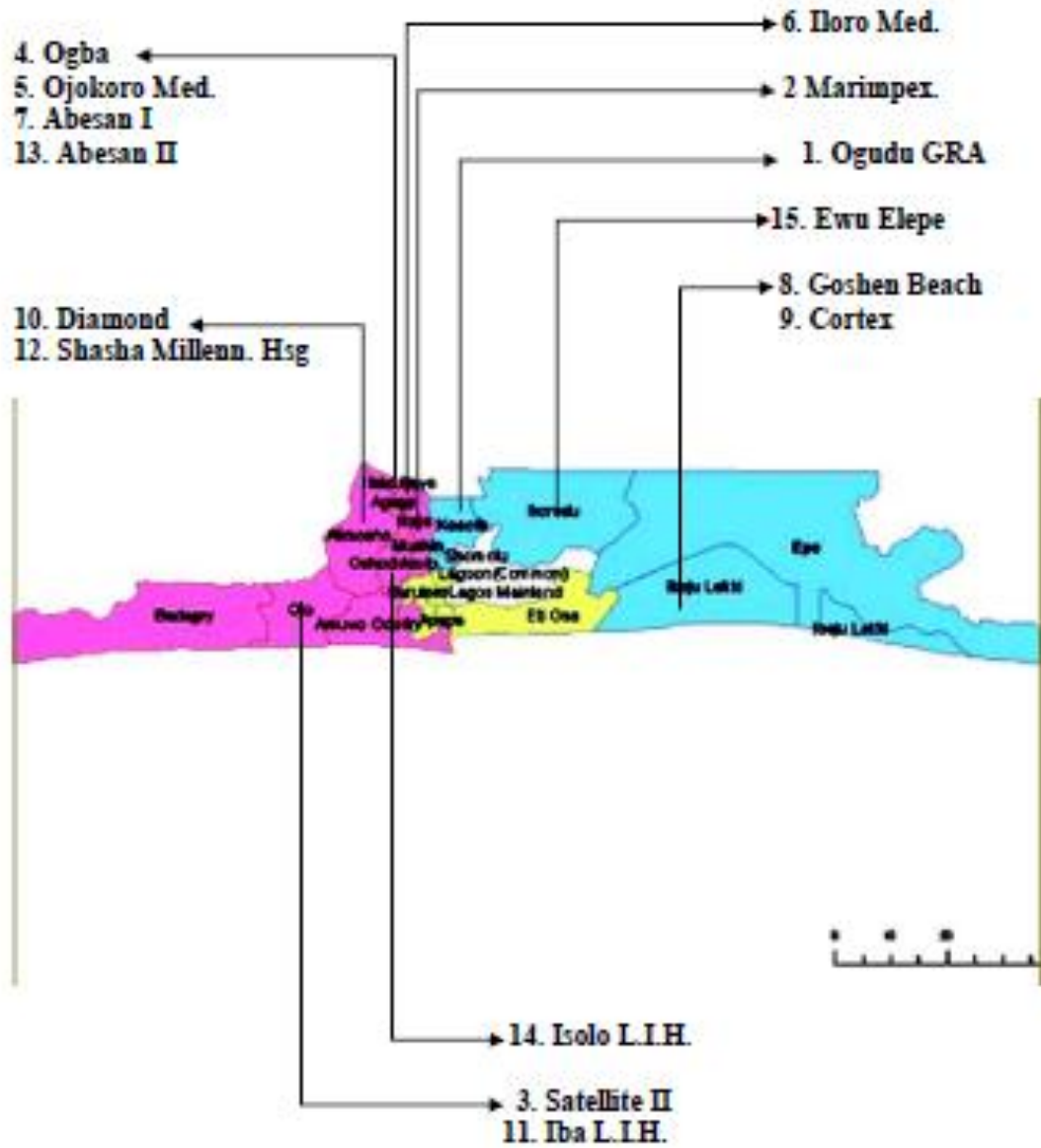
**Figure 3.1: Location of the Selected Housing in Local Government
Areas of Lagos State**
[Sources: Map-Nigerianmuse (2014); Location- Current work (2016)]

Appendix 7:

Figure 3.2: Map showing the 16 LGAs making up Metropolitan Lagos

Source: NWE (2012)

Appendix 8:

Table 3.9: Specification of housing quality variables

S/N	Variable Description	Categories	Code	Scale
1	State of Origin:	3	STORIG	Nominal
2	Ethnic group	4	ETHNIC	Nominal
3	Religion	5	RELIGR	Nominal
4	Sex	2	SEXRES	Nominal
5	Age of respondent	5	AGERES	Interval
6	Length of stay in the residence	5	LTRESD	Interval
7	Marital status	2	MARSTA	Nominal
8	Household size	3	HHSIZE	Interval
9	Adults proportion in the household	2	ADPROP	Interval
10	Highest Level of Education of respondent	4	EDUQLF	Nominal
11	Occupation/Economic Activity	5	OCUPRE	Nominal
12	Average monthly income	6	INCOMR	Interval
13	Tenure type of residence	5	TENTYP	Nominal
14	Age range of house	5	HSGAGE	Interval
15	Dwelling type	6	DWETYP	Nominal
16	Use of Facilities in the building	2	FACUSE	Nominal
17	Toilet Type	5	TOITYP	Nominal
18	Total number of bedroom(s) in apartment/residence or number of rooms occupied by family/ household	5	NBEDRM	Ratio
19	Room occupancy rate	3	RMOCUP	Interval
20	Availability of Home Based Enterprises (HBE):	2	AVLHBE	Ordinal
21	Satisfaction with the internal layout/arrangement of rooms in housing	5	SATILT	Ordinal

22	Satisfaction with the noise level around housing	5	SATNLV	Ordinal
23	Satisfaction with building materials used for housing	5	SATMAT	Ordinal
24	Satisfaction with frequency of garbage collection in the housing estate	5	SATGAB	Ordinal
25	Satisfaction with the security of lives and property in the estate	5	SATSEC	Ordinal
26	Satisfaction with proximity of recreational facilities to housing	5	SATREC	Ordinal
27	Satisfaction with proximity of housing location relative to entrance to the estate	5	SATHLC	Ordinal
28	Adequacy of sizes of bedrooms	3	ADSBDR	Ordinal
29	Adequacy of sizes of living/dining rooms	3	ADSLIV	Ordinal
30	Adequacy of sizes of bathrooms (with bath tub/or shower and w. c.)	3	ADSBTR	Ordinal
31	Adequacy of sizes of kitchen	3	ADSKIT	Ordinal
32	Adequacy of height of your living/dining rooms	3	ADHLIV	Ordinal
33	Adequacy of number of bedroom(s) in house	3	ADNBDR	Ordinal
34	Adequacy of number of bathrooms (with bath tub/or shower and w. c.)	3	ADNBTR	Ordinal
35	Location of bedrooms for sleeping without difficulty anytime of the day	3	BDRLOC	Ordinal
36	Layout/Arrangement of bedrooms	3	LAYBDR	Ordinal
37	Security of your housing (primary and secondary territories)	3	HSGSEC	Ordinal
38	Extent to which the provision in the house is likely meeting future needs	3	HSMTND	Ordinal
39	Extent to which the design meets your need for thermal comfort in housing	3	DSMCOM	Ordinal
40	Adequacy of circulation space in dwelling unit	3	ADCIRC	Ordinal

41	Preference for more bedroom(s) for family based on room occupancy rate	3	MBRPRE	Ordinal
42	Main Source of electricity power supply	3	ELECSO	Ordinal
43	Frequency of electricity power (Minimum)	5	FRQELC	Interval
44	Main Source of drinking water	5	WATSOS	Ordinal
45	Frequency of refuse collection from house or deposit point	5	FRQREF	Interval
46	Sewage treatment and disposal of human wastes	5	SWGTRT	Ordinal
47	Condition of stormwater drainages outside buildings	3	DRGCOD	Ordinal
48	Ease of accessibility to workplace/business/vocation	3	WKPACC	Ordinal
49	Ease of accessibility to market/shopping centre	3	MSCACC	Ordinal
50	Accessibility of housing by Vehicle owners/commuters	3	HSVACC	Ordinal
51	Accessibility of housing by the physically challenged	3	ACCDBL	Ordinal
52	Accessibility from the estate to schools	3	SCHACC	Ordinal
53	Accessibility to the neighbourhood	3	NBHACC	Ordinal
54	Accessibility from the estate to public transport/bus stops or car availability	3	PBTACC	Ordinal
55	How would you describe the location of your housing estate in the neighbourhood	3	ESTLOC	Ordinal
56	Ease of identifying housing units in estate	3	EHSGID	Ordinal
57	Proximity to workplace/business/vocation	5	WKPROX	Interval
58	Proximity to market/shopping centre	5	MSPROX	Interval
59	Spaciousness of layout of estate	3	SPALAY	Ordinal
60	Availability of space for gardening and planting of hedges within the housing estate	3	AVSPAG	Ordinal
61	Frequency of flooding during rainy season (Minimum)	6	FRQFLD	Interval
62	Quality of air within the housing estate	3	QLTAIR	Ordinal
63	Availability of good perimeter fencing for the entire housing	3	AVPFEN	Ordinal

estate

64	Quality of landscape design (well-trimmed hedges) in facilitating safe driving within the estate	3	QLANDS	Ordinal
65	Use of Open Spaces	2	EUOSPA	Nominal
66	Appearance of buildings in the estate	3	APPBLD	Ordinal
67	Cost of maintenance of housing per annum compared to income	3	HMTCST	Interval
68	Cost of housing or rent compared to income	3	HSCOST	Interval
69	Percentage of Monthly Income (MI) on Housing expenditure (including rent/or equivalent, electricity, water and gas, security)	3	HSGEXP	Interval
70	Obstruction to ventilation/free air circulation (such as blockade to open-able windows) in your housing	3	OBSVTL	Ordinal
71	Size of open-able windows	3	SZOPWN	Ordinal
72	Obstruction to natural lighting provision (such as blockade or shielding of windows from lighting)	3	OBSLIT	Ordinal
73	Condition of Flooring Materials	5	FLRCOD	Ordinal
74	Condition of Walling Materials	5	WALCOD	Ordinal
75	Condition of Roofing Materials	5	RUFCOD	Ordinal
76	State of repairs of your housing	5	HSSREP	Ordinal
77	Flooring materials	5	FLRMAT	Nominal
78	Walling materials	5	WALMAT	Nominal
79	Roofing materials	5	RUFMAT	Nominal
80	Doors	5	DORMAT	Nominal
81	Windows	5	WINMAT	Nominal
82	Overall quality of your dwelling unit/micro-environment	5	OQLDUE	Ordinal
83	Overall quality of your Neighbourhood/macro- environment	5	OQLNHE	Ordinal

Source: Authors current work (2016)

Appendix 9:

Questionnaire for Assessing Housing Quality in the Study Area by Residents (A)

Department of Architecture, S.E.S., C.S.T.

Covenant University, Canaan Land

Km10 Idiroko Road Ota, Ogun State, Nigeria

25th February, 2014

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┌─────────────────────────────────────────┐
│ Questionnaire: A/14/..........................│
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Dear Respondent,

**QUESTIONNAIRE ON HOUSING QUALITY IN SELECTED RESIDENTIAL ESTATES
IN LAGOS STATE NIGERIA**

I am a postgraduate student of the Department of Architecture, School of Environmental Sciences (S.E.S.) in the College of Science and Technology, Covenant University Ota, Ogun State, Nigeria. Kindly assist in completing as appropriate this academic research Questionnaire which is for acquiring information on "**Housing Quality in Selected Residential Estates in Lagos State Nigeria".** This study is part of the requirements to be fulfilled by me for the award of a degree of Doctor of Philosophy (Ph.D) in Architecture, by the School of Postgraduate Studies of the University. It is pertinent to note that all information supplied have nothing to do directly or presently with government policies and will be treated with utmost confidentiality. Thanking you for your invaluable contribution to the success of this research as part of national, international and global human capacity development.

Yours faithfully,

Arc Olatunde D. Babalola

**QUESTIONNAIRE FOR RESIDENTS ON HOUSING QUALITY IN PUBLIC AND PPP
RESIDENTIAL ESTATES IN LAGOS STATE NIGERIA**

General Information

Please fill or tick as appropriate

Section I:

A. Personal Information: Demographic and Socio-economic characteristics of respondents

1. State of Origin: (1) None/Alien [ ]   (2) Other states [ ]   (3) Lagos State [ ]

2. Ethnicity/Tribe: (1) Others [ ]   (2) Hausa/Fulani [ ]   (3) Igbo [ ]   (4) Yoruba [ ]

3. Religion: (1) None/Free-Thinker [ ] (2)Others [ ] (3)Traditional [ ] (4)Islam [ ] (5)Christianity [ ]

4. Sex: (1) Female [ ]   (2) Male [ ]

5. Age of respondent (as at your last birthday):

   (1) 18-30yrs [ ]   (2) 31-40yrs [ ]   (3) 41-50yrs [ ]   (4) 51-60yrs [ ]   (5) Above 60yrs [ ]

6. Length of residency in your house (as at 1st January, 2014):

(1) 3yrs and Below [ ]   (2) 4-6yrs [ ]   (3) 7-9yrs [ ]   (4) 10-12yrs [ ]   (5) 13yrs and Above [ ]

7. Marital status:

   (1) Unmarried (Single & Divorced) [ ]   (2) Married (Separated, Widowed or with Spouse) [ ]

8. Household size (Persons): (1) 1-4 Person(s) [ ]   (2) 5-8 Persons [ ]   (3) 9 Persons & Above [ ]

9. Household composition/Age ranges (Please only fill the Table where applicable but leave calculation of adults proportion and proceed to Question 10):

Age (Yrs)	1- 2	3- 5	6-9	10-17	18-30	31-40	41-50	51-60	Above 60
Female(s)									
Male(s)									
Total									

Adults proportion in your household: (1) Up to 40% [ ]   (2) 41% and Above [ ]

10. Highest Level of Education of Household-head/respondent:

   (1) No formal education [ ]   (2) Primary [ ]   (3) Secondary [ ]   (4) Tertiary [ ]

11. Occupation/Economic Activity (Nature of Employment): (1) Unemployed [ ]   (2) Self Employed [ ]

    (3) Retired [ ]   (4) Private sector employee [ ]   (5) Public sector employee [ ]

12. Average monthly income: (1) Below N18,000 [ ] (2) N18,000-N38,000 [ ]   (3) N38,001- 44,000 [ ]

    (4) N44,001- 71,000 [ ]   (5) N71,001- 145,000 [ ]   (6) N145,001 and above [ ]

13. What exactly is the tenure type of your residence?   (1) Free Occupation [ ]   (2) Renter [ ]
    (3) Official Quarters [ ]   (4) Family House [ ]   (5) Owner Occupier[ ]

SECTION II:

B. Residential Attributes

B1. Residential Attribute: Physical characteristics of housing in the selected residential estates

14. What is the age range of your house (as at 1st January, 2014)?

    (1) Unknown [ ]   (2) Below 11yrs [ ]   (3) 11-20yrs [ ]   (4) 21-30yrs [ ]   (5) Above 30yrs [ ]

15. Dwelling type: (1) Single Room Occupancy [ ]   (2) Two Room Occupancy/Room and Parlour [ ]

    (3) Semi-Detached (Multi-Flats-Block of 3 or more Flats) [ ]

    (4)Semi-Detached (Duplex, Maisonette)[ ] (5)Detached (Bungalows)[ ] (6)Detached (Maisonette)[ ]

   [Duplex house-a dwelling having apartments (with or without separate entrances) for two households; two separate residences, attached side-by-side with a party wall separating them or stacked apartments on two different floors. Maisonette- is flat or apartment (for one person or family) that occupies two or more floors of a larger building, and so typically has internal stair(s)].

