EVALUATING THE RELATIONSHIP AMONG HOUSING DENSITY, NEIGHBOURHOOD QUALITY AND RESIDENTIAL PROPERTY VALUE IN MINNA, NIGERIA

BY

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M.TECH/SSSE/2007/1847

DEPARTMENT OF GEOGRAPHY

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

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A THESIS SUBMITTED TO THE POSTGRADUATE SCHOOL, FEDERAL UNIVERSITY OF TECHNOLOGY,MINNA, IN PARTIAL FUFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF TECHNOLOGY (M.TECH) IN GEOGRAPHY (ENVIRONMENTAL MANAGEMENT)

JANUARY, 2011

DECLARATION

I hereby declare that this thesis "Evaluating the Relationship among Housing Density, Neighbourhood Quality and Residential Property Value in Minna, Nigeria" was carried out by ADAMA, Unekwu Jonathan, and has not been submitted to any institution at anytime for the award of any degree. Information derived from published and unpublished work of others has been acknowledged in the text.

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27/01/11

Date

CERTIFICATION

his thesis titled: Evaluating the Relationship among Housing Density, Neighbourhood Quality nd Residential Property Value in Minna, Nigeria by: ADAMA, Unekwu Jonathan M.Tech/SSSE/2007/1847) meets the regulations governing the award of the degree of M.Tech f the Federal University of Technology, Minna and is approved for its contribution to scientific knowledge and literary presentation.

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DEDICATION

This thesis is first and foremost dedicated to God almighty.

To my parents, who gave me a love of life.

To Lilian my wife, who gave me a life of love.

To Ojogbami my son, who gave joy and meaning to it all.

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ABSTRACT

The importance of environmental quality studies is rooted in measuring and comparing the potential of different housing environments. The problem to be solved by this research include to examine the various housing densities in Minna and determine the qualities of their neighbourhood and determine if differences in property values can be attributed to variations in neighbourhood qualities. The aim of this research was to examine the relationship among housing density, neighbourhood quality and property value. The primary data collected for this research included neighbourhood quality attributes, annual rental values of properties in the different neighbourhoods and facts about the neighbourhood densities. Methods of data analysis included, Analysis of variance (ANOVA) to determine the neighbourhood quality index at all neighbourhoods. Correlation analysis to determine the relationship between average neighbourhood quality and average property value at all neighbourhoods, Regression analysis to compare neighbourhood quality and property value at all sampled locations. Multiple regression analysis to establish the relationship between housing density and property value. Assessment of property values by correlation analysis revealed that Property values measured as average rent (avre) differed across all six neighbourhoods sampled. This is because the coefficient of determination (R^2) observed was 76%.This meant that variations in average neighbourhood quality index (nqi) were responsible for about 76% of variations in property values. Regression analysis also provided evidence of a statistically significant relationship between property values and neighbourhood quality, measured across all sampled locations the regression equation gave an R^2 value (coefficient of determination) of 0.070. This meant only 7% of the variations in property values could be attributed to variations in neighbourhood quality across the sampled neighbourhoods. These results meant that there is statistically significant relationship between neighbourhood quality and property value in Minna. Result of Multiple regression analysis shows that there is a statistically significant relationship between housing density and property value in Minna because the F calculated of 5.977 is greater than the tabulated value of 2.60. It was recommended that there is need for an urgent upgrade of the facilities in our neighbourhoods to become big agents of value creation for property investors as it is in most developing and developed economies.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Studies focusing on neighbourhood quality dates back to the 1960s (Lansing and Marans, 1969). The importance of neighbourhood quality studies is rooted in measuring and comparing the potential of different housing environments. This is why neighbourhood quality measurements and comparisons among areas attract the attention of not only researches but also residents, workers, business managers, and policymakers (Blomquist et al 1988) as cited in Elif (2009). Although it has been widely studied for quite a long time, neighbourhood quality measurement has not yet begun to permeate all practical applications. For instance, the measurement method, geographical scope of the measurement and indicators cannot be generalized. Many researchers have used different methods and indicators to measure the neighbourhood quality and the available evidence has been collected for a disparate range of cities and in a variety of time periods (Kamp et al., 2003). The researcher expects that introducing new evidence from Minna, Nigeria could contribute to this debate.

There are also various studies investigating the effect of neighbourhood attributes on housing prices or property value. Almost all of the reviewed studies are explorative and focus on the impact of neighbourhood quality on housing prices.

Rosiers et al. (2007) define environmental features as neighborhood attributes and sort these attributes effect on housing prices. They found that all neighborhood and landscaping attributes

are significant and have positive effects on housing prices. Although Property value is dependent upon many characteristics associated with that property such as physical characteristics of property, location of the site in relation to employment centers and other recreational facilities (accessibility), it also consists of a bundle of attributes, each of which is integral to house prices. Each property owner is assumed to derive value directly from the property characteristics. The physical attributes and locational influences may be described as "the fundamental factors" of property value, in that all individuals receive utility or disutility from these influences over their entire expected tenure (Norman, 1982). Physical attributes may be described as building area, type of structure and all that is attached to the structure.

Locational influences pertain to off- site neighborhood attributes such as parks, health care facilities and so on. In addition, the social and economic characteristics of neighbourhood, including the presence of such amenities as view parks, schools and community services affect value. Thus, property price will be locational dependent due to the attributes with respect to specific desirable services. This suggests that different attributes are valued differently and when combined with other attributes (e.g locational factors), they are fundamental in the determination of house prices. Location influences on the value of residential property may arise from any number of sources, such as accessibility to shopping centre, educational and leisure facilities, refuse disposal facilities, air quality, drainage system availability, security, noise pollution, water availability ,housing condition, accessibility or road condition, facilities and services, etc. This research work will examine how each of these locational factors affects residential property value determination in Minna.

1.2 Statement of the Problem

The fact is that different authors have found relationship between housing density and neighbourhood quality. For instance, Israel (2005) posited that, population and built/housing density, and the relationships between open and built-up areas, have a tremendous impact on urban environmental quality. The authors have also found relationship between neighbourhood quality and property value, and they opined that high density can be detrimental to urban environmental quality and thus to economic attractiveness. Fan (2009), said the quality of housing environment is an increasingly important research objective in the demand-side consideration. This situation may not be the same every where and in all cases. Hence the interest of the researcher to examine the relationship in Minna in order to isolate the relative contribution of housing density and neighbourhood quality on property value. The research seeks therefore to answer the following questions;

i. What are the various housing densities in Minna?
ii. What are the neighbourhood qualities of the various housing densities?
iii. Are there any differences in property values in the different neighbourhoods as a result of variations in their qualities?
iv. Is there any relationship among housing densities, neighbourhood quality and property value?

1.3 Aim and Objectives

The aim of this research was to examine the relationship among housing density, neighbourhood quality and property value. To achieve this broad aim, the specific objectives include to:

1. Identify the various housing densities in Minna
2. Determine the qualities of the various housing densities (neighbourhoods)
3. Examine property values in the different neighbourhoods.
4. Establish a relationship among housing densities, neighbourhood quality and property value.
5. Make recommendation based on the findings of the research.

Hypothesis

This research is based on the following hypothesis:

H_0 – There is no statistically significant relationship between neigbourhood quality and property value in Minna.

H_1 – There is statistically significant relationship between neigbourhood quality and property value in Minna.

H_0 – There is no statistically significant difference between the property values in different neighbourhoods in Minna.

H_1 – There is statistically significant difference between the property values in different neighbourhoods in Minna.

H_0 – There is no statistically significant relationship between housing density and property value in Minna.

H_1 – There is statistically significant relationship between housing density and property values in Minna.

1.4 Justification of this Study

Neighbourhood amenities in an urban setting can be valued by means of attaching them to a residential property value and when a buyer purchases a house, the amenities are part of the bundle that a household purchases. However the value of such amenities that constitute the cost of the residential property is not known most times. Pollakowski (1982) indicates that house prices are not determined only by accessibility but also by the neighbourhood attributes of the location.

The environmental factors, such as neighbourhood amenity, parks, and levels of neighbourhood security have to be taken into account. The effects and influence of those factors exert a complex interaction that will affect the value of properties. Most of the residential property values in Minna are based on location with little or no knowledge of the distinct attributes of such locations and their contributions to the value. The justification of this study cannot be over

emphasized because it will show the extent to which selected neighbourhood attributes affects property value in Minna. Such findings will be a useful asset in the hands of not just professionals in the real estate practice but also a guide to real estate investors and our urban planners.

1.5 Scope and Limitation of Study

The scope of this research is focused on issues of housing density, neighbourhood quality and residential property value. The study is focused on residential properties only and restricted to Minna township. The study examines the various housing densities in Minna township to find out if there is any relationship among the housing densities, the quality of their neighbourhoods and the value they command. Since Minna the study area is basically a rental market, the study examined trends in rental values from 2003 to 2008. Baba and Jinadu (2000), zoned Minna town into twelve areas namely Bosso I, BossoII, GRA, F-Layout, Minna East central, Minna West central, Tunga I Tunga II, Minna South West peripheral, Minna North West peripheral, Maitumbi, and 123 Quarters/Oduoye Estate (table 1.1). These zones are further classified as high density area, medium density area and low density areas respectively. The study covered only six of the twelve zones. Data on the trend in residential property value and neighbourhood quality in each of the zones were collected and analysed.

TABLE 1.1 Residential Zones Used for the Study

ZONES	DESCRIPTION	DENSITY CLASS
ZONE 1: Bosso I	This consist of areas stretching, from Tudun Fulani to Niger Livestock /vertinary Clinic- including Angwan Biri, Area Court, Jikpan and Mypa area	High
ZONE 2: Bosso II	This include Bosso Estate, Bosso Low cost , east of Okada road in Dutsen Kura Hausa	Medium
Zone 3: GRA	Areas west of the central road stretching from Bahago roundabout to Government Secondary School including GRA and Zarumai Quarters	Low
Zone 4: Minna East Central	Areas east of central road from Government secondary school to Mobil round about. this include Sabon Gari, Emirs palace, Kuta road, Angwan Daji/Doko Pharmacy area	High

Central	Government Secondary School to Mobil roundabout including Limawa, Katerin Gwari, Kwangila, Old airport road areas	
Zone 6: Tunga I	Areas east of the main road from Shiroro roundabout to Abdul Salami Park including Tunga Market and Top Medical area	Medium
Zone 7:Tunga II	Areas west of main road from Shiroro round about including Shiroro Hotel, Bay Clinic and NITECO roads, Kolawole area, Tunga Low cost up to Western By-pass	Medium
Zone 8: Minna South West Peripheral	This include Kpakungu, Barkin Sale and Sauka Kahuta	High
Zone 9: Minna North West Peripheral	This include Dutsen Kura Hausa,Dutsen Kura Gwari and Gbaiko	High
Zone 10: Maitunbi	This include Sayako, Paida and Maitunbi	High
Zone11:F-Layout	Areas east of the main road from Bahago to Government Secondaary	Medium

	Bahago to Government Secondaary School including Farin Doki, F-Layout and Mustapha Junction area	Medium
Zone 12: 123 Quarters	This include 123 quarters and Oduoye Quarters	Medium

Source: Adopted from Baba and Jinadu (2000).

1.6 Description of Study Area

1.6.1 Locational Setting of Niger State

Niger state is located between latitude 8°20'N and 11°30'N and longitude 3°30'E and 7°20' E. The state is one of the 36 states in Nigeria as shown in (figure 1.1) and was created on 3rd February, 1976 from the defunct North-Western state by the Late Head of State, General Murtala Ramat Mohammed. The state however, came into being on 1st April, 1976. At the inception of the state administration, there were only eight local government areas. Currently we have twenty five local government areas including Agwara, Agaie, Bida Borgu, Bosso Chanchaga, Lapai, Lavun, Magama, Mariga, Mashegu, Mokwa, Murna, Paikoro, Rafi, Rijau Shiroro, Suleja, Tafa and Wushishi as in (figure 1.2).

The state is bordered to the North by Zamfara, state, to the north west by Kebbi state, to the south by Kogi state, to the south west by Kwara state, while Kaduna state and the Federal Capital Territory borders it to the north west and south east respectively. The state equally shares a common international boundary with the Republic of Benin at Babanna in Borgu Local

Government area. The state has a population of about 3,950,249 and covers a land area of about 76,000km^2 (population census 2006) or about nine percent of Nigeria's total land area, which makes the state the largest in the country.

Figure 1.1 Niger State, Nigeria

Source: Niger state Ministry of Lands and survey 2009

1.6.2 Minna Town

Minna the state capital as shown in (Figure 1.2) is located between Latitude 8°20'N and Longitude 6^0 33'N. Minna town is almost a linear settlement with a major road running through it. There is also the East and West bye passes circumferencing Minna as a result of growth in recent time.

The neighbourhoods of Minna include Minna central, Kpakungu, Barkin Sale, Sauka-ka-huta, Bosso, Chanchaga, Tudun Fulani etc.Within these neighbourhoods are wards, and they include Limawa A, Limawa B, Nasarawa A, Nasarawa B, Nasarawa C, Sabon Gari, Jikpan, Tundun Wada North.

