

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.0 Background to the Study**

Lagos state has witnessed continuous restructuring due to exceptional rate of population growth and urbanization expansion. Its population grew from 73,766 in 1911 occupying about 46.6km<sup>2</sup> land area to about 665,000 in 1963 contained in approximately about 69.9km<sup>2</sup> land area (Federal Office of Statistics (FOS), 1952 & 1963). The metropolitan built-up component of the state accounted for a population of about 88.1% of the state population in 2006 occupying about 999.6 km<sup>2</sup> land area (Federal Office of Statistics, 2006). Based on an estimate of 3% annual growth rate, the metropolis would have attained over 9 million in 2011, over 10 million in 2015 and about 13 million people in 2025.

This restructuring as a result of the population build-up, brought unusual demographic pressure on land and this cause unprecedented demand for urban land use. Consequently, most planned area of the metropolis especially the residential areas (especially in Lagos Island, Victoria Island, Ikeja and Lagos Mainland among others) have been taken over by other urban land use that can afford rent the demand elicited.

The unprecedented rate of growth and expansion in the metropolis is characterized by demographic increase which is not complemented by proportional increase in housing stock and its supporting utilities most times but with re-development and conversion of residential buildings; the implication of this is use-pressure on housing and neighbourhood supporting utilities.

Land use zoning as presented in Lagos state Master Plan (1980) is a policy guide on land and building-use allocation, is not very effective in Lagos metropolis because the increasing population growth and the demographic pressure on land trigger economic reaction which impact on both the land and housing market. A clear evidence of the failing workability of the zoning policy is the increasing propensity to convert building-use especially residential properties in residential zones to non-residential uses through which the owners maximize personal economic gain to the detriment of the liveable status of such zones.

The primary responsibility of government at regulating the event of use contravention lost its effectiveness in the face of the dwindling field staff capacity to monitor and check post-construction contraventions. Besides the issue of manpower capacity, officers' corruption is also behind the difficulty to abet the increasing spate of contravention. Also, the issue of policy compromise by the regulatory body made its effectiveness difficult.

The violation of zoning as prescribed by the Lagos state 1980 Master Plan was encouraged by the way the state implemented the Decree 88 of 1992 which prescribed development control for any development in the state. Institutionally, the policy framework of the Master Plan failed since the enforcement of Decree 88 of 1992 on development control was seen as avenue of generating fund rather than enforcing zoning. For any redevelopment or reconstruction application the applicant were charged application and processing fees for change in use which discouraged proper monitoring of conformity of such redevelopment to zoning as prescribed by Master Plan.

Consequently, use-conversion of building has undermined the effectiveness of the statutory urban housing development regulation and control, which is designed among others to regulate

the effect of population-cum-activity pressure on buildings and their neighborhood utilities which are vulnerable to degradation. Subsequently, the tendency in the housing market is for property to be converted to more economically rewarding uses regardless of their original use-designation and the zoning policy in the metropolis. This indiscriminate use-conversion exacerbated use-invasion and displacement which have impacted negatively more on the residential designated buildings and residential areas because it command low rent compared to other land uses. Often, the displacement is usually accompanied by use-conflicting demands and overuse given the insufficiency of basic urban infrastructures to support the new uses which invariably leads to chaotic development and unsightly cityscape (Agbola & Agunbiade, 2009). In view of shortage in housing supply the continuous indiscriminate conversion of residential building resulted in, increasing occupancy ratio, excessive high population density ratio in relation to the complementary housing and neighbourhood utilities and degenerating environment.

The study of changes in land use, its housing component including such issues as housing price and the environmental quality have gained a lot of attention from scholars (Oduwaye & Okusipe, 2004, Olayiwola *et al*, 2006, Oduwaye & Lawanson, 2007 and Adebayo, 2009). Research works in this area have addressed the problem of land use changes which is the macro perspective and involve contiguously extensive area.

However, the micro study of building-use conversion differs from those of land use changes. For example, while land-use change may be interested in the areal extent of use changes, property-usage conversion among others examine the frequency of inter-functional conversion. Other micro-related issues such as the variables of use-conversion decision at the property-ownership level, as well as the implication of use-conversion on the level of utility-satisfaction derived by

residents from commonly owned utilities which are negatively impacted by overuse induced by use-conversion, are few of notable research quests.

Research which adopts the micro purview is rather scanty despite the uniqueness of its sets of research quests. It is against the foregoing that this study chose its research questions which analyses building-use conversion and the perceptual assessment of the serviceability rating of utilities in metropolitan Lagos.

### **1.1 Statement of the Problem**

Studies have shown that population and urbanization trigger changes in land use (Gallent, 2009 and Paulussen, 2003). In Lagos metropolis certain factors collectively account for the rapid growth and expansion. The first is its function as Nigeria's Federal capital till 1990; its service as the commercial nerve centre for both the nation and West African sub-region, its high transportation linkage with other economies through dense development of infrastructures such as road network, seaports, airports, communication and ready market. Merging the effects of these pull forces with the natural population growth results in rapid population growth and urbanization expansion of the metropolis. Hence, the combined influence of its phenomenal population growth and its propulsive attraction forces invariably subject Lagos to rapid urbanization and its incidental challenges.

The exceptional population growth gave rise to an increasing rate of demand for housing and competition for urban land space in a metropolis that is plagued with peculiar land problem. Precisely, the quantum of buildable land in Lagos is in short supply given the morphology and terrain of the greater part of the metropolis, which lie below the sea level. Besides, the cost of procuring such parcels of land through a perfected legal acquisition procedure is far beyond the

means of majority of the populace. Moreover, construction on this type of land requires huge capital for structural stability despite the fact that housing development generally involves high capital investment.

Ordinarily, in the face of competition, the normal operations of the free market forces would produce an urban-property space in which higher-bidder functions continue to displace the less-competitive ones, particularly the residential use which commands low rent. This explains the role of the government as an arbiter, regulating and controlling land and property usage to avert chaos in the organization of the urban property space. In Lagos metropolis government compromised its obligatory responsibility of regulating development control by imposing fines rather than outright prevention or demolition of contravening structures. This compromise increases the degree of contravention and compounds the negative implications on residential usage which suffers the most. Such a compromise has brought about indiscriminate conversion of original residential buildings to more revenue yielding purposes such as banking hall, eateries, shopping malls, fashion houses and offices among others; such conversion is notable in residential area of Victoria Island, Allen Avenue, Adeniran Ogunsanya and Ebute-Metta to mention a few in the metropolis.

Major fallout of use-conversion conflict is that a number of building and neighbourhood related utilities suffer from varying degrees of overuse and without timely intervention ultimately degenerate into different levels of degradation. Indeed, it is reasonable to assume that the degree of utility degradation will vary between neighbourhoods and more likely among geographically or functionally defined metropolitan regions.

The inference from this is that, a contravention of town-planning regulation which increases pressure on utility usage ultimately increases the degree to which otherwise functionally healthy utilities degenerate to various stages of utilities or related surrogates degradation.

It is in this context that the UN-Habitat (2003a) conception of slum-indicator thresholds which focuses on critical building-based as well as neighborhood serving utilities is relevant to the study. In essence, the occurrence of likelihood of slum-ward degradation of utilities traceable to governments' relaxation of the policy of property development control theoretically raises the question of '**Pareto-equity**' problem which may be examined in terms of its spatial and stakeholders dimensions. Referring to the spatial dimension, the fact that the different metropolitan regions, such as the urban core and the urban fringe may not experience the same magnitude of use-conversion implies that certain regions may suffer greater consequences of use-conversion in the metropolis than others.

On the part of the stakeholders both the gain accruing to the landlords from use-conversion and the resultant inconveniences suffered in terms of use-pressure on utilities place the landlords and the tenants on contrasting benefit-minus-loss assessment platforms. Theoretically, the contrasting platforms is expected to influence the way both of them would rate the degree of inconveniences suffered by them with respect to changes in the serviceability status of the affected utilities or related surrogates in the neighbourhood.

To date, analysis of property-use conversion particularly in this part of the world has omitted this purview in research. It is in this context that this study analysed building-use conversion, the factors associated with the process of use-conversion and the rating of serviceability of building and neighbourhood utilities or related surrogates in Lagos metropolis.

## **1.2 Research Questions**

To address the highlighted problem, attempt was made to provide answers to the following questions:

1. What is the spatio-temporal pattern of the use-specific attribute of the building stock in Lagos metropolis and their approval status?
2. What is the pattern of the spatio-temporal dynamics of building-use conversion among categorised regions of Lagos metropolis between the time of their completion and the time of the study?
3. What are the set of variables and factors which spatially associate with the event of building-use conversion in Lagos metropolis?
4. To what extent do the stakeholders expressed dissatisfaction with changes in the serviceability rating of utilities in view of use-conversion in the regions of the metropolis?
5. What is the equity-related implication of the differentiated serviceability assessment both by significant stakeholders and across specific metropolitan areas?

## **1.3 Aim and Objectives of the Study**

This study analysed the spatio-temporal patterns of building-use conversion with a view to assess its influence on services of utilities in Lagos metropolis over the study period.

The specific objectives are to:

1. Show the characteristics of the spatio-temporal patterns of the use-specific attribute of Lagos metropolitan building stock and their approval status.
2. determine the spatio-temporal dynamics of building-use conversion among categorized regions of Lagos between the time of their completion and the time of the study.

3. analyse the variables and factors which spatially associate with the event of building-use conversion in Lagos metropolis.
4. examine the extent to which the stakeholders expressed dissatisfaction with changes in the serviceability of utilities or related surrogate in view of use-conversion in the regions of the metropolis.
5. analyse the Pareto-equity implication of the findings.

#### **1.4 Significance of the Study**

Building-use conversion may not be a serious issue in the more advanced countries of the world where conformity to master plan is held sacrosanct but the situation is different in Africa particularly Nigeria where poor coordination exists between planning and development control. One of the major fallouts is that the incidence of non-approved constructed buildings is attaining increasing phenomenon in Lagos with increasing dimensions of negative implication.

It has been suggested for example, that the increasing rate of unapproved building-use conversion may be one of the major causes of increasing building collapse in the metropolis which underpinned the relevance of the study that focuses on building-use conversion in Lagos metropolis particularly in the context of how the reversal of strict property-use control may disfavour the contending stakeholders across the metropolis.

Also, the factors that brought about the continuous diminishing in residential housing stock and its implications on serviceability rating of building supporting utilities and their related surrogates has not been properly explained in studies. Hence as a starting point, it would be pertinent to determine the pattern of building use-conversion, its causal factors as well as its impact on the serviceability assessment of utilities among the major stakeholders in the metropolitan region.



## **1.5 Scope and Delimitation of the Study**

Land use changes are continuous phenomena in an area like Lagos metropolis which is notable for its rapid growth. The scope of the study is limited to building-use conversion which is a micro perspective of land use study. The study addressed building-use conversion in terms of its pattern and distribution and use-approval at completion in the metropolis. Variables and factors that are associated with the event of such use-conversion were identified and the variables were subjected to further analysis to show the ones that significantly predict the event of use-conversion.

Also the serviceability assessment of both the property and neighbourhood utilities among different categories of the metropolitan regions and stakeholders groups was analysed. The study employed a temporal cross-sectional appraisal with focus on four periods, namely pre-1991, 1991, 2001 and the year 2011.

Although the phenomena (building-use conversion) is much more pronounced in some parts of Lagos metropolis such as Victoria Island, Lagos Island, Surulere and Ikeja among others. The representative study neighborhoods are namely, the urban fringe (Ifako-Ijaiye L.G.A), the administrative (Ikeja L.G.A), the colonial (Lagos Mainland L.G.A), the traditional (Somolu L.G.A) and the post-colonial (Surulere L.G.A) of Lagos metropolis which were purposively selected because of the need to meet with the landlord or someone that knows the history of the selected buildings which are not available in places like Victoria Island and Lagos Island because majority of the buildings have experienced restructuring, redevelopment and have changed hands several times before the time of the study survey and many of the original landlords in these areas were not traceable for interview. The neighbourhoods were further regrouped as low and high commercial-use neighborhoods on the proportion commercial-use in the metropolis to the

neighbourhood. Ikeja, Lagos Mainland and Surulere are grouped as high commercial region while Ifako-Ijaye and Somolu are low commercial region.

## 1.6 Hypotheses

The hypotheses for the study are:

1. **H<sub>0</sub>** - There is no significant difference in the proportion of building designated and approved for residential-use at their completion and the time of the study.  
**H<sub>i</sub>** - Significant differences exist in the proportion of building designated and approved for residential use at their completion and the time of the study.
2. **H<sub>0</sub>** - None of the building-related variables of use-conversion is significant at predicting the event of use-conversion in Lagos metropolis and its categorised regions.  
**H<sub>i</sub>** - At least one of the building-related variables of use-conversion is significant at predicting the event of use-conversion in Lagos metropolis and its categorised regions.
3. **H<sub>0</sub>** - There is no significant difference in the serviceability assessment of the concomitant utilities and their related surrogates' conditions for buildings which experienced use-conversion and those that did not experience it in Lagos metropolis.  
**H<sub>i</sub>** - There is significant difference in the serviceability assessment of the concomitant utilities and their related surrogates' conditions for buildings which experienced use-conversion and those that did not experience it in Lagos metropolis.

4.  $H_0$  - There is no significant difference in the serviceability assessment of the utilities or related surrogate conditions between the categorized regions across the study year in Lagos metropolis.
- $H_1$  - There is significant difference in the serviceability assessment of the utilities or related surrogate conditions between the categorized regions across the study year in Lagos metropolis.
5.  $H_0$  - There is no significant difference in the serviceability assessment of utilities or related surrogate conditions between the building stakeholders across the study year in Lagos metropolis.
- $H_1$  - There is significant difference in the serviceability assessment of utilities or related surrogate conditions between building stakeholders across the study year in Lagos metropolis.

## 1.7 Operational Definition of Terms

**Building-Use Conversion:** Specifically the interest in building-use conversion focuses on changes in the use of a given building from its legally approved purpose to another, whether approved or not. In other words, for while the obtained approval was for residential purpose, but its use converted to commercial or any other purpose is deemed to have undergone use-conversion. Likewise buildings that although never changed its primary use, but changed the capacity of the original approval are taken in the present study as having undergone use-conversion. The sense of use-conversion in this case is refers to use-intensity change rather than the mere differences in the name of the specific use for which the building was initially intended.

**Neighborhood:** The local administrative boundaries of a region that is the defined Local Government Area (LGA) in the study area which are selected on the basis of their development characteristics.

**Utilities or their related Surrogate Conditions:** These are building and neighborhood facilities from which an urban resident derives some specific service satisfaction such as water supply. It also includes intangible condition such as the quantity of open space available to individual buildings. The quantum of space available provides satisfaction in their own way just as the water supply generates satisfaction in a different way to urban residents. This implies that in capturing the changes that affect the satisfaction that people obtain from utilities as a result of use-conversion; both tangible utilities as well as intangible conditions (surrogate) are covered to provide a deeply rich background to the study.

**Serviceability Assessment:** The assessment is the measurement of the perceived level of satisfaction derived from the selected utilities or related surrogates in the building and neighbourhood of the study. It is a subjective assessment of individual utility and their surrogate conditions by respondents given the event of overuse consequent of use-conversion.

**Slum Indicator Threshold:** These are building-cum-neighborhood based utilities adopted from the UN-Habitat (2003a) study to assess the event of slum-ward degeneration of utilities in a given area as perceived by sampled respondents in Lagos metropolis. Good functionality of the utilities or related surrogates implies that the state of both domestic and neighborhood utilities and related surrogate conditions conduce to healthy liveability. On the other hand any reduction in their serviceability capacity due to use-pressure will generally initiate the slide towards slum incipience and if unchecked toward further deterioration and slum maturation.

**Equity Analysis:** The study used Pareto equity to express that state where the pleasures or benefits an individual derives from use-conversion in a neighborhood do not increase the displeasure or inconvenience to another individual in the same neighborhood as a result of use-conversion.

## **1.8 Study Area**

The presentation of the study area describes the salient geographical and human characteristics of Lagos as well as the historical planning and development background of the metropolis. Lagos state lies in South-Western Nigeria, on the Atlantic coast in the Gulf of Guinea, West of the Niger River Delta. It is bounded in the North and East by Ogun State, in the West by the Republic of Benin and in the South by the Atlantic Ocean. Lagos state is situated within longitude  $2^{\circ} 42'$  and  $3^{\circ} 42'$  East and latitudes  $6^{\circ} 23'$  and  $6^{\circ} 52'$  North. Metropolitan Lagos is the more built-up area of Lagos Mainland and Island in Lagos state.

The administrative boundaries of Ifako-Ijaiye, Ikeja, Lagos Mainland, Somolu and Surulere Local Government Areas (LGA) are the selected neighborhoods of the study from Lagos metropolis. The study further reclassified the study area into two categories (the metropolitan sub-regions and the commercial-use regions). The metropolitan sub-regions are classified on the basis of the relationship of the selected neighbourhoods to the metropolitan centre. Ikeja, Lagos Mainland, Somolu and Surulere neighbourhoods are classified as the urban core while Ifako-Ijaiye is classified as the urban fringe under the metropolitan sub-regions category. The fact that Lagos state is the commercial nerve centre of the country and the West African region informed the reclassification of the commercial-use regions of the metropolis. The proportion of the rate of commercial activities in each neighbourhood of the study to the proportion of commercial activities in the entire metropolis is the basis for the reclassification. Ikeja, Lagos Mainland and

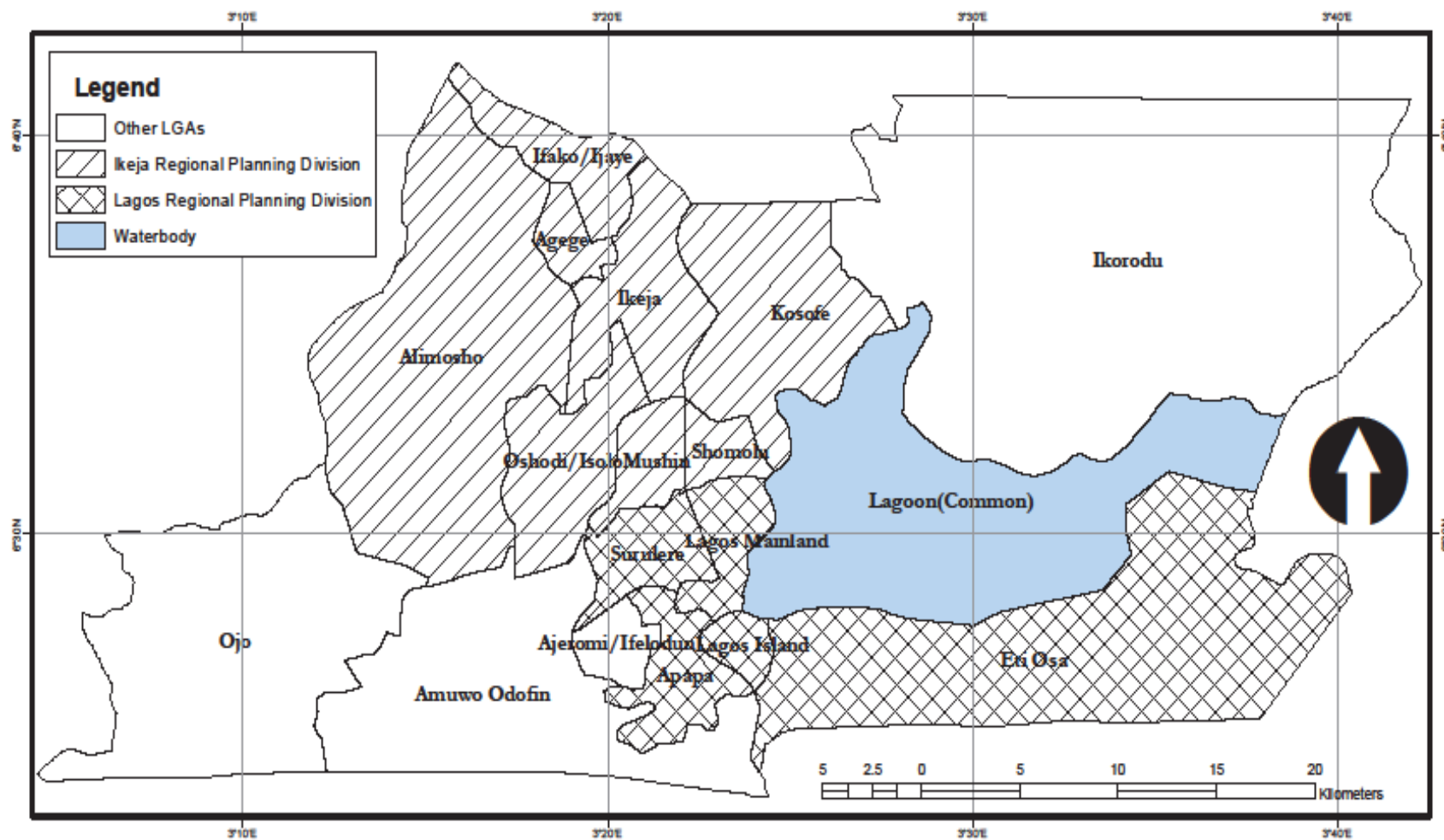
Surulere are neighbourhoods of high commercial-use region while Somolu and Ifako-Ijaiye are neighbourhoods of low commercial-use in this category. Figure 1 is the illustration of the study area as a metropolis and its regional planning divisions.

### **1.8.1 Physical Characteristics**

Lagos state land area lies within coastal plain which is characterized by sand bars, lagoons and creeks. Lands on the northern fringe of the state did not rise much above the sea level. The land terrain, poor drainage and the tropical monsoon climate type explained the seasonal flooding in parts of the metropolis. Note that, area prone to flooding does not support cheap building construction and this explains why some of the housing units were lost to flooding overtime in the metropolis. Redevelopment of such housing units commands high investment which in turn attracts building-use that can pay off in terms of rent for effective cost recovery.

### **1.8.2 Socio-Economic and Cultural Characteristics**

The state in its modern form is a socio-cultural melting pot which includes Nigerians from all over the federation as well as non-Nigerians from other African countries and the rest of the world. This accounts for rapid urbanization and population expansion. Also, Lagos serves simultaneously as the national and regional focal point of economic growth for Nigeria and the West African sub-region and offer employment opportunities to large population with these are other natural endowment in the state. These serve as cushion for rapid urbanization/population growth which is translated to high demand for housing.



*Figure 1.0: Regional Division Lagos Metropolis and the Study Neighbourhood*

### **1.8.3 Demography and Housing**

Lagos is estimated to be one of the fastest growing cities in the world. The population was estimated to be 3,000 at the late 18<sup>th</sup> and early 19<sup>th</sup> centuries, 20,000 in 1863 and rose to 40,000 in 1864 (Colonial Possession, 1863 and 1864 as cited in Aluko, 2010). In 1991, the provisional census result of Lagos Metropolis was about 5.3 million (Federal Office of Statistics (FOS), 1991) and was close to 8 million in 2006 National Population Census result (FOS, 2006). Projection of these census results as shown in Table 1.0 show that the population will be over 10 million in 2015 and over 12 million in 2025.