16. Use of Facilities in the building: (1) Shared [ ]   (2) Self-contained [ ]
17. Toilet Type: (1) None/Bush [ ]   (2) Bucket/pail [ ]   (3) Pit/V.I.P. Latrine[ ]

    (4) Shared Squat/W.C. system [ ]   (5) Private Squat/W.C. system [ ]

18. Total number of bedroom(s) in your apartment/residence or number of rooms occupied by your

family/ household: (1)1No. [ ]   (2) 2No.[ ]   (3) 3No.[ ]   (4) 4 No.[ ]   (5) 5No. and Above [ ]

19. Number of persons(P) in the house ___   Number of (Bedroom(s) (B)___ + 1Living room (L) =N ___

(Where Living room is present). Please, fill in the gaps and proceed to next question .

Room occupancy rate: P/N = _____

(1) Above 2.00 [ ]   (2) 1.01- 2.00 [ ]   (3) Not higher than 1.00 [ ]

B2. Home Based Enterprises:

20. Availability of Home Based Enterprises (HBE): (1) Unavailable [ ]   (2) Available [ ]

SECTION III:

C. Housing Quality Indicators Assessment

C_1	Housing Adequacy and Satisfaction
21	How satisfied are you with the internal layout/arrangement of rooms in your housing? (1) Very Dissatisfied[ ] (2) Dissatisfied[ ] (3) Average[ ] (4) Satisfied[ ] (5) Very Satisfied[ ]
22	How satisfied are you with the noise level around your housing? (1) Very Dissatisfied [ ] (2) Dissatisfied [ ] (3) Average [ ] (4) Satisfied [ ] (5) Very Satisfied [ ]
23	How satisfied are you with the building materials used for your housing? (1) Very Dissatisfied[ ] (2) Dissatisfied [ ] (3) Average [ ] (4) Satisfied [ ] (5) Very Satisfied [ ]
24	How satisfied are you with frequency of garbage collection in the housing estate? (1) Very Dissatisfied[ ] (2)Dissatisfied[ ] (3)Average[ ] (4) Satisfied [ ] (5)Very Satisfied [ ]
25	How satisfied are you with the security of lives and property in the estate? (1) Very Dissatisfied[ ] (2) Dissatisfied[ ] (3) Average[ ] (4) Satisfied[ ] (5) Very Satisfied[ ]
26	How satisfied are you with proximity of recreational facilities to your housing: (1) Very Dissatisfied[ ] (2) Dissatisfied[ ] (3) Average[ ] (4) Satisfied[ ] (5) Very Satisfied[ ]
27	How satisfied are you with proximity of your housing location relative to entrance to the estate: (1) Very Dissatisfied[ ] (2) Dissatisfied[ ] (3) Average[ ] (4) Satisfied[ ] (5) Very Satisfied[ ]
28	Adequacy of sizes of bedrooms: (1) Inadequate[ ] (2) Not Sure[ ] (3)Adequate[ ]
29	Adequacy of sizes of living/dining rooms: (1) Inadequate[ ] (2) Not Sure[ ] (3)Adequate[ ]
30	Adequacy of sizes of bathrooms (with bath tub/or shower and w. c.): (1) Inadequate [ ] (2) Not Sure [ ] (3)Adequate [ ]
31	Adequacy of sizes of kitchen: (1) Inadequate [ ] (2) Not Sure [ ] (3) Adequate [ ]
32	Adequacy of height of your living/dining rooms: (1)Inadequate [ ] (2) Not Sure[ ] (3)Adequate [ ]
33	Adequacy of number of bedroom(s) in your house: (1)Inadequate[ ] (2) Not Sure[ ] (3)Adequate[ ]

34	Adequacy of Number of bathrooms (with bath tub/or shower and w. c.): (1) Inadequate [ ]　　　　(2) Not Sure [ ]　　　　(3) Adequate [ ]
35	Location of bedrooms for sleeping without difficulty anytime of the day: (1)Poor [ ]　　　　(2) Not Sure [ ]　　　　(3) Good [ ]
36	Layout/Arrangement of bedrooms:　(1) Poor [ ]　　(2) Not Sure [ ]　　(3) Good [ ]
37	Security of your housing (primary and secondary territories): (1) Poorly Protected[ ]　　　　(2) Not Sure [ ]　　　　(3) Well Protected [ ]
38	Extent to which the provision in the house is likely meeting your future needs in the next 20 or more years: (1) Inadequate [ ]　　　　(2) Not Sure [ ]　　　　(3) Adequate [ ]
39	To what extent does the design meets your need for thermal comfort in housing? (1) Inadequate [ ]　　　　(2) Not Sure [ ]　　　　(3) Adequate [ ]
40	Adequacy of circulation space in your dwelling unit: (1) Inadequate [ ]　　　　(2) Not Sure [ ]　　　　(3) Adequate [ ]
41	Based on room occupancy rate or otherwise how would you describe your preference for more bedroom(s) for your family?　(1) Strongly preferred [ ]　(2) Not Sure [ ]　(3) Not preferred at all[ ]
C$_2$	**Housing Services**
42	Sources of electricity power supply: (1) Candle/Kerosene/paraffin[ ]　　　(2) Private Generating plant [ ]　　　(3) Public Supply [ ]
43	Frequency of electricity power (Minimum):(1) Once every 13 or more days[ ] (2)Once every 10-12 days [ ]　　　　　　(3) Once every 7-9 days [ ] (4) Once every 4-6 days [ ]　　　　　　(5) Once every 3days [ ]
44	Sources of drinking water supply: (1) River, Lake or Pond [ ]　　　　(2) Unprotected well [ ] (3) Vendor/ truck [ ]　(4) Borehole/Protected well[ ]　(5) Public outdoor tap/pipe into dwelling [ ]
45	Frequency of refuse collection from your house or deposit point: (1) None [ ]　　　(2) Once every 16 or more days[ ]　　　(3) Once every 11-15 days[ ] (4) Once every 6-10 days[ ]　　　　　　(5) Once every 5days [ ]
46	Sewage treatment and disposal of human wastes: (1) Bush [ ]　(2) Bucket/pail [ ]　　　(3) Private on-plot plant/Septic Tank/Soak Away Pit [ ] (4) Shared plant for 2 or more Dwelling Units [ ]　　　　　　(5) Public/Central [ ]
47	Condition of storm water drainages outside buildings: (1) Poor [ ]　(2) Not Sure [ ]　(3) Good [ ]
C$_3$	**Housing Accessibility and Proximity**
48	Ease of accessibility to workplace/business/vocation: (1) Difficult [ ]　(2) Not Sure [ ]　(3) Easy [ ]
49	Ease of accessibility to market/shopping centre: (1) Difficult [ ]　(2) Not Sure [ ]　(3) Easy [ ]
50	How accessible is your housing by Vehicle owners/commuters? (1)Difficult[ ]　　　(2) Not Sure [ ]　　　(3) Easily Accessible [ ]
51	How accessible is your housing by the physically challenged? (1) Difficult [ ]　　　(2) Not Sure [ ]　　　(3) Easily Accessible [ ]
52	Accessibility from the estate to schools: (1) Difficult [ ]　　　(2) Not Sure [ ]　　　(3) Easy [ ]
53	Accessibility to the neighbourhood: (1) Difficult [ ]　　　(2) Not Sure [ ]　　　(3) Easy [ ]

54	Accessibility from the estate to public transport/bus stops or car availability: (1) Difficult [ ] (2) Not Sure [ ] (3) Easy [ ]
55	How would you describe the location of your housing estate in the neighbourhood? (1) Poor [ ] (2) Not Sure [ ] (3) Good [ ]
56	Ease of identifying housing units in estate: (1)Difficult[ ] (2) Not Sure [ ] (3)Easy [ ]
57	Proximity to workplace/ business/ vocation: (1) Over 20Km [ ] (2) 16-20Km [ ] (3) 11-15Km [ ] (4) 6- 10Km [ ] (5) Within 5Km [ ]
58	Proximity to market/shopping centre: (1) Over4.0Km [ ] (2) 3.1-4.0Km [ ] (3) 2.1-3.0Km [ ] (4) 1.1- 2.0Km [ ] (5) Within 1Km [ ]
C_4	**Estate Conditions**
59	Spaciousness of layout of estate: (1) Compact[ ] (2) Not Sure [ ] (3) Spacious[ ]
60	Availability of of space for gardening and planting of hedges within the housing estate: (1) Unavailable [ ] (2) Not Sure [ ] (3) Available [ ]
61	Frequency of flooding during rainy season (Minimum): (1) Once every week [ ] (2) Once every 2weeks [ ] (3) Once every 3weeks [ ] (4) Once every 4weeks [ ] (5) Once over 4weeks [ ] (6) None [ ]
62	Quality of air within the housing estate: (1) Unclean [ ] (2) Not Sure [ ] (3) Clean [ ]
63	Availability of good perimeter fencing for the entire housing estate: (1) Unavailable [ ] (2) Not Sure [ ] (3) Available [ ]
64	Quality of landscape design (well-trimmed hedges) in facilitating safe driving within the estate: (1) Low [ ] (2) Not Sure [ ] (3) High [ ]
65	Use of Open Spaces: (1) Cooking/Washing, Congregating/Ceremony, Gardening &Vehicular Parking [ ] (2) Children Playground, Praying ground, Sports ground & Relaxation Area [ ]
66	Appearance of buildings in the estate: (1) Ugly[ ] (2) Not Sure [ ] (3) Beautiful [ ]
	Housing Affordability
67	Cost of maintenance of your housing by you per month compared to your income: (1) 21% and Above [ ] (2) 11-20% [ ] (3) Up to 10% [ ]
68	Cost of housing or rent compared to your income: (1) 21% and Above [ ] (2) 11-20% [ ] (3) Up to 10% [ ]
69	What percentage of your Monthly Income (MI) is your monthly Housing expenditure (including rent/or equivalent, electricity, water and gas, security, etc.) (HE)? (HE/ MI) x 100% = _____ (1) 61% and Above [ ] (2) 31-60% [ ] (3) 21-30% [ ] (4) 11-20% [ ] (5) Up to 10% [ ]
	Indoor Ambient Conditions
70	Obstruction to ventilation/free air circulation (such as blockade to open-able windows) in your housing: (1) High [ ] (2) Not Sure [ ] (3) Low [ ]
71	Size of open-able windows: (1) Small [ ] (2) Not Sure [ ] (3) Large [ ]
72	Obstruction to natural lighting provision, such as blockade or shielding of windows from lighting: (1) High [ ] (2) Not Sure [ ] (3) Low [ ]
	Dwelling Units State of Repairs