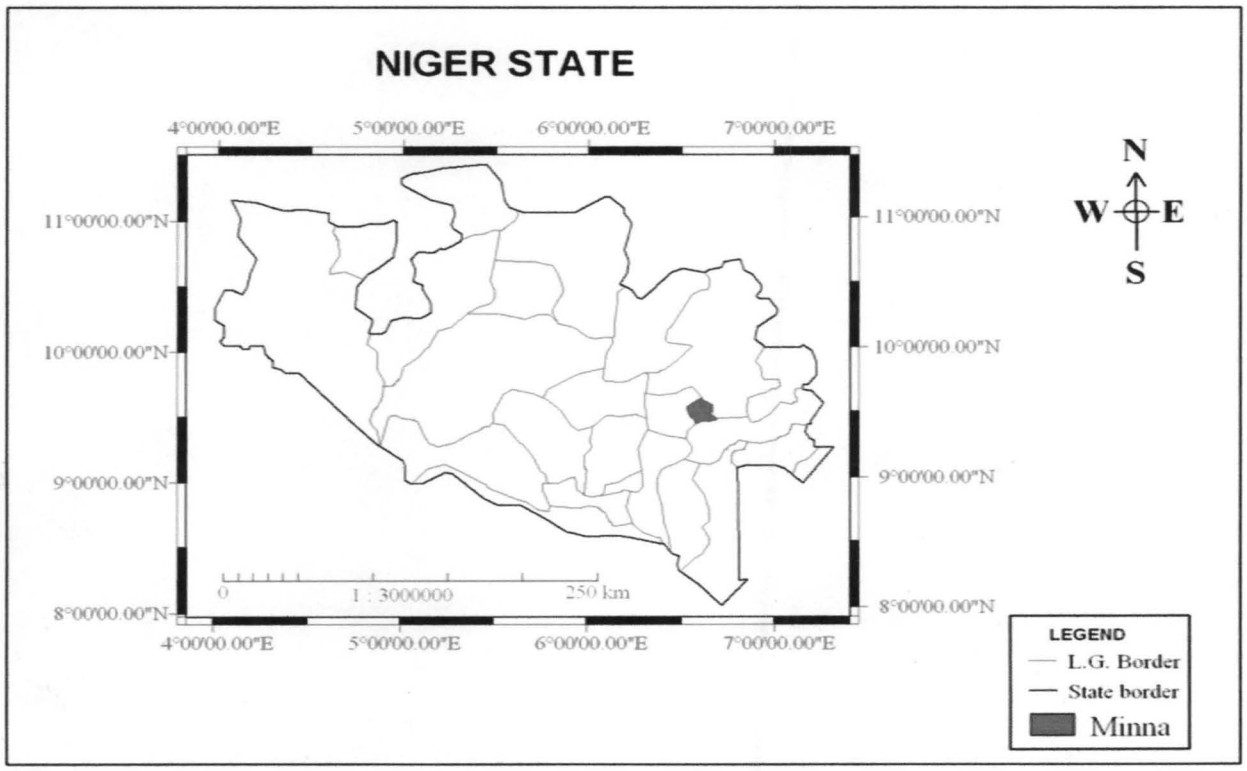

Figure 1.2 Minna, Niger State

Source: Adopted from Niger State Ministry of Lands and Survey and modified 2010

Source: Adopted from Niger State Ministry of Lands and Survey and modified 2010

1.6.3 People of Minna

The town Minna is dominated by different ethnic groups of Nigeria. These include the Gwari, Nupe, Hausa, Fulani, Yoruba, Edo, Kanuris, Igalas and Igbos. The ethnic cultures of these people have influenced the type and construction of houses. Minna is mainly a Gwari settlement with their main occupation as farming. They farm crops like yams, beans, rice, and millet. The migrants are more involved in trading activities and government work. The main religion of the people is Christianity and Islam. Few residents are traditional religion worshippers and pagans.

1.6.4. Land Use of Minna

The existing land use of the study areas as shown in figure 1.3 includes recreational, commercial, industrial, residential, agricultural, educational and religious land uses.

1.6.4.1 Residential Land Use

The residential land use of Minna, takes the total coverage of about 584 hectares (54.8%) of the total land mass (Minna Master plan, 1979). This is evident in the dilapidated houses at the core of the town, while bungalows of good quality are within the periphery of the town. The present administration of Dr Babangida Aliyu is adding more to the houses at the periphery by the

Although in some areas there are spatial demarcations of land boundaries, a system of predominant activities exists to make it possible to identity a particular area with a particular use. However, residential land use can be found in all the identified neighbourhoods. The spatial expansion of Minna is constrained by mountainous ridges particularly at the eastern part. This also have influence on the liner pattern of development.

1.6.4.2 Industrial Land Use

There are several industrial activities both at the small and medium scale level going on in the town. Among these are the various block molding industries which are found mostly at the bye pass and along the roads connecting the major road. There are also numerous furniture industries that have increased recently in Minna. There are also many packaged water factories located in Minna town that supply packaged water for the need of residents. In the class of the medium industries are the two pharmaceutical companies and the Urban Shelter clay industry and the Imurat plastic manufacturing industry in Minna. There is also the federal government owned science equipment plant in Minna. In fact, there are other pockets of small industries which are into the manufacture of one product or the other. It is important to note that there are some industries that are located in the town that have gone comatose. Prominent among them are the Morris fertilizer blending plant, and the Niger feed plant.

1.6.4.3 Institutional Land Use

Minna as a state capital has many institutional land use activities. They include both public and private institutional uses. Among the public uses are the military and police institutions, the

Niger State ministries, parastatals, the Federal University of Technology, general hospital, public schools, National Television Authority, Radio Niger, Niger State owned news line, Niger State College of Education, the Niger state house of assembly to mention but a few. The private institutions include all the privately owned primary and secondary schools, privately owned hospital etc.

1.6.4.4 Recreational Land Use

The places designated for recreation within Minna are limited. Besides, they are equally not well developed to meet the required standard. This administration of Dr. Babangida Aliyu is making efforts towards the development of these centres. This is Evident in the reconstruction of the Murtala park. The major recreational areas in Minna are the Bako Kontogra Memorial stadium, the murtala part, IBB sports complex, the Minna indoor sports hall and Gymnasium. Some other creational grounds are found within the TRADOC military barrack and the Bosso campus of Federal University of Technology, Minna.

1.6.4.5 Agricultural Land Use

The study area is purely an urban area and as such there is no much agricultural land use. However, there are specialized farms found in Minna like the Maizube farms, Abu Turab farms etc. A few pieces of land especially those along urban river and streams are engaged in gardening, also land attached to residential land use is cultivated by owners of such land. In summary, farming in Minna town is seen as a secondary vocation.

1.6.4.6 Commercial Land Use

As an urban area and a state capital, commercial land uses are scattered across the town. However the major commercial nerve centre of the town is the Mobil area where all types of commercial activities are carried out. It houses the popular Mobil market which is the Minna central market. Other markets located in Minna town are the Tunga, market, the Kasuwan Gwari market and most recently the town is completing the construction of a new central market known as Kure ultra modern market.

The town has a lot of retail shops and super market. There are also a lot of filling stations in the town to meet the energy need of the commuting public. Almost all the banks in the country have opened offices in Minna with some of them like Oceanic, Unity bank UBA, Afribank having more than one branch office. There are also many hotels to meet the lodging and accommodation needs of visitors to Minna. There are also a number of fast food joints including the popular Mr Bigg located in Minna. Recently some micro finance banks have also opened offices in Minna in addition to the pension fund administrators. The list is inexhaustive.

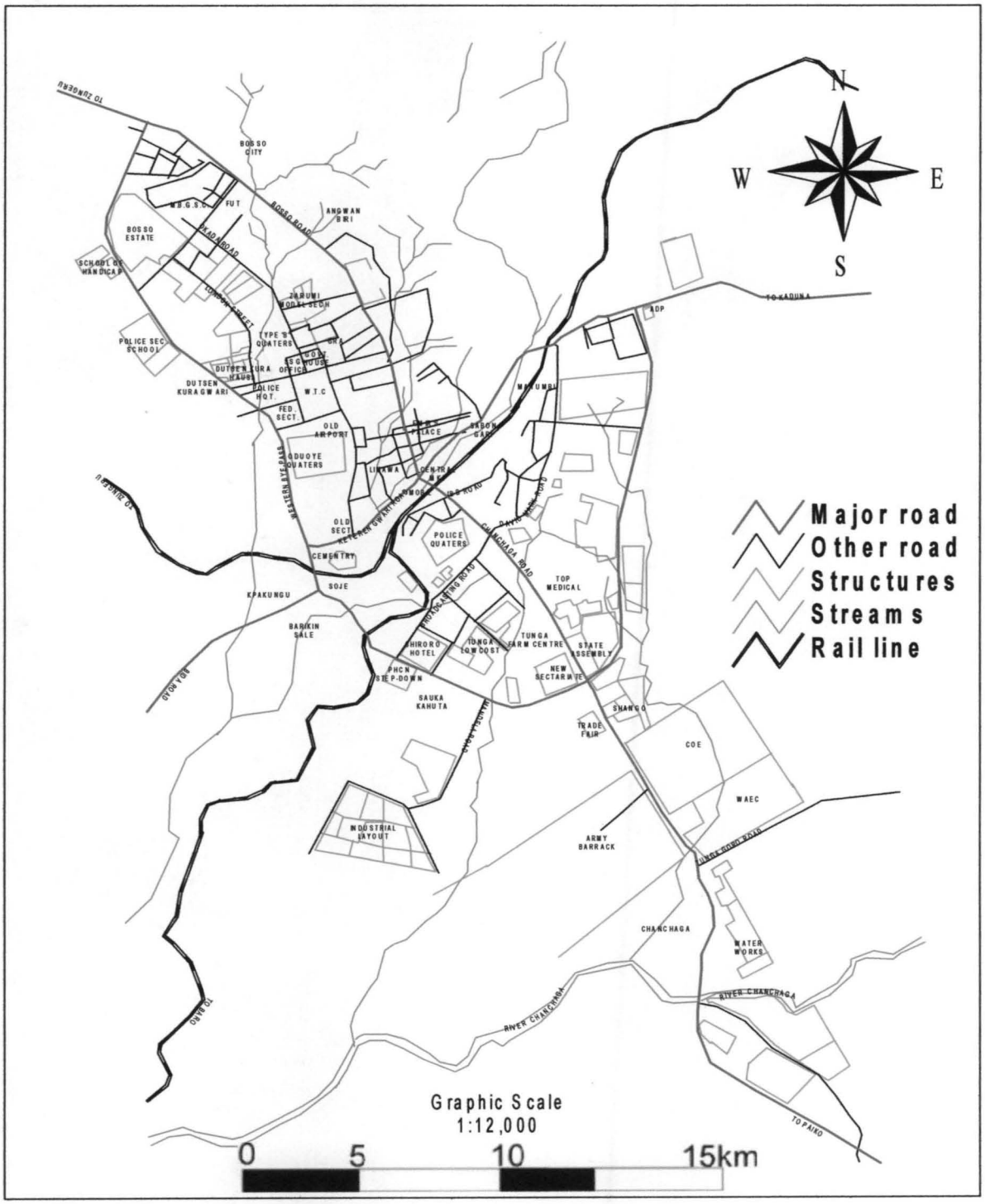

Figure 1.3 Land use map of Minna

Source: Ministry of Lands and survey 2009.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

The purpose of the study is to examine the relationship among housing density, neighbourhood quality and residential property value. This literature review is based on literature search conducted to expand the context and background of the study. The review, first of all, considered the fundamental concepts that are contained in the topic namely; housing density, neighbourhood quality and property value. This is followed by the review of the relationship that exists among these concepts.

2.2 The Concept of Urbanization and Housing

Urbanization is a process of population concentration. It proceeds in two ways: the multiplication of points of concentration and the increase in size of points of concentration. The restriction of the definition of urbanization to the issue of population concentration looks, at first, limited but it moves us away from ambiguity and other forms of intellectual distress. It eliminates or throws into different categories other processes which, though associated with urbanization, may have opposing effects on it.

"Urbanization as an inevitable global phenomenon has brought about both negative and positive outcomes. As a blessing, it created for man the city, a melting pot of culture which offers a lot of

opportunities and serves as an engine of growth. As a harbinger of doom, however, it bequeathed onto the same city, an array of problems ranging from environmental degradation to poverty, insecurity and ill-health" (Baba and Jinadu, 2000).

According to Baba and Jinadu (2000), "Urbanization and the growth of human settlement took place against the background of low incomes which weakens the abilities to provide both accommodations and services. The consequences have thus been the mushrooming and growth of slums and squatter settlements with the problem of accumulated waste, lack of basic sanitary facilities, overcrowding and general poor living conditions". For instance in Nigeria, the problems of rapid urban growth includes general deterioration of housing condition, inadequate infrastructure, human and environmental poverty, declining quality of life amongst others.

As pointed out earlier, urbanization usually results in population concentration and this population must be housed. It is therefore necessary to know about housing.

2.3 What is Housing?

Bourne (1984,14) defines housing as a packaged bundle of services a view which recognizes that the occupancy of housing involves the consumption of neighbourhood services (parks, schools), a location (accessibility to jobs and amenities) and the proximity of certain types of neighbours (a social environment). Housing can also be defined as an economic and a social process. As a process, Turner (1976) describes housing as the way and means by which housing goods and services are provided by human action through housing construction or investment in order for

housing to counter the various benefits and provide different facilities for us users - individual household and the nation. As a process, it also entails the construction of new dwelling units as well as the various integrative activities such as land acquisition, housing finance, building materials etc. As an economic produce, housing represents a commodity traded in the housing market. It is a product of investment and a means of income generation.

According to Jinadu (1995), more than just a Shelter, a house transcends the basic functionality of providing a roof over one's head. Its conception has therefore transcended the conservative view of flour walls and a roof structure meant to protect man from the elements of weather.