The table shows that there is unresolved conflict in the actual population figure of Lagos state in 2006 because there is a difference of about eight million people from the result released by the Lagos State Bureau of Statistics (2006). The census was taken concurrently with the Federal Government of Nigeria (FGN) Census exercise; hence, the pronounced difference in the results of FGN from that of Lagos state is a milestone at resolving housing related problems especially in the area of housing need projection. Also, no empirical study have shown estimated housing need for the metropolis but relating this projection to housing need in an area of about 999.9km<sup>2</sup> shows a continuous demand for housing.

Nwanna (2012) noted that in market-driven countries like Nigeria, land allocation is inequitable. Formal urban markets, by their operations and rules, prevent access to land by the majority of city dwellers. As a result, informal markets fill this exclusion gap and this is where the overwhelming majority of African urban land transactions take place. Consequently land and housing markets constrain access to housing for the majority of urban dwellers as the pace of urbanization and population growth proceed almost unabated in Lagos (Cohen, 2004). The demographic data of Lagos reveals that that the state is fast growing demographically, the young



population group is predominant and it is characterized by small household size. The implication of this is more demand for housing units to cater for the shelter needs for the resulting households (Akunnaya & Adedapo, 2014).

Housing, one of the basic needs of man, is a major problem in urban centers like Lagos metropolis. Land and housing markets constrain access to housing for the majority of urban dwellers. It was found that over time construction of housing has not kept pace with the rapidly growing population of Lagos metropolis. According to Oshodi (2010) and Ibem (2011) the housing deficit in Lagos is currently estimated to be 5 million housing units representing 31 per cent of the estimated national housing deficit of 18 million (Oshodi, 2010). The reflection of this from the population either the FGN or Lagos state figure is that majority of the population in the state are homeless or living in congested housing. Consequently, the existing housing stock is expensive and unaffordable, the housing inadequacies are far reaching and the deficit is both quantitative and qualitative. There is a huge gap between supply and demand, which has provided ample opportunity for the landlords in the metropolis to really act as lords, who could increase rent indiscriminately at will, without any consideration for the income groups. In the absence of effective physical development and control the landlords change the approved use of buildings at will to suit their economic demand and gain. This raises the question of the roles of physical planning regulation and development control in the metropolis and this will be addressed in the next section.

**Table 1.0: Population Projection for Local Government Areas (LGAs) in Lagos Metropolis**

Local Government Area	Land Area/km <sup>2</sup>	FGN 2006 Census	Lagos State 2006 Census	FGN Density (Inhabitant/Km <sup>2</sup> )	Lagos State Density Inhabitant/ Km <sup>2</sup> )	2010 (Projections)	2015 (Projections)	2020 (Projections)	2025 (Projections)
Agege	11.2	459,939	1,033,064	41,066	92,238	518,576	602,497	699,999	813,279
Ajeromi-Ifelodun	12.3	684,105	1,435,295	55,618	116,691	771,321	896,143	1,041,479	1,685,425
Alimoso	185.2	1,277,714	2,047,026	6,899	11,053	1,440,609	1,673,742	1,944,603	2,259,298
Amuwo-Odofin	134.6	318,166	524,971	2,364	3,900	358,728	416,780	480,742	558,540
Apapa	26.7	217,362	522,384	8,141	19,565	245,073	284,733	330,811	384,346
Eti-Osa	192.3	287,785	983,515	1,497	5,114	324,474	376,983	437,990	508,869
Ifako-Ijaye	26.6	427,878	744,323	16,086	27,982	482,428	560,499	651,204	756,588
Ikeja	46.2	313,196	648,720	6,779	14,042	353,125	410,271	476,665	553,803
Kosofe	81.4	665,393	934,614	8,174	11,482	750,223	871,631	1,012,687	1,176,570
Lagos Island	8.7	209,437	859,849	24,073	98,833	236,138	274,352	318,750	370,333
Lagos Mainland	19.5	317,720	629,469	16,293	32,280	358,226	416,197	483,550	561,802
Mushin	17.5	633,009	1,321,517	36,172	75,515	713,711	829,210	963,401	1,119,308
Ojo	158.2	598,071	941,523	3,780	5,951	674,319	783,444	910,228	1,057,530
Oshodi-Isolo	44.8	621,509	1,134,548	13,873	25,325	700,745	814,146	945,899	1,098,973
Somolu	11.6	402,673	1,025,123	34,713	88,373	454,009	527,481	612,843	712,019
Surulere	23.0	503,975	1,274,362	21,912	55,407	568,226	660,182	767,019	891,145
Metropolitan Lagos	999.6	7,937,932	16,060,303	7,941	16,067	8,495,922	10,398,291	12,077,870	12,990,948

*Source: Author: Projections from 1991 and FGN 2006 and Lagos State 2006 Census using Basic Projection Formula*

#### **1.8.4 An Overview of Physical Planning and Development Control in Lagos State**

Spatial planning in a general sense was part of local indigenous administration in Nigeria, long before the colonial administration. By the middle of 1800s, many indigenous cities though not urbanized in the real sense of 20,000 people had a form of arrangement of land uses in their domain. For instance, the Sokoto Caliphate and much part of Oyo Kingdom seats of governments had one form of deliberate spatial arrangement of land uses around the palaces; therefore, the Nigeria landscape to some extent had some rudimentary element of planning.

However, modern planning as understood in line with Western culture and tradition is a recent phenomenon that emerged in the early 1900s. Various legislations and programmes have provided the framework for planning starting from 1904 to 1946 Ordinances and the latest at the national level is the 1992 planning law. Regions and later the states have some legal framework for guiding physical planning practice and after the promulgation of the Urban and Regional Planning Decree No.88 of 1992 most states in the federation have had their own established planning administration laws. The extent to which these legal framework and other planning approaches affect planning activities in Lagos state is an objective of this section.

Physical Planning is a modern phenomenon, a 19th Century term first formally used by the British in 1906 as contained in Housing and Town Planning Act of 1909. Lagos, being the first known point of early colonial adventure in the country has the first taste of modern planning activities within the corporate Nigeria. Another trace of planning in Lagos area was in 1886 when Captain Alfred Moloney was appointed Governor of Lagos and the streets were designed to suit foot and horse carriage mode of transport.

In terms of physical planning framework, 1863 Town Improvement Ordinance was the origin of urban planning. The objective of the ordinance was to control development and sanitation in Lagos. The enforcement of the Ordinance rested with the Health Department of the defunct Lagos City Council. It is seen as health regulation rather than an urban and regional planning legislation alongside that of the Swamp Improvement Act of 1877 and Public Health Act of 1917 since their focus is on sanitation.

The first physical planning framework that looked at development and its control as part of physical planning techniques is the Township Ordinance No.29 of 1917. It was enacted to classify urban settlement into different grades of cities as well as established broad physical layout of towns. The ordinance served as the legal basis of development of towns for most part of the colonial administration and also gave guidelines for the construction of buildings, control of development and finance of land in urban areas. It was the ordinance that introduced zoning and subdivision regulation into planning practice for the first time in the state. Worthy of mentioning here is the discriminating nature of the Ordinance which led to development of slum settlements in the native area.

By 1924 The Township Improvement Schemes were undertaken by the Town Council through Town Planning Committee and specifically to initiate planning schemes and initiate new ones where necessary. It was the spring board for the Lagos Town Planning Ordinance of 1928 which was enacted in response to the fundamental drawback of the 1917 Township Ordinance with no provisions extended to native towns and consequently no feasible planning in the native areas. The physical development problems arising from congestion in the native areas that were plan-less led to the outbreak of bubonic plague in the later part of 1920s.

The 1928 Lagos Planning Ordinance provided the creation of Lagos Executive Development Board (LEDB) as the Town Planning Agency for Lagos in response to the bubonic plague outbreak. The 1928 Planning Ordinances for the first time made Town Planning a government activity and ensured that Lagos Executive Development Board (LEDB) undertook several assignments including reclamation of swampy areas of Oko-Awo in the early 1930s and the resettlement of the displaced people from the area to south of Yaba Estate. During this same period Yaba North Estate was also established to provide housing for government officials and many residential and industrial estates and comprehensive land use planning and development were undertaken by the Board (Onibokun, 1986). The main flaw of the Planning Ordinance was that the board had no representative from the Lagos Town Council.

In 1946 the Lagos Town Commission in its recommendations emphasised that the authority most concerned with development of Lagos is the Lagos Town Council and it is indispensable that the Lagos Town Council should be fully represented on the Lagos Executive Development Board in order that a close liaison shall be established between the Board and the Council and that the Board should have the advantage of advice of the council on all matters concerned with the development of Lagos (Okpala, 1977). The Town and Country Planning Ordinance of 1946 (could be cited as Cap.155 of the 1948 edition of Laws of Nigeria) covered a wide area of planning operation ranging from planning schemes and planning authorities, preparation and approval of schemes and supply of schemes; execution of schemes; acquisition and disposal of land for schemes; compensation and betterment; the legal procedures for the operation of the schemes and the financial matters for successful implementation of the scheme.

An important area of significance of the 1946 Act was essentially the institutionalization of Local Planning Authorities to be responsible for all aspects of planning but through approved

planning schemes, and for the administration of existing Town and Country Planning laws. The 1946 Act was designed for the improvement and control of development by means of planning schemes to be prepared by Planning Authorities that were established by the government, the Act was more elaborative on the scope and content of the schemes and emphasis on development control that will ensure that “adequate provisions are made for roads, buildings and other structures amenities, public utility services, transport, communications and other uses to which land is put, harmonized interrelationship among these competing land uses through the principle of zoning” (Oyesiku, 1998). This ordinance recognised the need to regulate and control the redevelopment, reconstruction and conversion of initial building use to another.

Development control under this law ensures that development of spatial activities and overall growth of cities and rural areas are done in an orderly manner through the provisions of guidelines/ standard for these activities and preparation of planning schemes. Worthy of mentioning here is that this planning legislation was in force in the country for almost 50 years after enactment and it was applicable with minor amendment till December 1992.

The 1946 Act, to some extent did not allow for participatory decision making process on planning matters and was also unfriendly to the extent that it was difficult for an objection to be raised in respect of planning scheme. In this regard, a new planning law was necessary not only for a new planning order but also to address lingering planning operational and administrative challenges carried over from the colonial times. Moreover, the 1946 Act being a nationwide legislation applied to every part of the country that remained in existence for close forty six years and was replaced by the 1992 Urban and Regional Planning decree No.88 of 1992.

The adoption of the 1946 Town and Country Planning Law by each of the three regions, the Regional governments began to attract trained town planners in their services and established more town planning units along with their lands and survey departments (Obialo, 1999). The Chief Town Planning Officers in the regional government became the chief advisers to the regional governments on all urban and rural planning matters. Due to the capital intensive nature of physical planning, the regional governments could not adequately give urban and regional planning the priority it demanded in the face of rapid urbanization and attendant problems witnessed after independence.

The none-existence of physical planning administration at the national level makes it difficult to initiate planning proposals that cut across regional boundaries. The progress made in urban and regional planning during this period is with limitations. Such as, the implementation of the Town and Country Planning Ordinance of 1946 created a situation in which planning and development of an urban area was equated to provision of more physically attractive layout with architecturally well designed housing units. Indeed, planning authorities were not seen to be concerned with all other problems facing the urban centres under their jurisdiction. Another limitation was shortage of manpower as urban and regional planning profession was still very new to the Nigerian society.

A major contribution of the Federal Government to Urban and Regional Planning during post-independence period and through the third National Development Plan (1975 – 1980) was the institutionalization of the concept of new towns which led to the emergence of Abuja as the Federal Capital Territory, Satellite Town and Festac Town in Lagos. In addition to this, the World Bank started making in-roads into the states for urban development programmes with site and services projects in Bauchi and Imo states. Besides, the Federal Government initiated studies

on twenty major urban centres in Nigeria and promulgated the Land Use Decree in 1978 as a policy to provide easy access to land for its numerous housing and other social services projects. At the State level, the State Housing Corporations and Town Planning Authorities came alive and the latter were empowered to undertake long-term urban development programmes through the master plan preparation for few cities.

Many states in the Federation have had several legislations that have guided Urban and Regional Planning during the period under review. Lagos State legislations include the Cap.133 Lagos state Laws of Nigeria-Town Planning country planning law; Lagos state Law of Nigeria No.42 of 1980-Town Planning fees order; Lagos state law of Nigeria No.5 of 1982-Town Planning fees order; Lagos state law of Nigeria No.6 of 1983 - Guideline for approval of layouts and Lagos state of Nigeria law No.14 of 1983 on the same subject.

The briefs of these legislations are discussed as follows;

Cap.133 of Lagos State law of Nigeria provided for control of Town and Country Planning activities throughout the state and the law put together six previous planning laws as applicable to Lagos state. These other laws include: Western Region Law No.41 of 1959-Town and country planning (Amendment law 1959); Lagos Local government Acts 1959-1964 cap 77 section 126; Lagos Town Planning (Compensation) Act 1964; Lagos Executive Development Board (Powers) Act 1964; Lagos Town Planning (Miscellaneous Provision) Decree 1967; and Town Planning Authorities (Supervisory Powers) Edict 1971.

The Lagos State law of Nigeria No.42 of 1980 provided for fees paid on all applications, approval for new development or alteration to existing ones (contravention charges). The law had its commencement date as 22nd of April 1980. Similarly, the Lagos State law of Nigeria



No.5 of 1982 was in respect of regulation for processing application on building plan approval with the commencement date of 1st January 1981 and it dealt with the applicant, the planning authority and the developer as well as conditions for approval in respects of setbacks, zoning, height, nature of land and the need for every approved plan to bear the seal of the ministry.

Another important Urban and Regional Planning legislation that the State Government promulgated was the Lagos State law of Nigeria No.6 of 1983 which was in respect of guidelines for approval of layout. The law took effect from June 1983 and it deals with the guidelines for the application of private developers and contents of the scheme, processing of application and minimum standard for the provision of educational community facilities. In addition, the introduction of colour scheme for land uses and provision of infrastructure, preliminary approval, final approval and allocation of plots in the schemes were the main features of the law. The government of Lagos State in 1986 enacted two planning laws: Lagos state Edict No.1 of 1986 (the Town and Country Planning Edict 1985) Planning Activities, Planning Commission and Lagos State law of Nigeria No.15 of 1986, Town and country Planning (Building plan) Regulations 1986.

An important framework for Urban and Regional Planning activities in Lagos State was Town and Country planning edict of 1985 also known as edict No.1 of 1986. The edict with commencement date of June 1985 dealt with virtually all aspects of planning activities ranging from the establishment of the state planning commission and its membership, technical committee and its membership, processing, publication, objections to master plans, establishment of town planning authorities, outline of developed plans and functions and matters to be dealt with in planning briefs. Also, the edicts No.1 of 1986 dealt with applications and conditions

governing the submission by the developer, setbacks and plot coverage and density, permissible height of building plans and overall conditions for granting building approval.

It is important to note that the 1986 law also provided for the establishment of the new towns development authority which also carries out functions related to physical planning activities in the state. It is pertinent to note that despite these arrays of legislations for physical planning activities in Lagos State the recurrent planning problems remained intractable (Oyesiku, 1998). Deinde (1999) noted that though the legislations were adequate particularly for those periods but they were not fully utilized for the purposes of which they were made.

In December 1992, the Nigerian Urban and Regional Planning Decree (No.88) was promulgated. The new planning law came into force on 15<sup>th</sup> December 1992. And the planning law contain drastic provisions, overhauling the administration of urban and regional planning in the country (Oyesiku, 1998). The main objectives of the law are to facilitate preparation and implementation of development plans and planning schemes with a view to creating a better environment for living, working and recreation. The Nigerian Urban and Regional Planning Law, 1992, provides for the establishment of the National Urban and Regional Planning Commission which, among other functions, is to initiate and implement a National Physical Development Plan (NPDP). Years since the enactment of the law, neither the Commission nor a finalized NPDP is on ground. The law is different from the 1946 ordinance in a number of ways. But the law did not cover issues in contemporary planning practice such as; land tenure and acquisition of land which are still left to the controversial Land Use Act, 1978.

Lagos state enacted its own edict in 1997 tagged Lagos State Urban and Regional Planning Edict and it became operational in January 1998. The features of the Edict are: the establishment of

Urban and Regional Planning Board, now Lagos State Physical Planning Development Authority (LASPHYDA), to formulate the state policies for urban and regional planning and physical development including the spatial allocation of infrastructure, advising the state government and initiating activities towards the establishment of local planning authorities; initiation and preparation of; regional and sub-regional plans for the state, master plan for each local government, urban master plan for major urban centers, district plan, and outline development plan. This law allow for public participation through the publication in gazette dates when the master plans will commence; scrutiny and amendment of draft master plans, hearing of objections and their adoption for public exhibition; receipts of comments to draft master plans and hearing of objections by authorized representatives; determination of objection and directing amendments to be made on draft master plans based on objection where amendments are for commercial, industrial, recreational, institutional and civic or public buildings. The law also made provision for the formulation and adoption of programme for the coordination and progressive preparation and review of master plans as at when due.

Apart from the laws stated above, Lagos state had a master plan that covered 1980-2000. The use of master plan is one of the urban planning approaches that provide urban development plan indicating policy guides on physical development of any city or town. Zoning regulation is part of the sub-sections in master plan in which parcel of lands of specific uses are indicated. Doxiadis Associates (International) consultants were commissioned to prepare the regional master plan. The Final Regional Master Plan (1980-2000) was to serve as a comprehensive guide for future physical developments; in other words, to provide the basic foundation for all urban and local area plans in the State and attempt to unify the formulation of policies and utilization of land resources (Regional development plan for Lagos State; Doxiadis, 1980).

From the Regional Master Plan, the present development pattern of Lagos state reveals that there are thirteen development areas which could form the basis for formulating policies on a State wide scale aimed at correcting population and economic imbalances. These thirteen development areas are; Agbowo, Ikorodu, Lagos (Southern Sector), Badagry, Lekki, Ikeja, Shomolu and Ajegunle, Mushin/Egbe/Igando, Ojo, Southern Sector, Eredo, and Ibereko. The Regional Plan proposed land uses are Residential (15.23%); Industrial (2.88%); Transport 58%, facilities (7.43%); Institutional and Special Uses; Agriculture (37.24%); Conservation/Preservation (8.45%); Forest/Water Supply Reserves (1.735); Recreation and Tourism (5.38%); Regional Parks (0.71%); and Water (17.00%). The Master Plan also made provision for the development of two major urban centers outside of Lagos Metropolis and sub-centers, small urban centers in rural areas to promote rural agriculture, land reclamation, a new local airport, a new sea port, and creation of development corridors (the Lagos State Regional Plan expired in 2000).

The master plan is reported to have been reviewed in 2005, though an in-house review was also said to have taken place in 1999 (Kadiri, 2010). The review report contains the Regional Plan (1980-2000) proposals, the post 2000 situation, and recommendations for short term action for example, recommendations for short term future planning for the development of Lagos State without specifying the time limits of the proposals. Rather, the report further recommended that the next Lagos State Regional Plan (2007-2020) as well as the Lagos Metropolitan Plan (2001-2020) should be embarked upon which is currently taking effect in some regions of the state.

Given this state of things, one can reasonably conclude that Lagos State currently does not have a regional plan to guide its regional development efforts. The recent laws and regulations are too early to be subjected to review but hopefully its implementation will be successful. The

foregoing dealt with physical planning laws and regulation as applicable to Lagos state while this section tried to explain development control and how it is being practised in Lagos state.

Development control is a mechanism to maintain standards. It is a laid down process by legislation which regulates the development of land and building. This is an activity by planning agencies to ensure compliance with the approved master plan to ensure orderliness. Provision was made for Development Control Department (DCD) under section 27-63 Of the 1992 Planning Law and development control processes includes the use of; Land-Use Zoning and Land Planning Standards.

Development control reduces the negative impact accompanying physical development, it is a highly sensitive exercise which must be done with precaution, firmness and with deep sense of responsibility by Planning authority or agency. The problems of development control in Lagos state as a whole arises from gradual deviation from master plan of Lagos and the deregulatory authorities on development through alteration, deviation and distortion from planning standard.

Both the public and private sectors were responsible for this noticeable deviation from planning standards and were aided by the inefficiency, indiscipline on the part of the officials and compromises made by government agents in charge of development control. Worthy of note here is that despite government intervention through building regulations in the metropolis and advertorials in the dailies by the regulatory authority the contraventions in form of encroachment to walkways, buildings springing up under high tension lines, construction of buildings in violation to approval issued, setbacks in buildings being taken over by front shops and a variety of unsightly development, corruption of enforcement officers and conversion of residential

properties to commercial use or other uses among other forms of contraventions are on the increase in the metropolis.

## CHAPTER TWO

### 2.0 LITERATURE REVIEW/THEORETICAL AND CONCEPTUAL FRAMEWORK

#### 2.1 Introduction

Existing literature which examines the issue of building-use conversion is limited except those that analyses land-use conversion which is a macro spatial phenomenon. The study of land-use change referred to as change detection and the growth of urban centers have gained prominence in recent years and the reason is that there is need for proper land use planning to control haphazard developments that characterized the city systems in most developing countries. Studies on land use/land cover change have lots of findings among which is that of Kaur *et al* (2005) in Dewas city in Madhya Pradesh. The study revealed that there was increasing rate of population of in 1991 and that population is almost doubled in one decade and that the land area also increased by 55.15 percent within the decade at the cost of the loss of fertile agriculture land. This study pointed to displacement of fertile agriculture land for the city land area expansion while the current study intends to examine the diminishing residential buildings as a result of use-conversion like the diminishing fertile agricultural land.

Qiong *et al* (2005) used satellite remote sensing and geographic information system (GIS) to investigate land use change dynamics in Beijing. They observed that, there had been a notable and uneven urban growth and a major loss of cropland between 1986 and 2001. It was noted that most of the urban growth and loss of agriculture land occurred in inner and outer suburbs. Fabiyi, (2006) in his study of urban land use change analysis of Ibadan traditional city found that there were considerable dynamic changes in Ibadan metropolis and major contributor to these changes were the loss of vegetal cover, low density settlement and development of sprawl.

Among other scholars that have worked on land-use conversion are; Barlowe (1965), Jeffery *et al* (1999), Haque *et al* (2003), Qiuong (2005), Sebastain (2007), Braimoh & Takashi (2007) and Edward *et al* (2009). Their interests and focus are somewhat different from the interest of this study which examines functional use change of buildings in the context of their underpinning factors; the consequent pressure it brings to bear on urban domestic and neighbourhood facilities and equity-related issue which it brings to bear on the various residents stakeholders.