73	Floor Conditions: (1)Very Serious Defects/deflection with cracks/peeling of Over 20% floor finishes, etc. [ ] (2) Serious Defects/deflection with cracks/peeling of 16-20% floor finishes, etc.[ ] (3) Moderately Serious Defects/deflection with cracks/peeling of 11-15% floor finishes, etc. [ ] (4) Mild Defects with cracks/peeling of 6-10% floor finishes, etc. [ ] (5)Very Mild Defects with cracks/peeling of not exceeding 5% floor finishes, etc.[ ]
74	Wall Conditions: (1) Very Serious Defects/with cracks/peeling of Over 20% wall finishes, etc. [ ] (2) Serious Defects/with cracks/peeling of 16-20% wall finishes, etc. [ ] (3) Moderately Serious Defects/with cracks/ peeling of 11-15% wall finishes, etc. [ ] (4) Mild Defects with cracks/peeling of 6-10% wall finishes, [ ] (5)Very Mild Defects with cracks/peeling of not exceeding 5% floor finishes or no defect at all [ ]
75	Roof Conditions: (1)Very Serious Defects/deflection with leakages and removal/peeling of Over 20% roof finishes, etc.[ ] (2) Serious Defects/deflection with leakages and removal/peeling of 16-20% roof finishes, etc.[ ] (3) Moderately Serious Defects/ deflection with leakages and removal/peeling of 11-15% roof finishes, etc.[ ] (4) Mild Defects with leakages and removal/peeling of 6-10% roof finishes, etc.[ ] (5) Very Mild Defects with leakages and removal/peeling of not exceeding 5% roof finishes, etc.[ ]
76	State of repairs of your housing by observing/or estimating defects as follows: (i) Dilapidated ( ) (ii) Requiring major repairs ( ) (iii) Requiring minor repairs/Fair ( ) (iv) Quite sound ( ) (v) Very sound ( )
C₆	**Housing Construction Materials:**
77	Flooring materials - (1) Mud/earth [ ] (2) Concrete/Cement/sand screed [ ] (3) Concrete/ Cement/ sand screed/PVC tiles [ ] (4) Concrete/Cement/sand screed/Ceramic tiles[ ] (5) Concrete/Cement/ sand screed/Terrazzo/granolithic, stone tiles, etc.[ ]
78	Walling materials: - (1) Mats/Thatch/Sticks[ ] (2) Mud only [ ] (3) Mud/Clay bricks [ ] (4) Cement/sandcrete blocks, Manufactured bricks [ ] (5) Concrete blocks [ ]
79	Roofing materials: - (1) Thatch/Grass[ ] (2) Corrugated Cement Asbestos [ ] (3) Concrete Deck [ ] (4) Corrugated galvanized iron sheets [ ] (5) Corrugated aluminium sheets, metals, Roofing tiles, etc. [ ]
80	Doors: (1) None/Thatch/Grass [ ] (2) Wooden [ ] (3)Steel Casement [ ] (4) Glazed Steel Casement[bb] (5) Glazed Aluminium Hinged/Swing/Sliding etc.[ ]
81	Windows: (1) None/Thatch/Grass[ ] (2) Wooden [ ] (3) Steel Casement [ ] (4) Glazed Steel Casement/ Louvre/Fixed light [ ] (5) Glazed Aluminium Casement/Sliding/Fixed light, etc.[ ]

SECTION IV:

Overall Assessment

D	Overall Quality of Housing Environment Assessment
82	Please, rate the overall quality of your dwelling unit/micro-environment: (1) Very Poor [ ] (2) Poor [ ] (3) Average [ ] (4) Good[ ] (5) Very Good [ ]
83	Please, rate the overall quality of your Neighbourhood/macro- environment: (1) Very Poor [ ] (2) Poor [ ] (3) Average [ ] (4) Good [ ] (5) Very Good [ ]

Note: 'Not Sure' means more of **'intermediate option such as average'** between **two opposite extremes**, than uncertainty.

Finally, I want to thank you for your patience in completing this Questionnaire, which is vital to success of the study. You are highly esteemed and God Bless You!

Appendix 10:

Table 3.12: Classified housing quality variables

SN 1	SN 2	Independent Variables	Scale
A	A	**Housing Adequacy and Satisfaction**	
1	1	Satisfaction with internal layout of rooms	5
2	2	Satisfaction with the noise level around housing	5
3	3	Satisfaction with house building materials	5
4	4	Satisfaction with frequency of garbage collection in the estate	5
5	5	Satisfaction with security of lives and property in the estate	5
6	6	Satisfaction with proximity of recreational facilities to housing	5
7	7	Satisfaction with proximity of housing location relative to estate entrance	5
8	8	Adequacy of size of bedroom(s)	3
9	9	Adequacy of size of living/dining room(s)	3
10	10	Adequacy of sizes of bathrooms	3

11	11	Adequacy of size of kitchen	3
12	12	Adequacy of height living/dining room(s)	3
13	13	Adequacy of number of bedroom(s)	3
14	14	Adequacy of number of bathroom(s)	3
15	15	Location of bedroom(s)	3
16	16	Layout/Arrangement of Bedrooms	3
17	17	House security	3
18	18	Housing provision meeting family future needs	3
19	19	Design of house meeting thermal comfort needs	3
20	20	Adequacy of circulation space in the dwelling unit	3
B	**B**	**Housing Services**	
21	1	Sources of electricity supply	3
22	2	Sources of water supply	5
23	3	Frequency of refuse collection	5
24	4	Sewage treatment/disposal	5
25	5	Condition of storm water drainages outside building(s)	3
C	**C**	**Housing Accessibility and Proximity**	
26	1	Accessibility to Workplace	3
27	2	Accessibility to Market/Shopping Centre	3
28	3	Accessibility of housing by vehicle owners/commuters	3
29	4	Accessibility of housing by the physically challenged	3
30	5	Accessibility from estate to school(s)	3
31	6	Accessibility to Neighbourhood	3
32	7	Accessibility from estate to public transport/bus stops or car availability	3

33	8	Housing estate location	3
34	9	Ease of identifying housing units in estate	3
35	10	Proximity to workplace	5
36	11	Proximity to market/shopping centre	5
D	**D**	**Estate Conditions**	
37	1	Spaciousness of layout of estate	3
38	2	Availability of adequate space for gardening and planting of hedges within estate	3
39	3	Frequency of Flooding	6
40	4	Quality of Air within the housing estate	3
41	5	Availability of good perimeter fencing for estate	3
42	6	Quality of landscape design for safe driving in the estate	3
43	7	Use of open spaces in the estate	2
44	8	Appearance of buildings in the estate	3
E	**E**	**Housing Affordability**	
45	1	Cost of Maintenance	3
46	2	Cost of Housing or Rent	3
47	3	Proportion of income on housing	3
F	**F**	**Indoor Ambient Conditions**	
48	1	Obstruction to Ventilation	3
49	2	Size of Operable Windows	3
50	3	Obstruction to natural Lighting	3
G	**G**	**Dwelling Units State of Repairs**	
51	1	Condition of Flooring Materials	5
52	2	Condition of Walling Materials	5

53	3	Condition of Roofing Materials	5
H	**H**	**Dwelling Units (DU) Attributes**	
54	1	Age of the house	5
55	2	Dwelling Type	6
56	3	Use of facilities in the building	2
57	4	Toilet Type	5
58	5	Number of Bedroom(s)	5
59	6	Room occupancy rate	3
I	I	Home Based Enterprises (HBE)	
60	1	Home Based Enterprises (HBE)	2
J	**J**	**Residents' Personal Characteristics**	
61	1	State of Origin	3
62	2	Ethnicity/Tribe	2
63	3	Religion	5
64	4	Sex	2
65	5	Age of Resident respondent	5
66	6	Length of stay in the Residence	5
67	7	Marital Status	2
68	8	Household Size	3
69	9	Adults in household	2
70	10	Highest Educational Qualification	4
71	11	Occupation/Economic Activity	5
72	12	Average Monthly Income	6
73	13	Tenure type of your residence	5
K	**K**	**Overall assessment of Dwelling Unit/Micro-environment &**	

Neighbourhood/macro-environment

74	1	Overall quality of dwelling unit/micro-environment	5
75	2	Overall quality of Neighbourhood/macro-environment	5
		Others	
A	A	Housing Satisfaction	
76	21	*Preference for more bedroom(s)*	3
B	**B**	**Housing Services**	
77	6	*Frequency of Electricity*	5
G	**G**	**Dwelling Units State of Repairs**	
78	4	*Housing state of repairs*	5
L	**L**	**Housing Construction Materials:**	
79	1	*Flooring materials*	5
80	2	*Walling materials*	5
81	3	*Roofing materials*	5
82	4	*Doors*	5
83	5	*Windows*	5

Appendix 11:

Table 4.3.29: Housing quality across the fifteen sampled estates
(Kruskal-Wallis Test)

	N	Mean	Std. Deviation	Minimum	Maximum
Overall housing quality(resids)	379	3.7434	.66282	1.50	5.00
Housing Estate	379	9.8524	3.10259	1.00	15.00

Kruskal-Wallis Test

Ranks

	Housing Estate	N	Mean Rank	Position based on mean rank	Position based on median rank
Overall	OGDHS	25	443.00	1st	1st
housing	MARHS	8	207.44	8th	10th
quality	SATHS	3	421.67	3rd	3rd
(resids)	OGBHS	49	264.69	6th	6th
	OJKHS	1	359.50	4th	4th
	ILRHS	1	198.50	9th	8th
	ABSH1	7	158.36	11th	11th
	GSBHS	5	430.10	2nd	2nd
	CTXHS	3	359.50	4th	4th
	DMDHS	14	252.89	7th	7th
	IBAHS	190	305.38	5th	5th
	SHAHS	56	154.36	12th	12th
	ABSH2	4	183.50	10th	9th
	ISLHS	7	154.14	13th	13th
	EWLHS	6	68.00	14th	14th
	Total	379			

	Overall housing quality(resids)
Test Statistics[a,b]	
Chi-Square	105.222
Df	14
Asymp. Sig.	.000
a. Kruskal Wallis Test	
b. Grouping Variable: Housing Estate	

Appendix 12:

Table 4.3.30: Housing quality across the fifteen sampled estates

(Median Test)

Overall housing quality(resids)

Housing Estate	N	Median
OGDHS	25	4.5000
MARHS	8	3.0000
SATHS	3	4.0000
OGBHS	49	4.0000
OJKHS	1	4.0000
ILRHS	1	3.5000
ABSH1	7	3.0000
GSBHS	5	4.5000
CTXHS	3	4.0000
DMDHS	14	3.5000
IBAHS	190	4.0000
SHAHS	56	3.0000

ABSH2	4	3.2500
ISLHS	7	3.0000
EWLHS	6	2.7500
Total	379	4.0000

Appendix 13: Findings

**Demographic and Socio-Economic Characteristics of the Residents, Residents'
Perception of the Environment of the Estates, and Characteristics of
Housing Units in the Estates**

Demographic and Socio-Economic Characteristics of the Residents

Variables	N=379	%
Sex		
Male	254	67.0
Female	125	33.0
Marital Status		
Married	258	68.0
Not Married	121	32.0
Age Grouping (Years)		
18-30yrs	114	30.1
31-40yrs	145	38.2
41-50yrs	73	19.3
51-60yrs	31	8.2
Above 60yrs	16	4.2
State of Origin		
Lagos State	212	56.0
From other States in Nigeria	165	43%
Non-Nigerians	2	1
Ethnic Origin		
Yoruba	233	61
Ibo	102	27
Hausa/Fulani	19	5.0
Others	25	7.0
Religious Affiliations		
Christianity	253	66
Islam	101	27
African Traditional Religion	16	4
Free-Thinkers	6	2

Others	3	1
Highest Level of Educational Attainment		
No Formal Education	7	2
Primary Education	13	3
Secondary Education	167	44
Tertiary Education	192	51.0
Occupation		
Unemployed	44	11.6
Self Employed	135	35.6
Retired	9	2.4
Private Sector Employee	47	12.4
Public Sector Employee	144	38.0
Average Monthly Income in Naira		
Below N18,000	117	30.9
N18,000 - N38,000	101	26.6
N38,001 - N44,000	27	7.1
N44,001 - N71,000	26	6.9
N71,001 - N145,000	63	16.6
N145,001 & Above	45	11.9
Length of Stay in the Residence (in years)		
Below 4	52	14
4-6	239	63.0
7-9	48	13
10-12	20	5
13+	20	5
Household Size (Persons)		
1-4	288	76.0
5-8	85	22.4
9 +	6	1.6
Tenure Type		
Free Occupation	17	4.6
Renter	232	62.0
Official Quarters	14	3.7
Family House	9	2.4
Owner Occupier	102	27.3

Residents' Perception of the Environment of the Estates

	N	%
Availability of Space for Gardening and Hedging in the Estates		
Unavailable	15	4.0
Not Sure	47	12.7
Available	310	83.3
Quality of Landscape Design in the Estates		
Low	12	3.2
Not Sure	302	79.7
High	65	17.1
Quality of perimeter fencing in the estates		
Low	15	4.0
Not Sure	68	17.9
High	296	78.1
General Aesthetic Appearance of the Estates		
Ugly	25	6.6

	N	%
Not Sure	299	79.1
Beautiful	54	14.3
Ease of Identification of Houses in the Estates		
Very Difficult	23	6.1
Not Sure	38	10.1
Very Easy	23	83.8

Availability of Housing Services in the Estates

	N	%
Housing Services		
Main Source of Power Supply		
Candle/Kerosene/Paraffin	23	6.1
Private Generating Plant	210	55.6
Public Supply	145	38.3
Main Source of Domestic Water		
River, Lake or Pond	12	3.2
Unprotected well	15	4.0
Vendor/Truck	200	53.1
Borehole/ Protected well	127	33.8
Public outdoor tap/ Pipe into dwelling	22	5.9
Frequency of Refuse Collection from the House or Deposit Point		
None	9	2.4
Once every 16 or more days	215	56.7
Once every 11-15days	26	6.9
Once every 6-10days	47	12.4
Once every 5days	82	21.6

Accessibility to Neighbourhood Facilities

	N	%
Ease of accessibility to Workplaces		
Difficult	45	12
Not Sure	45	12
Easy	289	76
Ease of Access to Markets/Shopping Centres		
Difficult	33	9
Not Sure	35	9
Easy	309	82.0

Characteristics of Housing Units in the Estates

	N	%
Dwelling Type		
Single Room Occupancy	13	3.4
Two Room Occupancy/ Room and Parlour	10	2.6
Semi-Detached (Multi-Flats-Block of 3 or more Flats)	307	81.1
Semi-Detached (Duplex, Maisonette)	21	5.5
Detached (Bungalows)	19	5.0
Detached (Maisonette)	9	2.4
Age of the Buildings in Years		
Unknown	18	4.8
Below 11	77	20.3
11-20	31	8.2