Clois and Joan (1996), said housing is the creation of a special environment in which people live and grow. Igwe (1987), argued that a home (housing) represent an extended womb during the formative years of a child's physical, psychological, education and emotional development. This view according to Jinadu (1995), suggest that housing is the maker of human identity which determines the success of man in life. Jinadu (1995) further posited that it is the reason why Aroni (1978), as quoted by Agbola and Alabi (2000), concluded that for an individual or a family, the house is shelter and symbol of physical protection and psychological identity, of economic value and a foundation for security and respect.

The varied definition and conceptions given to housing according to Jinadu (1995) portray it as an important and indispensible element of settlement or neighbourhood.

A neighbourhood can be said to be an area in which types of property are building, as a distinct geographic area or one distinguished by a conspicuous physical feature; as a social unit that is, a community with religion or ethnic ties, and as a group of people with the same general level of income. All these factors work to create housing submarkets in which the values of properties are influenced by the same general set of outside influences, hence the need to examine the relationship between housing density, neighbourhood quality and property value.

2.4 Density

2.4.1 The Concept of Housing Density (An Overview):

Density is a measure of a number of things per unit area. It is often measured in terms of people, houses, or jobs in a given area. Housing density provides an established method of quantifying the intensity of development and is a crude indicator of amenity and environmental quality. However, compatibility of density is only one of many criteria used to assess the suitability of a housing proposal and other factors will often have overriding importance in determining an application.

2.4.2 Calculation and Assessment of Density

It is the volume and extent of development which is of main concern when assessing housing density. For planning purposes, density assessment will be made on the basis of both the number of dwellings and the number of habitable rooms per hectare. However, the plot ratio (gross floor space to site area) should also be used for more dense urban sites. Jinadu (1995), said density

may be expressed as the number of houses, habitable rooms and persons per hectare. Based on this, the author came up with housing density surveys by classifying them as follows:

- Gross Density – This is the overall density of an area. It is obtained by dividing the entire land area by the total population
- Net Residential Density: it is the measure of the intensity of development of a residential plot. It is expressed as the population of people per unit area or in terms of the accommodation they occupy. The net residential areas include the house plot gardeners, incidental open spaces and half the width of surrounding roads up to a maximum of 6 metres.
- Accommodation Density: This is the number of habitable rooms per unit area (e.g. acre or hectare) Habitable rooms include all rooms except bathrooms and water closets, laundry rooms passage or hallways, and kitchens.
- Occupancy rates: This is the number of persons per habitable room. Simply expressed as

Population Density/Accommodation Density

Floor space index (FSI) or Floor Area Ratio: This is the amount of building floor area per plot. It is obtained by multiplying the length and breadth of structure to get the total floor area and dividing it by the area of site, including half the area of adjourning road.

- Plot Ratio: This is the total area occupied by a building in relation to the total plot area.

2.5 Effect of Housing Density

Housing density can have a positive or negative effect on the neighbourhood and by extension the environment. Most neighbourhoods in urban centres are classified based on housing density into high density, medium density and low density respectively.

This major categorization of housing densities is distinct in social and physical patterns. An attempt is made below at showing the distinctions among others.

2.5.1 High Density

This is usually associated with low quality residential areas of our urban centres. This district is located largely in the central parts of pre-colonial Nigeria cities. In other words, they are the residential districts built up in these cities during the pre-colonial period.

Although a large proportion of low quality residential areas, in the pre-colonial urban centres are located in the central areas, the situation in the modern or colonial towns is quite different. In these towns, low quality residential areas are often clustered in the suburbs apart from those inhabited by the first groups of immigrants to them which are in most cases located in the central areas. Irrespective of where they are located, low quality residential area or districts in urban centres of Nigeria have similar socio-economic and physical characteristics. The most distinguishing physical feature of these residential districts is that most of them have never been planned. (Onokerhoraye and Omuta, 1986). Consequently, houses have been built without any

reference to a street network. However, much of the housing is overcrowded, insanitary and dilapidated. The district is also without adequate vehicular access, the road reservation between housing is not made and generally impassable to vehicles during the rains.

In some of the modern towns such as Lagos, Kaduna and Minna, a significant proportion of the low quality residential districts are planned with a grid pattern and network of roads. But, in spite of this, the standard of house construction is low with most of them built of mud and plastered with cement. However, within the low quality residential areas of Nigerian urban centres, there are few high quality houses built by individuals who for one reason or another find it convenient to build their houses in such areas. According to Onokerhoraye and Omuta (1986), the general low standard of the housing in terms of construction layout and facilities available explains the very low rent paid by tenants.

In traditional urban cities, the vast majority of the low quality residential districts are occupied by their owners while in the modern cities most of those who live in the district are tenants. This shows that in the modern cities, the ethnic composition of the inhabitants is more varied as compared to the traditional cities.

Finally, the vast majority of people living in the low quality residential district in most urban areas in the country belong to the low grade social group. Consequently, the socio-economic characteristics of the majority of the inhabitants in low quality residential districts are virtually the same as those of the lower income group in the urban areas.

2.5.2 Medium Density

This is synonymous with the medium grade residential district in the urban areas of Nigeria having the common characteristics of been planned and laid out after the establishment of British Colonial rule in the country. They are therefore a feature of both the slow and rapid growing traditional cities as well as the modern cities (Onokerhoraye and Omuta, 1986). These districts developed as a result of the need to accommodate a growing number of middle grade income house holds in the urban areas the vast majority of which are employed in the formal sector of the urban economies. In the medium grade residential district, some efforts have been made by town planning authorities to control the layout of streets.

The houses in these district contrast sharply with those in the low grade residential districts discussed above. The walls of most houses are made of cement blocks while a few others are built of baked brick. Although, a few of the houses are built to suit a single family, most of them can accommodate three or four average families. Most of them show a very high percentage of houses with good household amenities. The density of housing per hectare which is generally about 18 to 22 is quite low compared with the situation in low grade districts (Onokerhoraye and Omuta, 1986). Some of the houses have gardens while a fewer still have garages. Many streets present facades of a high standard of urban design. The layout is of mixed residential uses with shopping, warehousing and informal trading kiosks.

The socio economic characteristics of the inhabitants of these districts are also quite different from those of the low because houses are relatively well spaced out while the number of people

sharing a dwelling is also quite small. Consequently, population density in most of these districts is less than 100 per hectare. The ethnic composition of the population in the districts is quite mixed especially in the rapidly growing traditional cities and the modern towns which have attracted a large number of immigrants in recent years. Finally, the medium grade residential district are largely inhabited by members of the middle grade income group although there are a significant number of members of the lower and upper income groups and rents are generally higher than the low quality residential area.

2.5.3 Low Density

This is also referred to as high quality residential area. According to Onokerhoraye and Omuta (1986), this district comprises of government residential areas and some recently laid out housing estates. The districts have the common characteristics of being well planned. Most of them are of recent date, and with a few exceptions, have been specially developed by governments or their agencies. Onokerhoraye and Omuta, (1986) further opined that, the density of housing is quite low and most of the houses stand in the midst of well kept lawns, surrounded by neatly trimmed hedges. Although there are some blocks of flats, the houses in most high quality residential districts are generally single-family ones.

In the older sections of the government residential areas, housing tends to be largely of the 'colonial' type. The colonial style of building is not peculiar to the urban centres of Nigeria. Their structure and design; although varied on account of different social and climate conditions and from one era to another, may be seen reflected in many parts of the world formally

administered by Britain. The houses built in the new sections of the government residential area and other housing estates are quite different in style from the colonial ones. Basically, the facilities available in them are the same as those of the colonial style of building.

The socio-economic characteristics of the inhabitants of this district are distinct from those of the other sectors of the cities. In terms of ethnic composition, they are quite heterogeneous and in fact, include few non-Nigerians resident in the cities. Population density is very low while the inhabitants belong largely to the upper socio-economic group in the urban areas (Onokerhoraye and Omuta, 1986). The socio-economic characteristics of the high quality residential districts are largely the same as those associated with the upper income group and rents are very high.

2.6 Neighbourhood

In one way or another, the neighbourhood is universally recognised as the basis of healthy personal, social and physical development. Dannis(1969), said that before the city came into existence, the village had brought forth the neighbour: (he who lives near at hand), within calling distance sharing the crisis of life, watching over the dying, weeping sympathetically for the dead, rejoicing at a marriage feast or a child birth . This order and stability experienced in the village was carried along with its maternal enclosure and intimacy into the city. The modern residential neighbourhoods are experiencing over-population, pressure on infrastructural facilities, social and urban crimes, waste disposal and management problems.

2.6.1 Definition of Neighbourhood

Different writers on this subject have done a lot of work. As a result of this we find that the definition of the subject varies according to the discipline of a particular writer. Physical planners, designers, geographers have concentrated on the physical dimension of a neighbourhood, describing it in terms of boundaries and areas. On the other hand, social planners and sociologists have stressed with equal zeal the social dimensions of a neighbourhood. They view the neighbourhood in terms of its symbolic and cultural aspects and emphasised shared activities and experiences, the resulting social groupings and common values and loyalties. The physical environment is taken for granted. Of course there are those who felt that man's behaviour is no longer oriented to the local area but to the city, nation and the world. Therefore, a definition of the neighbourhood was irrelevant (Carthorpe, 1993). In the light of the above, we shall attempt to group the definition under various headings as follows:

2.6.1.1 Neighbourhoood as a Physical Entity.

Many writers especially physical planners and geographers saw the neighbourhood as a physical entity. Mann (1970) confirms the above assertion when he wrote "a neighbourhood is usually thought of more in geographical terms as a certain boundaries (e.g. made by roads, railways, rivers, parks, etc) and marked off from other neighbourhoods by certain homogeneity of housing within the area".

Gallion and Eisnen (1963) did not mince words by refuting the notion of the neighbourhood unit as a sociological phenomenon: "the neighbourhood unit is not some sociological phenomenon: it embraces no particular theories of social science. It is simply a physical environment in which is within easy walking distance from home ...." This not only gave the difference of the neighbourhood but some of its attributes.

According to a group of researchers (Hester, 1975). "physical neighbourhoods are those that have a distinct environment whose limits may be precisely defined. They may have boundaries formed by barriers like railways, canals, major roads, industrial areas, or natural features such as open spaces, or steep slopes". Like Mann their definition went further to mention the fact that the neighbourhood might possess a uniform environment which differentiates it from the surrounding neighbourhoods.

A sociologist, Dennis (1969) says that "the community may denote merely the houses and people located in a given area, even where there are few relationships of any kind, whether institutionalised or informed, manifest or latent. The area referred to will usually be roughly comparable in size to a village".

We find that one common characteristic of the above definitions is that most of them enumerates the elements of the neighbourhood in their definitions almost to the total neglect of the social functions of a neighbourhood, an aspect which the following definitions would take care of.

2.6.1.2 Neighbourhood Unit as a Psychological Concept

This concept of neighbourhood unit is mainly in the mind of the people who live in that part of the city. It is kind of mental picture and it is aptly described by the following definitions.

Pahl (1968) quoted Mackenzie as writing in 1921 that: "it is clear to me, that the conception which the average city dweller holds of his own neighbourhood is that of a very small area within the immediate vicinity of his home, the limits of which seem to be determined by the extent of his personal observations and daily contacts". It is the opinion of Pahl that the neighbourhood changes with age, sex, occupation, mobility potential and social network.

In discussing Munford's work, members of the Open University Course team interpreted evolvement of the neighbourhood as a "social-spatial schema", that is a psychological and subjective internationalisation of the environment as learnt images or schemata (Munford, 1961). In this way the neighbourhood is therefore, a subjective psychological concept. It is concluded therefore, that Munford study might mean that in the absence of disturbing factors such as change people will choose friends and will do so fairly locally.

In his own contribution Spreiregen, (1965) wrote of the identity of a neighbourhood by the residents. "The degree of identity is often well indicated by the name of the neighbourhood and the degree of registration of this name in the minds of a city's whole population." He however, warned that identity should never mean isolation but it should mean clarification.

2.6.1.3 The Neighbourhood as a Socio-Cultural and Political Area

The neighbourhood is a primary community where neighbours share their joys and sorrows together. It is a sort of close knit, territorially bound community that is socially homogenous and bound together by a tightly knit pattern of primary relationship. This kind of neighbourhood constitutes what Tonnies (1887) allied a "geneinschaft society" one that is exclusive, private and intimate.

The political aspect was dealt with by many writers. Keeble (1969), for instance believes that "a neighbourhood with boundaries which are physically apparent, is likely to produce greater political interest and awareness than one whose boundaries are entirely arbitrary, and visible only on a map". He believes that no one would question the desirability of strengthening local political interest. Pahl (1968) spoke of "locality government" on housing estates. These bodies which he called "community councils" or "joint councils" have the function of fostering affiliation of leaders of the community and more generally to make the estate more community-like. Residents of this locality are thought by affairs". Such councils have been most successful when they have acted like an efficient pressure group, with the circularization of city councillors and threats of public agitation".

Hester (1975) described the neighbourhood as a political settlement. It buttresses Pahl's assertion on political activities on the estates. He says "In contracts to many definition of neighbourhood, the idea of a neighbourhood as a political settlement is also extremely useful in planning social and physical change.