The study further reviewed literatures in five parts. The first part examined literatures on use conversion and underpinning factors, the second part reviewed literature on housing stock and the diminishing residential stock. The third part checked use-conversion and facilities use-pressure. The fourth reviewed literature on redevelopment of residential properties and social equity. The last part reviewed Un-Habitat (2003) slum-indicator thresholds as applicable to elements of assessing serviceability rating of building utilities and their related surrogates. Also, the research gaps were highlighted and the need for the current work was underscored.

### **2.1.1 Use-Conversion and Underpinning Factors**

Lagos metropolis that is characterized by rapid urbanization has shown that there are more migrants moving into the metropolis than into all other cities in Nigeria put together as reported in UN-HABITAT, (2001) reports. For example, between 1952 and 1963, the population of municipal Lagos rose from 267,407 to 665,246 (an annual increase of 8.6 per cent). Outside the municipality have amassed a further 424,622 people since 1963, making a metropolitan total of 1,089,868. The metropolitan population thus grew by 19.2 per cent per annum. The 1991 Census result for Lagos state was over 5 million and this has risen to over 9 million in 2006.



Rupesh and Anjansen (2008) in India found out that the growth of Ranchi city and its built-up area is due to population growth, which increases demand for land and the city expansion towards fringe areas. Most of the extension occurred at the cost of scanty fertile and plain agriculture land, since the city is surrounded by hills and plateaus. Ever growing difference between demand and supply of housing sites has increased stress on the fringe areas while prices of agriculture land continue to increase for residential and industrial purposes, and the cost of land in the city is rapidly reaching new heights.

Also, in China, with a similar pace of urbanization as Nigeria in terms of population pressure, Webster (2002) identified that the rapid urbanization in China has forced agricultural communities to adjust to an urban or industrial way of life in a very short time and also, the development of informal housing and illegal land use by migrants has led to uncontrolled construction activities and caused further dissipation of space. Invariably, urban land use change is in response to population growth, urbanization and other political and socio-economic factors.

Aluko, (2010) in a study of urbanization and housing, revealed that the upsurge in population growth of the city of Lagos in the 20<sup>th</sup> century brought about an unprecedented high rent cost due to insufficient housing delivery system. In addition, the study showed that there is massive spatial expansion of the city to the extent that the boundaries could no longer be differentiated from adjoining settlement in Ogun state.

Indeed, changes are inevitable in human societies; they are seen as part of urban growth phenomenon. Gallent (2009) pointed out that the intensity of land use change in response to population growth and its consequences on the environment need in-depth studies. Earlier, Turner *et al* (1990) equally pointed out that urbanization is perhaps one of the most important

human activities, creating enormous impacts on the environment at the local, regional and global scales.

In agreement with the above perspective, Oyinloye & Oloukoi (2013), Izueke *et al* (2013), Jianguo *et al* (2011), Yuzhe *et al* (2011), Ifatimehin *et al* (2009), Jin *et al* (2009) Omofonmwan & Osa-Edoh (2008), Rupesh and Anjansen (2008), Kaur *et al* (2005), Webster (2002) and Paulussen (2003) have shown that rapid population growth and urbanization often lead to extensive land use change as a result of increasing demand for land and city expansion, particularly in developing countries. There is generally a scarcity in research on building use-conversion (Ogungbemi, 2012) and the current study will be an addition in that perspective of research.

Earlier Barlowe, (1965) observed that property development is not a one-for-all time process but continuous, this shows that property development is dynamic. Different variables have been found to contribute to building-use conversion. For instance, Braimoh (2006) explained that the set of variables which influence residential-use change often differ from those which influence non-residential-use conversion.

Qiong *et al* (2005) and Lee, (1974) found that age of building is a variable that associates with the event of use-conversion in their various study.

Land rent/value was identified by Lean & Goodall (1966), Lee (1974), Haque *et al* (2003), Braimoh (2006) and Adebayo (2009) as a variable associated with the event of use-conversion in their studies.

Adeniyi & Omojola, (1999) identified addition or introduction of a new infrastructure as a variable that is associated with the event of use-conversion in Kwara state.

Accessibility, spatial interaction effects and policy variables were identified by Fabiyi (2006) as use-conversion variables and Ogungbemi (2012) found out that demand pressure is also a variable of use-conversion.

This study widens the scope of the variables considered to influence building-use conversion decision, specifically apart from the structural and age attributes, the analysis incorporates selected socio-economic attributes which surround the decision to construct the building in the first instance. These include the nature of ownership, the source of construction fund, the dynamics in status of ownership over time and other related variables.

### **2.1.2 Housing Stock and Diminishing Residential Stock**

Literature reveals that there is no accurate housing data in Nigeria (Pepple, 2011) but studies show that there is relationship between housing needs and population growth (Akunnaya and Adedapo (2014), Adejumo, 2008).

Also, Agbo (2014), Ogue *et al* (2001) and Peterside (2003) noted that there is no significant increase in the housing stock overtime and Nubi (2008) acknowledged deficit in housing provision. He further explained the reasons why houses sale or rent in Nigerian housing market has been inexorably shifting towards being very expensive. The literature reviewed at the time of the study found that no work has compared housing stock to diminishing residential stock. The current study shows continuous diminishing growth rate in residential stock among other housing uses.

### **2.1.3 Use Conversion and Use Pressure**

The study search for literature on use-conversion and use pressure was to highlight the implication of properties conversion that is not complimented with the upgrading of supporting building utilities and their related surrogates. This is an area that addresses the socio-well being of the residents and the neighbourhood where such conversion is taking place. The impact assessment of use-conversion of building as reflected in the supporting building utilities and their related surrogates was found to be missing in available literatures at the time of the study. Hence, the current study opens the ground of such assessment by examining the relationship between use-conversion and the level of satisfaction derived from the building supporting utilities. The contribution to literature was that not only do use-conversion lead to poor rating of the serviceability of the supporting utilities and their related surrogates but the effect is holistic on the neighbourhood where such conversion is taking place.

### **2.1.4 Redevelopment of Residential Properties and Social Equity**

The work of Glass (1964) explained the theory of urban gentrification and continuous redevelopment of residential zone in urban core due to the filtering down process residential properties in urban core are undergoing. Literatures on redevelopment of properties are available such as Nwanna (2012), Shankar & Vidhya (2013), Fabiyi (2006) Adebayo (2009) and Ogungbemi, (2012).

The foregoing addressed the issue of building redevelopment or conversion and highlights the its trends, factors that brought it about and its economic implications but did not look at the social equity implication of such redevelopment on stakeholders in the neighbourhoods the redevelopment is taking place. The current study attempts to bridge the gap in literature by analyzing the social equity of property redevelopment in the study area.

### **2.1.5 Overview of Slum Indicator Threshold**

The United Nations (2003) in its proposal for achieving Target 11 of the Millennium Development Goals (MDGs) specified a number of utilities which was tagged slum-indicator variables given their tendency to experience slum-ward degradation wherever the practice of maintenance is poor as in many developing countries. There are five (5) of such indicators highlighted by the UN-Habitat but three (3) of these are employed in this study (see Table 2.0) to assess the degree to which they are perceived to have depreciated in terms of their serviceability over time given the event of use-conversion of property which associates with intensified use-pressure and diminishing marginal satisfaction demand from them.

This study conceptualized the issue of diminishing satisfaction or serviceability of the selected utilities from the point of view of equity between the landlords who engage in and derive economic benefit from property-conversion and the tenants who experience only the inconvenience arising from the intensified use-pressure. The assessment in this study shows the degree of reduction in the level of satisfaction an individual derives from the use of a utility which has suffered overuse consequent upon conversion. This study has adopted some of the UN-Habitat (2003) slum indicator variables for assessing the serviceability of the supporting building utilities. The result has contributed towards exposing the gap in literature on use pressure and use-conversion relationship.

From the review above, in no recent study has the problem of building-use conversion in sub-Saharan Africa been given much attention. The case of Lagos is unique because of its population and cosmopolitan nature which puts pressure on building-use and its supporting utilities. This gap has thus informed the need for the current work. This is done with a view to unraveling the factors which initiates, encourages and sustains building-use conversion. This work therefore

focuses on building-use conversion, its causal factor and the perceptual serviceability of the buildings supporting utilities.

**Table 2.I.5 Selected Slum-Indicators and Variables for the Study**

<b>Indicators</b>	<b>Definition</b>	<b>Variables of its Assessment</b>
Access to improved water	A household is considered to have access to improved drinking water if it has at least 20 liters/person/day for family use, at an affordable price of less than 10% of total household income.	<ul style="list-style-type: none"> <li>• Piped water Supply</li> <li>• Public water Supply</li> </ul>
Access to improved sanitation	A household is considered to have access to improved sanitation if an excreta disposal system, either in form of a private toilet or public toilet is shared with reasonable people, is available to the household	<ul style="list-style-type: none"> <li>• Toilet</li> <li>• Sewage Effluent to Gutter</li> <li>• Waste Disposal</li> <li>• Drainage Condition</li> </ul>
Structural quality/durability of housing	A house is considered durable if it is built on a non-hazardous location and has a permanent structure adequate enough to protect its occupants from extremes of climatic conditions such as rain, heat, cold and humidity.	<ul style="list-style-type: none"> <li>• Building Material Quality</li> <li>• Building structure</li> <li>• Air Space between Buildings</li> <li>• Set-back in Buildings</li> <li>• Parking Situation</li> <li>• Road Condition</li> <li>• Noise Level</li> <li>• Flooding Condition</li> </ul>

*Source: Adopted from UN-Habitat (2003)*

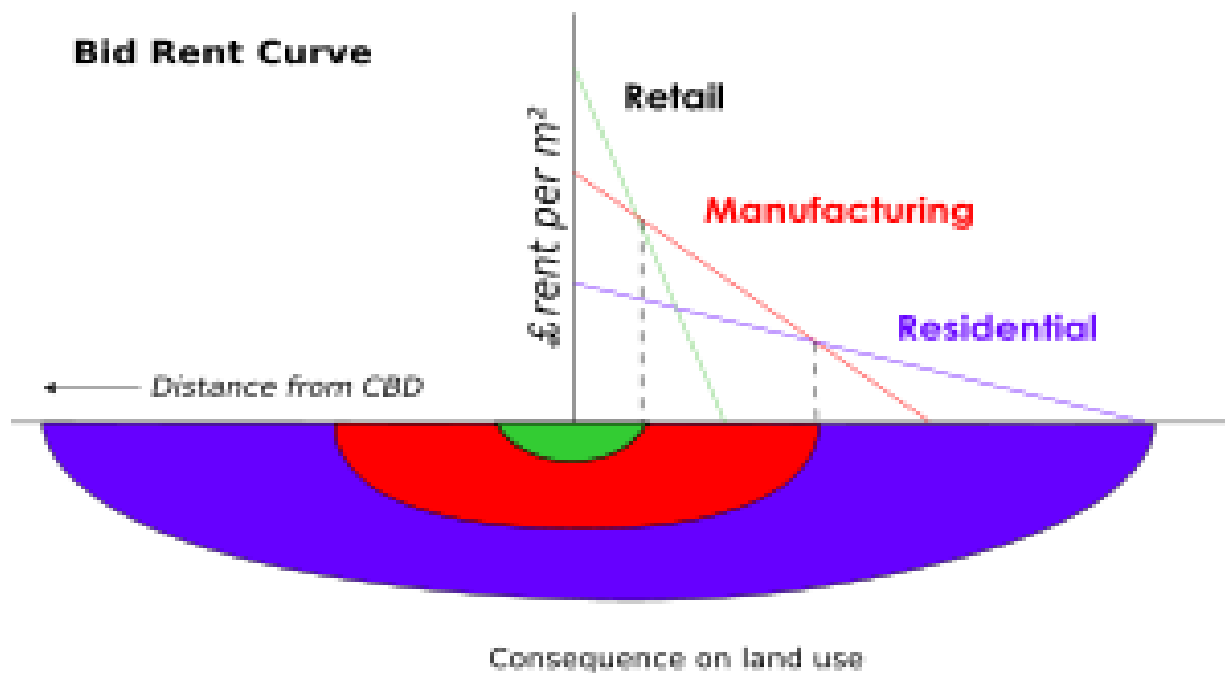
## **2.2 Theoretical Framework**

The centrality of economic motive is common to many existing theories of urban land-cum-space utilization dynamics and this accounts for the varying degrees of relevance of many of the existing theories to the present study. Burgess theory (1972) of urban ecology explained urban land-use zoning and emphasizes the notion that land-use in urban setting follows a socio-economic logic.

Urban ecology theory identified urban land use zoning that arises due to competitive pressure among human groups in an urban environment leading to differentiation of urban space zones. The theory suggests that the struggle for scarce urban resources, especially land leads to competition among groups and ultimately to division of the urban space into distinctive ecological niches or natural areas in which people share similar social/economic characteristics stay together and various urban activities cluster together.

The theory identifies urban land use zoning that arises due to competitive-pressure among human groups in an urban environment leading to differentiation of urban space into zones this theory suggest that there is struggle for scarce urban resources, especially land which leads to competition among groups and ultimately to division of the urban space into distinctive ecological niches or natural areas in which people that share similar social/economic characteristics stay together and various urban activities cluster together. This theory explains the basis of land-use zoning policy.

The theory of urban land value (Alonso, 1964) is another theory the study based its theoretical framework. The theory used the bid-rent theory to explain that due to the spatial differentiation of urban space to zones of various activities there are more desirable areas that command higher rents as explained by the theory of urban land value in bid-rent theory. Figure 3.0 (bid-rent curve of the actual rents in a city) is the bidding process by which land is allocated to competing land uses. The bid rent curve shows that there is competition for land space and this leads to high value for land at the core and hence explains high valued space and occupancy in the urban centres which command high rent.



**Figure 2.2: Bid-Rent Curve**

*Source: Adopted from Chapin & Kaiser, 1979*

Competition for desirable zones increases demand which results in increase in rent and consequently the reallocation of residential land-use to the outer urban space (that is the urban fringe). Land value theory explicates the reason why urban land and housing market will respond economically to competition if there is no effective development control.

Urban ecology and land values theories have explained the desirability of urban centres for certain activities which brought about the reallocation of residential zones to urban fringe. Overtime the residential properties in the urban centres experience downward filtration and created rent gap between the actual value of the property in the centre and the present value due to it filtered downward state.



This attracts redevelopment to mop up the rent gap created by deplorable state the land in the city centre command over its present value. Glass (1964) in her theory of urban gentrification explained this process that led to rent gap between the deplorable properties in the city centre and its actual value which redevelopment mop-up. The theory enlightened that the value attached to a given building-use will change over time once it is redeveloped. On this theoretical framework the study tried to explain building-use conversion with age in Lagos metropolis.

Furthermore, the study derived insightful benefit from the theory of '**Pareto equity**'. It provides the conceptual platform for assessing the fallout of revised policy of building-use conversion in the metropolis among the spatial regions and stakeholders affected by use-conversion decision. The theory explained that given an initial allocation of goods among a set of individuals, a change to a different allocation that makes at least one individual better off without making any other individual worse off is called 'Pareto equity'. Whereas in a situation where policy review does not seek '**Pareto equity**' the individual that are worse off are at great disadvantage.

In the context of the present study, it is doubtful if the government's policy revision option meets '**Pareto equity**'. The initial policy enforces development control in line with zoning, stipulated regulations and standards which disallows indiscriminate use-conversion. Under that arrangement any new development in form of reconstruction or renovation that contravenes the designated use for the zone would not be approved by the planning authority to ensure that such new development conforms to the master plan or zoning specification of the area. Flagging enforcement due to weakness of institutional policy has led to the policy review which emphasizes financial penalty for master plan contravention, rather than outright property demolition.

Policy summersault would not only cause confusion but will promote ‘**Pareto-inequity**’ in the distribution of benefits and otherwise among the stakeholders in the metropolitan system. Such indiscriminate activity brought about conflict of use within the existing planned area and suggests a scenario that is lacking in ‘**Pareto-equity**’. It is evident that conversion of building-use will reduce the supply of residential accommodation and equally generate conflict of use and overuse of the existing building and neighbourhood utilities and other surrogates of good liveability given that the existing law in its modification acquiesces to such conversion. Such a legal acquiescence undermines the ‘**Pareto**’ optimality of the third party, who unlike the government and the ‘property converter’ may have to cope with increasing space-use limitation and use conflicts, besides the declining serviceability of common neighbourhood utilities in the community.

### **2.3 Conceptual Framework**

Figure 2 illustrates the study’s conceptual framework. It shows the linkage between building-use approvals, as prescribed by the authority within the master plan as guided by zoning policy. The policy operates as a prescriptive instrument by specifying what type of structure or activity-structure that is permitted in a given area. In addition, the same policy operates as a control and monitoring instrument when building has been constructed by specifying the illegality of use-conversion except by approval.

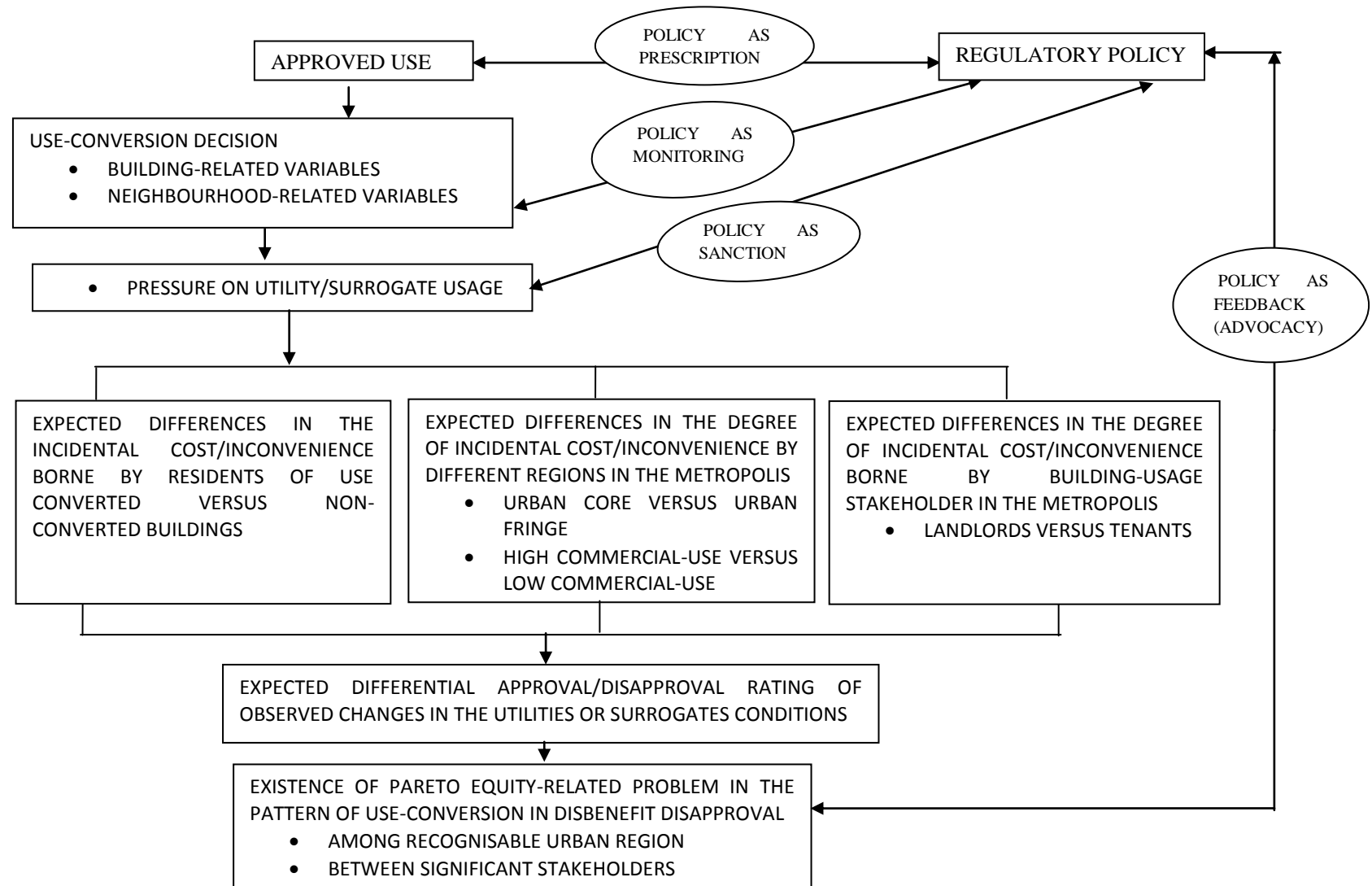
The effectiveness of the regulatory policy as prescribed under zoning failed because of monitoring policy that was not effective. Since there is no monitoring that ensures adherence and enforcement of the prescribed policy there is propensity for building-use conversion when the variables in the building and neighbourhoods are present. These are the extent to which the socio-economic status of landlords, such as ownership, availability and the source of fund for

building, ownership transfer arrangement and the housing market demand trigger use-conversion.

Furthermore, the control and monitoring function of the policy include the sanction component which penalizes building use contravention. The sanction compromises the initial prescription in a way that if you can afford the penalty fee for contravening you can have the authority's approval for any use outside the prescribed use spelt out under the metropolitan master plan.

Use-conversion eventually brings about high intensity of usage pressure on utilities which affects the degree of serviceability of the utilities/surrogates. Variation in the usage pressure will affect the degree of slum-ward changes in the attributes of slum-indicator variables. While timely intervention may reverse continuous degradation to higher levels of slum degeneration, its absence fast tracks transition from the slum incipience stage to slum maturation.

In a metropolitan setting, two possible equity related Pareto questions emerge from the above scenario. The first pertains to how the pains or the liabilities connected with the utility over-use is shared among the major function-differentiated regions in such metropolis, while the second addresses how such liabilities are borne by the major stakeholders affected by building-use conversion namely the landlord and the tenants.