21-30	55	14.5
Above 30	198	52.2
Number of Bedroom(s) in the Residences		
One	1	0.3
Two	58	15.4
Three	235	62.3
Four	60	15.9
Five & Above	23	6.1
Types of Toilet in the Dwelling Units		
No Toilet facilities	1	0.3
Bucket/Pail	7	1.9
Pit/V.I.P. Latrine	8	2.1
Shared Squat/W.C. system	27	7.1
Private Squat/W.C. system	335	88.6
Use of facilities in the Residences		
Shared Kitchen and/or toilet facilities	19	5.0
Exclusive use of Kitchen and/or toilet facilities	360	95.0
Room occupancy Rate		
More than 2 persons per room	3	1
2 persons per room	100	26
1 person per room	276	73
Floor finishes		
Mud/ Earth	7	1.9
Concrete/ Cement/ Sand Screed	213	56.4
PVC Tiles	47	12.5
Ceramic Tiles	53	14.1
Terrazzo/ Granolithic, Stone Tiles, etc.	57	15.1
Walling Materials		
Mats/Thatch/Sticks	3	0.8
Mud	11	2.9
Clay Bricks	1	0.3
Cement/ Sandcrete Blocks, Manufactured Bricks	109	29.0
Concrete Blocks	252	67.0
Roofing Materials		
Thatch/Grass	2	0.5
Corrugated Cement Asbestos	216	57.5
Concrete Deck	5	1.3
Corrugated Galvanized Iron Sheets	26	6.9
Corrugated Aluminium Sheets, Metals, Roofing Tiles,	127	33.8
Door Types		
None/Thatch/Grass	2	0.5
Paneled Timber Wooden	293	78.3
Steel Casement	22	5.9
Glazed Steel Casement	10	2.7
Glazed Aluminium hinged/ Swing/ sliding,	47	12.6
Window Types		
None/Thatch/Grass	7	2
Wooden	69	18
Steel Casement	8	2
Glazed Steel Casement/ Louvre/ Fixed Light	180	48
Glazed Aluminium Casement/ Sliding/ Projected	115	30

State of Repairs of Housing Units

Conditions floor finishes	N	%
Very Serious Defects/ Deflection with Cracks/ Peeling of Over 20% Floor	47	12.4

Finishes

Serious Defects/ Deflection with Cracks/ Peeling of 16-20% Floor Finishes,	144	38.0
Moderately Serious Defects/ Deflection with Cracks/ Peeling of 11-15% Floor Finishes,	56	14.8
Mild Defects with Cracks/ Peeling of 6-10% Floor Finishes,	49	12.9
Very Mild Defects with Cracks/ Peeling of Not Exceeding 5% Floor Finishes,	83	21.9
Condition of Walls		
Very Serious Defects/With Cracks/ Peeling of Over 20% Wall Finishes,	33	8.7
Serious Defects/With Cracks/ Peeling of 16-20% Wall Finishes	136	35.9
Moderately Serious Defects/with Cracks/ Peeling of 11-15% Wall Finishes,	54	14.3
Mild Defects with Cracks/Peeling of 6-10% Wall Finishes	79	20.8
Very Mild Defects with Cracks/ Peeling of Not Exceeding 5% Wall Finishes,	77	20.3
Condition of Roof coverings		
Very Serious Defects/ Deflection with Leakages and Removal/ Peeling of Over 20% Roof Finishes	27	7.1
Serious Defects/Deflection with Leakages and Removal/ Peeling of 16-20% Roof Finishes	130	34.3
Moderately Serious Defects/Deflection with Leakages & Removal/ Peeling of 11-15% Roof Finishes	41	10.8
Mild Defects with Leakages & Removal/ Peeling of 6-10% Roof Finishes	81	21.4
Very Mild Defects with Leakages & Removal/ Peeling of Not Exceeding 5% Roof Finishes	100	26.4

APPENDICES 14 to 37: Estates documentation

Appendix14: Ogudu GRA Duplexes (OGD) - Location Plan
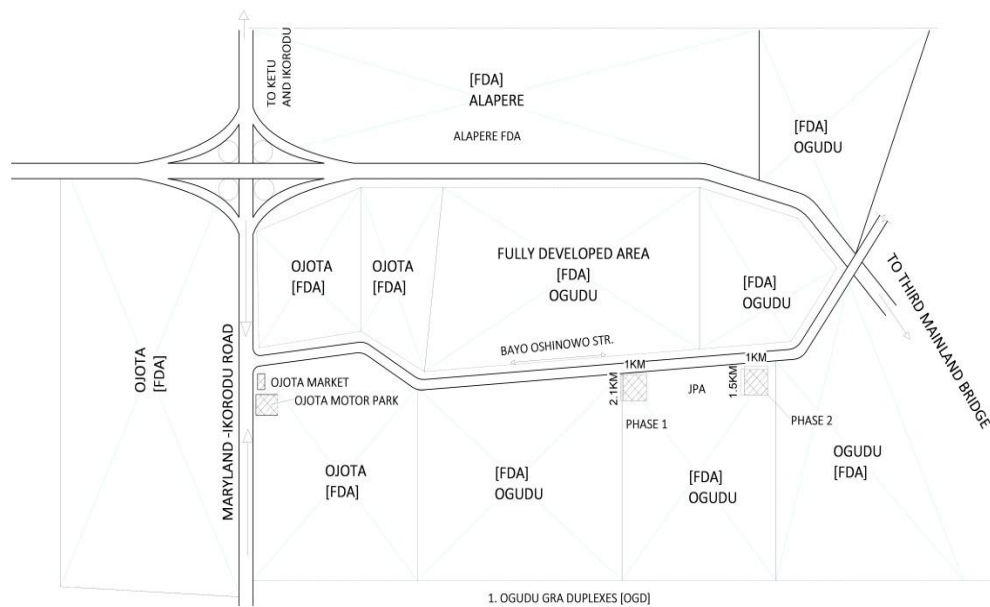
Figure 4.1: Location Plan, Ogudu GRA Duplexes (OGD)

Source: Author's Fieldwork (2014)

Appendix15: Marimpex Imperial Housing Estate - Location Plan
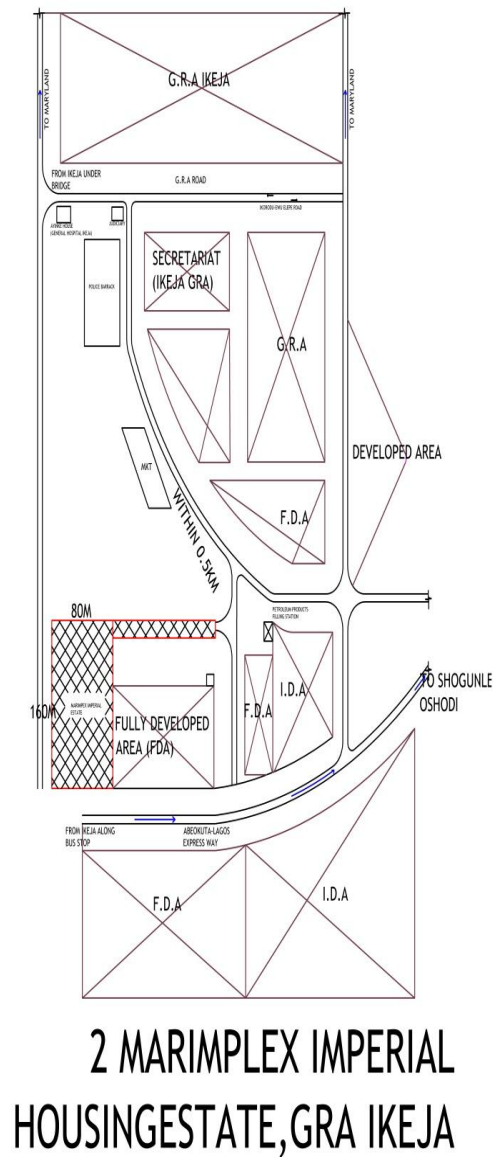
Figure 4.2: Location Plan, Marimpex Imperial Housing Estate
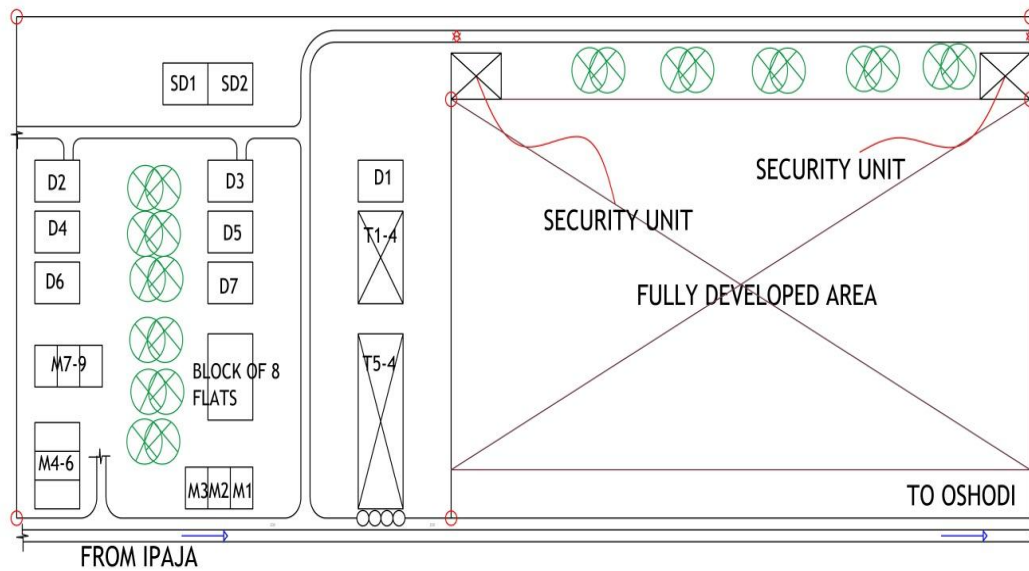
Source: Author's Fieldwork (2014)

Figure 4.3: Layout Plan, Marimpex Imperial Housing Estate

Source: Author's Fieldwork (2014)

Appendix17: Satellite II Housing Scheme - Location Plan
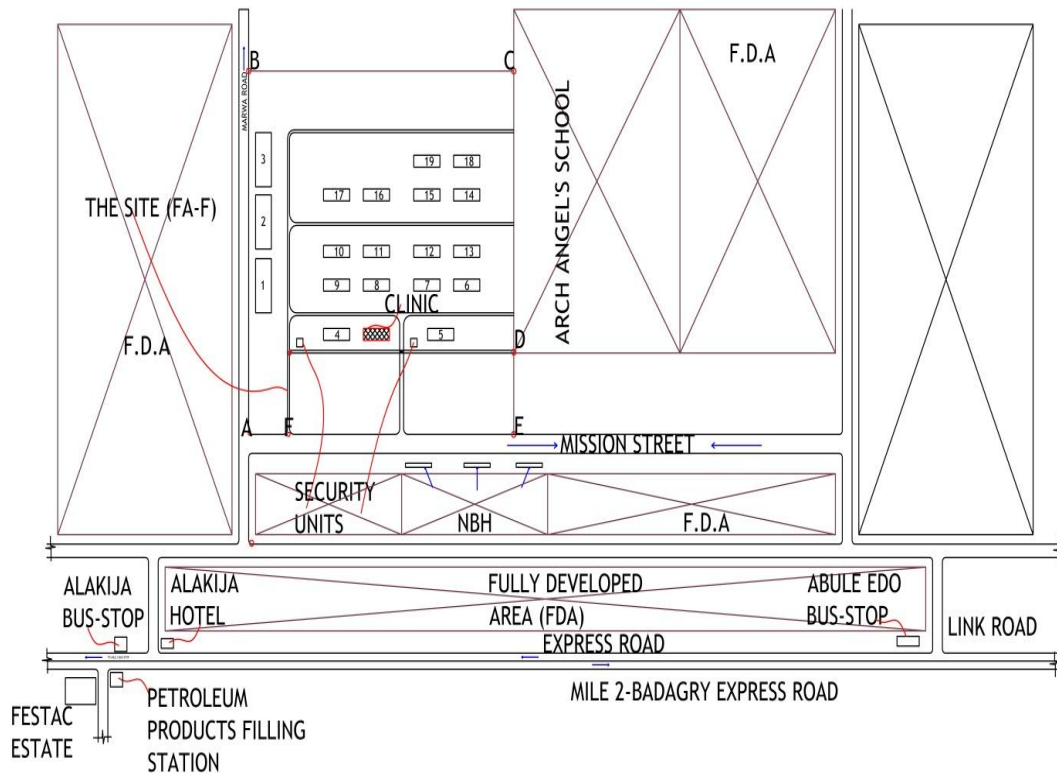
Figure 4.4: Location Plan, Satellite II Housing Scheme

Source: Author's Fieldwork (2014)