It is increasingly apparent that residents want to control their neighbourhood; therefore change at the neighbourhood level must be consistent with the values and goals of the residents or it will not occur. Perhaps the greatest advocate of political awareness in the neighbourhood is Jane Jacobs (1961). It is her opinion that a neighbourhood should fulfill all political functions enumerated above. She described a successful neighbourhood as "a place that is overwhelmed by its defects and problems and is progressively more helpless before then, that is the people there have lost the capacity for collective action". She added that "a reasonably effective district usually accrues itself, considerable political power. It eventually generates, too, series of individuals able to operate simultaneously at street scale and district scale, and in neighbourhood of the city as a whole."

2.6.1.4 Neighbourhood as a Religious Centre

This is in so far as religion is a very important aspect of the people's life especially in ancient and traditional settlements. These places of worship (temples, mosques, churches and shrines) form the focal points in the neighbourhood. For instance, Mumford (1961), in describing the ancient Mosepotamia cities wrote: "beyond the walled but spacious temple precinct, spread a series of more or less coherent neighbourhoods in which smaller shrines and temples serve the household. Every citizen in ancient Mesopotamia, it would seem, belonged to a particular temple and its god, and did work for him: the basis of "citizenship" was in this particular religious affiliation.

A temple community which is a visible form a 'neighbourhood unit' comprised priests, officials, gardeners, stone cutters, merchants and even slaves all the people of the god. Mumford was even convinced that the first historic example of a deliberately fabricated neighbourhood unit had existed from the earliest times. He also pointed out that there is plenty of evidence to show that a natural neighbourhood is formed around a shrine or a temple. In some towns in Yoruba land of Southern Nigeria, community shrine either in the market place or in the Oba's Palace serve as the local point of the neighbourhood.

2.6.1.5 Neighbourhood as a Unit for Provision of Facilities

It is generally agreed among planners that the neighbourhood unit is a convenient unit for the supply of services and facilities of a lower order to its inhabitants.The neighbourhood unit, or some equivalent of this unit, is repeatedly referred to in proposals for urban reorganisation. The suggested form varies widely, but the essential characteristics of a neighbourhood unit are considerations for social, physical and political organisation of the city. It represents a unit of the population with basic common needs for educational, recreational and other facilities. It is the standard for these facilities from which the size and design of a neighbourhood emerge.

2.7. Neighbourhood Characteristics as an Environmental Externality

1. Density

Density of houses in terms of low, medium and high density area is very paramount among the neighbourhood characteristics . Households choose their residential locations on the bases of the

density attractiveness to them. Olatunji (2008). He further opined that affluent families prefers low density quarters while the poor go for high density zones, the middle income is found in areas that possess features that are midway between the two.

2. Access and accessibility.

Both are considered similar and sometimes one and the same but they are analysed from two different perspectives. ''For analytical purpose, access is seen in terms of public services that can be brought to the doorstep of the household. Water, electricity, roads, waste disposal, communication, drainage system and services that are capable of direct access to the household residential location. On the other hand, accessibility is described in terms of activities and services which the households have to pursue to their points of availability, therefore they involve explicitly, commuting cost. Work place, CBD, shopping centre, health centre, recreation and cultural centre, school and worship centre (to some extent) have to be followed to where they exist. Commuting cost in terms of distance, time and monetary cost is a major consideration under accessibility''. Olatunji (2008).

3. Physical attractiveness of the neighbourhood.

The other component of neighbourhood characteristics is the physical attractiveness of the residential district. Households are attracted to the districts that are physically attractive with well laid out roads and avenues, provided the costs are within family buyers.

4. Crime level and security.

Recent happenings in the global village tend to heighten fears about security of life and property. It is easily understandable that households do take precautions to safeguard human life and guarantee the dignity of human existence within their limited spheres of influence.

2.8 Property Valuation.

This is the practice of developing an opinion of the value of real property, usually its Market Value. The need for appraisals arises from the heterogenous nature of property as an investment class: no two properties are identical, and all properties differ from each other in their location - which is one of the most important determinants of their value. So there cannot exist a centralised market setting for the trading of property assets, as there exists for trade in corporate stock. The absence of a market-based pricing mechanism determines the need for an expert appraisal/valuation of real estate/property.

2.8.1 Residential Property Value Determinants.

Plenty of factors influence the selection of the new residence: accessibility, physical characteristics of the neighborhood, services and facilities, social environment, individual site and dwelling characteristics (Brown and Moore, 1970).Therefore, house price is not only determined by the demand for the attributes of the dwelling units themselves, but also the area in which the properties are located as mentioned above. Location is the time-distance relationships, or linkages, between a property or neighborhood and all other possible origins and destinations

of people going to or coming from the property or neighborhood. In other words, location is the relationship between the property and its surroundings.

Herold and Leonard (1991) suggest that more distant locations may have more attractive features and amenities, despite their longer commute. Usually, all neighborhood properties have the same or highly similar locational relationships with common origins and destination. The neighborhood is influenced by the surrounding community or metropolitan area. Each suburb responds to its own local demands for urban space. Many metropolitan areas include upper income households and they tend to live outside the center of the city, while lower income families continue to reside in the cities, close to employment centers. However in Minna a trend seems to be occurring where by lower income families are now living further away from the city center and the city is increasingly in demand with new expensive apartments being constructed.

To analyse the impact of location in a neighbourhood, the valuer must identify the important linkages and measure their time-distances or distance to and from properties (Fanning 1994). The linkage relationship such as the movement between, or proximity of, associated activities may be judged in terms of how well they serve the typical users of real estate in the neighborhood. For instance, single family residential neighborhoods, linkages with schools, grocery stores, and employment centers are usually the most important. Therefore, it is to identify and discuss neighborhood conditions and trends that enhance or detract from property values. Public transportation is crucial for the numerous people who do not own cars or prefer not to use them during the day or week.

Distance from public transportation is considered in relation to the people who are to be served by it. For instance, urban apartment residents usually prefer to be within convenient walking distance of public transportation. Several studies on the relationship between transportation and property values can be found such as in the study by Chau (1998), the effects of improvement in public transportation capacity on a residential price gradient in Hong Kong and the study by John (1998), Transport investment and house prices.

IHouseholds, which have the same tastes and income, tend to live within the same area. Therefore, the factors such as the size of households, their age, income and education levels and the availability and cost of mortgage financing have to be incorporated in affecting the types of housing and the values. High-income residents will seek out a part of city that may offer leisure facilities, parks, amenities and the most convenient form of transportation and infrastructure. This also reveals that the proximate and relevant influences on the property are related to the same influences operating on other properties in the neighborhood. Moreover, social considerations in neighborhood analysis involve characteristics of neighborhood occupants.

Relevant characteristics may be the availability and quality of services, including recreation facilities and shopping. Residents are attracted to a location because of status, physical environment, and availability of services, affordability, and convenience. However, residential groups generally socialize with those of a similar educational, cultural or social level. The important social characteristics include;

- Quality of educational, social, recreational, cultural and commercial services.
- Community or neighbourhood organisations (e.g. neighbourhood watching area).

• Occupant age levels, particularly important in residential neighbourhoods.

In addition, it is difficult to attempt to relate the preferences to an effect on property values. An appraiser should not place too much reliance on social influences when arriving at a value conclusion. Mann (1982) analyzed the effects in the housing values of altering school boundaries in an urban area. He found that changing the school boundaries associated with a house affected the value of the house. This finding of Mann (1982) may not be so applicable to the Minna housing markets.

Another consideration is to environmental attributes that consist of any natural or manmade features that are contained in or affect the neighborhood and the neighborhood's graphic location. The important environmental considerations include open space, nuisances, hazards emanating from nearby facilities such as shopping centers, factories, and schools; adequacy of public utilities such as street lights, sewers and electricity; general maintenance; street pattern, width, and maintenance.

An excessive volume of vehicular traffic or odours, dusts, and noises from commercial or manufacturing enterprises restrict a residential neighbourhood's desirability. Also residential property value can vary widely across the urban city from one neighbourhood to another due to several other environmental factors described as internalities and externalities (Olatunji(2008). He further affirmed that property values are statistically significantly related to these two sets of environmental factors. Internality factors include dwelling size, age and plot size and shape,

while externality factors include accessibility, neighbourhood quality and prestige and density. Each of the above factors exerts a push or pull effect on the desirability of the property.

2.9 Related Literature on Relationship between Neighbourhood Quality and Property Value

In the work by Elif (2009), he posited that it is remarkable that researchers have been focused on three broad headlines for examining neighbourhood quality related with housing and its environment. The first being examining the relationship between environmental quality of housing areas and users' well-being, the second is focusing on housing and its environment via user satisfaction and perception and the third one is concerning neighbourhood quality as a factor in housing price structure. Therefore, the related literature is organized according to these three headings.

2.9.1 Relationship between Neighbourhood Quality of Housing Areas and Users' Well-Being

Neighbourhood quality of housing areas and users' well-being related studies can be clustered in two sub-groups. In the first subgroup, researchers explore the role of well-being on quality of life indexes. For instance, Royuela et al. (2003) measure the quality of life focusing on individual well-being in small areas. In another study, Bobbitt et al. (2005) discuss the strengths and weaknesses of quality of life indexes, which are based on well-being. Additionally, Turksever and Atalik (2001) identify individual well being as one of the 18 different attributes that define

the quality of housing neighbourhoods. These studies emphasize that well-being is a major variable of quality of life indexes.

The second subgroup examines the relationship between neighbourhood quality of housing areas and well-being. For instance, Marans (2003) demonstrates that the quality of neighborhoods is important to the well being of individuals and families. Likewise, Pacione (2003) assesses the quality of different residential neighbourhoods and emphasizes that increasing quality in housing neighbourhood means increasing well-being of individuals. In another study, Sirgy and Cornwell (2002) evaluate three conceptual models' results and they emphasize that the greater the housing neighbourhood satisfaction, the greater the satisfaction and well-being with life in general. Supporting to Sirgy and Cornwell (2002), Kahlmeier et al. (2001) emphasize that an improved health is most strongly associated with an improved satisfaction with neighbourhood housing quality. Galster and Hesser (1981) developed an explanatory model of residential satisfaction which is based on objective characteristics of residents, their dwellings and their neighborhoods. Their findings have supported that objective characteristics of residents, dwellings and surrounding neighborhood have significant, independent correlations with various dimensions of residential satisfaction. Results of all these studies demonstrate that there is a strong and linear relationship between environmental quality of housing areas and well-being of residents.

2.9.2 Relationship between Neighbourhood Quality of Housing Areas and User Satisfaction and Perception

Some of the user satisfaction and perception based studies give remarkable attention to neighbourhood characteristics such as geographical scale and social structure as increasing user

satisfaction and perception. For instance, Kellekci and Berkoz (2006) investigate mass housing user satisfaction based on neighbourhood quality of housing areas in Istanbul. They determine the characteristics of housing environment which increase the level of satisfaction.

In a larger geographical scale, Lee and Guest (1983) examine why satisfaction is greater for some metropolitan populations across a sample of 60 standard metropolitan statistical areas. They find out that urban scale is important for user satisfaction with neighborhood quality. Analyzing user satisfaction by perceived neighborhood model, Connerly and Marans (1985) emphasize that social interaction within the neighborhood environment has significant effect on satisfaction. As another example, Greenberg and Schneider (1994) examine the association between the ratings of neighborhood quality and assessment of neighborhood attributes. They find out that perception of neighborhood quality is adjustable across different geographical scales.

On the other side, some of the user satisfaction and perception based studies concern about residential mobility. Fang (2006) examines the interrelationship between residential satisfaction and residential mobility. Greenberg and Schneider (1994) test the residents' perception on the low environmental quality neighborhoods. They emphasize that resident who moves in the low environmental quality neighborhood from poorer neighborhoods more positively perceive the neighborhood than the others. Hence, they reflect that intra-urban movements drive through higher quality environmental areas.

At a larger geographical scale, Rebhun and Raveh (2006) investigate the importance of quality of life in interstate migration rates. Blomquist (1992) addresses the importance of environmental quality for movement decisions within or through the urban area. Additionally, Bender et al. (2000) investigate the environmental preferences of residents focusing on their neighbourhood perceptions of them.

Either focusing on neighbourhood characteristics or residential mobility, user satisfaction and perception based studies show that high neighbourhood quality is more decisive on user satisfaction and perception than low neighbourhood quality. Beyond, people always tend to move from relatively poor conditioned neighbourhoods to wealthy conditioned ones.

2.9.3 Relationship between Neighbourhood Quality and Housing Prices

Undertaking an analysis of inequality in the spatial distribution of accessibility and neighbourhood quality in the Paris metropolitan region, Palma et al. (2007) recognize that local amenities are generally capitalized into the housing market. Chau et al. (2006) seek residents' neighbourhood perception and evaluate the importance of different neighbourhood attributes associated with housing prices.

With their similar studies Cobb (1984) tries to explain varying rent rates in housing areas according to large numbers of housing area-related characteristics. Furthermore, Potepan (1994) shows housing sales prices depend on the neighborhood amenities associated with the residential area and urban migration, proceeds toward amenity rich areas despite the higher housing costs

there. Also Basil and Michael (2004) opined that empirical analysis confirms that neighbourhood variables in general have a strong positive impact on house values. Rogerson (1999) explores in a more general panorama and investigates how neighbourhood quality level influences patterns of urban growth by attracting new capital and becoming a part of promotional tool to different global capital.

It is clear that characteristics that increase neighbourhood quality are simultaneously significant ones which have positive impact on either housing price or rent. This study is explorative and it focuses on relationship between neighbourhood quality levels and housing prices rather than determine the price effect of neighbourhood quality on housing prices.

In this study, neighbourhood quality is measured on the basis of housing and neighbourhood characteristics, and then, it is searched if there is any relation between neighbourhood quality levels and housing prices.