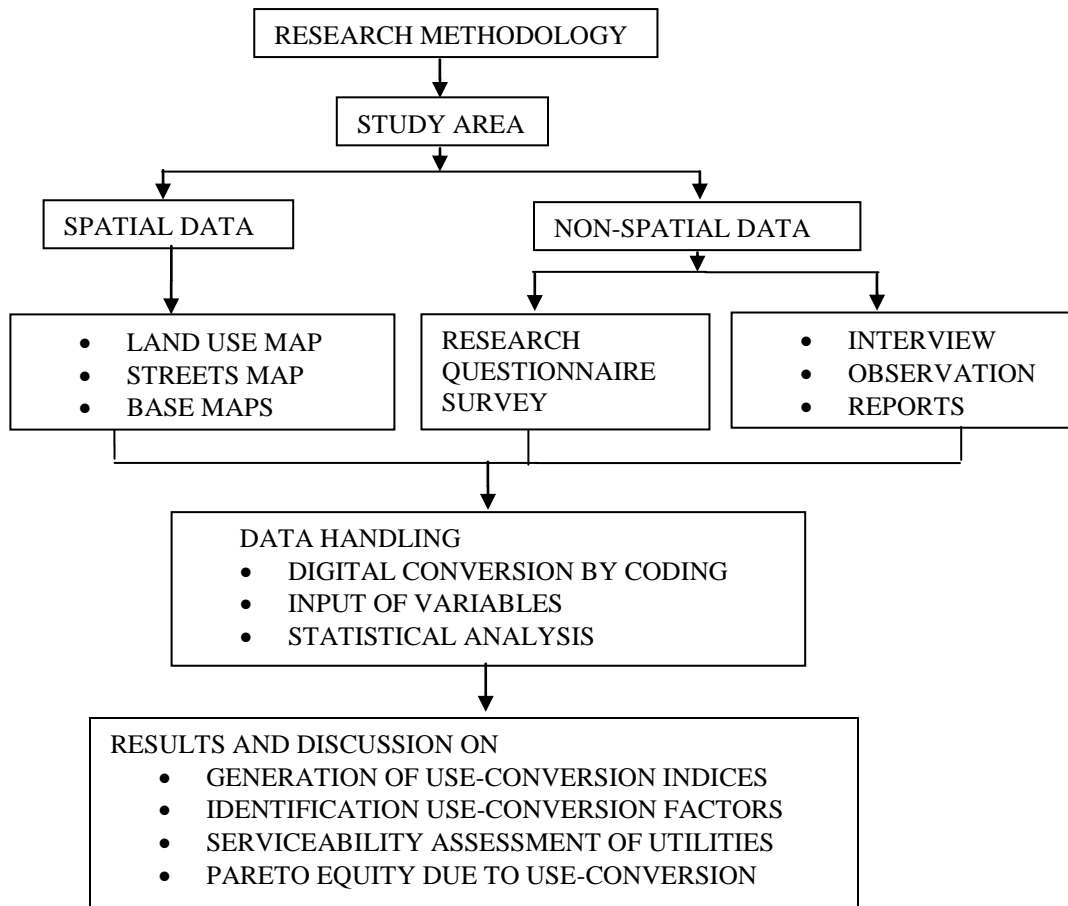
**Chart 2.0: Conceptual Framework**  
**Source: Author, 2014.**

## CHAPTER THREE

### RESEARCH METHODOLOGY AND DATA COLLECTION

#### 3.0 Introduction

The research methodology chart is presented in Figure 3.0. The study area is Lagos metropolis and the study used both spatial and non-spatial data through the procedures discussed in the next sections to generate result on use-conversion indices, variables and factors that are associated with the process of use conversion alongside the serviceability assessment of building utilities or related surrogates in the face of use-conversion.



**Chart 3.0: Research Methodology Flow Chart**      **Source: Author, 2013.**

### **3.1 Research Design**

The study employed a descriptive approach in the context of an ex-post-facto survey research design. The design is very appropriate, given the fact that the variables to be measured and studied have occurred in the past.

### **3.2 Data: Sources and Collection**

The relevant data for this study were obtained from a number of primary and secondary sources. The major secondary sources are the library and internet sources, from which all the previous works on land use changes and housing conditions as well as housing environment were consulted for the purpose of articulating the research problem as well as in designing its conceptual formulation.

The primary data employed in the analysis of this study were obtained by means of questionnaires, which was a close-ended one. The questionnaires sought for information on the building profile, the approval status and the functional changes in the building over the specified time of the study and the perceptions of the residents about the state of the utilities or related surrogates in the building and the neighbourhood.

#### **3.2.1 The Study Area (The Macro-Area)**

The study area is Lagos metropolis and a number of reasons informed the choice of Lagos for this study. It is Nigeria's most populous metropolis with exceptional concentration of population and rapid urbanization. As with many Third World cities, its large population, which is characterized by diverse socio-economic characteristics, has a large demand for housing with the disadvantages of Lagos land area as a swampy coastal terrain with little established land area for

urban expansion. These peculiarities, against the backdrop of effective development control recommends Lagos metropolis as an ideal setting to study building-use conversion, variables that predict such conversion and the implication of such conversion on building supporting utilities or related surrogates. The issue of use conversion cut across the Metropolis and is much more evident in the residential areas of Victoria Island, Lagos Mainland, Lagos Island, Ikeja and Surulere to mention a few.

### **3.2.2 The Study Population (The Micro-area)**

Though Lagos metropolis is the general study area, the specific target neighbourhoods from which the sample frame was drawn were purposively selected using their development characteristics (Traditional, Colonial, Post-Colonial, Administrative and Urban Fringe). The essence of this selection was to be able to capture the trend of use conversion in the selected neighbourhood in response to their emergence.

The need to have the landlords in each sampled building as respondent made the choice of Victoria Island and Lagos Island (which would have being a good representative of neighbourhoods that are experiencing use-conversion) impossible because majority of the buildings in the areas were found to have undergone use-conversions overtime and the original landlords are absent to give information on the buildings profile at completion which is a crucial reference point for the study data. Hence, the Local Government areas (LGAs) of Ifako-Ijaye (Urban Fringe), Ikeja (Administrative), Lagos Mainland (Colonial), Somolu (Traditional) and Surulere (Post-Colonial) are the selected neighbourhoods of the study. The selection of these LGAs was assumed appropriate addressing the issue of use-conversion in each of the neighbourhood with its development characteristics at heart.

### **3.3 The Sampling Procedure**

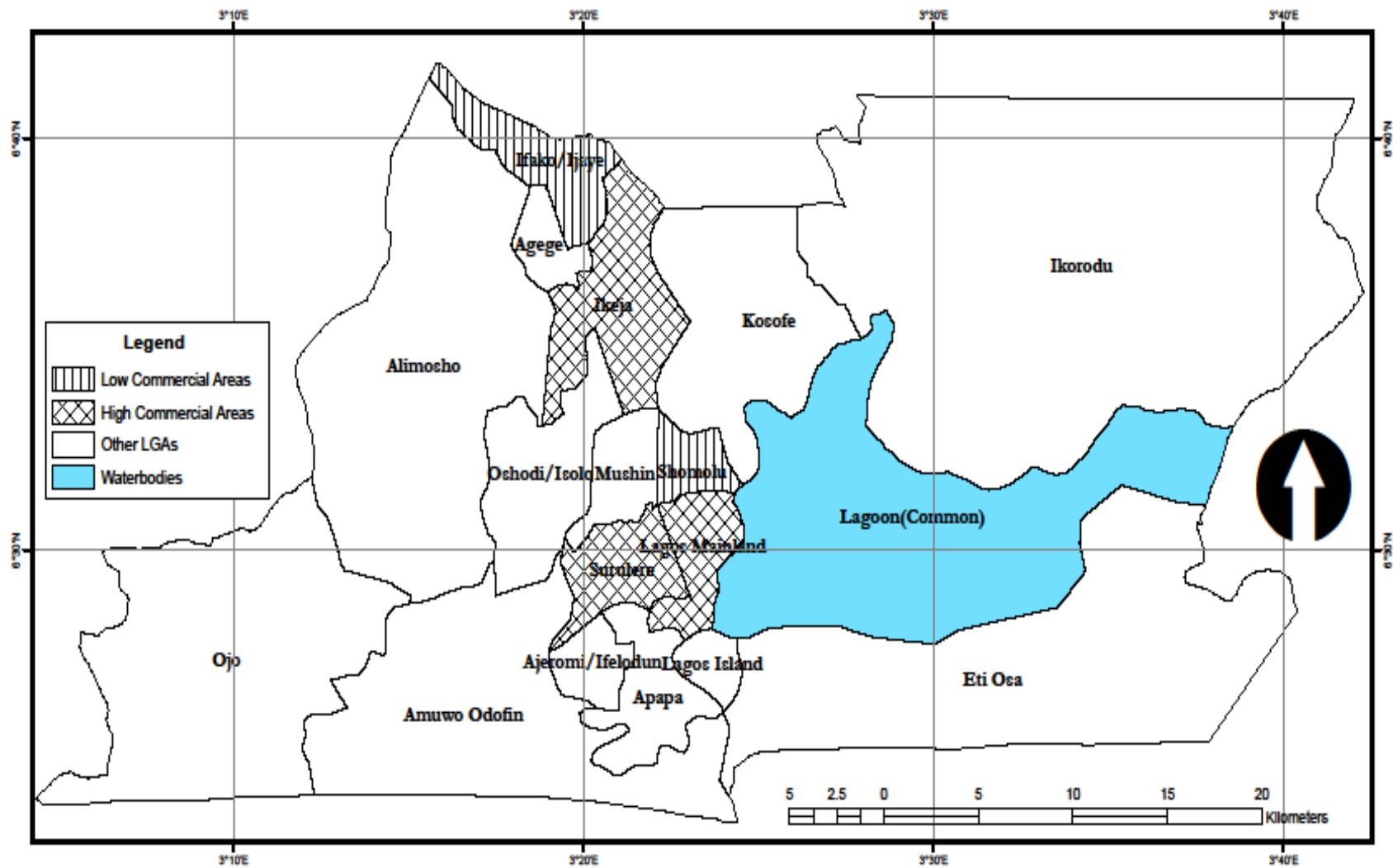
The study sampling procedure was through multi-stage stratified sampling technique. It commenced with the clustering of the metropolis into the traditional five Regional Planning Divisions (RPDs) in Lagos State out of which Lagos and Ikeja divisions made up the metropolitan section. A large-scale map both of Lagos and Ikeja divisions was drawn to facilitate the selection of the neighbourhoods for the study via judgmental selection procedure, using the development characteristics as the main selection criterion.

The study identified and labeled roads and streets using Lagos State Independent Electoral Commission (INEC) publication on wards and Lagos streets Map (2010). The information from these secondary sources was updated through field survey from comprehensive list of streets in the selected neighborhoods. Guided by the homogeneity nature of the targeted population and as a good representation the study sampled 30 per cent of the updated streets for the study. Next exercise was the stratification of the documented streets into short and long streets (the former are those that are shorter than one kilometer in length while the later are those that a longer than one kilometer) (The streets list in the selected LGAs and a copy of the administered questionnaire is presented in Appendix 1).

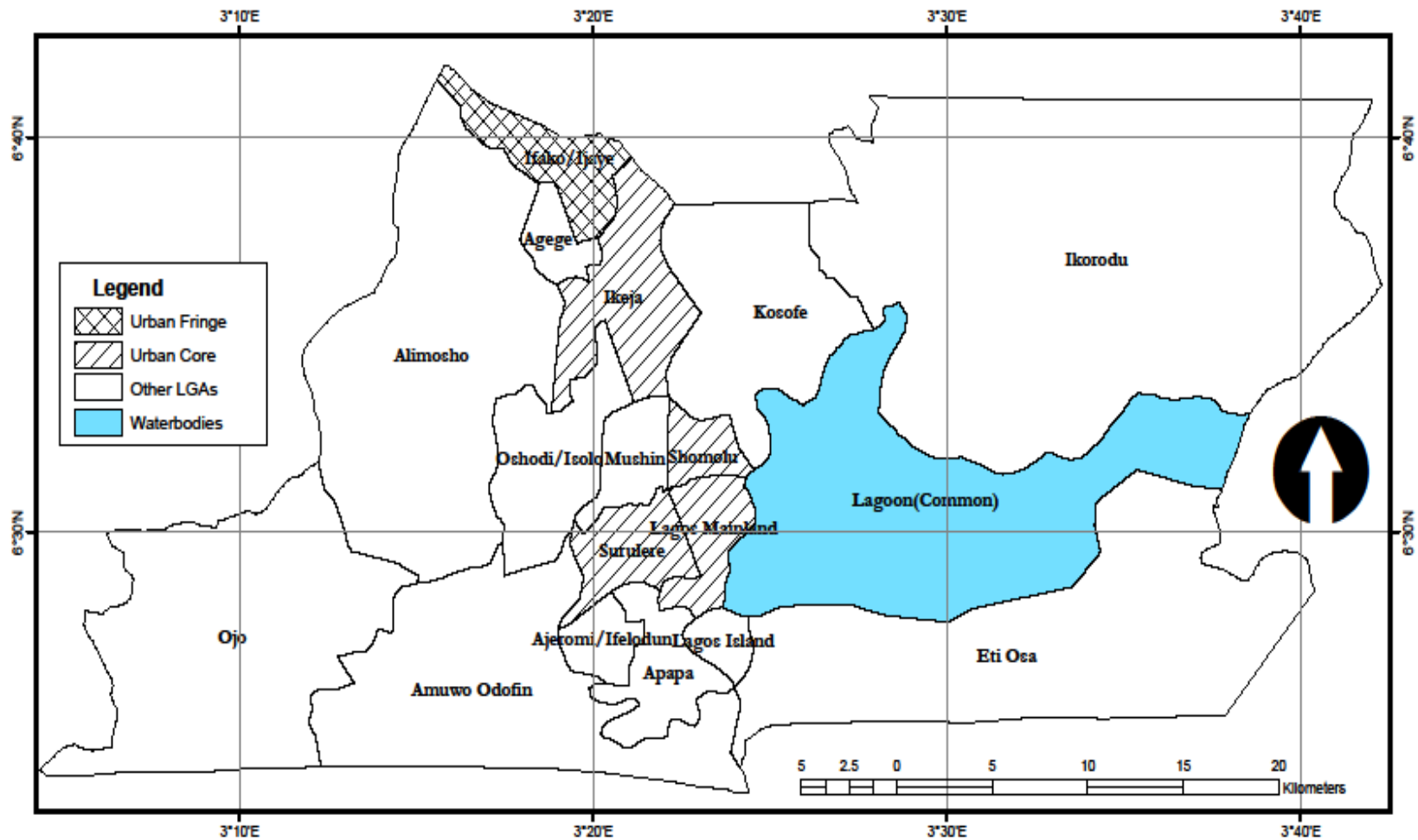
Based on the proportion of commercial-use in the entire study area to that of each neighbourhood of the study, the study area was reclassified into regions of high commercial use-intensity and low commercial use-intensity. In that context, the administrative, the post colonial and the colonial neighbourhoods were neighbourhoods that have higher proportion of commercial use than the entire study area and hence were classified as the region of high commercial-use region, while the traditional and urban fringe neighbourhoods were the neighbourhoods that have low



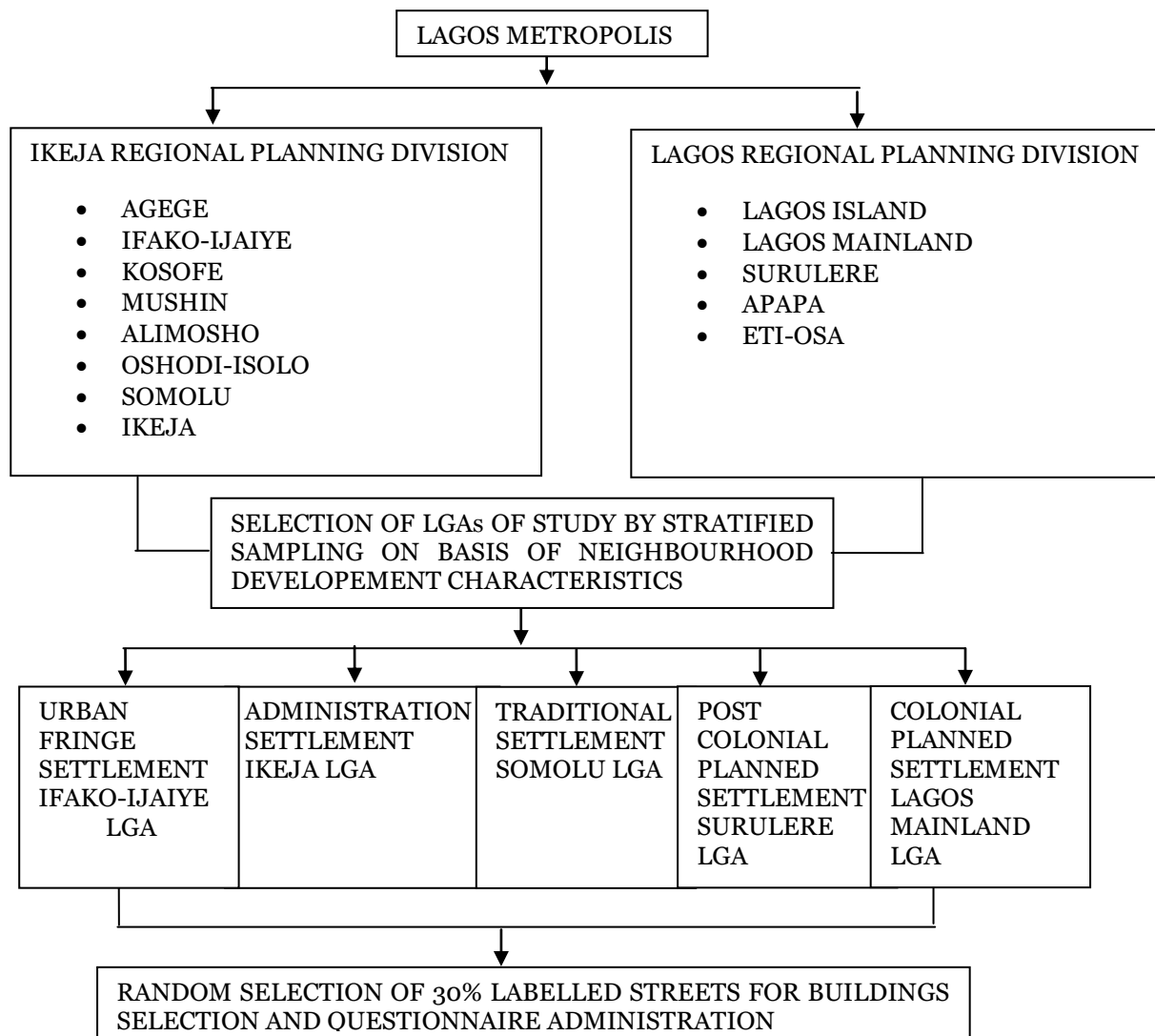
commercial-use proportion compared to the entire metropolitan area and hence were classified as region of low commercial-use (see Figure 3.1.1 and Chart 3.1).



*Figure 3.1.1: Lagos Metropolis and the Commercial-Use Regions Category of the Study*



*Figure 3.1.2: Lagos Metropolis and the Sub-Use Region (Urban Core/Fringe) Category of the Study*



***Chart 3.1 Showing Selections of the Study Neighbourhoods***

The inability of the relevant government departments in the Metropolis to provide reliable data on individual buildings dictated the choice of primary survey method which aimed at collecting building-use approval and other relevant information including reconstruction/modification and history of selected buildings by employing the probability proportionate to size (PPS) sampling techniques. The homogeneity nature of the study population informed the choice of random selection of buildings in proportion to the length of the streets in which 3 buildings were selected from short streets and 6 buildings were selected from long streets. The random selection

procedure was done through numbering of buildings in selected streets and ballots were drawn from this numbering using blind fold process. A total of 729 buildings were selected as sample for the study from the random selection process explained above and the same 729 questionnaires (see Table 3.0) were distributed for administration but 585 were found valid for the study.

**Table 3.0: Selected Neighborhoods of the Study and Questionnaires Distribution**

<b>Neighbourhood of the Study</b>	<b>Questionnaire Sent Out</b>	<b>Valid Questionnaire</b>	<b>Percentage Valid</b>
Ifako-Ijaiye (Urban Fringe)	139	96	69.0
Ikeja (Administrative)	171	163	95.3
Lagos mainland (Colonial)	136	91	66.9
Somolu (Traditional)	135	109	80.7
Surulere (Post-Colonial)	148	123	83.1
<b>Total</b>	<b>729</b>	<b>585</b>	<b>80.2</b>

*Source: Field Survey, 2013*

In order to get detailed information from the respondents, the research sought the assistance of the Community Development Associations (CDAs) in each neighbourhood of the study. This was done through participant-observation techniques in which prior to the field survey, the researcher and field assistants that were trained for the purpose visited the CDAs during their monthly meetings for a period of six consecutive months (June - December, 2012) to identify and get familiar with the stakeholders in each neighbourhood. The identified stakeholders for this study were the CDAs chairmen and the public relation officers. The coincidence of the fieldwork with the Lagos State Urban Renewal Programme which emphasizes the demolition of ‘unsafe’ buildings made the involvement of the identified community-based stakeholder officers very critical and their involvement helped in persuading many respondents to attend to the questionnaire.

In addition, personal records of observation on the state and quality of the buildings and neighbourhood were taken and the familiarity of the field staffs with the local area played a key role in this respect. For the purpose of data acquisition the landlord of the selected building was the preferred respondent but wherever such a person was absent, the oldest tenant in the selected building was selected.

The respondents were given opportunity to study and understand the questions while appointments were made when necessary for clarification/explanation on the raised questions and questionnaires were retrieved within two weeks of distribution. Variables for the assessment of serviceability of utilities or related surrogates were selected from three out of five indicators presented by UN-Habitat (2003) as slum-indicator thresholds.

### **3.4 Research Analytical Methods**

The administered questionnaire and data from field observations were coded and analysed using the Statistical Package for Social Sciences (SPSS) to achieve the stated objectives. Frequency/percentile tables and Markov chain analysis (using it to show transition from one use to another without future prediction) were employed to capture building-use, use-approval, the dominant attribute and the inter-use conversion pattern in the study area across the specific years of the study. Test of proportions is used to analyse differences in the proportions of residential usage at the time of building completion and the time covered by the study.

Principal component analysis was used to extract and analysed the variables and factors that associates with the event of building-use conversion. The variables were reclassified as building-related and neighborhood-related factors while the binary logistic regression is used to model the set of variables which associates with the event of use-conversion in the study area.

The serviceability assessment of the utilities or related surrogates was analysed for four different periods namely, pre 1991, 1991, 2001 and 2011. The selection of ten (10) years range was done based on planning regulations that recommends a review of existing planning policy every ten (10) years. To have effective measurement, two elements were captured in the assessment.

The first made up assessment of perceived changes in the serviceability rating of selected degradable utilities such as pipe water supply, public water supply, toilet condition, drainage condition, road condition and parking situation. The second assessment was on specified conditions which were not direct utilities but are conditions which affect the neighbourhood liveability rating and which may be impinged upon by a change in the neighbourhood population use-pressure occasioned by building-use conversion. These are building material quality, air-space, building structure and setbacks. Both the utilities and their related surrogate conditions were scored by the respondents for the specified years in terms of how they were better or worse off. The parameters for the assessment were scored and ranked using comparative options of ‘**Very Good**’ - 5, ‘**Good**’ – 4, ‘**Fair**’ – 3’, ‘**Bad**’ – 2, ‘**Worse**’ – 1 and Bonferroni multivariate test is the statistical tool for the analysis of mean score for the assessment.

The analysis examined whether or not any equity-related problem exists either between significant stakeholders or recognizable urban regions, given the pattern of indicated changes in the utility or related surrogates’ condition rating which may arise from increasing use-pressure that associate with use-conversion. The study summed up the ranked values of utilities or related surrogates that measure their serviceability in four equidistant years across the study period (the students t-test statistics was employed in the analysis of the differences in the serviceability rating in the specified years).