Appendix18: Ogba Middle Income Estate Phase IV - Location Plan

4. OGBA MIDDLE INCOME ESTATE PHASE IV

OGBA INDUSTRIAL ESTATE
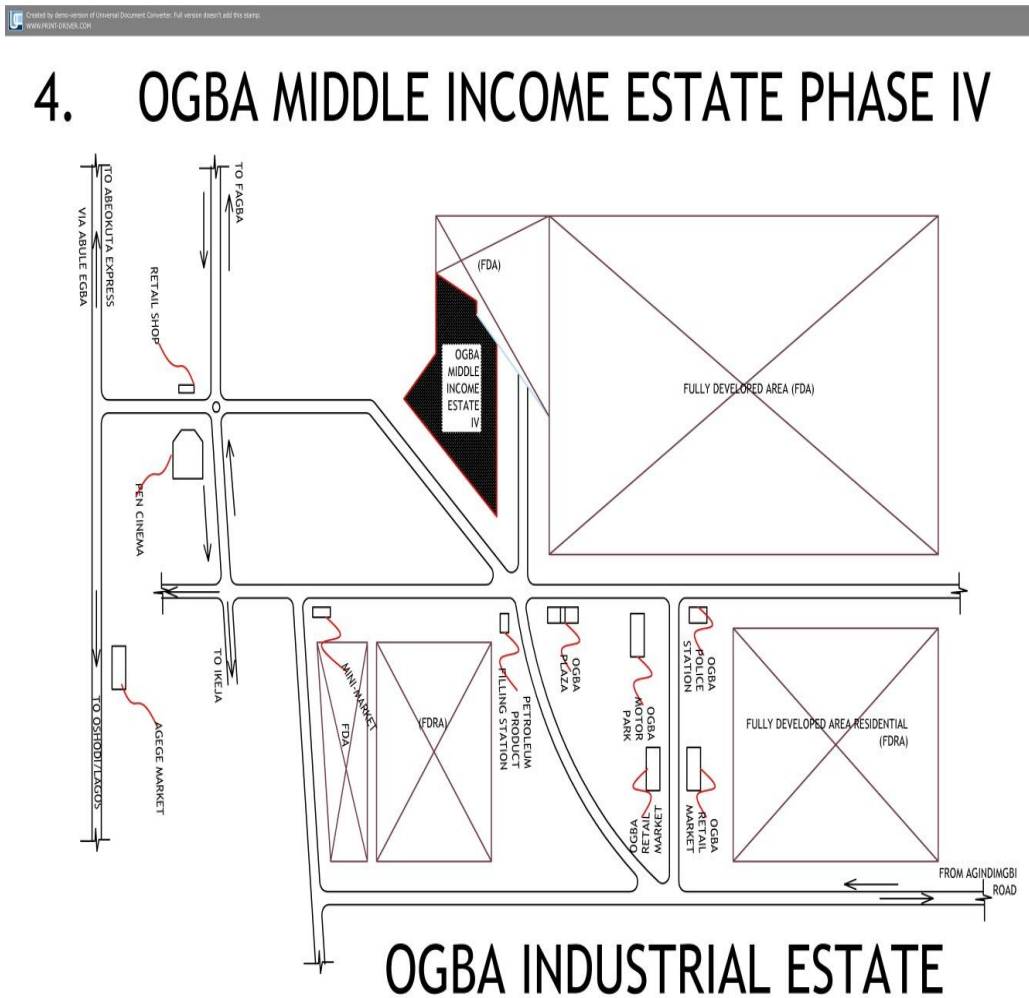
Figure 4.5: Location Plan, Ogba Middle Income Estate Phase IV

Source: Author's Fieldwork (2014)

Appendix19: Ogba Middle Income Estate Phase IV - Layout Plan

Figure 4.6: Layout Plan Ogba Middle Income Estate Phase IV

Source: Estate Community Development Association (2014)

Appendix 20: Ojokoro II Housing Scheme Blocks A-J - Location/Layout Plan
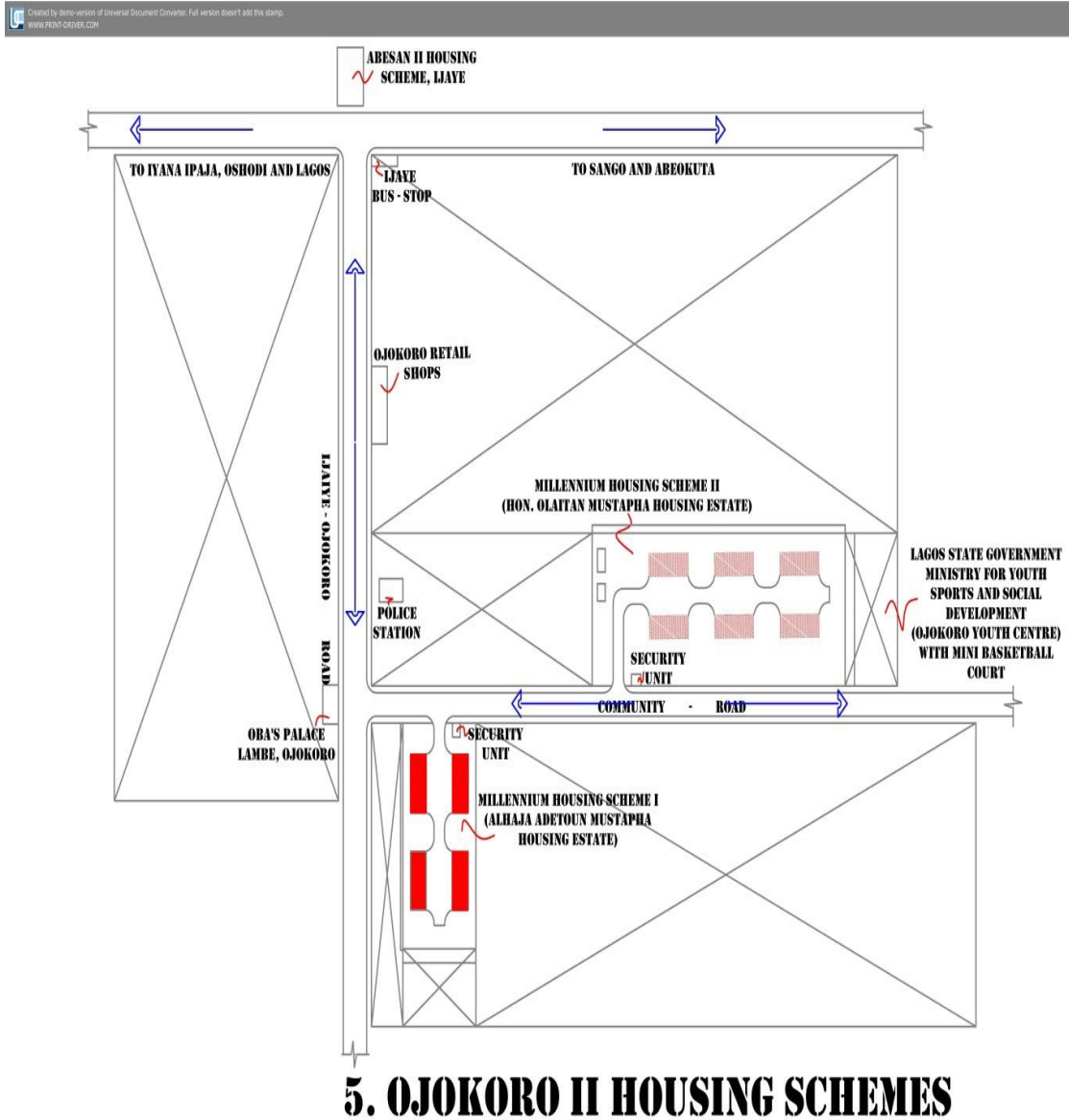
Figure 4.7: Location/Layout Plan, Ojokoro II Housing Scheme Blocks A-J

Source: Author's Fieldwork (2014)

Appendix 21: Ojokoro II Housing Scheme Blocks A-J – Typical Floor Plan
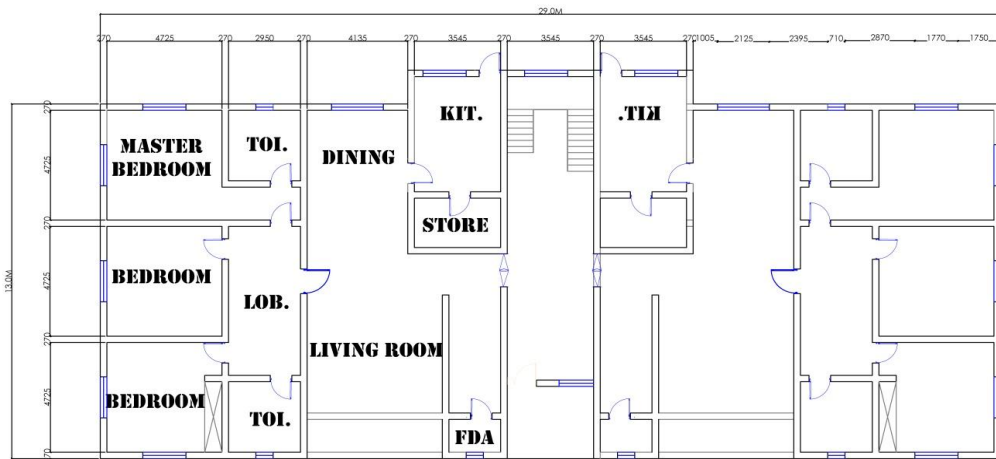
TYPICAL FLOOR PLAN
5.   (TYPICAL FOR OJOKORO II HOUSING SCHEME A-J AND ILORO HOUSING ESTATE A-D)

Figure 4.8: Typical Floor Plan, Ojokoro II Housing Scheme Blocks A-J

Source: Author's Fieldwork (2014)

Appendix 22: Iloro Housing Estate Blocks A-D - Location/Layout Plan

6.   ILORO HOUSING ESTATE A-D

-
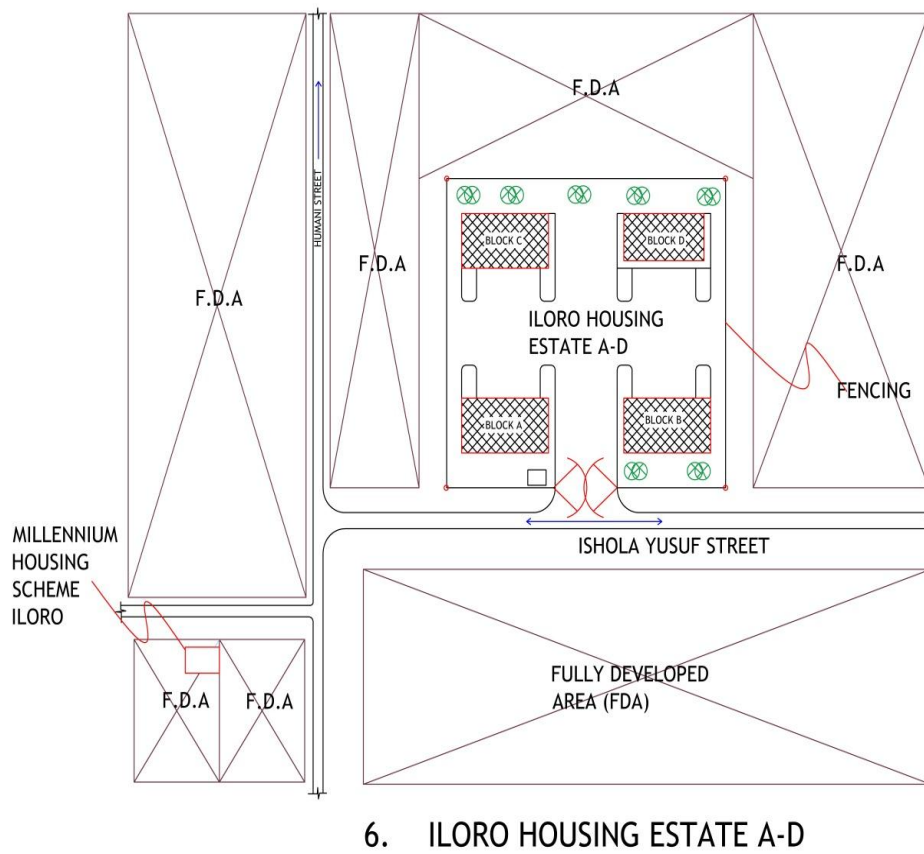
Figure 4.9: Location/Layout Plan, Iloro Housing Estate Blocks A-D

Source: Author's Fieldwork (2014)

Appendix 23: Abesan I Housing Scheme Meiran - Location Plan

ABESAN II HOUSING
SCHEME IJAIYE

FROM OSHODI

OJOKORO IJAIYE ROAD

F.D.A

IJAIYE
BUS-STOP

F.D.A

FULLY DEVELOPED
AREA (FDA)

MEIRAN
SHALOLO

ABESAN I HOUSING
SCHEME (ESTATE 1)
MEIRAN

SHALOLO-POWERLINE ROAD

FROM
ABEOKUTA
SANGO & TOLL GATE

FIRST MONUMENTAL
BANK

PACIFIC HOTEL
& SUITS

FDA

ABESAN I HOUSING
SCHEME (ESTATE 2)
MEIRAN

FDA

FDA
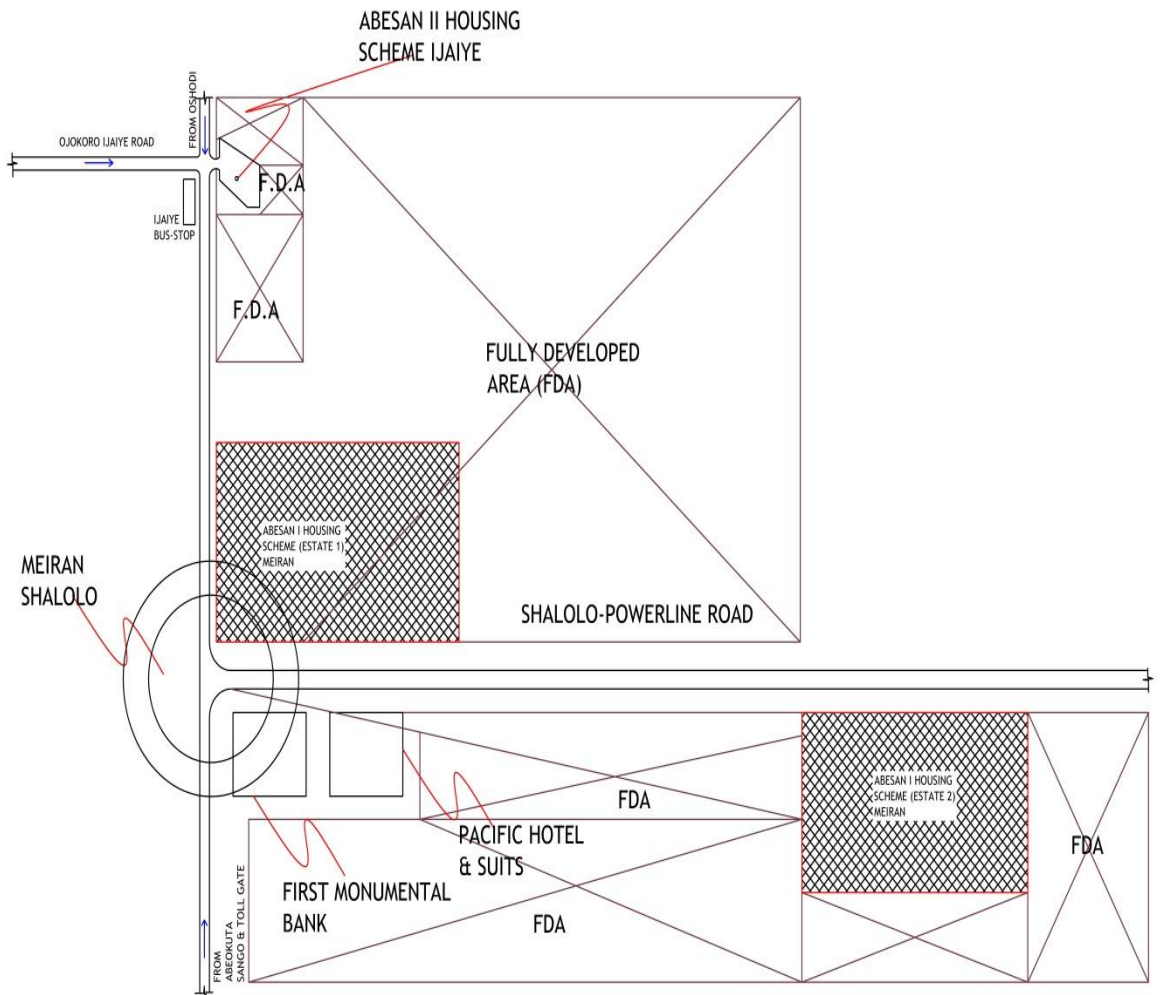
7.   ABESAN I HOUSING SCHEME, MEIRAN

Note: Estates 1 and 2 are the shaded areas

Figure 4.10: Location Plan, Abesan I Housing Scheme Meiran

Source: Author's Fieldwork (2014)