CHAPTER THREE

3.0 MATERIALS AND METHODS

3.1 Introduction

The purpose of the study is to examine the relationship that exit among housing density, neighbourhood quality and residential property value. This section of the study provides an insight into how the data used for this research were obtained and analysed.

3.2 Research Design

The descriptive survey method was adopted for this research work since the data required could only be obtained by means of inquiries, interviews and questionnaires for this purpose, an interview guide was constructed and filled as the respondents offer answers to the respective questions. The questionnaires for users were distributed to household heads. The respondents only had to rate the factors that influences their decision to pay the rent they are paying. They were also asked to comment on their ideal neighbourhoods. The questionnaire was in two categories, one is addressed and targeted to collect data from the tenants and the other is targeted to the professional estate surveyors.

3.3 Instruments for Data Collection

These are the instruments used in the collection of data for this research work. Four tools were used for this purpose and they include:

1. Physical observation

2. Oral interview

3. Questionnaire

3.3.1 Physical Observation

This was carried out both during the reconnaissance survey which is a visit to familiarize the researcher with the site and also during the field work to collect data.

3.3.2 Oral Interview

As limitation to this study, there were some respondents who could not speak or write English language. Therefore they needed to be spoken to in other for the research to proceed. Added to this, some clarifications that needed to be done as fallout from the data collection process was done using this tool.

3.3.3 Questionnaire

The questionnaire was designed to seek answers to the research questions that were framed for the purpose of the study. The questionnaire was designed to obtain information on the possible relationship among housing density, neighbourhood quality and property value. The questionnaire was a structured one that gave options to the respondents about any question asked. There were also questions that required the respondents to rank their responses on a likert

scale of zero to five, where zero represented the worst possible condition and five represented the best possible condition. The variables contained in the questionnaire were carefully selected to capture issues on housing density, neighbourhood quality and property value.

3.4 Data Sources and Types

For the purpose of this research work, there are two major sources from which data were collected and these are the primary and secondary sources. Primary data were collected from the primary sources which basically were the activities on the field while secondary data were collected from the secondary source which basically consisted of past works or documents related to the research.

3.4.1 Primary Data

As mentioned passively above, these are basically information collected from the field of study through the use of such tools as questionnaire, oral interviews and physical observation. For the purpose of this research, the primary data include:

(1) Report of interviews sessions that was held with the tenants in the study area

(2) Reports on each of the neighbourhood attributes under study.

(3) Density measurement

3.4.2 Secondary Data

The secondary data comprised theories and research finding from books, journals and unpublished works like seminar papers, Rental trends obtained from the professional estate surveyors and valuers which were further confirmed from the site, dissertations and project reports relevant to housing density, neighbourhood quality and residential property value.

3.5 Sampling Frame, Sample Size and Technique

This is the list of records of members of the population under study and from which samples can be drawn. The sampling frame in this study was the total population of houses in Minna as estimated based on houses connected to electricity from the Power Holding Company of Nigeria (PHCN) Minna business district as in table 2. Studying a total of 1.5% of the 60100 estimated houses gave 900. Dividing this among the twelve neighbourhoods meant that each neighbourhood was to be administered 75 questionnaires.

A further analysis of table 3.1 below showed that there is one low density neighbourhood in Minna, five medium density neighbourhoods and six high density neighbourhoods as shown in table 3.2 below. Based on this finding, a ratio of 1:2:3 was adopted to arrive at six neighbourhoods. The basis of the selection was, GRA as the only low density area was selected; Bosso II and Tunga II were selected being the lowest and the largest medium density neighbourhoods as shown in table 3.2 Bosso I, Minna North West Peripheral and Maitumbi

respectively were selected on the basis of being the lowest, the medium and the largest figures among the high density areas. Table 3.3 shows all the selected neighbourhoods for the study.

Based on the six neighbourhoods selected, a total of 450 questionnaires were administered (75 questionnaires per neighbourhood) and 430 were successfully returned representing 96% success.

TABLE 3.1 Projected Housing Population in Minna

ZONES	DESCRIPTION	NUMBER OF HOUSES
ZONE 1: Bosso I	High	4908
ZONE 2: Bosso II	Medium	2652
ZONE 3: GRA	Low	1134
Zone 4: Minna East Central	High	6719
Zone 5: Minna West Central	High	5953
Zone 6: Tunga I	Medium	3325
Zone 7:Tunga II	Medium	3998
Zone 8: Minna South West Peripheral	High	7801
Zone 9: Minna North West Peripheral	High	6805
Zone 10: Maitunbi	High	10974
Zone11:F-Layout	Medium	2808
Zone 12: 123 Quarters	Medium	3025
TOTAL		**60100**

Source: Power Holding Company of Nigeria (PHCN) Minna business district 2009.
This is only the list of officially connected houses. Some illegally connected houses are available but are not considered in this study.

Table 3.2 A Breakdown of Neighbourhood Classifications Derived From Table 2

Low density	Medium density	High density
GRA (1134)	Bosso II (2652)	Bosso I (4908)
	F- Layout (2808)	Minna West peripheral (5953)
	123 Quarters (3025)	Minna East Central (6719)
	Tunga I (3325)	Minna North West peripheral (6805)
	Tunga II (3998)	Minna South west peripheral (7801)
		Maitumbi (10974)

Source: Author's analysis 2009

Table 3.3. Selected Sample

Low density	Medium density	High density
GRA	Bosso II	Bosso I
	Tunga II	Minna North West Peripheral
		Maitumbi

Source: Author's analysis 2009

3.6 Method of Data Analysis

3.6.1 Identification of the Various Housing Densities in Minna

From table 1.1 (residential zones used for the study) adopted from Baba and Jinadu (2007), Minna was classified into twelve zones and three neighbourhood types of low, high and medium

densities. Table 3.2 shows that Minna has one low density, five medium density and six high density neighbourhoods.

3.6.2 Determination of the Qualities of the Various Housing Neighbourhoods.

A neighbourhood quality index (nqi) was derived. This is an index number that indicates the current condition of the neighbourhoods measured relative to its 'as-ideal' condition. The index number is derived by the formular:

nqi = score/ total possible score

In deriving the nqi, all the variables in the questionnaire were summed up to 22 in number and put on a 5 point likert scale with 1 representing very poor and 5 representing very good as shown in table 3.4. A summation of all scores by a particular neighbourhood is made and divided by the total possible score of an ideal neighbourhood (110) to get a neighbourhood quality index number. This number can be checked from table 3.5 to know the quality rating of a neighbourhood. Analysis of variance (ANOVA) was done to determine the neighbourhood quality index at all neighbourhoods.

Table 3.4 All Variables Used on a Five Point Likert Scale

	1 bad	2 poor	3 fair	4 good	5 very good
bldg type	traditional compound	rooming apartment	semi detached	single detached	duplex
kitchen location		outdoor		indoor	
mode of usage		shared		not shared	
toilet location		outdoor		indoor	
mode of use		shared		not shared	
plot coverage	81% and above	71-80%	61-70%	51-60%	40-50%
nos of living rooms	5room and above	4 rooms	3 rooms	2 rooms	1 room
nos of persons/room	5 persons and above	4 persons	3 persons	2 persons	1 person
nos of person/house	5 people and above	4 people	3 people	2 people	1 people
tap water availability		no		yes	
frequency of supply	1 time/week	2 times/week	3 times/week	4 times/week	5 times/ week
solid waste disposal point		open space	storage bin	official waste point	
building space	less than 1metre	1-2 metres	3-4 metres	4-5 metres	more than 5 metres
air space	less than 1metre	1-2 metres	3-4 metres	4-5 metres	more than 5 metres
pipe water ranking	bad	poor	fair	good	very good
security ranking	bad	poor	fair	good	very good
drainage ranking	bad	poor	fair	good	very good
waste disposal ranking	bad	poor	fair	good	very good
access road ranking	bad	poor	fair	good	very good
house condition ranking	bad	poor	fair	good	very good
noise pollution severity	very severe	severe	fairly severe	not severe	
air pollution severity	very severe	severe	fairly severe	not severe	

Source: Author's analysis 2009

Table 3.5 Neighbourhood Condition Rating.

Condition status	General description	Neighbourhood condition	Condition rating
Bad	The neighbourhood has deteriorated badly with building and facilities having structural problems. The neighbourhood presents a generally poor outlook.	0.00 to 0.19	1
Poor	Conditions of neighbourhood attributes are poor, deteriorated road network, functional but often failing facilities, and blocked drains.	0.20 to 0.49	2
Fair	Conditions of neighbourhood attributes are average, services are functional but requires attention	0.50 to 0.74	3
Good	Conditions of neighbourhood attributes shows minor wear and tear requiring some upgrades but not major maintenance	0.75 to 0.95	4
Very good	Conditions of neighbourhood attributes can be described as perfect with no wear and tear	0.95 to 1.00	5

Source: Adopted from guidelines for strategic Asset Management (2000) and modified.

3.6.3 The Assessment of Property Values in Different Neighbourhoods.

This was achieved by obtaining secondary data from practicing Estate Surveyors and valuers in Minna and cross checked with primary data from the site.

3.6.4 The Establishment of Relationship between Neighbourhood Quality and Property Value.

This was carried out by correlation and regression analysis. While Correlation analysis was used to determine the relationship between average neighbourhood quality and average property value at all neighbourhoods, Regression analysis was use to compare neighbourhood quality and property value at all sampled locations.

3.6.5 The Establishment of the Relationship Between Housing Density and Property Value

This was achieved by a multiple regression analysis. The independent variables were the indicator of density in the questionnaire while the depended variable was the average property value.

3.7 Techniques for Data Processing and Analysis

The admitted responses from interview and questionnaires form the bulk of data bank required for this research survey. The summary of the data is as contained in the data presentation section of chapter 4.

For more accurate and reliable analysis and computation, the statistical package for social sciences (SPSS), a powerful statistical and information analysis system was used. The package possess the capability of abstracting, classifying, comprising and generating useful results and reports for the purpose of decision making.

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

This chapter is where the presentation of the results from the analysis is made. They include results from the analysis of variance, (ANOVA) correlation analysis, regression analysis and the multiple regression analysis.

4.2 ANALYSIS OF VARIANCE

Table 4.1 Result of ANOVA of Property Values at All Neighbourhoods

Variables (Mean values)					Parameter tested		Observation		
Bosso1	**GRA**	**Maitumbi**	**Tunga**	**Bosso2**	**Minna NW Peripheral 133823.5**	**Property value**	**F**	**$F_{0.05}$**	**P_{value}**
73529.41	**395250.0**	**23460.32**	**178206.9**	**210428.6**			**21.778**	**2.21**	**0.000**

Source: Author's analysis,2010.

The table above shows the average rent in all neighbourhoods of the study. It is derived from the Analysis of Variance of the average rent passing in all the neighbourhoods. It provided evidence that there is a statistical significant difference between property values across the six neighbourhoods . This inference was based on the observation that the calculated value of the F-statistics of 21.778 exceeded the critical value of $F_{0.05}$ 2.21 at 0.05 degree of freedom.

Table 4.2 Result of ANOVA of Neighbourhood Quality Index at All Neighbourhoods

Variables (Mean values)							Observations		
Bosso1	GRA	Maitumbi	Tunga	Bosso2	Minna NW Peripheral	Parameter tested	F	$F_{0.05}$	P_{value}
0.5239	**0.6460**	**0.4588**	**0.6275**	**0.5650**	**0.5372**	**Neighbourhood quality index**	**37.537**	**2.21**	**0.000**

Source: Author's analysis, 2010.

This analysis represent the quality index number derived for all neighbourhoods using the Analysis of Variance. It is derived by measuring the present conditions of the neighbourhoods and dividing it by the 'as should be '. The result shows that variations in the quality of the neighbourhoods (as measured by the n.q.i) was statistically significant, because the F statistics, as computed, exceeded the critical value of $F_{0.05}$ (37.537 compared to 2.21.

4.3 CORRELATION ANALYSIS

Table 4.3: Result of Correlation Analysis of Average Neighbourhood Quality Index and Average Property Values at All Neighbourhoods

Variables		Pearson Correlation (R)	R^2_{value}	P_{value}
X	**Y**			
Neighbourhood Quality index	**Average annual rent**	**0.871**	**0.76**	**0.024**

Source: Author's Analysis, 2010.

This result shows the relationship that exist between the quality of a neighbourhood and the rent that properties in the neighbourhood commands. Correlation analysis between the average neighbourhood property value and the average neighbourhood quality index in all locations provided evidence of a statistically significant relationship. The coefficient of determination (R^2) observed was 76%.This meant that variations in average n.q.i were responsible for about 76% of variations in property values. In addition, the Pearson Correlation (r) value was positive. This implied that, as average n.q.i improved, so the average property value would appreciate.

4.4 REGRESSION ANALYSIS

Table 4.4 Regression Analysis of Neighbourhood Quality and Property Value at All Sampled Locations

Variables		Type of Model			Observations		
X	**Y**		**Regression Equation**	**R^2**	**F**	**$F_{0.05}$**	**P_{value}**
nqindex	**avre**	**linear**	**Avre = -86461.5 + 428573.6(nqindex)**	**.070**	**21.977**	**3.84**	**.000**

Source: Author's Analysis, 2010.

Key

nqindex = Neighbourhood Quality index

avre = Average rent (property Value)

This result shows the relationship that exists between neighbourhood quality and property value in all the sampled locations. It is a summary of all the neighbourhood quality index and all the property values. It provided evidence of a statistically significant relationship between property values and neighbourhood quality, measured across all sampled locations because the value of the F-statistics was observed to be higher than the critical value of $F_{0.05}$ (21.977 compared to 3.84).