## CHAPTER FOUR

### PRESENTATION OF RESULTS AND DISCUSSION ON BUILDING STOCK AND USE APPROVAL

#### 4.0 Introduction

This section is the presentation of results and discussion on the patterns of building-use at the time of their completion in the context of the approval given for the building. The results presented here discussed the use-specific pattern of building-use and its approval at completion in the entire metropolis, the study neighbourhoods and the categorized regions of the study.

#### 4.1 Building Stock and Use-Approval at Completion

Table 4.1 is a crosstab result of the buildings use-approval attribute at their completion across the metropolis. 78.6% of the sampled buildings had use-approval, 16.4% did not have approval and 5% did not have specific information on their use-approval. Missing information with respect to this analysis occurs where original owners were either dead or could not be reached and in such cases also the current tenants are too recent to provide reliable information with regards to the original use-approval. The result shows that majority (about 79.8 per cent) of the residential buildings had approval at their completion while about 53.8 per cent of mixed-use buildings do not have approval at their completion. Other uses of buildings such as commercial, religious and institutional had approval for their uses at completion.

**Table 4.1 Building-Use Type by Approval Status at Completion**

Status of Approval	Buildings-Use at Completion											
	Residential		Commercial		Institutional		Religious		Mixed-Use		Total	
	FRQ	%	FRQ	%	FRQ	%	FRQ	%	FRQ	%	FRQ	%
Approval	451	79.8	1	33.3	1	100	2	66.7	5	38.5	460	78.6
No Approval	87	15.3	1	33.3	0	0	1	33.3	7	53.8	96	16.4
No idea of Approval	27	4.9	1	33.3	0	0	0	0	1	7.7	29	5.0
Total	565	100	3	100	1	100	3	100	13	100	585	100

*Source: Field Survey, 2013*



The spatial distribution of building use-approval by neighbourhoods of the study shows that majority of the buildings in urban fringe did not have use-approval at completion while in other neighbourhoods the sampled buildings had use-approval.

Also, majority of the sampled buildings had approval for residential use while many of the other uses do not have approval for the use. Tables 4.1.1 – 4.1.5 are the matrix analysis of the building stock and their approval at the time of their completion in each of the study LGA of the study respectively.

**Table 4.1.1 Building-Use Approval at Completion in Urban Fringe Area**

Status of Approval	Residential		Religious		Mixed-Use		Total	
	FRQ	%	FRQ	%	FRQ	%	FRQ	%
Approval	21	23.3	1	100	1	20	23	24
No Approval	61	67.8	0	0	4	80	65	67.7
No idea of Approval	8	8.8	0	0	0	0	8	8.3
Total	90	100	1	100	5	100	96	100

*Source: Field Survey, 2013*

Table 4.1.1 sum up the set of the building-use approval for the set of the sampled buildings located at the urban fringe of Lagos metropolis. The pattern shows that 24 percent had approval at the time of completion against the 67.7 percent that were without use approval. About 8.3 percent of the buildings information on their approval was unspecific.

It is interesting to note that the approval versus non-approval pattern of building at completion at urban fringe contrast with the general or the summary pattern of the entire metropolis. Clearly, the urban fringe pattern of use approval presents a picture of very low motivation to seek for approval given the degree of contrast between results presented in tables 4.1 and 4.1.1.

Also, worthy of note is that only three building uses are predominant in the urban fringe location in contrast with use-types in the entire metropolis. Furthermore, while the institutional use type

had the higher percentage of approval which is 100 percent for the entire metropolitan data, the religious-use has the highest approval score (100 percent) at the urban fringe. It is distantly followed by the residential-use type (23.3 percent) and mixed is 20 percent.

Coincidentally, the use (mixed-use) with the highest non-approved score for the entire metropolitan area summary is (53.8 percent) is also characterized by the modal non-approval score (80 percent) at the urban fringe location.

**Table 4.1.2 Building-Use Approval at Completion in Administrative Area**

Status of Approval	Residential		Commercial		Religious		Mixed-Use		Total	
	FRQ	%	FRQ	%	FRQ	%	FRQ	%	FRQ	%
Approval	138	88.5	0	0	1	100	2	50	141	87.0
No Approval	13	8.3	0	0	0	0	2	50	15	9.3
No idea of Approval	5	3.2	1	100	0	0	0	0	6	3.7
Total	156	100	1	100	1	100	4	100	162	100

*Source: Field Survey, 2013*

Table 4.1.2 is the summary of the building-use approval for the set of sampled buildings in the administrative area. The pattern shows that, 87 percent of the buildings had approval at the time of completion against the 9.3 percent that are without use approval. About 3.7 percent of the buildings information on their approval was unspecific.

The approval versus non-approval pattern of building at completion at the administrative area did not show contrast with the general pattern of the entire metropolis. Interestingly, the pattern of use-approval in the administrative area presents a picture of a very high inclination to seek for approval, given the degree of approval (87 percent) in Table 4.1.1 compared to the entire metropolis (78.6 percent) in Table 4.1.

Also, worthy of note is that four building use types are predominant in the administrative area in contrast with five uses type in the entire metropolis. Furthermore, the institutional use type had the highest percentage of approval which is 100 percent for the entire metropolitan, while the religious-use type has the highest approval score (100 percent) at the administrative area. It is closely followed by the residential-use type (88.5 percent) while mixed-use approval in the administrative area is 50 percent but 38.5 percent for the entire metropolitan area.

Interestingly the use (mixed-use) with the highest non-approved score for the entire metropolitan area summary is (53.8 percent) is also characterized by the modal non-approval score (50 percent) at the administrative area.

**Table 4.1.3 Building-Use Approval at Completion in Colonial Area**

Status of Approval	Residential		Institutional		Mixed-Use		Total	
	FRQ	%	FRQ	%	FRQ	%	FRQ	%
Approval	79	88.8	0	0	2	66.7	81	87.1
No Approval	7	7.9	1	100	0	0	8	8.6
No idea of Approval	3	3.3	0	0	1	33.3	4	4.3
Total	89	100	1	100	3	100	93	100

*Source: Field Survey, 2013*

Table 4.1.3 is the summing up of the building-use approval for the set of sampled buildings in the Colonial Area. The pattern shows that, 87.1 percent of the buildings had approval at the time of completion against the 8.6 percent that are without use approval and about 4.3 percent of the buildings information on their approval was unspecific.

The approval versus non-approval pattern of building at completion at the Colonial area shows that there is no much contrast with the general pattern of the entire metropolis. Worthy of note is that the Colonial Area's pattern shows a very high inclination to seek for approval given the

degree of approval (87.1 percent) in Table 4.1.3, compared to the entire metropolis (78.6 percent) in Table 4.1.

Interestingly, only three building use types are predominant in the colonial location in contrast with five use types in the entire metropolis. Furthermore, the institutional use type that had the highest percentage of approval (100 percent) for the entire metropolitan data lost that status to the residential use-type which had the highest approval score (88.8 percent) in the Colonial Area. It is followed by the mixed-use type (66.7) while the institutional-use in the colonial location does not have approval.

The use (mixed-use) with the highest non-approved score for the entire metropolitan area summary (53.8 percent) is different from the institutional-use type (100 percent) which is the modal non-approval score at the colonial location.

**Table 4.1.4 Building-Use Approval at Completion in Traditional Area**

Status of Approval	Residential		Institutional		Total	
	FRQ	%	FRQ	%	FRQ	%
Approval	102	93.6	1	100	103	93.7
No Approval	5	4.6	0	0	5	4.5
No idea of Approval	2	1.8	0	0	2	1.8
Total	109	100	1	100	110	100

*Source: Field Survey, 2013*

Table 4.1.4 sum up the set of the building-use approval for the set of the sampled buildings located at the traditional area of Lagos metropolis. The pattern shows that 93.7 percent had approval at the time of completion against the 4.5 percent that are without use approval. About 1.8 percent of the buildings information on their approval was unspecific.

It is interesting to note that the approval versus non-approval pattern of building at completion at traditional area conformed to the general or the summary pattern of the entire metropolis. The

traditional area pattern of use approval presents a picture of very high motivation to seek for approval given the degree of conformity between results presented in tables 4.1 and 4.1.4.

Also, worthy of note is that only two building uses are predominant in the traditional area of the metropolis in contrast with use-types in the entire metropolis. Furthermore, the institutional use type had the higher percentage of approval which is 100 percent for the entire metropolitan data is also the higher approval score (100 percent) at the traditional area. It is closely followed by the residential-use type (93.6 percent).

Interestingly, the use (mixed-use) with the highest non-approved score for the entire metropolitan area summary is (53.8 percent) is not conspicuous use in the Traditional Area at completion. In this area residential-use had the higher score of non approval of 4.6 percent. The study shows an interesting data about use approval for the traditional area that the area had the highest inclination for use approval in the entire metropolis. This tends to suggest a negative effectiveness of planning policy in the traditional area compared to other parts of the metropolis.

**Table 4.1.5 Building-Use Approval at Completion in Post Colonial Area**

Status of Approval	Residential		Commercial		Religious		Mixed-Use		Total	
	FRQ	%	FRQ	%	FRQ	%	FRQ	%	FRQ	%
Approval	111	91.8	0	0	0	0	1	100	112	90.3
No Approval	1	0.8	1	100	1	100	0	0	3	2.4
No idea of Approval	9	7.4	0	0	0	0	0	0	9	7.3
Total	121	100	1	100	1	100	1	100	124	100

*Source: Field Survey, 2013*

Table 4.1.5 is the summing up of the set the building-use approval for the set of the sampled buildings located at the Post-Colonial Area of Lagos metropolis. The pattern shows that 90.3 percent had approval at the time of their completion against the 2.4 percent that are without use approval. About 7.3 percent of the buildings information on their approval was unspecific.

It is interesting to note that the approval versus non-approval pattern of building at completion at Post-Colonial Area conforms to the general or the summary pattern of the entire metropolis. Clearly, the Post-Colonial pattern of use approval presents a picture of very high inclination to seek for approval given the degree of conformity between results presented in tables 4.1 and 4.1.5.

Also, worthy of note is that four building uses are predominant in the Post-colonial location in contrast with use-types in the entire metropolis. Furthermore, while the institutional use type had the higher percentage of approval which is 100 percent for the entire metropolitan data, the mixed-use has the highest approval score (100 percent) in the Post-Colonial Area. It is closely followed by the residential-use type (91.8 percent).

Mixed-use has the highest non-approved score for the entire metropolitan area summary (53.8 percent) while religious-use is characterized the modal per cent score of non-approval score (100 percent) in the Post-Colonial Area of the metropolis.

The results of use-approval at completion of buildings in the reclassified regions based on the intensity of commercial activity across the metropolis are presented in Tables 4.1.6 and 4.1.7 below. Table 4.1.6 is the result of use-approval at completion of buildings in the commercial-use regions of Lagos metropolis. In the low commercial-use region the percentage of building-use with approval for the use is about 61.1 percent while it is higher in the high commercial region with 88.1 percent. The percentage of buildings in low commercial-use region without approval for their use is 34 percent compared to 6.9 percent in the high commercial-use region of the metropolis. About 4.9 percent and 5 percent of the sampled buildings in Low-commercial-use and High-commercial regions of the metropolis respectively had unspecific information on their

approval status. The percentage of the buildings with approval for use at completion shows that the likelihood to seek for approval is generally lower in the Low-commercial than in the High-commercial segments of the metropolis.

**Table 4.1.6 Building-Use Approval at Completion in Commercial-Use Regions**

Status of Approval	Commercial-Use Regions				Total	
	Low Commercial-Use		High Commercial-Use			
	FRQ	%	FRQ	%	FRQ	%
Approval	126	61.1	334	88.1	460	78.6
No Approval	70	34.0	26	6.9	96	16.4
No Idea of Approval	10	4.9	19	5.0	29	5.0
Total	206	100	379	100	585	100

*Source: Field Survey, 2013*

Table 4.1.7, presents the result of the use-approval for the core-urban fringe categorization of the metropolis. In the urban fringe 24.0 percent of the sampled buildings at completion had the appropriate use-approval, while a large proportion of buildings about 67.7 percent do not have any approval. Slightly above 8% could not ascertain whether or not such buildings had use-approval or not at completion.

The situation in the urban core contrasts with the observation in the fringe. Precisely, 78.6 percent had appropriate use-approval at completion compared to 16.4 percent that had none. More than 4% of the buildings in this regional category had no information about their approval at completion. The result revealed that there is low motivation in seeking use-approval in urban fringe compared to urban core. The strong indication from this finding is that the urban fringe sprang up in response to urban expansion and not as a result of planning.

**Table 4.1.7 Building-Use Approval at Completion in Lagos Metropolis Sub-Regions**

Status of Approval	Sub-Regions				Total	
	Urban Fringe		Urban Core			
	FRQ	%	FRQ	%	FRQ	%
Approval	23	24.0	437	88.3	460	78.6
No Approval	65	67.7	31	6.3	96	16.4
No Idea of Approval	8	8.3	21	4.4	29	5.0
Total	96	100	489	100	585	100

*Source: Field Survey, 2013*

## 4.2 The Use-Specific Pattern of Building-Use at Completion in the Study Area

The analysis of use-specific pattern of building stock at their completion in Lagos metropolis shows that residential use was the dominant usage of the building stock at the time of the completion of the selected buildings. Table 4.2 displays the aggregate pattern of building usage for the study area and it shows that aggregating data of the various times of completion over 96 per cent of usage of sampled buildings were residential. Mixed-use were 2.2 per cent and other uses such as commercial; institutional and religious were fractions of uses of the building at completion in Lagos metropolis.

**Table 4.2 Building-Use Pattern at Completion in the study Area**

Building-Use	Total of each Use	Percentage
Residential	565	96.6
Commercial	3	0.5
Institutional	1	0.2
Religious	3	0.5
Mixed-Use	13	2.2
Total	585	100

*Source: Field Survey, 2013.*



#### 4.2.1 Spatial Pattern of Building-Use at Completion

Tables 4.2.1 – 4.2.5 show the spatial pattern of building-use at completion in each of the neighbourhood of the study respectively.

The result for urban fringe neighbourhood (Ifako-Ijaiye) shows that three buildings uses are more prominent among the five categories in the metropolis as illustrated by Table 4.2.1 which captured the pattern of building-use at completion in the urban fringe. Residential-use type has the same highest proportion of building-use (93.8 percent) as the entire Lagos metropolis (96.6) at completion. The other two uses are religion which is 1% of the urban fringe compared to 0.5 percent in the entire metropolis and mixed-use which is 5.2% compared to 2.2 percent in the entire metropolis at completion.

**Table 4.2.1 Pattern of Building-Use at Completion in Urban Fringe**

Building Usage	Total of each Use	Percentage
Residential	90	93.8
Commercial	-	-
Institutional	-	-
Religious	1	1.0
Mixed-Use	5	5.2
Total	96	100

*Source: Field Survey, 2013*



**Plate 1: Evidence of Residential-use Layout in Urban Fringe Area**

The result for the administrative neighbourhood (Ikeja) of the metropolis as shown in table 4.2.2 shows that going by the status of buildings at completion, four major use types appear to be well represented here compared to the five types in the entire metropolis. The proportion of residential-use type in the administrative neighbourhood is very close to the proportion obtainable in the entire metropolis at completion. Building-use at completion statistic shows that commercial-use constitute 0.6 percent in the administrative neighbourhood, this is slightly lower than its rating (0.5 percent) for the entire metropolis. Religious-use is 0.6 percent compared to 0.5 percent in the metropolis. Mixed-use on the other hand is 2.5 percent in the neighbourhood compared to 2.2 percent in the entire metropolis.

**Table 4.2.2 Pattern of Building-Use at Completion in Administrative Area**

Building Usage	Total of each Use	Percentage
Residential	156	96.3
Commercial	1	0.6
Institutional	-	-
Religious	1	0.6
Mixed-Use	4	2.5
Total	162	100

*Source: Field Survey, 2013*



**Plate 2: Evidence Residential-Use Layout in Administrative Area**

In the colonial neighbourhood of the study, the result presented in table 4.2.3 shows that the pattern of building-use in the area does not have commercial and religious uses at completion compared to the entire metropolitan area. Residential-use type (95.7 percent) in the neighbourhood is very close to residential-use type (96.6 percent) in the metropolis. The Institutional-use is 1.1 percent compared to 0.2 percent in the metropolis. Mixed-use is 3.2 percent which is higher than 2.2 percent in the entire metropolis.

**Table 4.2.3 Pattern of Building-Use at Completion in Colonial Area**

Building Usage	Total of each Use	Percentage
Residential	89	95.7
Commercial	-	-
Institutional	1	1.1
Religious	-	-
Mixed-Use	3	3.2
Total	93	100

*Source: Field Survey, 2013*



**Plate 3: Evidence Residential-Use Layout in Colonial Area**

Table 4.2.4 is the result for the specific-use of buildings at completion in the traditional neighbourhood of the metropolis (Somolu). Interestingly, only two types of building uses are obtainable at completion in the neighbourhood. Residential-use shows the maximum presence here (99.1 percent) exceeding its entire aggregate percentage value for the entire metropolis (96.6 percent). Commercial-use on the other hand exhibits a lesser magnitude (0.9 percent) than the entire metropolis at completion.

**Table 4.2.4 Pattern of Building-Use at Completion in Traditional Area**

Building Usage	Total of each Use	Percentage
Residential	109	99.1
Commercial	1	0.9
Institutional	-	-
Religious	-	-
Mixed-Use	-	-
Total	110	100

*Source: Field Survey, 2013*



**Plate 4: Evidence of Residential-Use in Traditional Area**

The pattern in the Post-Colonial neighbourhood is somewhat closer to what is obtained in the administrative neighbourhood. Both neighbourhoods are characterized by four major use types out of the five types of building-use in the metropolis. Both neighbourhoods have residential as the modal building-use types. The percentage is slightly higher than the Post-Colonial neighbourhood (97.6) than the administrative neighbourhood. The slightly higher percentage value of the residential-use in the Post-Colonial neighbourhood is reflected in the lower percentage value in mixed-use category. In the Post-Colonial neighbourhood of Lagos metropolis, Table 4.2.5 shows that four major types of building-use types are very noticeable in contrast to five in the entire metropolis. Residential-use had the highest proportion standing at 97.6 percent which is slightly higher than its percentage for the entire metropolis (96.6). Commercial-use, religious-use and mixed-use respectively had 0.8 percent share compared to 0.5 percent respectively for the entire metropolis.

**Table 4.2.5 Building-Use at Completion in Post-Colonial Area**

Building Usage	Total of each Use	Percentage
Residential	121	97.6
Commercial	1	0.8
Institutional	-	-
Religion	1	0.8
Mixed-use	1	0.8
Total	124	100

*Source: Field Survey, 2013*



**Plate 5: Evidence of Residential-Use Layout in Post-Colonial Area**

### **4.3 Spatial Distribution of Buildings-Use at Completion**

From data presented in tables 4.2.1 – 4.2.5, residential-use has the dominant occupancy attribute among the housing stock across the study area at completion. In traditional neighbourhood (Somolu) among the sampled buildings, residential use amounted to 99.1% at completion. It was 97.6% in post colonial (Surulere), 96.3% in administrative (Ikeja) and 95.7% in colonial (Lagos Mainland) and 93.8% in urban fringe (Ifako-Ijaiye) neighbourhoods the same result is obtainable at the entire metropolitan area (96.6 percent). Hence, the most prominent building-use at completion across the study neighbourhoods and the entire Lagos metropolis was residential.



The result presented in tables 4.3.1 and 4.3.2 is results for the re-classified regions of the metropolis of high commercial region (Ikeja, Lagos Mainland and Surulere LGAs) and low commercial region (Somolu and Ifako-Ijaiye LGAs). The results show that residential-use is also the dominant building-use type at completion in each of the two regions to which the entire metropolis is disaggregated. Marginal differences are observable with respect to the higher proportion of residential and mixed uses by 0.5 percent and 0.3 percent respectively in low commercial area than the high commercial area.

**Table 4.3.1 Pattern of Building-Use at Completion in High Commercial Region**

Building Usage	Frequency	Percent
Residential	366	96.1
Commercial	2	0.5
Institutional	1	0.3
Religious	2	0.5
Mixed-Use	8	2.1
Total	379	100.0

*Source: Field Survey, 2013.*

**Table 4.3.2 Pattern of Building-Use at Completion in Low Commercial Region**

Building Usage	Frequency	Percent
Residential	199	96.6
Commercial	1	0.5
Religion	1	0.5
Mixed-Use	5	2.4
Total	206	100

*Source: Field Survey, 2013.*

## CHAPTER FIVE

### BUILDING-USE DYNAMICS IN LAGOS METROPOLIS

#### 5.0 Introduction

This section presents the results of building-use dynamics in Lagos metropolis. The proportion of building-use type at completion in the study area is compared to the proportion of building-use at the time of field survey to establish the dynamics of building-use conversion in the study area.

#### 5.1 Pattern of Building-Use Dynamics in Lagos Metropolis

The result of the temporal dimension of building-use conversion across the metropolitan area is presented in Table 5.1. It shows the purpose for which a given building is constructed on completion and the use to which it is being put as at the time of the study survey. Thus implies that, the type of building-use varies between the time of completion and the time of the current study for individual building.

**Table 5.1 Pattern of Building-Use Conversion in Lagos Metropolis**

Building-Use at Completion		Current Building-Use						Total Use at Completion
		Residential	Commercial	Industrial	Institutional	Religious	Mixed-Use	
Residential	FRQ %	99 17.5	41 7.3	2 0.4	3 0.5	3 0.5	417 73.8	<b>565</b> <b>96.6</b>
Commercial	FRQ %	1 33.3	1 33.3	0 0	0 0	0 0	1 33.3	<b>3</b> <b>0.5</b>
Industrial	FRQ %	0 0	0 0	0 0	0 0	0 0	0 0	<b>0</b> <b>0</b>
Institutional	FRQ %	0 0	0 0	0 0	0 0	0 0	1 100	<b>1</b> <b>0.2</b>
Religious	FRQ %	1 33.3	1 33.3	0 0	0 0	0 0	1 33.3	<b>3</b> <b>0.5</b>
Mixed-Use	FRQ %	1 7.7	1 7.7	0 0	0 0	0 0	11 84.6	<b>13</b> <b>2.2</b>
<b>Total Current Use</b>	<b>FRQ %</b>	<b>102</b> <b>17.4</b>	<b>44</b> <b>7.5</b>	<b>2</b> <b>0.3</b>	<b>3</b> <b>0.5</b>	<b>3</b> <b>0.5</b>	<b>431</b> <b>73.7</b>	<b>585</b> <b>100</b>

*Source: Field Survey, 2013*



The matrix analytical results of temporal dimension of building-use conversion in Table 5.1 shows that the sum of all the indicated usage of all the buildings at completion shows that residential-use exceeds other uses by a very wide margin. For the entire metropolis, it was 96.6 percent as indicated in the previous section. Next to it is the mixed use (2.2 percent) jointly followed by commercial and religious uses which constitute 0.5 percent respectively. Institutional-use ranks lowest for the entire metropolis.