Appendix 24: Abesan I Housing Scheme Meiran - Typical Floor Plan
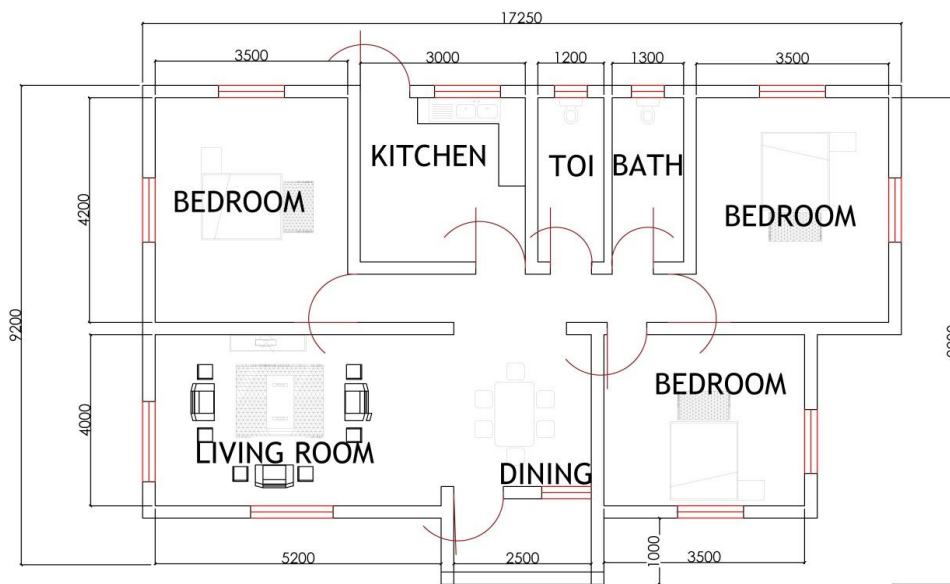
TYPICAL 3-BEDROOM BUNGALOW

7.   ABESAN I HOUSING SCHEME, MEIRAN

Figure 4.11: Typical Floor Plan, Abesan I Housing Scheme Meiran

Source: Author's Fieldwork (2014)

Appendix 25: Goshen Beach Estate Lekki - Location Plan

8. GOSHEN BEACH ESTATE, LEKKI
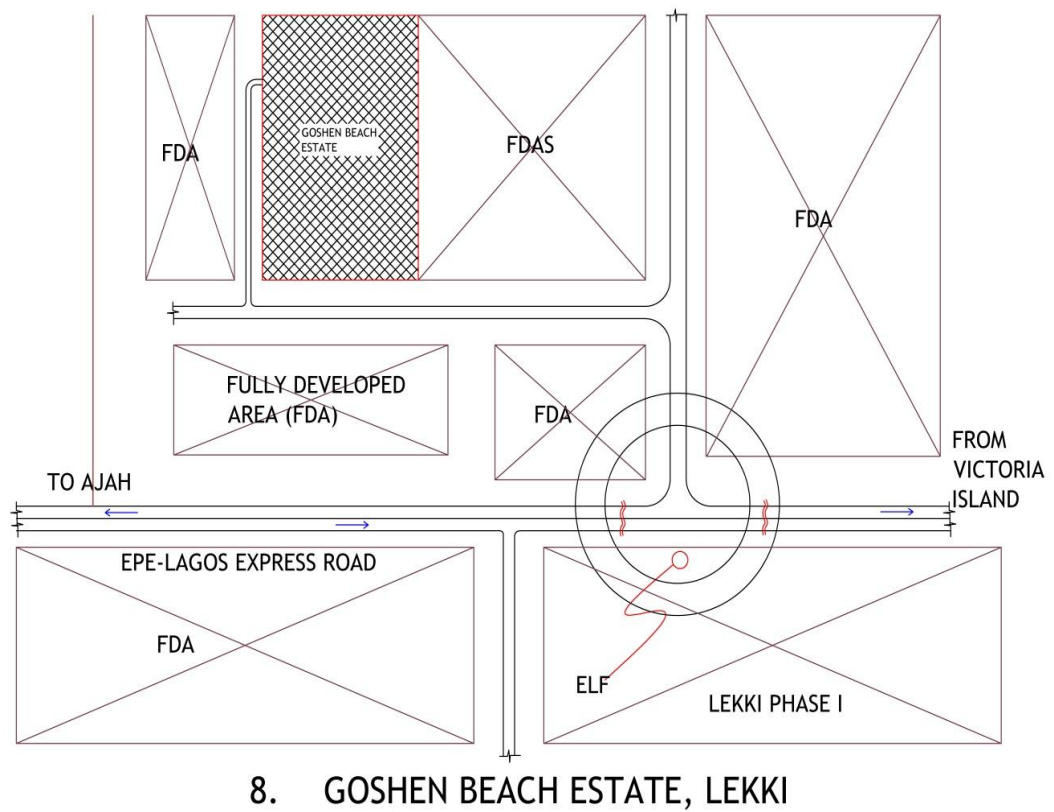
Figure 4.12: Location Plan, Goshen Beach Estate Lekki

Source: Author's Fieldwork (2014)

Appendix 26: Cortex Housing Scheme, Ikota - Location/Layout Plan

9. CORTEX HOUSING SCHEME, IKOTA
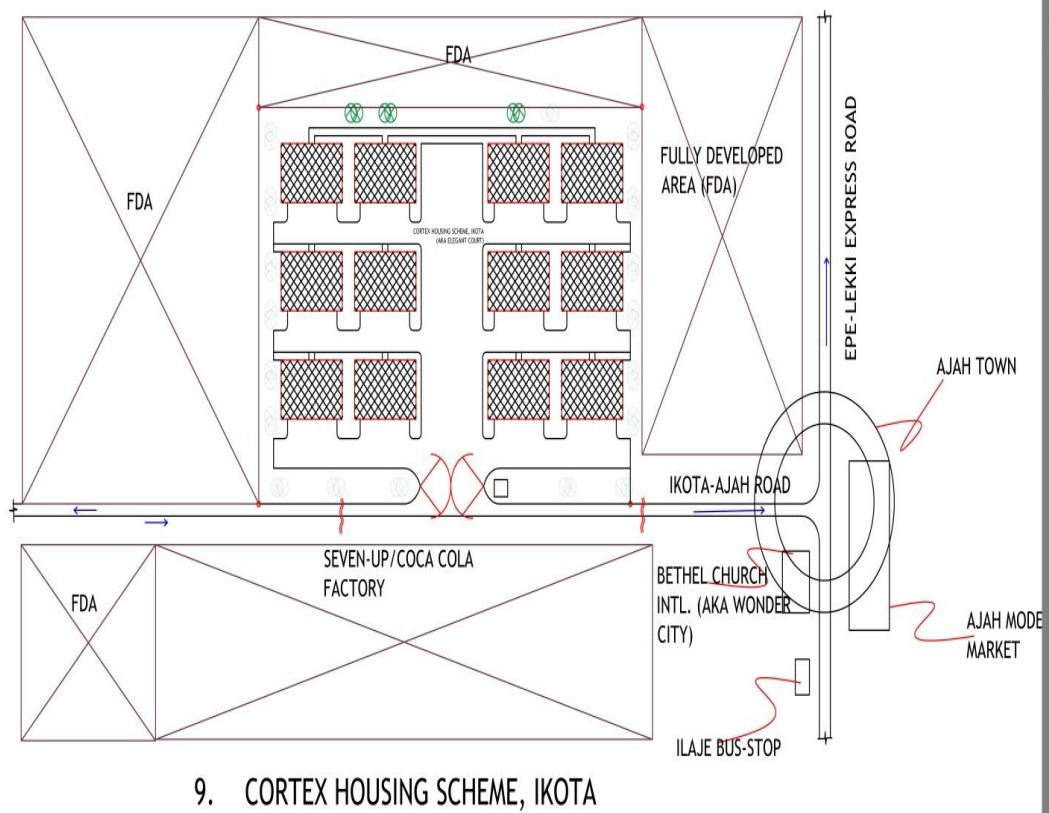
Figure 4.13: Location/Layout Plan, Cortex Housing Scheme, Ikota

Source: Author's Fieldwork (2014)

Appendix 27: Diamond Estate Isheri Olofin - Location Plan
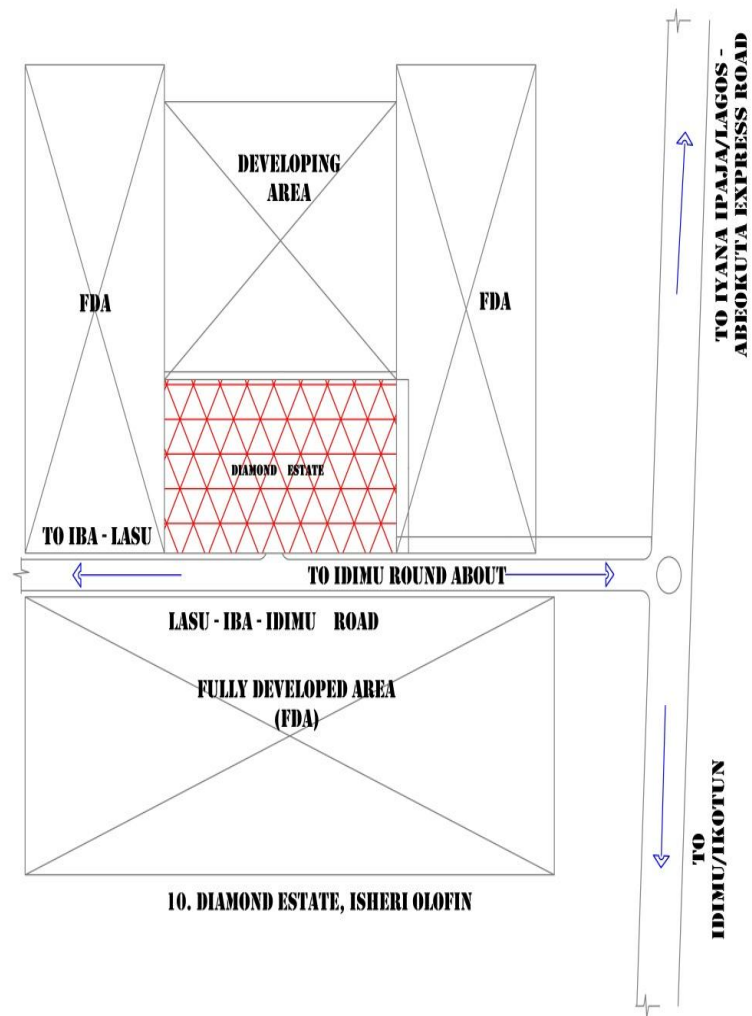
Figure 4.14: Location Plan, Diamond Estate Isheri Olofin

Source: Author's Fieldwork (2014)

Appendix 28: Iba Low- Income Housing Estate - Location Plan

11. IBA LOW INCOME HOUSING ESTATE
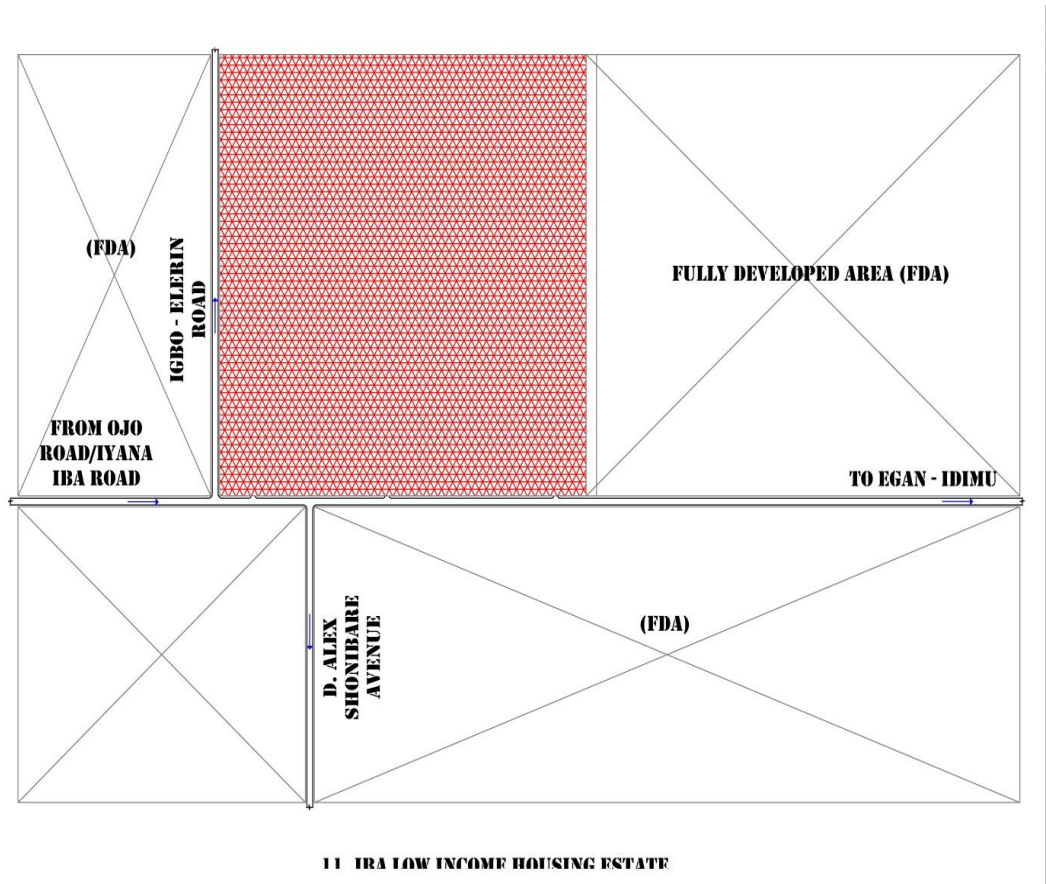
Figure 4.15: Location Plan, Iba Low- Income Housing Estate