Table 4.5 Regression Analysis of Neighbourhood Quality and Property Value at Neighbourhood Location 1 (Bosso 1)

Variables		Type of Model		Observations			
X	**Y**		**Regression Equation**	**R^2**	**F**	**$F_{0.05}$**	**P_{value}**
nqindex1	**avre1**	**linear**	**avre = -79955.2 + 300698(nqindex)**	**.338**	**16.325**	**4.17**	**.000**

Source: Author's analysis, 2010.

Key

ndindex1 = Neighbourhood Quality index at Bosso 1 neighbourhood.

avre1 = Average rent (property Value) at Bosso 1 neighbourhood.

The table above shows the relationship between the neighbourhood quality of Bosso 1 and the property values in Bosso 1. A significant relationship was established between neighbourhood quality and property values here. This was because the F-statistic value of 16.325 obtained is greater than the table value of 4.17. The coefficient of determination (R^2) was 0.338, which equaled 33.8%.

Table 4.6 Regression Analysis of Neighbourhood Quality and Property Value at Neighbourhood Location 2 (GRA)

Variables		Type of Model	Observations				
X	**Y**		**Regression Equation**	**R^2**	**F**	**$F_{0.05}$**	**P_{value}**
nqindex2	**avre2**	**linear**	**avre2 = 817733.2 – 680925(nqindex)**	**0.021**	**0.386**	**4.41**	**0.542**

Source: Author's Analysis, 2010.

Key

nqindex2 = Neighbourhood Quality index at GRA neighbourhood.

avre2 = Average rent (property Value) at GRA neighbourhood.

From the above table, a significant relationship was not proved to exist between neighbourhood quality and property value because the F- statistics value 0.386 observed is less than the table value of 4.41 at 0.05 degree of confidence the coefficient of determination (R^2) was 0.021, which equaled 2.1%.

Table 4.7 Regression Analysis of Neighbourhood Quality and Property Value at Neighbourhood Location 3 (Maitumbi)

Variables		Type of Model		Observations			
X	**Y**		**Regression Equation**	**R^2**	**F**	**$F_{0.05}$**	**P_{value}**
nqindex3	**avre3**	**linear**	**avre3 = 20860.024 + 5729.741(nqindex3)**	**0.001**	**0.043**	**4.00**	**0.836**

Source: Author's Analysis, 2010.

Key

nqindex3 = Neighbourhood Quality index at Maitumbi neighbourhood.

avre3 = Average rent (property Value) at Maitunbi neighbourhood.

From the result above, a significant relationship was not proved to exist between neighbourhood quality and property value in Maitumbi because the F- statistic value of 0.043 is less than the critical value of $F_{0.05}$ of 4.00.

The coefficient of determination (R^2) was 0.001, which equaled 0.1%.

Table 4.8 Regression Analysis of Neighbourhood Quality and Property Value at Neighbourhood Location 4 (Tunga)

Variables		Type of Model		Observations			
X	**Y**		**Regression Equation**	**R^2**	**F**	**$F_{0.05}$**	**P_{value}**
nqindex 4	**avre4**	**linear**	**avre4 = -296406 + 760811.6(nqindex4)**	**0.083**	**5.073**	**4.00**	**0.028**

Source: Author's analysis, 2010.

Key

nqindex4 = Neighbourhood Quality index at Tunga neighbourhood.

avre4 = Average rent (property Value) at Tunga neighbourhood.

The table shows that a significant relationship was proved to exist between neighbourhood quality and property value. This is because an F- statistic value of 5.073 was observed from the analysis which is greater than the critical value of $F_{0.05}$ of 4.00. The coefficient of determination (R^2) is 0.083, which equaled 8.3%.

Table 4.9 Regression Analysis of Neighbourhood Quality and Property Value at Neighbourhood Location 4 (Bosso 2)

Variables		Type of Model		Observations			
X	**Y**		**Regression Equation**	**R^2**	**F**	**$F_{0.05}$**	**P_{value}**
nqindex 5	**avre5**	**linear**	**avre5 = 486249.5 – 483346(nqindex5)**	**0.323**	**32.398**	**4.00**	**0.000**

Source: Author's analysis, 2010.

Key

nqindex5 = Neighbourhood Quality index at Bosso 2 neighbourhood.

avre5 = Average rent (property Value) at Bosso 2 neighbourhood.

The table above shows a significant relationship was proved to exist between neighbourhood quality and property value in Bosso 2 because the F- statistic value of 32.398 was observed from the analysis is greater than the critical value of $F_{0.05}$ of 4.00 and the coefficient of determination (R^2) of the regression analysis was 0.323, which equaled 32.3%.

Table 4.10 Regression Analysis of Neighbourhood Quality and Property Value at Neighbourhood Location 5 (Minna North West Peripheral)

Variables		Type of Model		Observations			
X	**Y**		**Regression Equation**	**R^2**	**F**	**$F_{0.05}$**	**P_{value}**
nqindex 6	**avre 6**	**linear**	**avre6 = -20762.2 + 288019.2(nqindex6)**	**0.037**	**1.902**	**4.00**	**0.174**

Source: Author's analysis, 2010.

Key

nqindex6 = Neighbourhood Quality index at Maitumbi neighbourhood.

avre6 = Average rent (property Value) at Minna North-West peripheral neighbourhood.

A significant relationship was not proved to exist between neighbourhood quality and property value because the F- statistic value of 1.902 was observed from the analysis is less than the critical value of $F_{0.05}$ of 4.00.The coefficient of determination (R^2) was 0.037, which equaled 3.7%.

4.5 MULTIPLE REGRESSION ANALYSIS

Table 4.11 Multiple Regression Analysis of Attributes of Neighbourhood Quality and Property Value

Variables		Type of Model		Observations			
X	Y		Regression Equation	R^2	F	$F_{0.05}$	P_{value}
Bldtype; Kitloc; Moduse; Toiloc; Mduse; Bldpc;Rmnos; perspr; pepph; Watav; frqos; wastd; bldspc; airpc; ppbw; secuty; dsyst; wasdis; accssr; hcond; nispo; airpo;	avre	linear	avre = -125689 + 86833.3bldtype +31021.5kitloc +3907.2moduse -26118.4toiloc -3369.1mduse -2850.7bldpc - 37129rmnos +4656.5perspr +3914.5pepph -19298.7watav +12590.1frqos +11712.1wastd +16022.4bldspc -12321.4airpc -3527.3ppbw +5567.8secuty+12409.3dsyst - 7157.4wasdis -22228.7accssr +10444.4hcond +3776.7nispo +14784.9airpo	0.392	3.846	1.57	0.000

Source: Author's analysis, 2010

From the above analysis, R^2 value of 0.392 was obtained. This meant that 39.2% of attributes responsible for property value was explained. The F_{cal} value of 3.846 while the F_{tab} was 1.57, showing a statistically significant relationship between neigbourhood quality and property value in Minna.

Table 4.12 Result of Multiple Regression Analysis of Housing density and Property Value

Variables		Type of Model		Observations			
X	**Y**		**Regression Equation**	**R^2**	**F**	**$F_{0.05}$**	**P_{value}**
bldpc; rmnos; pepph; bldspc;	**avre**	**linear**	**avre = 139936.0 +19663.699bldpc - 14044.2rmnos -14080.0pepph +4109.503bldspc**	**0.053**	**5.977**	**2.60**	**0.000**

Source: Author's analysis, 2010.

The table above shows the result of multiple regression analysis of housing density in all neighbourhoods and the property values. The F-calculated value was 5.977 while the F_{tab} at o.05 degree of confidence is 2.60. This shows that there is a statistically significant relationship between housing density and property value in Minna

CHAPTER FIVE

5.0 DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

5.1.1 Assessment of Property Values

Property values measured as average rent (avre) differed across all six neighbourhoods sampled. Arranged in order of decreasing property values, the neighbourhoods could be ranked as follows:-

Neighbourhoods	Rank
GRA	1
Bosso 2	2
Tunga	3
Minna North West Peripheral	4
Bosso 1	5
Maitumbi	6

Analysis of variance (ANOVA) experiment carried out and reported in Table 4.1 provided evidence that the disparities between the property values observed in the six neighbourhoods was not due to chance. This inference was based on the observation that the calculated value of the F-statistics exceeded the critical value of $F_{0.05}$ at (1, 32) degree of freedom (21.778 compared to 2.21).

The fact that property values vary amongst neighbourhood within an urban area such as a town or city has been well documented in the literature by Harold and Leonard (1991), and Chau (1998). In addition, the reasons that underlay such variations in property value across spatial units as observed from the field was that as the attribute under consideration (power supply, drainage system, security, refuse disposal facilities, water supply, road condition, condition of houses and noise level) improved, the rent in such locations witnessed increases.

5.1.2 Neighbourhood Quality of Housing

This assessment was done to describe and compare neighbourhoods in terms of physical condition of the built and natural environments as well as provision of infrastructure and services. To standerdise the comparison of neighbourhoods, a neighbourhood quality index (n.q.i) was derived from twenty-two (22) aspects of the neighbourhood condition. The n.q.i was measured on a scale of zero (0) (poor) to one (1) (best).

Analysis of variance (ANOVA) reported in Table 4.2 provided evidence that all of the six neighbourhoods sampled differed with respect to the condition of natural and built environment, infrastructure and services, as measured by the n.q.i of the neighbourhoods. In order of decreasing n.q.i, the sampled neighbourhoods were ranked as follows;-

GRA	64.6%	Ranked 1st
Tunga	62.8%	Ranked 2nd

Bosso 2	56.5%	Ranked 3rd
Minna NW peripheral	53.7%	Ranked 4th
Bosso 1	52.4%	Ranked 5th
Maitumbi	45.9%	Ranked 6th

The variations in the quality of the neighbourhoods (as measured by the n.q.i) was found to be statistically significant, and not due to chance alone. This was because the F statistics, as computed, exceeded the critical value of $F_{0.05}$ (37.537 compared to 2.21 see Table 4.2). This finding meant that real differences exist in the quality of the neighbourhoods that people live in. This fact was supported by Pacione (2003) who assessed the quality of different residential neighbourhoods and emphasizes that increasing quality in housing neighbourhood means increasing well-being of individuals. Also Greenberg et al. (1994) tested the residents' perception on low environmental quality neighborhoods and discovered that residents who moved into better quality neighbourhoods from poorer ones perceived their new neighbourhood more positively.

5.1.3 Relationship between Neighbourhood Quality and Property Values at the Six Sampled Neighbourhoods.

Analysis of correlation between the average neighbourhood property value and the average n.q.i in all locations provided evidence of a strong and significant association. (See Table 4.3).The coefficient of determination (R^2) observed was 76%.This meant that variations in average n.q.i were responsible for about 76% of variations in property values. In addition, the Pearson

Correlation (r) value was positive. This implied that, as average n.q.i improved, so the average property value would appreciate.

The findings agree with earlier research works on the link between environmental /housing quality and the cost of rented accommodation. In a similar study Cobb (1984), tries to explain varying rent rates in housing areas according to large numbers of housing area-related characteristics.

The values used to derive the association between n.q.i and property values were averages. This might have had an effect on the outcome of the analysis. A different result may be obtained, where actual observed values, as opposed to averages are used. This is what the next section set out to test, in addition to esterblishing the level of association between n.q.i and property value in individual neighbourhoods.

5.1.4 Neighbourhood Quality and Property Value at all Sampled Neighbourhoods.

Regression analysis provided evidence of a statistically significant relationship between property values and neighbourhood quality, measured across all sampled locations (Table 4.4). This was because the value of the F-statistics was observed to be higher than the critical value of $F_{0.05}$ (21.977 compared to 3.84).

However, some important features of this relationship that were observed are that:

The influence of neighbourhood quality on property value was real but nonetheless very little, because the regression equation gave an R^2 value (coefficient of determination) of 0.070. This meant only 7% of the variations in property values could be attributed to variations in neighbourhood quality across the sampled neighbourhoods.

The derived regression equation in the form of

$y=a + bx$.....equation 1

yielded the following mathematical expression upon substitution with the study variables;-

property value = -86461.5 + 428,573.6(neighbourhood quality index)

.....equation 2

Resolving equation 2 provided evidence that assuming a neighbourhood quality index of 50% (index of 0.50), the property value in the neighbourhood would average N127, 825.30 per annum.

It must be pointed out that the predictive power of the derived regression equation (equation 2) fell far below any acceptable level of accuracy. This was because of the very low R^2 value observed it may therefore not be used for any predictions.

The result presented and explained above are in agreement with the works of Potepan (1994) which shows housing sales prices depend on the neighborhood amenities associated with the residential area and urban migration proceeds toward amenity rich areas despite the higher housing costs there. However, Basil and Michael (2004) opinion that empirical analysis confirmed neighbourhood variables in general to have a strong positive impact of house

values is in contrast with the weak association discovered within the study area of this research. This can however be attributed to the combination of all neighbourhoods under study with each of the areas either adding or subtracting from the overall result.

5.1.4.1 Neighbourhood Quality and Property Value within Individual Neighbourhoods.

Further microanalysis of the relationship between property values and neighbourhood quality within each of the six neighbourhoods sampled in the study revealed that:-

Neighbourhood 1(BOSSO 1)

A significant relationship was established between neighbourhood quality and property values here. This was because the F-statistic value of 16.325 obtained is greater than the table value of 4.17. See table 4.5.