The summary of the pattern of use-conversion among use types as at the time of the fieldwork shows that although the aggregate of all buildings specifically purposed for residential-use at completion amounted to 565 of the entire building stock. However, as at the time of study survey residential-use buildings accounted for 17.7 percent of the current building stock. Specifically it lost 73.8 percent to mixed-use, followed by 7.3 percent loss to commercial-use and between 0.4 and 0.5 percent respectively to the other three categories that is the industrial, the institutional and the religious uses. The pattern shows that all the other building-use types benefitted immensely from use-conversion from buildings previously designated as residential.

The case of the commercial usage differs significantly from the residential usage. The sample shows that only three buildings which amount to 0.5 percent of the aggregate of the entire metropolitan building stock were originally designated for commercial-use. As at the time of study, the percentage has gone up to 7.5 percent, it made very great dramatic gain majorly from the residential-use category. It also received use-converted buildings from the religion and mixed categories.

Institutional-use buildings were losing property to the mixed-use category. The use-conversion magnitude of that loss was however more than compensated by a greater magnitude of

conversion it got from the residential-use. Religious-use had a zero net balance between what it lost and what it gained from other uses. Industrial-use did not feature as a deliberate or intended construction; its occurrence is a function of use-conversion at the expense of buildings from the residential stock.

### **5.1.1 Use-Conversion in the Commercial-Use Regions of Lagos Metropolis**

This section is the presentation of the variations of use-conversion in the metropolis classified by the degree of commercial activity-intensity in the regions. The analysis in this section examines the extent to which building-use conversion varies among the identified categories of recognized uses specifically between the low and high commercial regions into which the entire metropolis has been systematically sectionalized. Table 5.1.1 shows the pattern of use-transition which occurred in the low commercial region of the metropolis, similar to which occurred in the entire metropolis the low commercial region also experienced significant loss in their stock of residential-use building to other uses. Going by the percentage distribution of the indicated uses at time of building completion, residential-use should account for 199 (96.9 percent) of sampled buildings in low commercial region. However, on 34 buildings (16.5 percent) buildings remained as residential buildings as at the study time; having lost 81.4 percent, 1.5 percent and 0.5 percent respectively to the mixed-use, commercial-use and religious-use.

Comparatively, the high-commercial region of Lagos metropolis (Table 5.1.2) exhibits a wider pattern of use-conversion. The industrial-use was totally absent in the low-commercial region, occurs here it represents 0.2 percent of all conversion make among the different categories of uses.

To a large extent, what occurred in the low commercial region is repeated in the high commercial region as residential-use suffered the greatest loss. As at the time of study, only 68 buildings (18 percent) out of 366 (96.6 percent) originally built as residential buildings at completion retained that identity. Its array of losses includes 10.4 percent to commercial-use, 69.7 percent to mixed use, 0.8 percent to institutional-use and 0.5 percent to both industrial and religious uses respectively. The current percentage of residential-purpose building standing at 17.9 percent of the entire building stock is only slightly higher than its corresponding value (16.5 percent) in the low commercial region.

Although commercial-use experienced a loss in its stock, the gain it made from the residential-use accounts for over 92 percent of the current stock of commercial purpose buildings in the high commercial region of the metropolis. Similar pattern of use-conversion occurred between residential-use and other categories of uses. Analysis in the next sections employs another format of urban classification which examined the metropolis in terms of the historic-functional classification of its neighbourhoods.

**Table 5.1.1 Pattern of Building Use Conversion in Low Commercial Region**

Building-Use at Completion		Current Building-Use				
		Residential	Commercial	Religious	Mixed-Use	Total Use at Completion
Residential	FRQ	33	3	1	162	199
	%	16.6	1.5	0.5	81.4	96.9
Commercial	FRQ	0	0	0	1	1
	%	0	0	0	100	0.5
Religious	FRQ	1	0	0	0	1
	%	100	0	0	0	0.5
Mixed-Use	FRQ	0	0	0	5	5
	%	0	0	0	100	2.4
<b>Total Current Use</b>	<b>FRQ</b>	<b>34</b>	<b>3</b>	<b>1</b>	<b>168</b>	<b>206</b>
	<b>%</b>	<b>16.5</b>	<b>1.5</b>	<b>0.5</b>	<b>81.6</b>	<b>100</b>

*Source: Field Survey, 2013.*

**Table 5.1.2 Pattern of Building Use Conversion in High Commercial Region**

Building-Use at Completion		Current Usage						Total Use at Completion
		Residential	Commercial	Industrial	Institutional	Religious	Mixed-Use	
Residential	FRQ %	66 18.0	38 10.4	2 0.5	3 0.8	23 0.5	255 69.7	<b>366</b> <b>96.6</b>
Commercial	FRQ %	1 50.0	1 50.0	0 0	0 0	0 0	0 0	<b>2</b> <b>0.5</b>
Institutional	FRQ %	0 0	0 0	0 0	0 0	1 0	1 100	<b>1</b> <b>0.3</b>
Religious	FRQ %	0 0	1 50.0	0 0	0 0	0 0	1 50.0	<b>2</b> <b>0.5</b>
Mixed-Use	FRQ %	1 12.5	1 12.5	0 0	0 0	0 0	6 75.0	<b>8</b> <b>2.1</b>
<b>Total Current Use</b>	FRQ %	<b>68</b> <b>17.9</b>	<b>41</b> <b>10.8</b>	<b>2</b> <b>0.5</b>	<b>3</b> <b>0.8</b>	<b>2</b> <b>0.5</b>	<b>263</b> <b>69.4</b>	<b>379</b> <b>100</b>

*Source: Field Survey, 2013.*

## 5.2 Spatio-Temporal Pattern of Building-Use Dynamics in Historico-Functionally Classified Neighbourhoods

The current section employs the historico-functional attributes of Lagos to reclassify the metropolis into five major neighbourhoods. The neighbourhoods include the Urban Fringe, Administrative, Colonial, Traditional and Post-Colonial neighbourhoods. The purpose of the classification is to examine the pattern which building-use conversion tend to conform using another form of metropolitan classification. In other words, it is to examine whether a change in the variable by the metropolis is categorized can alter the pattern in which use-conversion occur in the metropolis.

The Results presented in tables 5.2.1 – 5.2.5 reveal that spatial variations occur in the pattern of building-use conversion among the neighbourhoods of the study. In the urban fringe neighbourhood (Ifako-Ijaiye) the dominant orientation of use-conversion was from residential-use to mixed-use. The result shows a decline in residential-use from 93.8% at completion to

21.9% at the time of the survey, while mixed-use increased from 5.2% at completion to 77.1% at time of the survey.

In contrast to data obtained for the entire metropolis building-use, only a limited number of use-transition occurred at the Urban-Fringe. Use-conversion occurred mainly from residential-use to mixed-use (76.7 percent) and from residential-use to commercial-use (1.1 percent). Apart from these uses only religious-use recorded loss to other unspecified use. Altogether residential-use accounted for 21.9 percent of the existing building stock of the fringes compared to 93.8 percent of the entire building stock in the fringe original designated for residential purpose at completion. Mixed-use on the other hand has 77.1 percent compared to 5.2 percent originally specified for that purpose.

**Table 5.2.1 Pattern of Building-Use Conversion in the Urban Fringe Neighbourhood**

Building-Use at Completion		Current Building-Use			
		Residential	Commercial	Mixed-Use	Total Use at Completion
Residential	FRQ	20	1	69	<b>90</b>
	%	22.2	1.1	76.7	<b>93.8</b>
Religious	FRQ	1	0	0	<b>1</b>
	%	100	0	0	<b>1.0</b>
Mixed-Use	FRQ	0	0	5	<b>5</b>
	%	0	0	100	<b>5.2</b>
<b>Total Current Use</b>	<b>FRQ</b>	<b>21</b>	<b>1</b>	<b>74</b>	96
	<b>%</b>	<b>21.9</b>	<b>1.0</b>	<b>77.1</b>	100

*Source: Field Survey, 2013.*



**Plate 6a**



**Plate 6b**

**Plates 6a and 6b: Evidence of Mixed-Use of Building in Urban Fringe**

The pattern of use-conversion in the administrative neighbourhood (Ikeja) as shown in table 5.2.2 is different from that of the urban fringe but similar to that of the entire metropolis. In the administrative neighbourhood nearly all the other building uses absorbed a given proportion of residential-use leading to increase in their proportion at completion which is similar to the pattern obtained for the entire metropolis. Also, the dominance of mixed-uses is observed with respect to the entire metropolis (71.0 percent) is replicated in the administrative neighbourhood (73.7 percent).



**Plate 7a**



**Plate 7b**

**Plates 7a and b: Conversion to Commercial-Use in Ikeja LGA**

**Table 5.2.2 Pattern of Building-Use Conversion in the Administrative Neighbourhood**

Building-Use at Completion		Current Building-Use						
		Resident ial	Commer cial	Indust rial	Institu tional	Relig ious	Mixed -Use	Total Use at Completion
Residential	FRQ %	25 16.0	16 10.3	1 0.6	1 0.6	2 1.3	111 71.2	<b>156</b> <b>96.3</b>
Commercial	FRQ %	0 0	1 100	0 0	0 0	0 0	0 0	<b>1</b> <b>0.6</b>
Religious	FRQ %	0 0	1 100	0 0	0 0	0 0	0 0	<b>1</b> <b>0.6</b>
Mixed-Use	FRQ %	0 0	0 0	0 0	0 0	0 0	4 100	<b>4</b> <b>2.5</b>
<b>Total Current Use</b>	<b>FRQ %</b>	<b>25 15.4</b>	<b>18 11.1</b>	<b>1 0.6</b>	<b>1 0.6</b>	<b>2 1.2</b>	<b>115 71.0</b>	<b>162</b> <b>100</b>

*Source: Field Survey, 2013*

**7c: Conversion to Religious-Use in Ikeja****7d: Conversion to Institutional-Use in Ikeja**

Table 5.2.3 presented the building-use conversion pattern in the Colonial neighbourhood (Lagos Mainland). The building-use type at completion was three compared but four at the time of survey compared to five at completion and six at the time of field survey in the entire metropolis. Like the result obtained for the entire metropolis (96.9 percent) residential-use reduced from 95.7 percent in the colonial neighbourhood at completion to 17.4 percent in the entire metropolis and 16.1 percent in the neighbourhood respectively at the time of survey. Unlike the entire metropolis the data shows that commercial building (0.5 percent) was absent in the colonial

neighbourhood among the sampled buildings at completion but had a proportion of 14 percent presently while it was 7.5 percent for the entire metropolis.

Institutional-use shows a variance in the result obtained for the entire metropolis (0.2 percent) at completion but increased to 0.5 percent at time of survey. Unlike the obtained result for the entire metropolis the proportion of institutional-usage in colonial neighbourhood did not vary at the time of field survey from the time of completion it remained at 1.1 percent.

In the neighbourhood also, the proportion of mixed-use buildings increased from 3.3 percent at completion to 68.8 percent at the time of survey which conforms to the increase mixed-uses had in the entire metropolis. Worthy of mentioning here as well is the finding that mixed-use is the use that has the highest gain in the proportion of converted buildings in Colonial neighbourhood.

**Table 5.2.3 Pattern of Building-Use Conversion in the Colonial Neighbourhood**

Building-Use at Completion		Current Building-Use				
		Residential	Commercial	Institutional	Mixed -Use	Total Use at Completion
Residential	FRQ	14	12	1	62	<b>89</b>
	%	16.7	13.5	1.1	69.7	<b>95.7</b>
Institutional	FRQ	0	0	0	1	<b>1</b>
	%	0	0	0	100	<b>1.1</b>
Mixed-Use	FRQ	1	1	0	1	<b>3</b>
	%	33.3	33.3	0	33.3	<b>3.2</b>
<b>Total Current Use</b>	<b>FRQ</b>	<b>15</b>	<b>13</b>	<b>1</b>	<b>64</b>	<b>93</b>
	<b>%</b>	<b>16.1</b>	<b>14.0</b>	<b>1.1</b>	<b>68.8</b>	<b>100</b>

*Source: Field Survey, 2013.*





**Plate 8a: Mixed-Use in Lagos Mainland**



**Plate 8b: Commercial-Use in Lagos Mainland**

Table 5.2.4 is the result of building-use dynamics in the traditional neighbourhood (Somolu). The result shows that building-use types at completion in the neighbourhood are two while it is four at the time of field survey in contrast to the entire metropolitan area which is five at completion and six at the time of survey.

It was observed that residential buildings reduced from 99.1% at completion to 11.8% at the time of survey in the Traditional neighbourhood and mixed-use proportion was absent at the time of the sampled buildings completion currently accounted 85.5 percent of building-use in the neighbourhood. Commercial-use increased from 0.9 percent at completion to 1.8 percent at the time of survey. The occurrence of mixed-use being the use that has the highest proportional gain from converted buildings in the entire metropolis is replicated in the traditional neighbourhood as well.

**Table 5.2.4 Pattern of Building-Use Conversion in the Traditional Neighbourhood**

Building-Use at Completion		Current Building-Use				
		Residential	Commercial	Religious	Mixed-Use	Total Use at Completion
Residential	FRQ	13	2	1	92	108
	%	12.0	1.9	0.9	85.2	99.0
Commercial	FRQ	0	0	0	1	1
	%	0	0	0	100	1.0
<b>Total Current Use</b>	<b>FRQ</b>	<b>13</b>	<b>2</b>	<b>1</b>	<b>93</b>	<b>109</b>
	<b>%</b>	<b>11.9</b>	<b>1.8</b>	<b>0.9</b>	<b>85.3</b>	<b>100</b>

*Source: Field Survey, 2013*

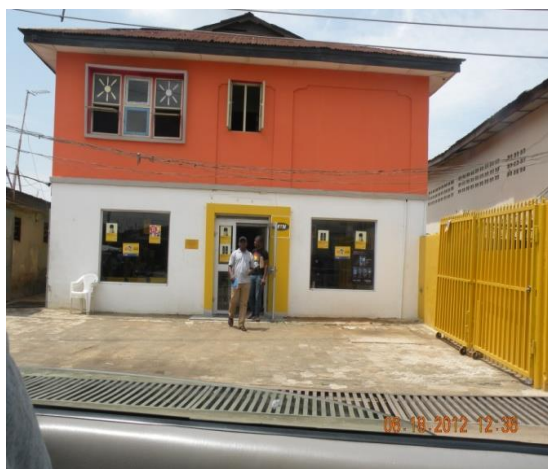


**Plate 9a**

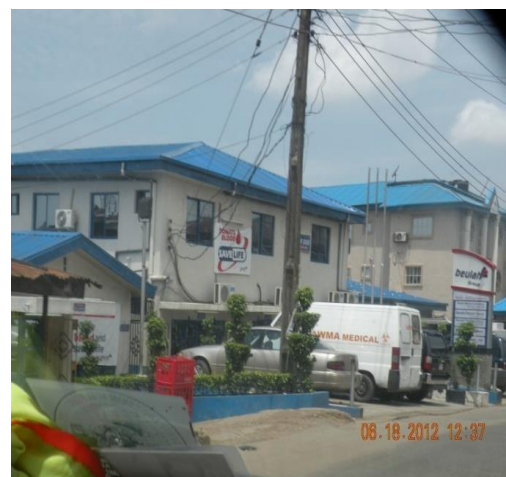


**Plate 9b**

**Plates 9a and b: Mixed-Use in Somolu**



**10a**



**10b**

**Plate 10a and b: Total Conversion of Residential Building in Somolu**

In the Post-Colonial neighbourhood (Surulere), Table 5.2.5 shows that the proportion of residential buildings declined from 97.6 percent at the time of completion to 22.6 percent at the

time of survey. Commercial-use proportion increased from 0.8 percent at completion in the Post-Colonial neighbourhood to 12 percent at the survey time. Institutional-use was absent at completion of sampled buildings in the Post-Colonial neighbourhood but had 0.8 percent at the time of survey while religious-use was absent at survey time it had a proportion of 0.8 percent at completion.

Mixed-use proportion of building use types increased from 0.8 percent at time of building completion to 66.9 percent at survey time. Compared to the entire metropolis mixed-use at survey time is also the modal of building-use at the Post-Colonial neighbourhood.

**Table 5.2.5 Pattern of Building-Use Conversion in the Post Colonial Neighbourhood**

Building-Use at Completion		Current Building-Use					
		Residenti al	Commer cial	Indust rial	Institut ional	Mixed- Use	Total Use at Completion
Residential	FRQ %	27 22.3	11 9.1	1 0.8	1 0.8	81 66.9	121 97.6
Commercial	FRQ %	1 100	0 0	0 0	0 0	0 0	1 0.8
Religion	FRQ %	0 0	0 0	0 0	0 0	1 100	1 0.8
Mixed-Use	FRQ %	0 0	0 0	0 0	0 0	1 100	1 0.8
<b>Total Current Use</b>	<b>FRQ %</b>	<b>28 22.6</b>	<b>11 8.9</b>	<b>1 0.8</b>	<b>1 0.8</b>	<b>83 66.9</b>	124 100

*Source: Field Survey, 2013*



**Plate 11a**



**Plate 11b**

**Plates 11a and b Commercial-Use in Surulere**



**Plate 11c: Mixed-Use of Buildings in Surulere**



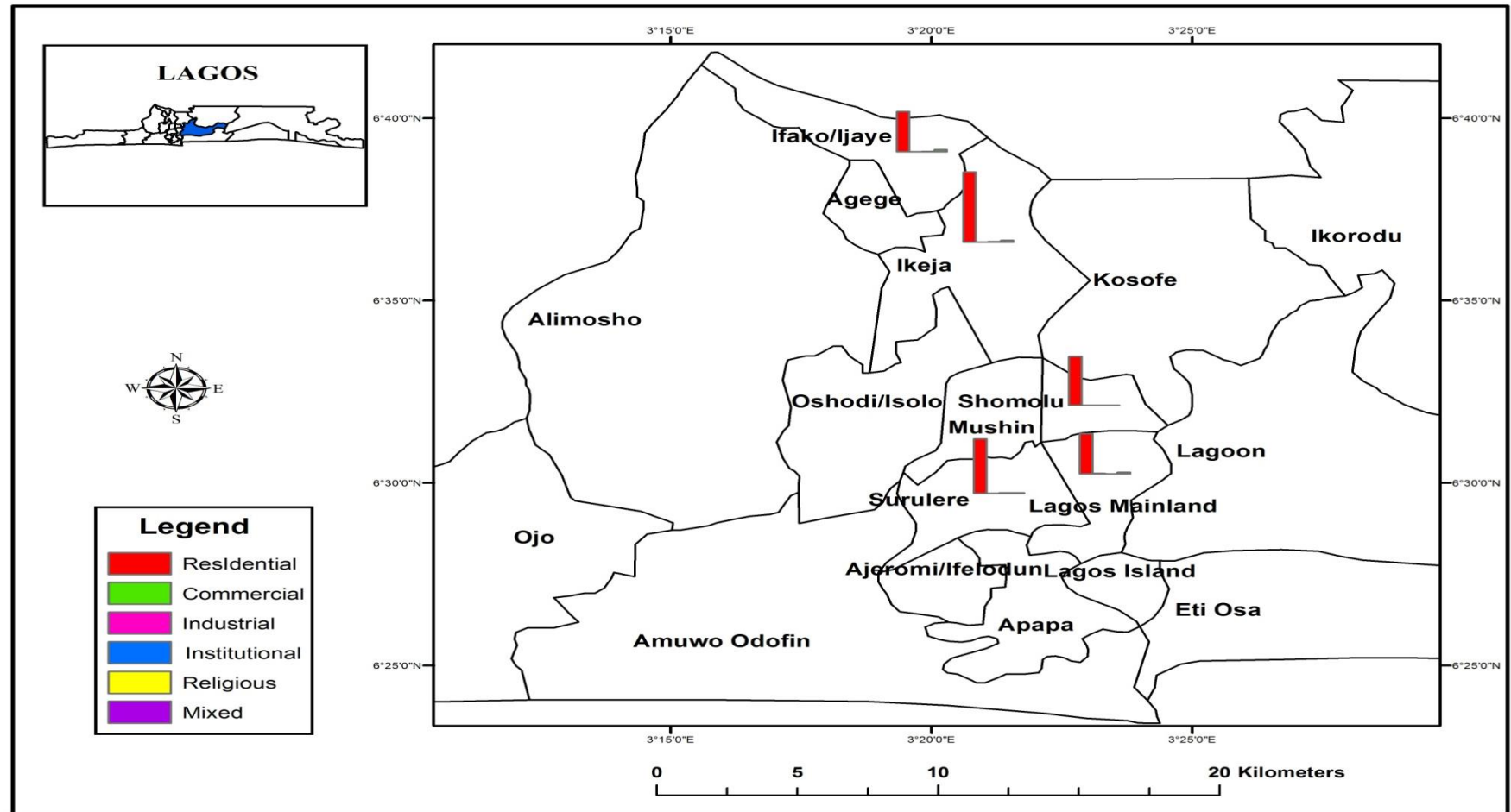
**Plate 11d: Institutional-Use in Surulere**

The results presented here show that each neighborhood of the study has its peculiar pattern and distribution of building-use conversion.

Coincidentally, the entire study neighbourhoods as reclassified Lagos metropolis had the same findings that show occurrence of reduction in the proportion of residential-use buildings but increase in the proportion of mixed-use buildings which is similar to the obtained result for the entire metropolis. Figures 5.2.1 – 5.2.2 are the geographical presentation of the results.