Source: Author's Fieldwork (2014)

Appendix 29: Iba Low- Income Housing Estate - Layout Plan
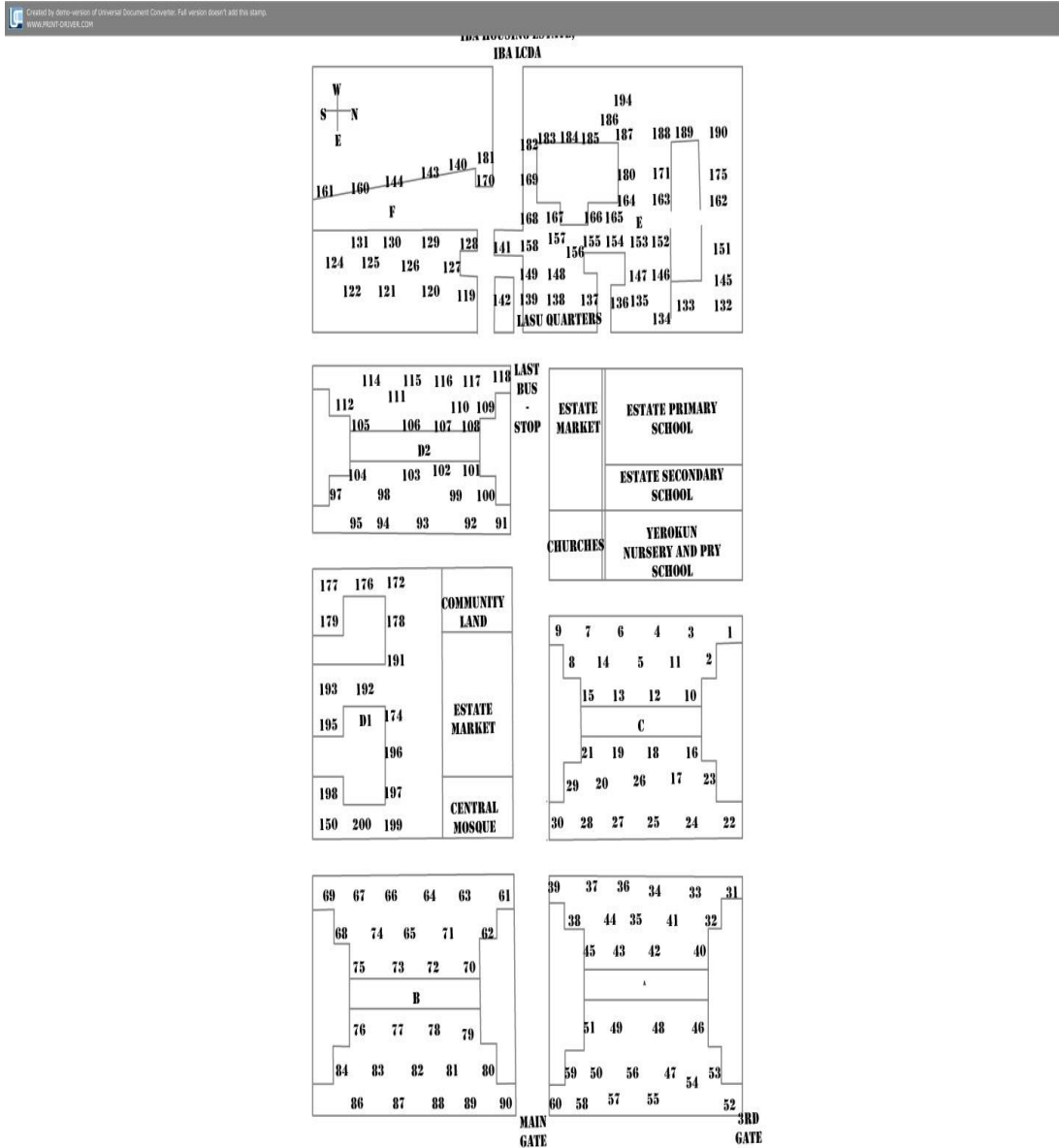
Figure 4.16: Layout Plan, Iba Low- Income Housing Estate

Source: Estate Community Development Association (2014)

Note: There are some Blocks of Flats with same plan in Figure 4.22, but these are not as numerous as those with Plan in Figure 4.17.

Appendix 30: Iba Low- Income Housing Estate – Typical Floor Plan
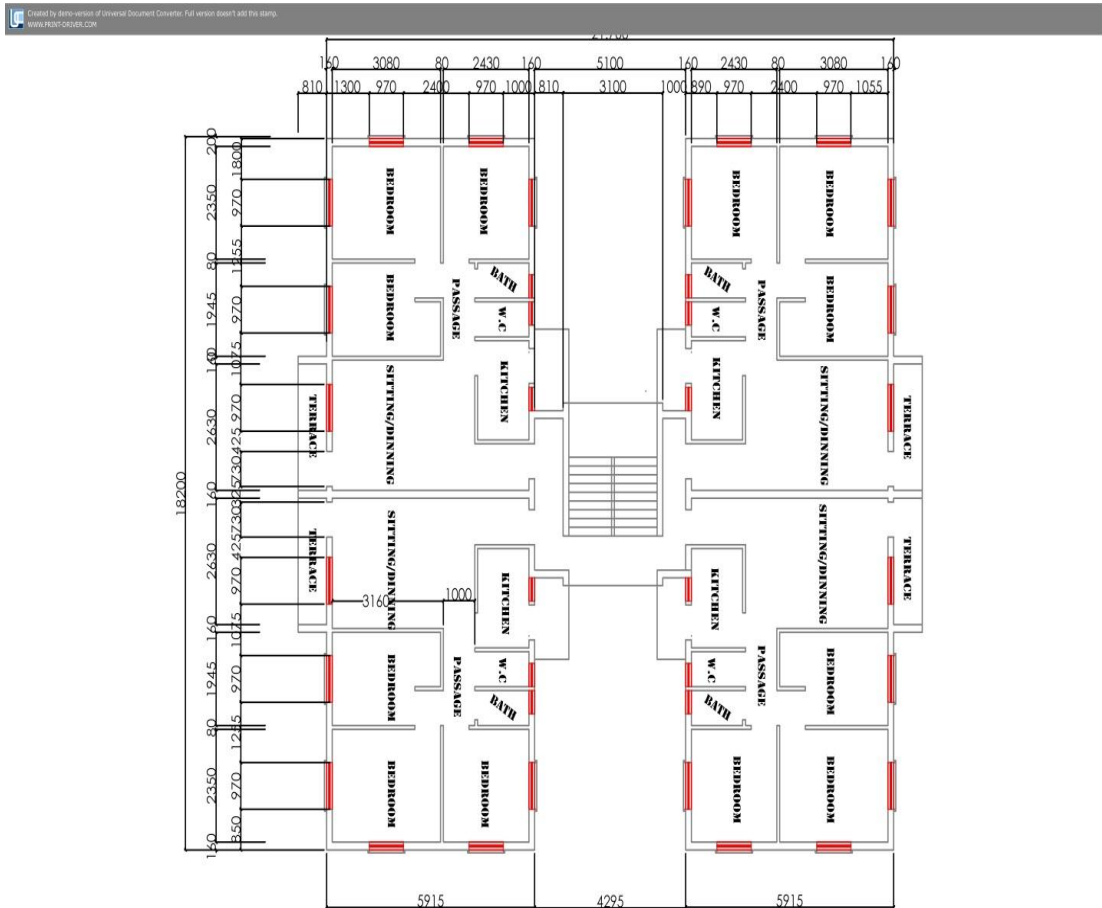
TYPICAL FLOOR PLAN

11. IBA LOW INCOME HOUSING ESTATE

Figure 4.17: Typical Floor Plan, Iba Low- Income Housing Estate

Source: LSDPC (n.d.b)

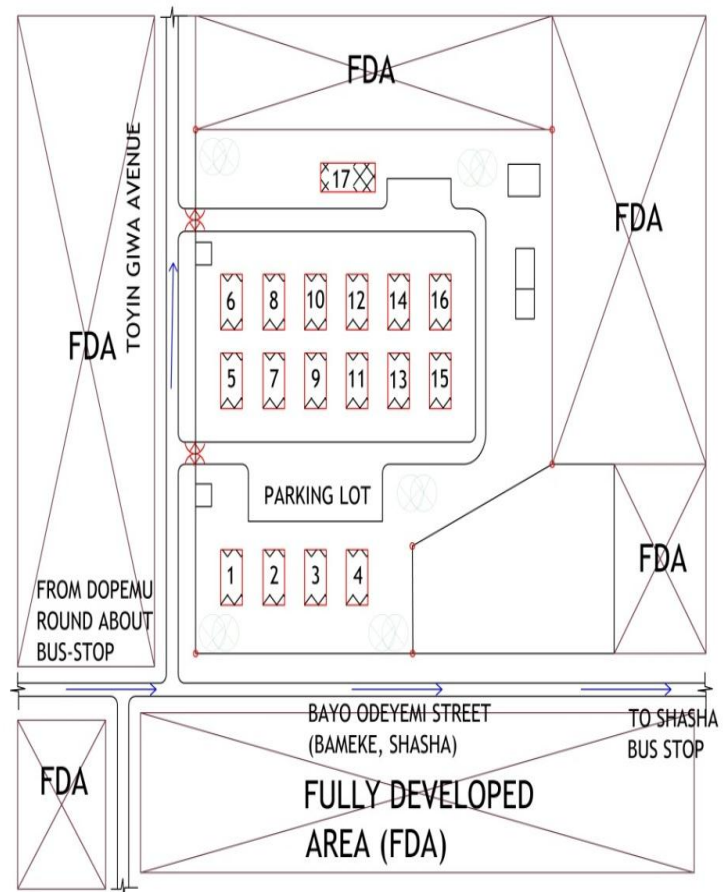**Appendix 31: Iba Low- Income Housing Estate – Front Elevation**
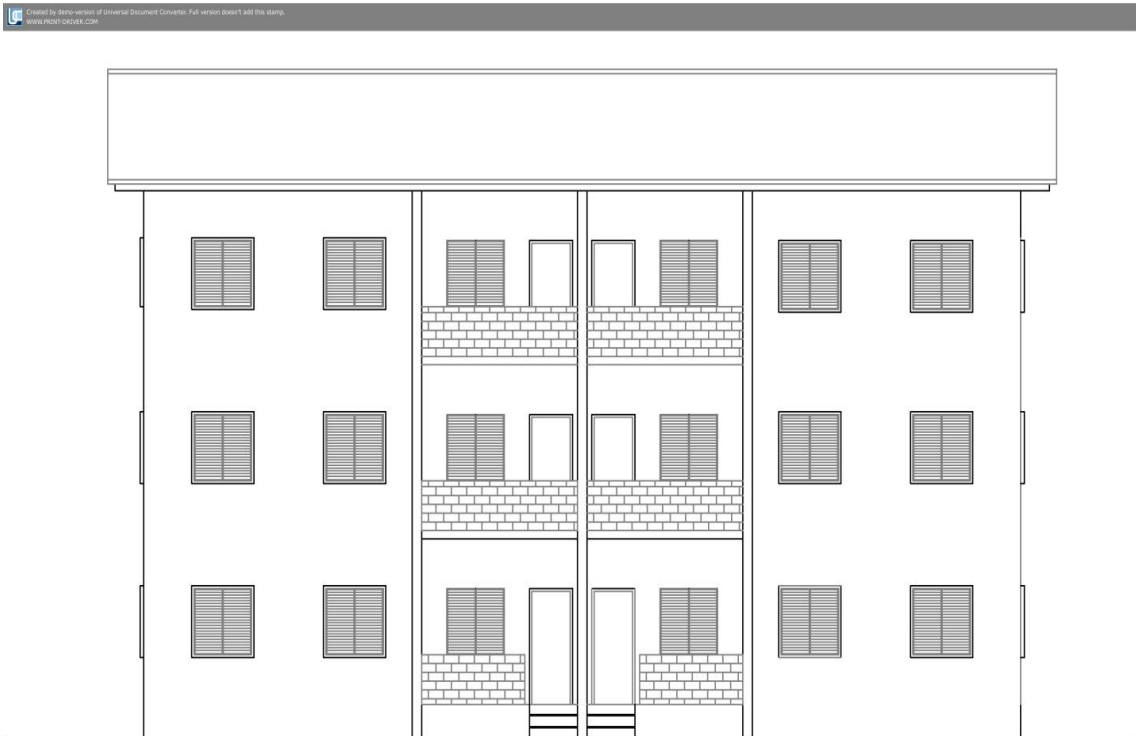
FRONT ELEVATION