From the regression analysis, the coefficient of determination (R^2) was 0.338, which equaled 33.8%. This meant variations in neighbourhood quality accounted for only 33.8% of all variations in property values.

The average property value in Bosso1 was N73, 529.41 per annum, while the average neighbourhood quality index was 0.5239.

Employing the derived regression equation below

Property value (Bosso 1) = -79955.2 + 300,698(neighbourhood quality index1)

……..equation 3

Neighbourhood 3(Maitumbi)

A significant relationship was not proved to exist between neighbourhood quality and property value in Maitumbi as we observed that the F- statistic value of 0.043 is far less than the critical value of $F_{0.05}$ of 4.00. See table 4.7

From the regression equation, the coefficient of determination (R^2) was 0.001, which equaled 0.1%. This meant variations in neighbourhood quality accounted for only 0.1% of all variations that determine property value here. Residents here are not as kin about the quality of the neighbourhood as the driving factor for the rent they are paying. Other factors such as complementarities of trade, nearness to businesses, and economic status to mention but a few could be responsible for their property value.

The average property value in Maitumbi was N23, 460.32 per annum (see table 4.1, ANOVA result for property values at all neighbourhoods), while the average neighbourhood quality index was 0.4588(see table 4.2, ANOVA result for nqi).

Employing the derived regression equation below

Property value (Maitumbi) = 20860.024 + 5729.741(neighbourhood quality index3)

……..equation 5

However, will yield an estimated value of N23, 488.82. This was only 0.12% higher than the actual observed value of N23, 460.32.

Neighbourhood 4(Tunga)

A significant relationship was proved to exist between neighbourhood quality and property value. This is because an F- statistic value of 5.073 was observed from the analysis (see table 4.8), which is greater compared to the critical value of $F_{0.05}$ of 4.00.

The regression analysis gave a coefficient of determination (R^2) of 0.083, which equaled 8.3%. This meant variations in neighbourhood quality accounted for only 8.3% of all variations in property values.

The average property value in Tunga was N178, 206.9 per annum (see table 4.1, ANOVA result for property values at all neighbourhoods), while the average neighbourhood quality index was 0.6275(see table 4.2, ANOVA result for nqi).

Employing the derived regression equation below

Property value (Tunga) = -296406 + 760811.6(neighbourhood quality index4)

.....equation 6

However, will yield an estimated value of N181, 003.28. This was only 1.57% higher than the actual observed value of N178, 206.90.

Neighbourhood 5(Bosso 2)

A significant relationship was proved to exist between neighbourhood quality and property value because the F- statistic value of 32.398 was observed from the analysis (see table 4.9), greater than the critical value of $F_{0.05}$ of 4.00.

The coefficient of determination (R^2) of the regression analysis was 0.323, which equaled 32.3%. This meant 32.3% of all variations in property values were explained by this research.

The average property value in Bosso 2 was N210, 428.60 per annum (see table 4.1, ANOVA result for property values at all neighbourhoods), while the average neighbourhood quality index was 0.5650(see table 4.2., ANOVA result for nqi).

Employing the derived regression equation below

Property value (Bosso 2) = 486249.5 - 48334(neighbourhood quality index5)

.....equation 7

However, will yield an estimated value of N458, 940.79.This was only 118.10% higher than the actual observed value of N210, 428.60.

Neighbourhood 6(Minna North West Peripheral)

A significant relationship was not proved to exist between neighbourhood quality and property value because the F- statistic value of 1.902 was observed from the analysis (see table 4.10), compared to the critical value of $F_{0.05}$ of 4.00.

The coefficient of determination (R^2) was 0.037, which equaled 3.7%. This meant variation in neighbourhood quality can only explain 3.7% of all variations in property values.

The average property value in Minna North West Peripheral was N133, 823.50 per annum (see table 4.1, ANOVA result for property values at all neighbourhoods), while the average neighbourhood quality index was 0.5372(see table 4.2, ANOVA result for NQI).

Employing the derived regression equation below

Property value (Minna North West Peripheral) = -20762.2 + 288019.2 (neighbourhood quality index6)

.....equation 8

However, will yield an estimated value of N133, 961.71.This was only 0.10% higher than the actual observed value of N133, 823.50.

5.1.5 Result of Multiple Regression Analysis of Attributes of Neighbourhood Quality and Property Value as shown in table 4.11

In the use of the multiple regression equation

$$y= a + b_1x_1 + b_2x_2 \ldots\ldots b_nx_n$$

The dependent variable is the average property value in Minna (this is obtained from the factor analysis) while the independent variables are those attributes of the neighbourhoods. They include type of buildings, location of kitchen, mode of use, location of toilet, mode of use, building plot coverage ratio, number of living rooms, number of people in a house, availability of pipe borne water, frequency of supply, place of waste disposal, ranking of the present condition of pipe borne water, security, drainage system, waste disposal, access road and house improvements, building space, air space, air pollution and noise pollution.)

Applying the above formula yielded an R^2 value of 0.392. This meant that 39.2% of attributes responsible for property value was explained. The F_{cal} value of 3.846 while the F_{tab} was 1.57.

Since the calculated value of (F) 3.846 is greater the table value of (F)1.57, we therefore reject the null hypothesis "there is statistically significant relationship between neigbourhood quality and property value in Minna. This result agrees with our linear regression analysis.

H_0 – There is no statistically significant difference between the property values in different neighbourhoods in Minna.

H_1 – There is statistically significant difference between the property values in different neighbourhoods in Minna.

H_0 – There is no statistically significant relationship between housing density and property value in Minna.

H_1 – There is statistically significant relationship between housing density and property values in Minna

Regression analysis carried out to test the statistical relationship between property values and neighbourhood quality, measured across all sampled locations (Table 4.4) showed that the influence of neighbourhood quality on property value was real but nonetheless very little, the regression analysis gave an R^2 value (coefficient of determination) of 0.070. It implied that 7% of the factors responsible for property value in all neighbourhoods are explained. It also show that there are other factors affecting property values that have not been explained in the research.

Using the F-table: The calculated value is 21.997 was greater than the table value at 0.05 alpha levels of 3.84.

Since the calculated value is 21.997 was greater than the table value of 3.84, the null hypothesis was rejected and the research hypothesis was accepted: There is statistically significant relationship between neighbourhood quality and property value in Minna.

H_0 – There is no statistically significant difference between the property values in different neighbourhoods in Minna.

H_1 – There is statistically significant difference between the property values in different neighbourhoods in Minna.

H_0 – There is no statistically significant relationship between housing density and property value in Minna.

H_1 – There is statistically significant relationship between housing density and property values in Minna

Regression analysis carried out to test the statistical relationship between property values and neighbourhood quality, measured across all sampled locations (Table 4.4) showed that the influence of neighbourhood quality on property value was real but nonetheless very little, the regression analysis gave an R^2 value (coefficient of determination) of 0.070. It implied that 7% of the factors responsible for property value in all neighbourhoods are explained. It also show that there are other factors affecting property values that have not been explained in the research.

Using the F-table: The calculated value is 21.997 was greater than the table value at 0.05 alpha levels of 3.84.

Since the calculated value is 21.997 was greater than the table value of 3.84, the null hypothesis was rejected and the research hypothesis was accepted: There is statistically significant relationship between neighbourhood quality and property value in Minna.

However, further micro analysis revealed that the overall decision cannot be applicable in all the neighbourhoods as there was no statistically significant relationship between neighbourhood quality and property value in certain neighbourhoods, thus making the null hypothesis true for them. The neighbourhoods include GRA, Maitumbi and Minna North West Peripheral.

The general presumption that a GRA should be of a very high neighbourhood standard was proved wrong in this research. It was discovered that most of the facilities (water availability, outstanding power supply, cleanliness of the environment, clear drains etc) that allowed for such presumptions were not different from those in the other areas that we underrated. In fact some emerging areas of Tunga and Minna North West Peripheral could boost of better amenities than the GRA. It was also discovered that GRA is more of owner occupied residences with a combination of the low, medium and high cadre personalities unlike the colonial era when it was an exclusive government reserved area for the high profile people in the society. It equally lacked enough rental information.

Maitumbi was discovered to have more of traditional compounds on owner occupier basis than the modern rental apartments in the study areas. It also housed a lot of the low income cadre workers whose priority interest about accommodation may just be where to lay their heads first rather than the quality of their neighbourhood. This may not be unconnected with the outcome of the research.

Minna North west peripheral also shared the same characteristics with the GRA and Maitumbi. There were so many owner occupied and indigenous residences in the area. Though it houses the

popular London Street, majority of the peripheral is an emerging urban area with low rental evidence.

Result of Multiple Regression Analysis of Attributes of neighbourhood quality and Property Value as shown in table 4.11 yielded an R^2 value of 0.392. The F_{cal} value of 3.846 was greater than the F_{tab} was 1.57.

The null hypothesis was rejected, hence "There is statistically significant difference between the property values in different neighbourhoods in Minna". This result means that the average property values in Minna varies from one neighbourhood to another.

Result of Multiple Regression Analysis of Housing density and Property Value as shown in table 4.12 have an R^2 value of 0.053. The F-calculated value was 5.977 was higher than the F_{tab} at 0.05 degree of confidence of 2.60. This shows that there is a statistically significant relationship between housing density and property value in Minna. We therefore reject the null hypothesis.

5.3 Recommendations

1. There is need for an urgent upgrade of the facilities in our neighbourhoods to become big agents of value creation for property investors as it is in most developing and developed economies.
2. There is need for a conscious and continuous urban planning by the government. This responsibility has been left to the dictates of demand for accommodation by individuals. People

are seen building everywhere in an uncoordinated manner in this 21st century. The implication of this is that there are so many emerging slum settlements springing up in Minna.

3. There is need for infrastructure upgrade in Minna as it was observed from the research that a very vast area of Minna either completely lack infrastructure or they are in different state of malfunction.

4. There is need for environmental sanitation in Minna because majority of the study area are in very deplorable state of cleanliness. The environments are littered with so many refuse dumps in uncoordinated manner that they pose serious health challenge. The drainages in some other neighbourhoods are equally blocked.

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Appendix 1

Oneway ANOVA

Descriptives

avre

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
bosso1	34	73529.41	52310.39951	8971.160	55277.4505	91781.3730	18000.00	80000.00
GRA	20	395250.0	40550.92748	76149.50	235867.2598	554632.7402	15000.00	1200000
maitunbi	63	23460.32	15416.73305	1942.326	19577.6635	27342.9714	6000.00	90000.00
tunga	58	178206.9	14128.15958	28116.40	121904.7671	234509.0260	11000.00	1600000
Bosso 2	70	210428.6	89027.52732	10640.82	189200.7068	231656.4360	10000.00	50000.00
Minna north west peripherial	51	133823.5	89020.07363	26468.10	80660.7770	186986.2818	10000.00	1000000
Total	296	147885.1	83928.01037	10690.60	126845.6299	168924.6404	6000.00	1600000

Test of Homogeneity of Variances

avre

Levene Statistic	df1	df2	Sig.
15.251	5	290	.000

ANOVA

avre

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3E+012	5	5.449E+011	21.778	.000
Within Groups	7E+012	290	2.502E+010		
Total	1E+013	295			

Post Hoc Tests

Homogeneous Subsets

avre

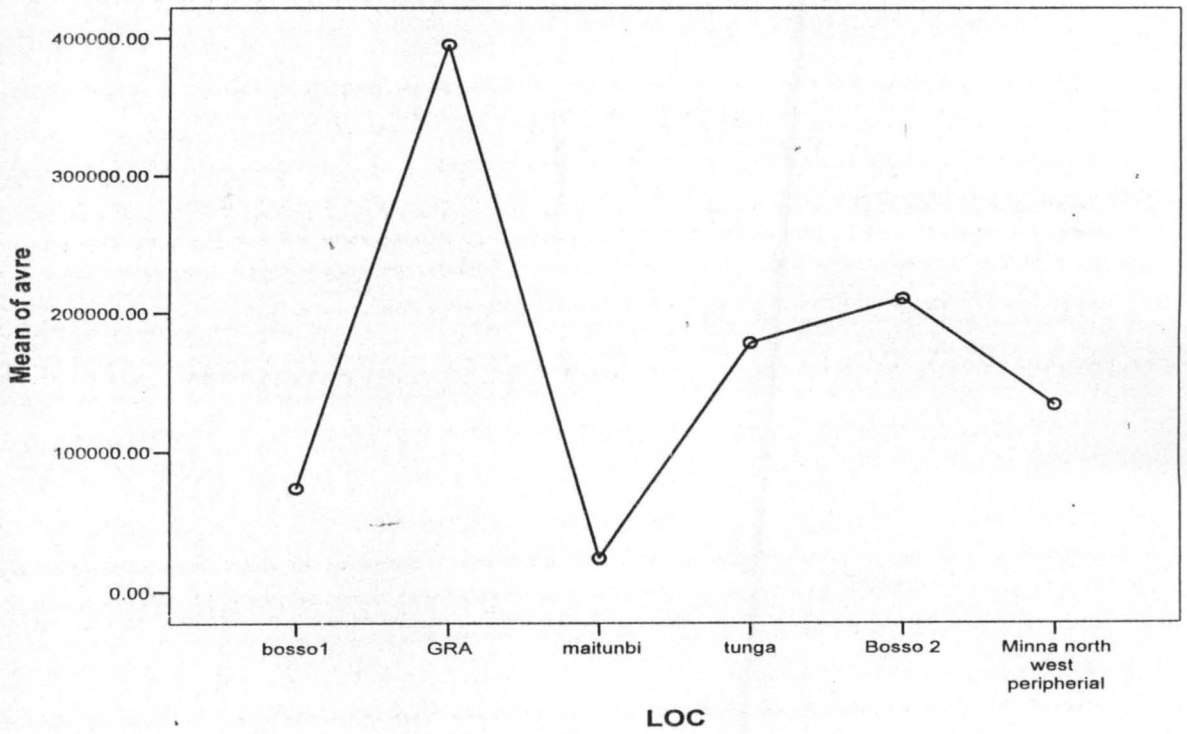
Duncan[a,b]

LOC	N	Subset for alpha = .05				
		1	2	3	4	5
maitunbi	63	23460.32				
bosso1	34	73529.41	73529.41			
Minna north west peripherial	51		133823.5	133823.5		
tunga	58			178206.9	178206.9	
Bosso 2	70				210428.6	
GRA	20					395250.0
Sig.		.153	.086	.205	.357	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 40.978.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.