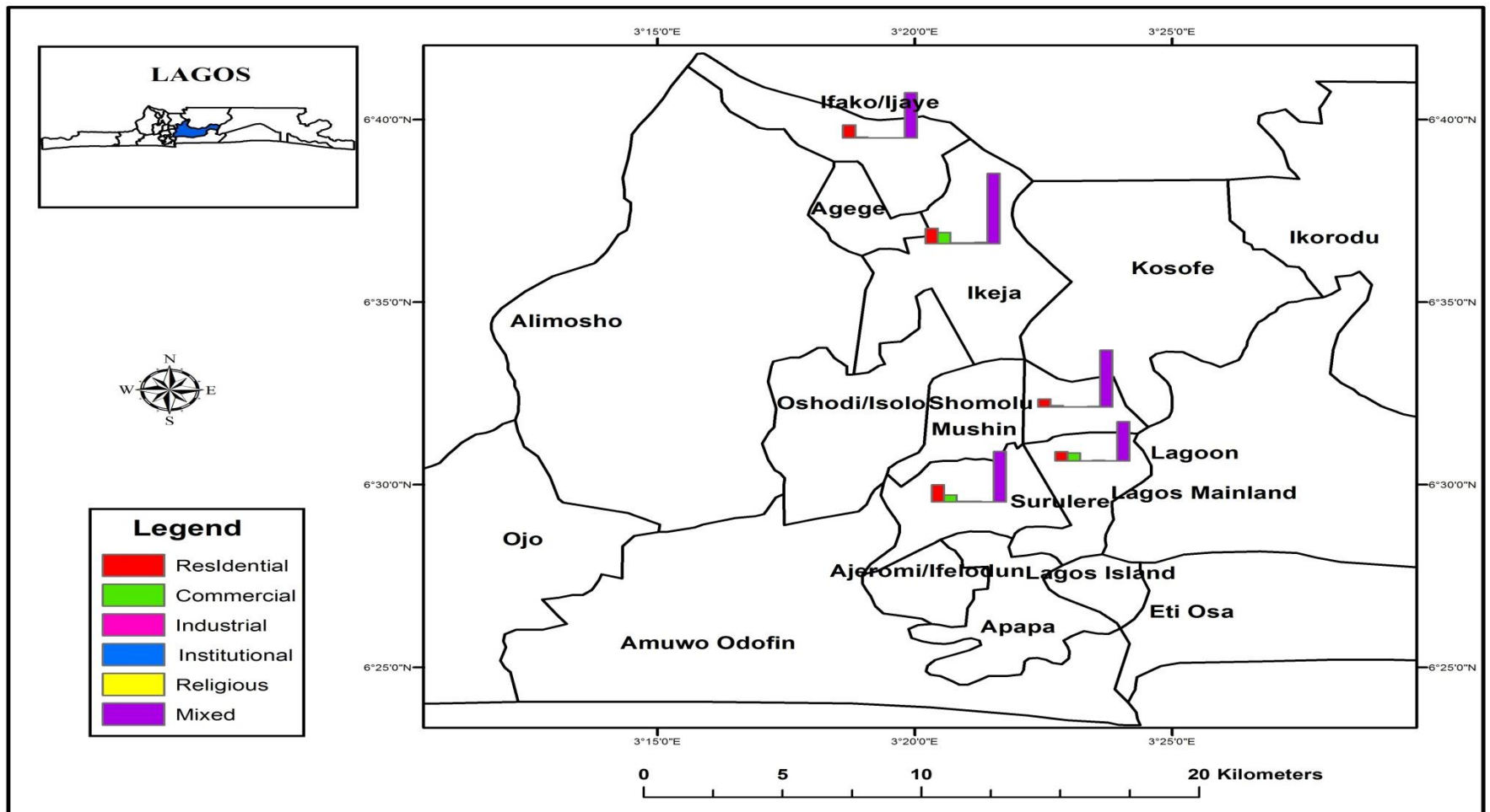


## BUILDING USE IN THE STUDY AREA AT COMPLETION



*Figure 5.2.1: Building-Use in the Study Area at Completion*

## BUILDING USE IN THE STUDY AREA AT THE END OF STUDY



*Figure 5.2.2: Building-Use in the Study Area at the time of Survey*

### 5.3 Test of Proportion Temporal Pattern of Building-Use Conversion in Lagos Metropolis

This section presents the result of the stated hypothesis that;

**H<sub>0</sub>** - There is no significant difference in the proportion of building designated and approved for residential use at their completion and at the time of field survey.

**H<sub>i</sub>** - Significant differences exist in the proportion of building designated and approved for residential use at their completion and at the time of field survey.

The test of proportion was used as a general statistical test to show the difference between the proportions of residential buildings at the time of building completion to the proportions of residential buildings at the time of field survey. The use of test of proportion was informed from the fact that the selections of the buildings were done using simple random sampling techniques. Using 0.05 significant levels, the  $Z \alpha$  value from the table is 1.96, this is to show that the level of proportionality of the two samples at time of building completion and at time of field survey is tested by the study at ninety-five percent (95%) significant level. The steps taken to calculate the  $Z$  value for the entire metropolis, the study neighbourhoods and sub-regions are shown below;

$$Z = \frac{P - P_0}{\sqrt{Pq \div \eta}}$$

Where;  $P$  = *percentage Current – use*

$P_0$  = *percentage Main – use at Completion*

$$q = 1 - P$$

$\eta$  = *sample size*

$$P = 0.176$$

$$Z_{\alpha} = 1.96$$

$$\mathcal{P} = 0.174$$

$$\mathcal{P}o = 0.966$$

$$q = 1 - 0.174 = 0.826$$

$$\eta = 585$$

$$Z = \frac{0.174 - 0.966}{\sqrt{\frac{0.174 * 0.826}{585}}}$$

$$Z = -50.45$$

The test of proportional and difference in the residential buildings stock between completion time and the time of field survey show that the  $Z$  value for the entire metropolitan study area was 50.45 while  $Z_{\alpha}$  is 1.96. Hence, the Null hypothesis is rejected for the metropolitan area of the study while the alternate hypothesis is accepted. The conclusion suggests that, the difference in the proportions of residential building-use at completion and at the time of the study is significant in the entire metropolis.

### 5.3.1 Test of Proportion in Urban Fringe Neighbourhood (Ifako-Ijaiye LGA)

$$\mathcal{P} = 0.219$$

$$\mathcal{P}o = 0.938$$

$$q = 1 - 0.219 = 0.781$$

$$\eta = 96$$

$$= \frac{0.219 - 0.938}{\sqrt{\frac{0.219 * 0.781}{96}}}$$

$$Z = -17.04$$



The test of proportional and difference in the residential buildings stock between completion time and the time of field survey show that the  $Z$  value for the urban fringe neighbourhood of the study was 17.04 while  $Z\alpha$  is 1.96. Hence, the Null hypothesis is rejected for the urban fringe neighbourhood of the study while the alternate hypothesis is accepted. The conclusion suggests that, the difference in the proportions of residential building-use at completion and at the time of the study is significant in the urban fringe neighbourhood of the study.

### 5.3.2 Test of Proportion in Administrative Neighbourhood (Ikeja LGA)

$$P = 0.154$$

$$Po = 0.963$$

$$q = 1 - 0.154 = 0.846$$

$$\eta = 162$$

$$= \frac{0.154 - 0.963}{\sqrt{\frac{0.154 * 0.846}{162}}}$$

$$Z = -28.59$$

The test of proportional and difference in the residential buildings stock between completion time and the time of field survey show that the  $Z$  value for the administrative neighbourhood of the study was 28.59 while  $Z\alpha$  is 1.96. Hence, the Null hypothesis is rejected for the administrative neighbourhood of the study while the alternate hypothesis is accepted. The conclusion suggests that, the difference in the proportions of residential building-use at completion and at the time of the study is significant in the administrative neighbourhood of the neighbourhood.

### 5.3.3 Test of Proportion in Colonial Neighbourhood (Lagos Mainland LGA)

$$\mathcal{P} = 0.161$$

$$\mathcal{P}_o = 0.957$$

$$q = 1 - 0.161 = 0.839$$

$$\eta = 93$$

$$= \frac{0.161 - 0.957}{\sqrt{\frac{0.161 * 0.839}{93}}}$$

$$\mathcal{Z} = -20.89$$

The test of proportional and difference in the residential buildings stock between completion time and the time of field survey show that the  $\mathcal{Z}$  value for the colonial neighbourhood of the study was 20.89 while  $\mathcal{Z}_\alpha$  is 1.96. Hence, the Null hypothesis is rejected for the colonial neighbourhood of the study while the alternate hypothesis is accepted. The conclusion suggests that, the difference in the proportions of residential building-use at completion and at the time of the study is significant in the colonial neighbourhood of the study.

### 5.3.4 Test of Proportion in Traditional Neighbourhood (Somolu LGA)

$$\mathcal{P} = 0.119$$

$$\mathcal{P}_o = 0.991$$

$$q = 1 - 0.119 = 0.881$$

$$\eta = 110$$

$$= \frac{0.119 - 0.991}{\sqrt{\frac{0.119 * 0.881}{110}}}$$

$$\mathcal{Z} = -28.22$$

The test of proportional and difference in the residential buildings stock between completion time and the time of field survey show that the  $Z$  value for the tradition neighbourhood of the study was 28.22 while  $Z\alpha$  is 1.96. Hence, the Null hypothesis is rejected for the traditional neighbourhood of the study while the alternate hypothesis is accepted. The conclusion suggests that, the difference in the proportions of residential building-use at completion and at the time of the study is significant in the traditional neighbourhood of the study.

### 5.3.5 Test of Proportion in Post Colonial Neighbourhood (Surulere LGA)

$$\begin{aligned}
 \mathcal{P} &= 0.226 \\
 \mathcal{P}_0 &= 0.976 \\
 &= 1 - 0.226 = 0.774 \\
 \eta &= 124 \\
 &= \frac{0.226 - 0.976}{\sqrt{\frac{0.226 * 0.774}{124}}} \\
 \mathcal{Z} &= -21.68
 \end{aligned}$$

The test of proportional and difference in the residential buildings stock between completion time and the time of field survey show that the  $Z$  value for the post colonial neighbourhood of the study was 21.68 while  $Z\alpha$  is 1.96. Hence, the Null hypothesis is rejected for the post colonial neighbourhood of the study while the alternate hypothesis is accepted. The conclusion suggests that, the difference in the proportions of residential building-use at completion and at the time of the survey is significant in the Post-Colonial neighbourhood of the study.

### 5.3.6 Test of Proportion High Commercial-Use Region of the Study

$$\mathcal{P} = 0.178$$

$$\mathcal{P}o = 0.966$$

$$q = 1 - 0.178 = 0.822$$

$$\eta = 379$$

$$= \frac{0.178 - 0.966}{\sqrt{\frac{0.178 * 0.822}{379}}}$$

$$\mathcal{Z} = -40.20$$

The test of proportional and difference in the residential buildings stock between completion time and the time of field survey show that the  $\mathcal{Z}$  value for the high commercial-use region of the study was 40.20 while  $\mathcal{Z}\alpha$  is 1.96. Hence, the Null hypothesis is rejected for the high commercial-use region of the study while the alternate hypothesis is accepted. The conclusion suggests that, the difference in the proportions of residential building-use at completion and at the time of the study is significant in the high commercial-use region of the study.

### 5.3.7 Test of Proportion Low Commercial-Use Region

$$\mathcal{P} = 0.165$$

$$\mathcal{P}o = 0.966$$

$$q = 1 - 0.165 = 0.835$$

$$\eta = 206$$

$$= \frac{0.165 - 0.966}{\sqrt{\frac{0.165 * 0.835}{206}}}$$

$$\mathcal{Z} = -30.93$$

The test of proportional and difference in the residential buildings stock between completion time and the time of field survey show that the  $Z$  value for the low commercial-use region of the study was 30.93 while  $Z\alpha$  is 1.96. Hence, the Null hypothesis is rejected for the low commercial-use region of the study while the alternate hypothesis is accepted. The conclusion suggests that, the difference in the proportions of residential building-use at completion and at the time of the study is significant in the Low Commercial-Use region of the study.

**Table 5.3 Test of Proportion Building-Use Conversion in Lagos Metropolis**

Region	Calculated $Z$
Urban Fringe	17.04
Administrative	28.59
Colonial	20.89
Traditional	28.22
Post Colonial	21.68
Commercial Intensity-Use Region	40.20
Non-Commercial intensity-Use Region	30.93
Entire Metropolitan Study Area	50.45

*Source: Field Survey, 2013*

Table 5.3 is the summary of the test of proportion for building usage at completion and the time of field survey. The test of proportion for the entire metropolitan area, the study neighbourhoods and the study sub-regions shows that there is significant difference in the proportions of residential building-use at completion and the proportion of residential building at the time of field survey.

## **CHAPTER SIX**

### **FACTORS AND VARIABLES OF BUILDING-USE CONVERSION**

#### **6.0 Introduction**

This chapter extracted the variables of use-conversion from thirty eight (38) variables which are assumed to associate with the event of use-conversion of residential building in Lagos metropolis using the Principal Component Analysis (PCA). The analysis used Kaiser Criterion with Eigen value 0.5, that is, the analysis will not list any eigen value that is equal to or less than 0.5. The PCA was used as a data reduction mechanism to transform the correlated variables into uncorrelated component so that the underline variables structure of the data can easily be explained. At the point of eigen value transformation the data was equally transformed to normally distributed data. While the compressed variables assisted in having a generalized factor-format presentation of the variables, the logistic regression analysis assisted in examining the model of building-use conversion in the metropolis. In other words, the logistic regression analysis as employed in this section is to ascertain the set of variables which can assist in predicting the occurrence or non-occurrence of the event of use-conversion of the sampled buildings.

#### **6.1 Variables of Use-Conversion in Lagos Metropolis**

Twenty one (21) variables were extracted as variables that are associated with the event of building-use conversion from the thirty eight assumed variables. Table 6.1.1 is the KMO and Bartlett's Test. The results presented in the table shows that the Kaiser-Meyer-Olkin value is .679. This value falls within the suggested minimum value of measuring Principal Component Analysis sampling adequacy.

The Bartlett's test of sphericity shows that the Chi-square value is 3774.117, the degree of freedom is 703 and the level of significance is .001. The Bartlett's test result shows that the analysis meets the minimum standard for Principal Component Analysis to be conducted.

**Table 6.1.1 KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.679
Bartlett's Test of Sphericity      Approx. Chi-Square Degree of Freedom Significant Level	3774.117
	703
	.001

*Source: Field Survey, 2013*

**Table 6.1.2 Total Variance Explained**

Component	Assumed Variables of Use-Conversion	Initial Eigen Values			Extraction Sums of Squared Loadings		
		Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	Study Area	4.309	11.338	11.338	4.309	11.338	11.338
2	Age of Building	2.761	7.265	18.604	2.761	7.265	18.604
3	Type of Building at Completion	2.695	7.093	25.697	2.695	7.093	25.697
4	Use-Approval at Completion	2.068	5.441	31.138	2.068	5.441	31.138
5	Number of Floors at Completion	1.763	4.641	35.779	1.763	4.641	35.779
6	Building-Use at Completion	1.573	4.139	39.918	1.573	4.139	39.918
7	Number of Rooms at Completion	1.442	3.794	43.711	1.442	3.794	43.711
8	Residential Weight	1.363	3.586	47.297	1.363	3.586	47.297
9	Number of Rooms for other Uses at Completion	1.262	3.322	50.619	1.262	3.322	50.619
10	Occupancy Status	1.234	3.248	53.867	1.234	3.248	53.867
11	Approval for Use-Conversion	1.123	2.954	56.822	1.123	2.954	56.822
12	Reason for Choice of Location	1.101	2.896	59.718	1.101	2.896	59.718
13	Reason for Conversion	.988	2.599	62.318			
14	State of the Environment	.985	2.592	64.909			
15	Noise Level	.938	2.469	67.378			
16	Level of Pollution	.894	2.352	69.730			
17	Population Congestion	.777	2.044	71.774			
18	Flooding Condition	.764	2.011	73.784			
19	Public Water Supply	.747	1.965	75.750			
20	Solid Waste Disposal	.730	1.920	77.670			

Component	Assumed Variables of Use-Conversion	Initial Eigen Values			Extraction Sums of Squared Loadings		
		Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
	Problem						
21	Storm Water Drainage Condition	.714	1.879	79.548			
22	Drainage Condition	.697	1.835	81.383			
23	Parking Situation	.645	1.698	83.081			
24	Traffic Problem	.635	1.671	84.753			
25	Set Back	.608	1.599	86.352			
26	Pipe Water Supply	.508	1.525	87.877			
27	Road Condition	.566	1.490	89.366			
28	Building Material Quality	.514	1.353	90.719			
29	Income Level	.490	1.288	92.007			
30	Air Space in Between Buildings	.472	1.243	93.251			
31	Congestion of Structures	.445	1.172	94.423			
32	Toilet Condition	.408	1.075	95.497			
33	Sewage Effluent into Gutter	.360	.948	96.446			
34	Building Structure	.358	.942	97.387			
35	Settlement Nature	.342	.901	98.288			
36	Evidence of Controlled Land-Use	.329	.866	99.155			
37	Conformity to Regional Planning	.254	.670	99.824			
38	Planned Area	.067	.176	100.000			

**Source: Field Survey, 2013**

Table 6.1.2 is the total variance explained for the principal component analysis. The table shows that the assumed variables are 38 and hence the 38 components listed under component column in the table.

The initial eigen values shows that the analysis is standardized since it uses correlation matrix. That is, each variable has a variance of 1 and the total assumed variance in the analysis is 38. The total column under the initial eigen values is the actual eigen values and the first component account for the most variance with the highest eigen value (4.309), and the next component



account for the next highest eigen value (2.761) down to the least component with the least eigen value .067. Hence, each successive component account for less and less variance.

The extraction sums of squared loadings had three columns underneath it and these are the reproduction of number of rows that their eigenvalues is equal or greater than 1. Table 6.1.2 shows that 12 components of the analysis have eigen value equal or greater than 1.

**Table 6.1.3    Extracted Variables of Building-Use Conversion in Lagos Metropolis**

Variables	Variance Value	Variables	Variance Value
Age	0.552	Public Water Supply	0.514
Building Use Approval	0.537	Solid Waste Disposal	0.664
Number of Floors	0.775	Drainage Condition	0.636
Reason for Conversion	0.763	Parking Situation	0.729
Choice Area Parameter	0.623	Pipe Water Supply	0.538
Building Use at Completion	0.948	Road Condition	0.695
Number of Rooms	0.940	Building material Quality	0.742
Residential Weight	0.775	Air Space Between build	0.591
Occupancy Status	0.640	Building Structure	0.675
Noise Level	-0.642	Setback of Building	0.547
Flooding Condition	0.684		

*Source: Field Survey, 2013*

Table 6.1.3 above is the summary of the extracted variables from the principal component analysis from the rotated component matrix. Twenty one (21) components were variables with component score that is equal to or less than 1.

## **6.2    Factors of Building-Use Conversion**

The extracted variables listed in Table 6.1.3 above, were compressed into two factors (building and neighbourhood related factors) in Table 6.2. Noise level; flooding condition, public water supply, solid waste disposal, drainage condition, parking situation, pipe water supply, road condition, building material quality, air space between buildings and setback of building, were analysed as variables of neighborhood-related factor. Variables of building-related factor are age

of building, building-use approval, number of floors at completion, reason for conversion, choice area parameter, main use of building at completion, number of rooms at completion, number of rooms for residential use and owner status.

**Table 6.2 Factors of Building-Use Conversion in Lagos Metropolis**

<b>Building Factor</b>	<b>Neighbourhood Factor</b>
Age	Noise Level
Building Use Approval	Flooding Condition
Number of Floors	Public Water Supply
Reason for Conversion	Solid Waste Disposal
Choice Area Parameter	Drainage Condition
Building Use at Completion	Parking Situation
Number of Rooms	Pipe Water Supply
Number of Residential Room	Road Condition
Occupancy Status	Building material Quality
	Air Space Between Building
	Building Structure
	Setback of Building

*Source: Field Survey, 2013*

### **6.3 Description of Variables of Building-use Conversion**

In order to build a model of building-use conversion using the logit model, two groups of variables that may affect the likelihood of use-conversion of the different buildings as captured in the conceptual framework were first examined. The first group of variables addresses the buildings' physical characteristics and related variables. These include its area of location, age, the number of rooms, the number of floors and the 'weight of residential-use. The second group of variables focuses on ownership of individual buildings, their tenure-occupancy attributes as well as the nature of ownership transfer they have experienced to date.

The variables are; Area, Age, Use-Approval, Number of Floors in Building, Main-Use of Building at Completion, Number of Rooms in Building at Completion, Residential Weight in Building, Title Held by the Building and Occupancy Status.

The study uses the variables 'Area' to refer to the five neighbourhoods of the metropolis for the study. They are Ifako-Ijaiye (urban fringe), Ikeja (Administrative), Lagos Mainland (Colonial), Somolu (Traditional) and Surulere (Post-colonial) neighbourhoods.

Age of building was taken by the study as the age of the first structure on the parcel of land it occupies. Age of building is in three (3) categories. They are; before 1991, 1991- 2000 and 2001 – 20011. Approval for building-use refers to the type of use a sampled building was approved to be used for by the planning authority. This has three categories namely: 'approval obtained', 'no approval obtained' and 'no information on approval'. The variable 'floor' refers to number of floors in a sampled building and is classified into three, namely 'one floor', 'two floors', 'three or more floors ,' The fifth variable is 'Main-Use' of the sampled building that is the main use for which the building was conceived or approved originally. Number of rooms in building is another variable the study had as variables of use-conversion. It shows the use intensity of the building at completion. Its categories are; 1- 6 rooms, 7- 10 rooms and more than 10 rooms. Residential weight as a variable the study considered for the model of use-conversion explains the dominance of residential-use in the building through the number of rooms available for strictly residential-use in the building. This variable has three categories; 1-6 rooms, 7-10 rooms and more than 10 rooms. Title held by the building was considered as a variable for use-conversion model to establish the flexibility of use-conversion alongside with the property title. The variable was divided into three categories; non transfer, transferred (inherited) and transferred (commercial). Occupancy status is the last variable in the list of variables for logit

regression model for the study. The variable tried to know the relationship the status of the building occupants in terms of ownership or tenancy has on use-conversion. Tables 6.3.1 – 6.3.9 illustrate the categorical frequencies of these variables as they affect the sampled buildings in the metropolis.

### 6.3.1 Age of Building in Lagos Metropolis

The distribution of the age of building among the study stated categories shows that majority of the buildings (87.8 percent) in Lagos metropolis were built before 1991, while is about 1.4 percent that are built with the last ten years of the study and about 10.8 in the last twenty years of the study.

**Table 6.3.1 Age of Building in Lagos Metropolis.**

	Frequency	Percentage
Before 1991	514	87.8
1991-2000	63	10.8
2001-2011	3	1.4
Total	585	100

**Source: Field Survey, 2013.**

### 6.3.2 Building Use-Approval in Lagos Metropolis

The extent to which property owners seek approval for the use of the individual building at completion as shown in table 6.3.2 shows that majority of the building owners seek approval for their use. 78.6 per cent of the buildings had approval for their use at completion; about 16.4 percent did not have use-approval while 5 percent do not know the use-approval status of the building they occupy.

**Table 6.3.2 Building Use-Approval in Lagos Metropolis**

	Frequency	Percentage
Before 1991	514	87.8
1991-2000	63	10.8
2001-2011	3	1.4
Total	585	100

**Source: Field Survey, 2013.**

### 6.3.3 Number of Floor in Buildings in Lagos Metropolis

The number of floor in building at completion is a variable that the study used to establish if it has significant association with the process of use-conversion. The frequency distribution of number of floors in building at completion among the study categories show that two floors has the modal distribution of 52.8 percent of the sampled buildings, followed by the 32 percent in the category of one floor and 15.2 percent in the category of three floors and more.

**Table 6.3.3 Number of Floors in Building**

	Frequency	Percentage
One Floor	187	32.0
Two Floors	309	52.8
Three Floors and More	89	15.2
Total	585	100

**Source: Field Survey, 2013.**

### 6.3.4 Main-Use of Building at Completion in Lagos Metropolis

The distribution of building use at completion of the sampled buildings shows that majority of the use of building at their completion is residential use with about 96.6 percent and the next is mixed use with 2.2 percent while others; commercial (0.5 percent), religion (0.5 percent) and institutional (0.2 percent) are fraction of the percentage of use of buildings at completion in Lagos metropolis.