11. IBA LOW INCOME HOUSING ESTATE

Figure 4.18: Front Elevation, Iba Low- Income Housing Estate

Source: LSDPC (n.d.b)

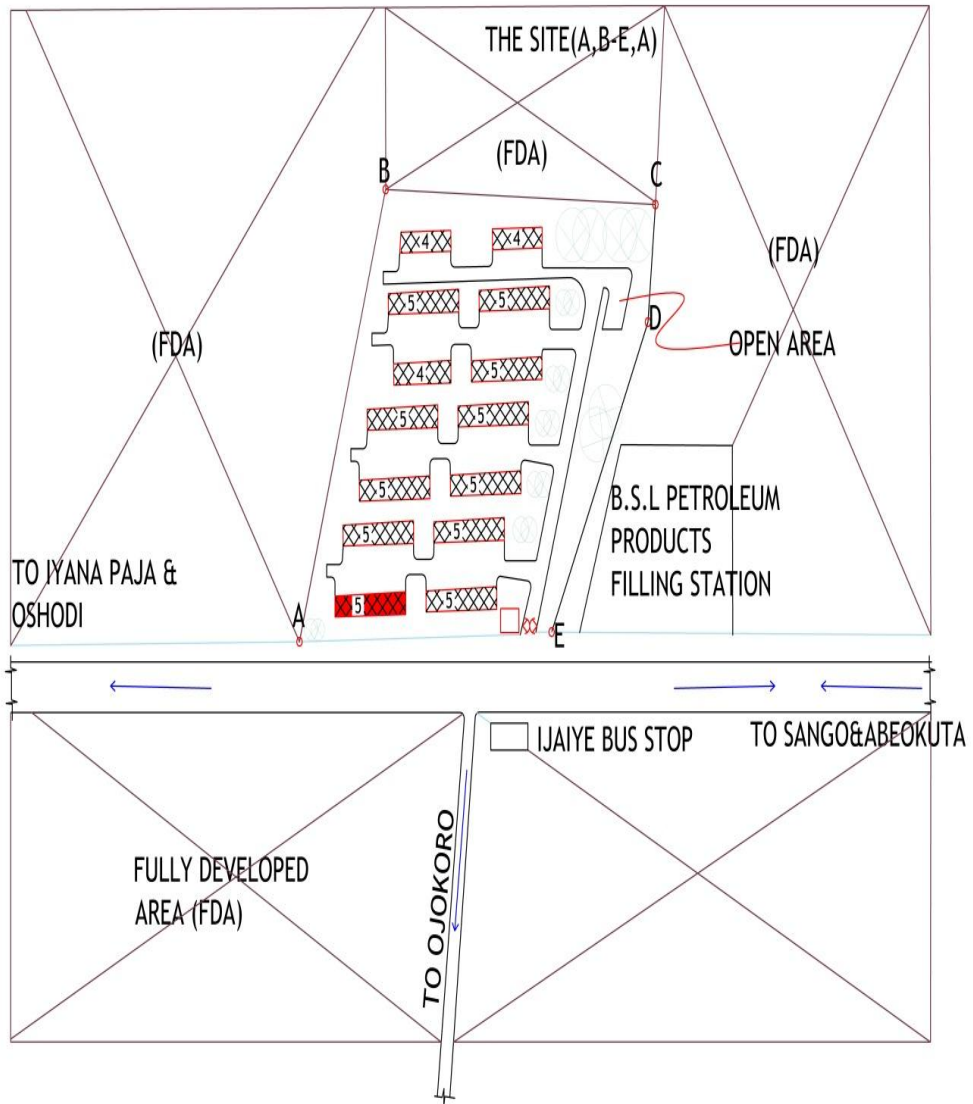**Appendix 32: Millennium Housing Scheme Shasha – Location/Layout Plan**

Figure 4.19: Location/Layout Plan, Millennium Housing Scheme Shasha

Source: Author's Fieldwork (2014)

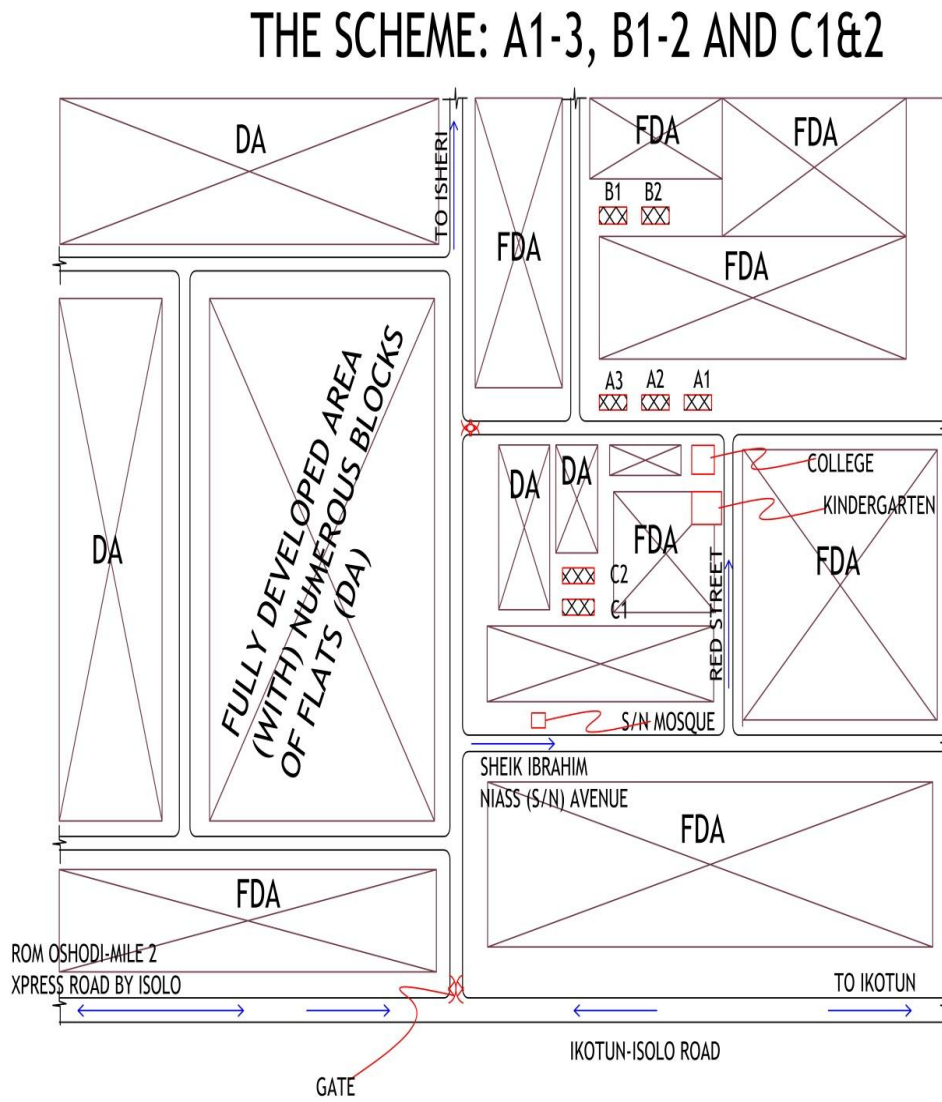**Appendix 33: Abesan II Housing Scheme, Ijaiye - Location/Layout Plan**

Figure 4.20: Location/Layout Plan, Abesan II Housing Scheme, Ijaiye

Source: Author's Fieldwork (2014)

Appendix 34: Low- Income Housing Scheme, Isolo - Location/Layout Plan

THE SCHEME: A1-3, B1-2 AND C1&2

14. LOW INCOME HOUSING SCHEME. ISOLO

Figure 4.21: Location/Layout Plan, Low- Income Housing Scheme, Isolo

Source: Author's Fieldwork (2014)

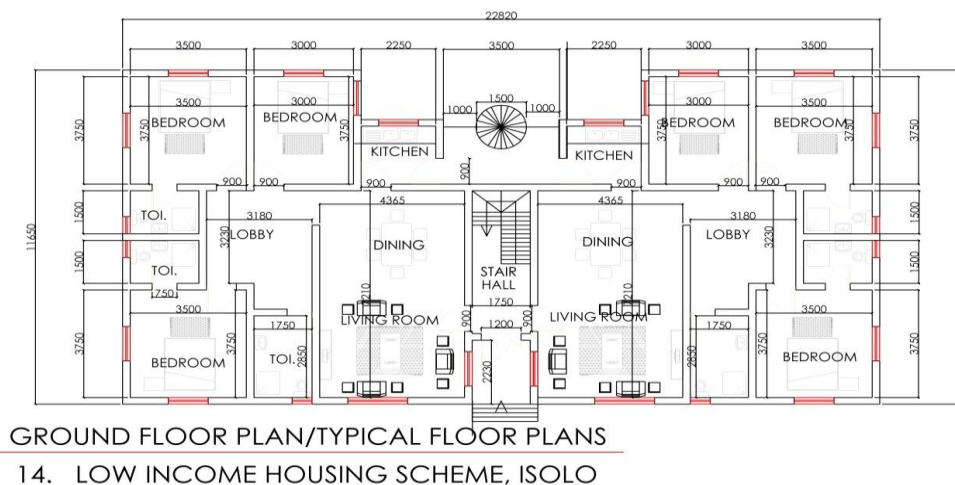**Appendix 35: Low- Income Housing Scheme, Isolo – Typical Floor Plan**

GROUND FLOOR PLAN/TYPICAL FLOOR PLANS

14. LOW INCOME HOUSING SCHEME, ISOLO

Figure 4.22: Typical Floor Plan, Low- Income Housing Scheme, Isolo

Source: Author's Fieldwork (2014)

Note: There are some Blocks of Flats with same plan as Figure 4.22, repeated within Figure 4.16 (Layout Plan, Iba Low- Income Housing Estate), but these are not as numerous as those with Plan shown in Figure 4.17.

Appendix 36: Millennium Housing Scheme, Ewu-Elepe - Location Plan
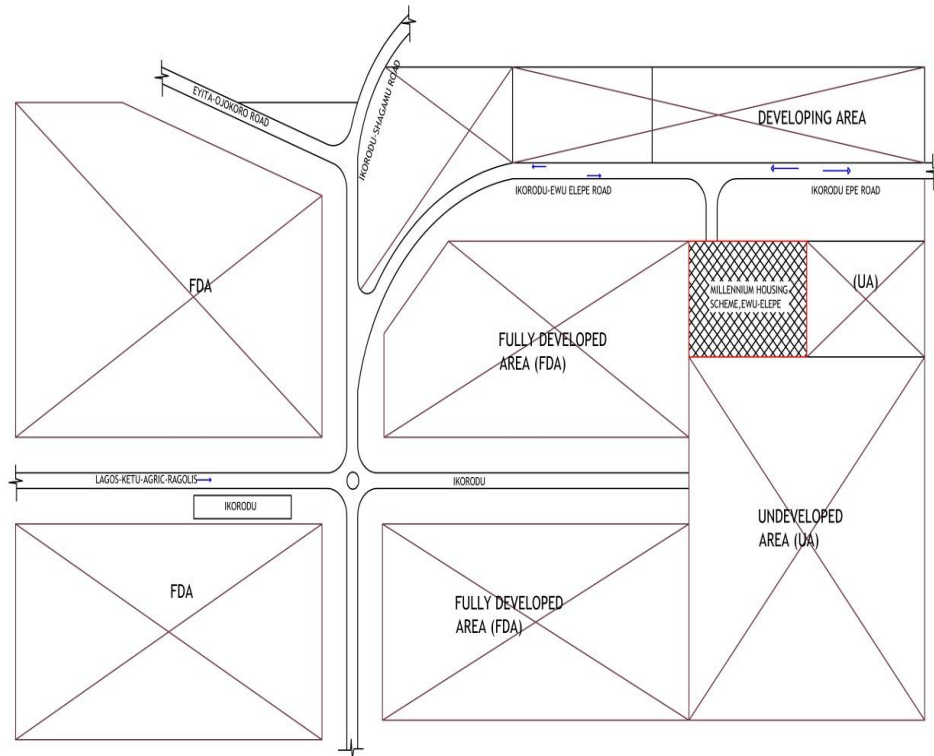
Figure 4.23: Location Plan, Millennium Housing Scheme, Ewu-Elepe

Source: Author's Fieldwork (2014)

Appendix 37:

Table 4.5.9: Estates documentation

SN	Estate or Scheme (1)	Location (2)	Layout (3)	Floor Plan (4)	Elevation and/or Photographs (5)
1	Ogudu GRA Duplexes (OGD)	√	X	X	√
2	Marimpex Imperial Housing Estate	√	√	X	√
3	Satellite II Housing Scheme	√	√	X	√
4	Ogba Middle Income Estate Phase IV	√	√	X	√
5	Ojokoro II Housing Scheme Blocks A-J	√	√	√	√
6	Iloro Housing Estate Blocks A-D	√	√	√	√
7	Abesan I Housing Scheme Meiran	√	X	√	√
8	Goshen Beach Estate Lekki	√	X	X	√
9	Cortex Housing Scheme, Ikota	√	√	X	√
10	Diamond Estate Isheri Olofin	√	X	X	√
11	Iba Low- Income Housing Estate	√	√	√	√
12	Millennium Housing Scheme Shasha	√	√	X	√
13	Abesan II Housing Scheme, Ijaiye	√	√	X	√
14	Low- Income Housing Scheme, Isolo	√	√	√	√
15	Millennium Housing Scheme, Ewu-Elepe	√	X	X	X
		15	10	5	14

Source: Author's Fieldwork (2014)

Note: By considering columns 2 to 5, documentation is seventy-three per cent (73%) Relevant photographs (as plates 2 to 42) are included within the text.