Oneway ANOVA

Descriptives

ndindex

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
bosso1	71	.5239	.10432	.01238	.4993	.5486	.34	.76
GRA	73	.6460	.08161	.00955	.6269	.6650	.50	.80
maitunbi	73	.4588	.07331	.00858	.4417	.4759	.32	.66
tunga	73	.6275	.08257	.00966	.6083	.6468	.37	.76
Bosso 2	73	.5650	.10669	.01249	.5401	.5899	.35	.77
Minna north west peripherial	67	.5372	.12386	.01513	.5070	.5674	.33	.75
Total	430	.5602	.11527	.00556	.5493	.5711	.32	.80

Test of Homogeneity of Variances

ndindex

Levene Statistic	df1	df2	Sig.
9.946	5	424	.000

ANOVA

ndindex

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.749	5	.350	37.537	.000
Within Groups	3.951	424	.009		
Total	5.700	429			

Post Hoc Tests

Homogeneous Subsets

ndindex

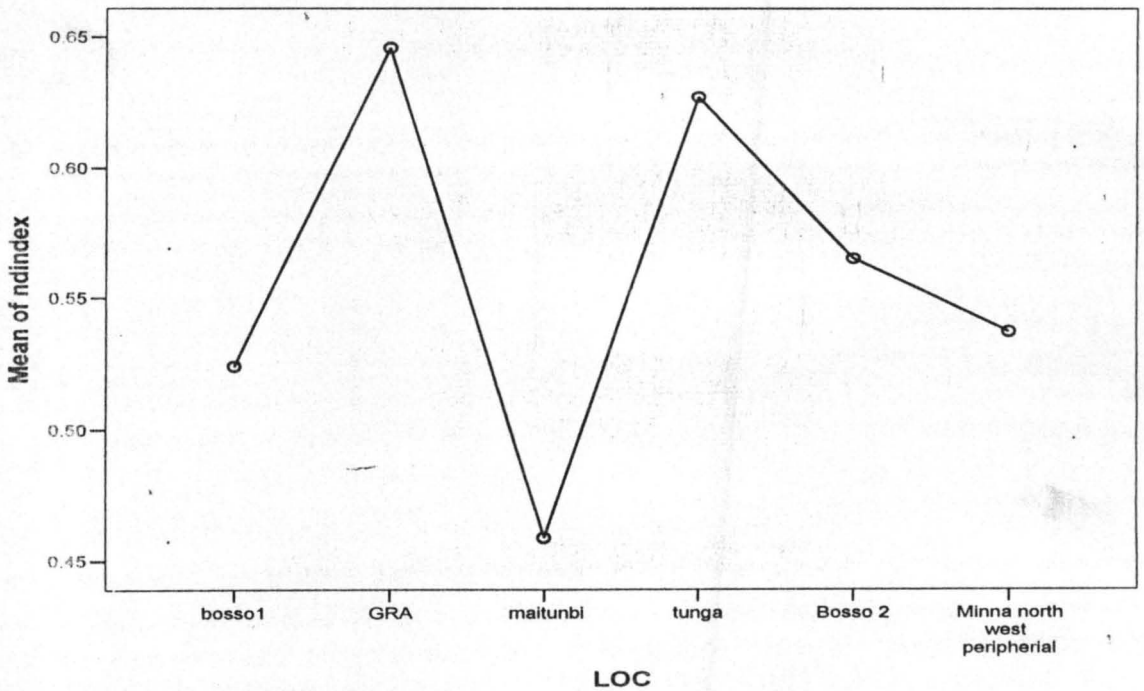
Duncan[a,b]

LOC	N	Subset for alpha = .05			
		1	2	3	4
maitunbi	73	.4588			
bosso1	71		.5239		
Minna north west peripherial	67		.5372	.5372	
Bosso 2	73			.5650	
tunga	73				.6275
GRA	73				.6460
Sig.		1.000	.413	.085	.254

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 71.595.

b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.



Curve Fit

Model Description

Model Name		MOD_2
Dependent Variable	1	avre1
Equation	1	Linear
Independent Variable		ndindex1
Constant		Included
Variable Whose Values Label Observations in Plots		Unspecified

avre1

Linear

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.581	.338	.317	43227.256

The independent variable is ndindex1.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	3E+010	1	3.051E+010	16.325	.000
Residual	6E+010	32	1868595647		
Total	9E+010	33			

The independent variable is ndindex1.

Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
ndindex1	300698.0	74421.732	.581	4.040	.000
(Constant)	-79955.2	38703.551		-2.066	.047

avre2

Linear

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.145	.021	-.033	346189.098

The independent variable is ndindex2.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	5E+010	1	4.628E+010	.386	.542
Residual	2E+012	18	1.198E+011		
Total	2E+012	19			

The independent variable is ndindex2.

Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
ndindex2	-680925	1095765	-.145	-.621	.542
(Constant)	817733.2	684265.3		1.195	.248

avre3

Linear

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.027	.001	-.016	15537.055

The independent variable is ndindex3.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	10485508	1	10485508.40	.043	.836
Residual	1E+010	61	241400086.6		
Total	1E+010	62			

The independent variable is ndindex3.

Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
ndindex3	5729.741	27492.165	.027	.208	.836
(Constant)	20860.024	12629.227		1.652	.104

avre4

Linear

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.288	.083	.067	206865.607

The independent variable is ndindex4.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	2E+011	1	2.171E+011	5.073	.028
Residual	2E+012	56	4.279E+010		
Total	3E+012	57			

The independent variable is ndindex4.

Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
ndindex4	760811.6	337804.3	.288	2.252	.028
(Constant)	-296406	212474.0		-1.395	.169

avre5

Linear

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.568	.323	.313	73805.009

The independent variable is ndindex5.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	2E+011	1	1.765E+011	32.398	.000
Residual	4E+011	68	5447179413		
Total	5E+011	69			

The independent variable is ndindex5.

Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
ndindex5	-483346	84917.516	-.568	-5.692	.000
(Constant)	486249.5	49254.510		9.872	.000

avre6

Linear

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.193	.037	.018	187337.317

The independent variable is ndindex6.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	7E+010	1	6.676E+010	1.902	.174
Residual	2E+012	49	3.510E+010		
Total	2E+012	50			

The independent variable is ndindex6.

Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
ndindex6	288019.2	208825.7	.193	1.379	.174
(Constant)	-20762.2	115109.9		-.180	.858

Correlations

Descriptive Statistics

	Mean	Std. Deviation	N
neighbourhood density index	.5597	.06934	6
average annual rent	169116.5	130018.37647	6

Correlations

		neighbourhood density index	average annual rent
neighbourhood density index	Pearson Correlation	1	.871*
	Sig. (2-tailed)		.024
	N	6	6
average annual rent	Pearson Correlation	.871*	1
	Sig. (2-tailed)	.024	
	N	6	6

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix 4

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	airpo, frqos, mduse, bldpc, moduse, watav, wastd, airspc, secuty, rmnos, hcond, bldtype, wstdis, perspr, bldspc, ppbw, kitloc, dsyst, nispo, toiloc, accssr, pepph[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: avre

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.626[a]	.392	.290	140468.720	1.889

a. Predictors: (Constant), airpo, frqos, mduse, bldpc, moduse, watav, wastd, airspc, secuty, rmnos, hcond, bldtype, wstdis, perspr, bldspc, ppbw, kitloc, dsyst, nispo, toiloc, accssr, pepph

b. Dependent Variable: avre

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2E+012	22	7.589E+010	3.846	.000[a]
	Residual	3E+012	131	1.973E+010		
	Total	4E+012	153			

a. Predictors: (Constant), airpo, frqos, mduse, bldpc, moduse, watav, wastd, airspc, secuty, rmnos, hcond, bldtype, wstdis, perspr, bldspc, ppbw, kitloc, dsyst, nispo, toiloc, accssr, pepph

b. Dependent Variable: avre

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-125689	142941.5		-.879	.381
	bldtype	86833.296	13487.510	.563	6.438	.000
	kitloc	31021.528	20975.532	.171	1.479	.142
	moduse	3907.200	54885.961	.005	.071	.943
	toiloc	-26118.4	22126.562	-.134	-1.180	.240
	mduse	-3369.054	21391.776	-.019	-.157	.875
	bldpc	-2850.795	10875.029	-.024	-.262	.794
	rmnos	-37129.9	10474.846	-.318	-3.545	.001
	perspr	4656.509	13872.637	.040	.336	.738
	pepph	3914.546	16027.657	.035	.244	.807
	watav	-19298.7	12579.679	-.152	-1.534	.127
	frqos	12590.172	9429.408	.131	1.335	.184
	wastd	11712.059	15967.133	.068	.734	.465
	bldspc	16022.436	14595.091	.112	1.098	.274
	airspc	-12321.4	10778.553	-.097	-1.143	.255
	ppbw	-3527.285	11889.223	-.030	-.297	.767
	secuty	5567.754	13762.649	.040	.405	.686
	dsyst	12409.277	16242.086	.091	.764	.446
	wstdis	-7157.446	15523.847	-.049	-.461	.646
	accssr	-22228.7	16799.738	-.160	-1.323	.188
	hcond	10444.350	16030.911	.064	.652	.516
	nispo	3776.718	19322.981	.022	.195	.845
	airpo	14784.902	17508.664	.079	.844	.400

a. Dependent Variable: avre

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-41007.1	512376.3	147318.8	104459.56854	154
Residual	-353855	1162024	.00000	129977.91245	154
Std. Predicted Value	-1.803	3.495	.000	1.000	154
Std. Residual	-2.519	8.272	.000	.925	154

a. Dependent Variable: avre

DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCE AND SCIENCE EDUCATION
FEDERAL UNIVERSITY OF TECHNOLOGY MINNA

Dear respondent,

I'm a student of the above named institution currently carrying out a research work to **evaluate the relationship among housing density, neighbourhood quality and residential property value in Minna, Nigeria**. I need your assistance to further this research at this point and urge you to feel free in responding to the questions as it will purely be used for academic purpose. Your corporation is highly desired. Thank you.

Please kindly tick where appropriate

1. Zone/location.....
2. Tenure: (a) owner occupied [ ] (b) rented []
3. Types of building: (a) traditional compound House [] (b) rooming apartment [] (c) single Detached [] (d) semi detached [] (e) Duplex [] (f) others (specify).....
4. Where is the location of your kitchen? (a) indoor [] (b) outdoor[]
5. What is the mode of usage? (a)shared [] (b) not shared []
6. Where is the location of your toilet? (a) indoor [] (b) outdoor []
7. What is the mode of usage? (a)shared [] (b) not shared []
8. Building plot coverage. (a) 40-50% (b) 51-60% (c) 61-70% (d) 71-80% (e) 81 and above.
9. How many living rooms are in this house? (a) one [] (b)two [] (c) three [] (d)four [] (e) above four []
10. What is the number of persons per room? (a) one [] (b)two [] (c) three [] (d)four [] (e) above four []
11. How many people are living in this house? (a) one [] (b)two [] (c) three [] (d)four [] (e) above four []
12. Do you have pipe borne water? (a) yes [] (b) no []
13. If yes , what is the frequency of supply?(a) once a week [] (b)two times a week [] (c) three times a week [] (d) four times a week [] (e) above four times a week []
14. Where do you dispose your solid waste? (a) official waste deport [] (b) open space [] (c) storage bins [] (d) others (specify)
15. Kindly rank the following as you desire them where 5 means highly desired

Facility	1	2	3	4	5
Pipe borne water					
security					
Drainage system					
Waste disposal					
Access road					
Housing condition					

16. Are you willing to pay more rent if these facilities are placed in the neighbourhood? (a) yes [] (b) no

17. What is the building space in this house? (a) Less than 1m [] (b) 1 to 2 m [] (c) 3 to 4m [] (d) 4 to 5m [] (e) others (specify).....

18. What is the air space in this house? (a) Less than 1m [] (b) 1 to 2 m [] (c) 3 to 4m [] (d) 4 to 5m [] (e) others (specify).....

19. Kindly rank the following according to their present conditions.

Facility	Very good 5	Good 4	Fair 3	Poor 2	Bad 1
Pipe borne water					
security					
Drainage system					
Waste disposal					
Access road					
House condition					

20. Kindly rate the severity of these problems

problems	Very severe (4)	Severe (3)	Fairly severe (2)	Not severe(1)
Noise pollution				
Air pollution				

21. Please Kindly state how much you paid as rent in the years shown below.

year	2001	2002	2003	2004	2005	2006	2007	2008	2009
Rent (N'000)									

Thank you.