**Table 6.3.4 Number of Rooms in Building**

	Frequency	Percentage
Residential	565	96.6
Commercial	3	0.5
Institutional	1	0.2
Religious	3	0.5
Mixed-Use	13	2.2
Total	585	100

**Source: Field Survey, 2013**

### 6.3.5 Number of Rooms in Building in Lagos Metropolis

The number of rooms in building at completion as a variable of use-conversion shows that buildings with rooms more than ten had the highest frequency of 65.3 percent. The next is the number of rooms between 7-10 rooms and it is 21.2 percent among the sampled buildings in the metropolis and rooms in the category of 1-6 rooms had 13.5 percent.

**Table 6.3.5 Number of Rooms in Building**

	Frequency	Percentage
1-6 Rooms	79	13.5
7-10 Rooms	124	21.2
More than 10 Rooms	382	65.3
Total	585	100

**Source: Field Survey, 2013**

### 6.3.6 Residential Weight of Buildings in Lagos Metropolis

The weight of residential purpose of use among selected buildings were measure as at the time of field survey because there is no valid information on majority of building's residential weight at completion, hence, its worthy of mentioning here that the residential weight reflects the weight of residential use in the selected buildings whether it has undergone conversion or not.

**Table 6.3.6 Residential Weight in Buildings**

	Frequency	Percentage
1-6 Rooms	96	16.4
7-10 Rooms	131	22.4
More than 10 Rooms	358	61.2
Total	585	100

**Source: Field Survey, 2013**

### 6.3.7 Type of Building Title in Lagos Metropolis

The categories of building title are in three categories, non-transfer, that is, building that the owner at completion are still the original owner at time of field survey hence the title is the original. Transferred (Inherited) is the category of building that the status of the owners has

changed from its initial title through inheritance. The third category is the buildings wherewith the status of the current owner has changed the title due to outright sale of the building and is categorized as Transferred (Commercial). In the category of non- transfer (66.3 percent) has the highest percentage of title type. The next is transferred (inherited) (31.8) while transferred (commercial) (1.9) is the least of all the categories with 1.9 percent.

**Table 6.3.7 Type of Building Title in Lagos Metropolis**

	Frequency	Percentage
Non-Transfer	388	66.3
Transferred (Inherited)	186	31.8
Transferred (Commercial)	11	1.9
Total	585	100

**Source: Field Survey, 2013**

### **6.3.8 Occupancy Status of Building in Lagos Metropolis**

The categories of variables under owner status is simply about who the respondent is whether he is the owner of the sampled building or tenants as the case may be. The categories are owner and others. Others may be tenant in the building or someone in the neighbourhood of the selected building that has detail information on the profile of the building. The result shows that the frequency of the owner in the sampled building (24.4 percent) is less than the second categories of others (75.6 percent). This indicate that majority of landlords in the buildings are absent.

**Table 6.3.8 Owner Status**

	Frequency	Percentage
Owners	143	24.4
Others	442	75.6
Total	585	100

**Source: Field Survey, 2013**

## **6.4 Model of Building-Use Conversion**

This section seeks to establish the actual variables that may be employed in explaining building-use conversion variables in Lagos metropolis. The variables compressed under building factor in the section above, were subjected to further analysis using binary regression. Essentially, it seeks to identify the relative importance of the set of variables that are associated with the event of building-use conversion; it did not seek to calibrate the best model but only identify the importance of the explanatory variables.

### **6.4.1 Model of Building-Use Conversion in Lagos Metropolis**

Part of the analysis in this section is to test the hypothesis that none of the building-related variables would yield a statistically significant level of prediction and relevance in use-conversion. The analyses are in three parts, each employing different spatial criterion to classify the metropolis. The first analysis employed the historical-administrative criterion to classify Lagos into five zones. The second employed the commercial-use intensity of the metropolis, while the third employed the core-periphery classification of the metropolis.

The set of variables entered into logistic regression include the following: ‘Location’ (which is the geographical location of the sampled buildings). Specifically, the variable ‘Location’ refers to the five neighbourhoods of the metropolis of the study. These include ‘Ifako-Ijaiye’ (Urban Fringe), ‘Ikeja’ (Administrative), ‘Lagos Mainland’ (Colonial), ‘Somolu’ (Traditional) and ‘Surulere’ (Post-Colonial) neighbourhoods.

In the second analysis the variables ‘Location’ categorized the metropolis of Commercial-use intensity regions of the ‘Low Commercial-Use’ (which include Somolu and Ifako-Ijaiye) and the ‘High Commercial-Use’ (Ikeja, Lagos Mainland and Surulere) rather than the five-fold of



neighbourhoods format in the entire metropolis analysis. In the third analysis the variable 'Location' regrouped the metropolis into the 'Urban Core' region (which include Ikeja, Lagos Mainland, Somolu and Surulere) and 'Urban Fringe' region (Ifako-Ijaiye) of Lagos metropolis.

In the variable 'age' there are three categories which are 'age of buildings before 1991', '1991-2000' and '2001-2011'. Approval for Building-use that is, the type of use-approval the sampled building got from the planning authority is another hypothesized variable. There are three categories of approval status, namely 'approval obtained', 'no-approval obtained' and 'no-information on approval'. The variable 'Floor' refers specifically to the number of floors in the sampled buildings and is in five categories; namely 'one floor', 'two floors', 'three floors', 'four floors' and 'more than four floors'.

The fifth hypothesized variable is 'Main-Use' of the sampled building that is the original use for which the building was approved. This is in six categories namely 'residential-use', 'commercial-use', institutional-use', 'religious-use', 'industrial-use' and 'mixed-use'. The 'number of rooms' in the sampled buildings is another hypothesized variable and it is in six categories which are; '1-2 rooms', '3-4', '5-6', '7-8', '9-10' and 'more than 10 rooms'. 'Residential weight' of the sampled building is measured by the number of the rooms in the building being used specifically for residential-use and this has six categories which are '1-2 rooms', '3-4', '5-6', '7-8', '9-10' and 'more than 10 rooms'.

The 'type of title' a building held is equally one of the hypothesized variables. This variable has three categories which are, 'non-transfer' (that is the building is under the supervision of the original owner). 'Transferred-Inherited' (that is building ownership has changed due to transfer from the original owner to given individual or set of people in form of inheritance) and the

‘Transferred-Commercial’ (this category is sampled buildings where the ownership has changed due to outright sale of the property). Finally, the ‘occupancy status’ of the building whether the respondent is the ‘owner’ or a ‘tenant’ is also one of the hypothesized variables.

Details of the Logistic Regression Analysis are presented in the series of the following tables commencing from Table 6.4.1.

The table shows that the analysis met the minimum ratio of valid cases to independent variables for logistic regression which is 10 to 1 while 20 to 1 is preferred ratio. There are 585 valid cases and 9 independent variables. The ratio is 65 to 1, this satisfies the preferred ratio.

**Table 6.4.1 Case Processing Summary Lagos Metropolis**

Unweighted Cases <sup>a</sup>	Frequency	Percentage
Selected Cases Included In Analysis	585	100
Missing Cases	0	0
Total	585	100
Unselected Cases	0	0
Total	585	100

Also, the proportion by chance accuracy rate computed was 83.8 percent (Table 6.4.2) and the accuracy computed by SPSS was 67.2 percent (Table 6.4.3), this satisfied the criteria for classification accuracy. Hence, the model of use-conversion in the study shows a statistically significant overall relationship between the combination of independent variables and the dependent variable.

**Table 6.4.2 Classification Table<sup>a</sup> Lagos Metropolis**

Observed	Predicted		
	Conversion		Percentage Correct
	Yes	No	
Step 0 Conversion Yes	352	41	89.6
No	54	138	71.9
Overall Percentage			83.8

**Table 6.4.3 Classification Table<sup>a,b</sup> Lagos Metropolis**

Observed			Predicted		
			Conversion		Percentage Correct
			Yes	No	
Step	Conversion	Yes	393	0	100
		No	192	0	.0
Overall Percentage					67.2

From table 6.4.4 the standard error 0.088 is less than 2, this shows that none of the independent variables in the analysis gives indication of numerical problem; hence, the result is fit for interpretation.

**Table 6.4.4 Variables in the Equation Lagos Metropolis**

	B	S.E	Wald	Degree of Freedom	Significant Level	Exp(B)
Step 0 Constant	-.716	.088	66.183	1		.489

The result in table 6.4.5 shows that the tested hypothesis that no building-related categorical variable would exhibit significance explanation power should be rejected in favour of the alternative hypothesis. The detail of that result is further clarified in its hypothetical format;

**H<sub>0</sub>**- None of the building-related variables of use-conversion is significant at predicting the event of use-conversion in Lagos metropolis and its categorised regions.

**H<sub>i</sub>**- At least one of the building-related variables of use-conversion is significant at predicting the event of use-conversion in Lagos metropolis and its categorised regions.

Table 6.4.5 is the omnibus tests of model coefficients for the entire Lagos metropolis; it shows that the probability of the model chi-square (226.897) is greater than 0.001 which is less than 0.05 the significance level.

**Table 6.4.5 Omnibus Tests of Model Coefficients Lagos Metropolis**

		Chi-Square	Degree of Freedom	Level of Significant
Step 1	Step	226.897	28	0.001
	Block	226.897	28	0.001
	Model	226.897	28	0.001

The condition that at least one of the categorical variables exhibit a significance result at 0.05 from Table 6.4.6 shows that building-related variables that significantly associated with the event of use-conversion in Lagos metropolis are ‘Location of building’ ( $\alpha = .008$ ), ‘age of building’ ( $\alpha = .047$ ), ‘type of building title’ ( $\alpha = .001$ ) and ‘occupancy status’ ( $\alpha = .001$ ). There are variations in the category of the variables as shown in the table. For instance, though the location of building holistically is a variable of building-use conversion model, the table shows that categorically in relation to Ifako-Ijaiye, Ikeja, and Surulere are the neighbourhoods of the study that are significantly prone to the event of conversion while neighbourhoods of Lagos mainland and Somolu are not significant in the entire Lagos metropolis.

The analysis the ‘age’ variable shows that the sampled buildings older than 20 years exhibit significant result with the likelihood of the event of use-conversion in Lagos metropolis. The ‘type of title’ held by buildings was found to be significant at all categories of ‘non-transfer’ ( $\alpha = 0.001$ ), ‘transferred-inheritance’ ( $\alpha = .017$ ) and ‘transferred-commercial’ ( $\alpha = .063$ ). ‘Occupancy status’ shows that the ‘tenants’ category is significant with likelihood of the event of building-use conversion in Lagos metropolis.

**Table 6.4.6 Variables in the Equation for Use-Conversion Model Lagos Metropolis**

	B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1 <sup>a</sup>						
Location			13.768	4	.008	
Area(1)	.863	.440	3.844	1	.050	2.370
Area(2)	-.054	.329	.027	1	.869	.947
Area(3)	.047	.385	.015	1	.902	1.049
Area(4)	-.831	.368	5.095	1	.024	.436
Age			6.114	2	.047	
Age(1)	-2.602	1.201	4.684	1	.030	.074
Age(2)	-2.116	1.240	2.911	1	.088	.120
Approval			.503	2	.778	
Approval(1)	-.352	.570	.381	1	.537	.703
Approval(2)	-.430	.616	.487	1	.485	.651
Floor			6.242	3	.100	
Floor(1)	.521	1.099	.225	1	.635	1.684
Floor(2)	.096	1.044	.008	1	.927	1.100
Floor(3)	.879	1.069	.676	1	.411	2.408
Main Use			.375	4	.985	
Main Use(1)	.219	.685	.103	1	.749	1.245
Main Use(2)	1.041	1.775	.344	1	.557	2.832
Main Use(3)	3.777	43373.433	.000	1	1.000	43.672
Main Use(4)	-.021	1.895	.000	1	.991	.979
Rooms			2.708	5	.745	
Rooms(1)	.175	1.683	.011	1	.917	1.192
Rooms(2)	-.530	1.304	.165	1	.684	.588
Rooms(3)	.159	1.003	.025	1	.874	1.173
Rooms(4)	.500	.748	.447	1	.504	1.648
Rooms(5)	-.568	.602	.893	1	.345	.566
Residential Weight			2.831	5	.726	
Residential Weight(1)	-23.124	16302.757	.000	1	.999	.000
Residential Weight(2)	.384	1.165	.108	1	.742	1.468
Residential Weight(3)	-.639	.922	.480	1	.488	.528
Residential Weight(4)	-.880	.667	1.741	1	.187	.415
Residential Weight(5)	-.355	.563	.398	1	.528	.701
Type Title			107.793	2	.001	
Type Title(1)	-1.785	.746	5.734	1	.017	.168
Type Title(2)	1.367	.734	3.464	1	.063	3.922
Occupancy status (1)	1.988	.325	37.460	1	.001	7.302
Constant	1.747	1.907	.839	1	.360	5.739

*Source: Field Survey, 2013*

## 6.4.2 Model of Building-Use Conversion in the Commercial Regions of Lagos Metropolis

The result of the logit model which compartmentalized the metropolis into two commercial differentiated regions depicted in Table 6.4.2.1 shows that 585 valid cases and 9 independent variables were treated. The ratio is 65 to 1, this satisfies the preferred ratio.

**Table 6.4.2.1 Case Processing Summary Commercial Regions**

Unweighted Cases <sup>a</sup>	Frequency	Percentage
Selected Cases Included In Analysis	585	100
Missing Cases	0	0
Total	585	100
Unselected Cases	0	0
Total	585	100

The proportion by chance accuracy rate computed was 80.3 percent (Table 6.4.2.2) and the accuracy computed by SPSS was 67.2 percent (Table 6.4.2.3), this satisfied the criteria for classification accuracy. Hence, the model of use-conversion in the study shows a statistically significant overall relationship between the combination of independent variables and the dependent variable.

**Table 6.4.2.2 Classification Table<sup>a</sup> Commercial Regions**

Observed			Predicted		Percentage Correct
			Conversion		
			Yes	No	
Step 0	Conversion	Yes	336	57	68.5
		No	58	134	69.8
Overall Percentage					80.3

**Table 6.4.2.3 Classification Table<sup>a,b</sup> Commercial Regions**

Observed			Predicted		Percentage Correct
			Conversion		
			Yes	No	
Step	Conversion	Yes	393	0	100
		No	192	0	.0
Overall Percentage					67.2

Table 6.4.2.4 is the variable in the equation result, the standard error 0.088 is less than 2, this shows that none of the independent variables in the analysis gives indication of numerical problem; hence, the result is fit for interpretation.

**Table 6.4.2.4 Variables in the Equation Commercial Regions**

	B	S.E	Wald	Degree of Freedom	Significant Level	Exp(B)
Step 0 Constant	-.716	.088	66.183	1	0.001	.489

The omnibus tests of model coefficients result was presented in table 6.4.2.5 for the commercial differentiated regions of Lagos metropolis; it shows that the probability of the model chi-square (212.697) is greater than 0.001 which is less than 0.05 the significance level. Hence, the null hypothesis ‘none of the building-related variables of use-conversion is significantly associated with the event of use conversion in the commercial regions of Lagos metropolis’ is rejected. The alternate hypothesis (‘the building-related variables of use-conversion is significantly associated with the event of use conversion in the commercial regions of Lagos metropolis’) is accepted.

**Table 6.4.2.5 Omnibus Tests of Model Coefficients Commercial Regions**

	Chi-Square	Degree of Freedom	Level of Significant
Step 1 Step	212.697	27	0.001
Block	212.697	27	0.001
Model	212.697	27	0.001

Table 6.4.2.6 shows that variables of use-conversion that are significantly associated with the likelihood event of use-conversion in the commercial regions of Lagos metropolis are ‘age of building’ ( $\alpha = .010$ ), ‘type of title’ a building held ( $\alpha = .001$ ) and ‘occupancy status’ ( $\alpha = .001$ ). There are variations in the category of the variables as shown in the table. For instance, in the ‘age’ categories; ‘before 1991’ ( $\alpha = .010$ ), ‘1991-2001’ ( $\alpha = .009$ ), and ‘2001-2011’ ( $\alpha = .046$ ) of variable of building-use conversion shows that all buildings in their given locations irrespective of the age are significant with the event of building-use conversion in commercial regions of

Lagos metropolis. The ‘type of title’ held by buildings was found to be significant at all categories of ‘non-transfer’ ( $\alpha = 0.001$ ), ‘transferred-inherited’ ( $\alpha = .020$ ) and ‘transferred-commercial’ ( $\alpha = .044$ ). ‘Occupancy status’ shows that the ‘tenants category is equally significant to event of building-use conversion in Lagos metropolis.

**Table 6.4.2.6 Variables in the Equation for Use-Conversion Model in Commercial Regions**

	B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1 <sup>a</sup>						
Location(1)	.181	.254	.508	1	.476	1.198
Age			9.138	2	.010	
Age(1)	-3.011	1.160	6.733	1	.009	.049
Age(2)	-2.400	1.202	3.989	1	.046	.091
Approval			5.487	2	.064	
Approval(1)	-.778	.547	2.020	1	.155	.459
Approval(2)	-.110	.598	.034	1	.854	.896
Floor			6.877	3	.076	
Floor(1)	.480	1.085	.195	1	.659	1.616
Floor(2)	.087	1.031	.007	1	.932	1.091
Floor(3)	.909	1.058	.738	1	.390	2.481
Main Use			.094	4	.999	
Main Use(1)	.155	.704	.048	1	.826	1.167
Main Use(2)	.501	1.800	.078	1	.781	1.651
Main Use(3)	2.633	43354.053	.000	1	1.000	13.921
Main Use(4)	.140	1.641	.007	1	.932	1.150
Rooms			2.647	5	.754	
Rooms(1)	.134	1.634	.007	1	.935	1.143
Rooms(2)	-.585	1.256	.217	1	.641	.557
Rooms(3)	.037	.955	.002	1	.969	1.038
Rooms(4)	.254	.714	.127	1	.722	1.289
Rooms(5)	-.706	.582	1.470	1	.225	.494
Residential Weight			2.535	5	.771	
Residential Weight(1)	-22.587	16251.124	.000	1	.999	.000
Residential Weight(2)	.584	1.122	.271	1	.602	1.794
Residential Weight(3)	-.604	.877	.475	1	.491	.546
Residential Weight(4)	-.686	.634	1.171	1	.279	.504
Residential Weight(5)	-.267	.540	.245	1	.621	.766
Type Title			113.764	2	.000	
Type Title(1)	-1.729	.742	5.425	1	.020	.177
Type Title(2)	1.476	.732	4.061	1	.044	4.376
Occupancy Status(1)	2.034	.319	40.629	1	.000	7.644
Constant	2.292	1.859	1.519	1	.218	9.895

*Source: Field Survey, 2013*



### 6.4.3 Model of Use-Conversion in Sub-Regions of Lagos Metropolis

The result of the analysis for the sub-regions of the study area as shown in table 6.4.3.1 shows that 585 valid cases and 9 independent variables were treated. The ratio is 65 to 1, this satisfies the preferred ratio.

**Table 6.4.3.1 Case Processing Summary Sub-Regions of Lagos Metropolis**

Unweighted Cases <sup>a</sup>	Frequency	Percentage
Selected Cases Included In Analysis	585	100
Missing Cases	0	0
Total	585	100
Unselected Cases	0	0
Total	585	100

The proportion by chance accuracy rate computed was 81.5 percent (Table 6.4.3.2) and the accuracy computed by SPSS was 67.2 percent (Table 6.4.3.3), this satisfied the criteria for classification accuracy. Hence, the model of use-conversion in the study shows a statistically significant overall relationship between the combination of independent variables and the dependent variable.

**Table 6.4.3.2 Classification Table<sup>a</sup> Sub-Regions of Lagos Metropolis**

Observed			Predicted		
			Conversion		Percentage Correct
			Yes	No	
Step 0	Conversion	Yes	339	54	86.5
		No	54	138	71.9
Overall Percentage					81.5

**Table 6.4.3.3 Classification Table<sup>a,b</sup> Sub-Regions of Lagos Metropolis**

Observed			Predicted		
			Conversion		Percentage Correct
			Yes	No	
Step	Conversion	Yes	393	0	100
		No	192	0	.0
Overall Percentage					67.2

Table 6.4.3.4 is the variable in the equation result, the standard error 0.088 is less than 2, this shows that none of the independent variables in the analysis gives indication of numerical problem; hence, the result is fit for interpretation.

**Table 6.4.3.4 Variables in the Equation Sub-Regions of Lagos Metropolis**

	B	S.E	Wald	Degree of Freedom	Significant Level	Exp(B)
Step 0 Constant	-.716	.088	66.183	1	0.001	.489

The omnibus tests of model coefficients result was presented in table 6.4.3.5 is for the sub-regions of Lagos metropolis; it shows that the probability of the model chi-square (219.892) is greater than 0.001 which is less than 0.05 the significance level. Hence, the null hypothesis ‘none of the building-related variables of use-conversion is significantly associated with the event of use conversion in the sub-regions of Lagos metropolis’ is rejected. The alternate hypothesis (‘the building-related variables of use-conversion is significantly associated with the event of use conversion in the sub-regions of Lagos metropolis’) is accepted.

**Table 6.4.3.5 Omnibus Tests of Model Coefficients Sub-Regions of Lagos Metropolis**

	Chi-Square	Degree of Freedom	Level of Significant
Step 1 Step	219.892	25	0.001
Block	219.892	25	0.001
Model	219.892	25	0.001

Table 6.4.3.6 shows that variables of use-conversion that significantly associated with the event of use-conversion in the sub-regions of Lagos metropolis are ‘age of building’ ( $\alpha = .010$ ), ‘type of title’ a building held ( $\alpha = .001$ ) and ‘occupancy status’ ( $\alpha = .001$ ).

There are variations in the categories of the variables as shown in the table. For instance, in the ‘age’ category; ‘before 1991’ ( $\alpha = .010$ ), ‘1991-2001’ ( $\alpha = .009$ ), and ‘2001-2011’ ( $\alpha = .046$ ) of variable of building-use conversion; all buildings irrespective of the location has ‘age’ as a

significant variable with the likelihood event of building-use conversion in the sub-regions of Lagos metropolis. The ‘type of title’ held by buildings was found to be significant at all categories of ‘non-transfer’ (0.001significant level), ‘transferred-inherited’ ( $\alpha = .020$ ) and ‘transferred-commercial’ ( $\alpha = .044$ ). ‘Occupancy status’ shows that the ‘tenants’ is equally significant with the likelihood event of building-use conversion in the sub-regions of Lagos metropolis.

**Table 6.4.3.6 Variables in the Equation for Use-conversion in Sub-Regions of Lagos Metropolis**

	B	S.E.	Wald	Df	Sig.	Exp(B)
<b>Step 1<sup>a</sup></b>						
<b>Location (1)</b>	-1.046	.385	<b>7.392</b>	1	<b>.007</b>	.351
<b>Age</b>			<b>6.980</b>	2	<b>.031</b>	
Age(1)	-2.663	1.198	4.941	1	<b>.026</b>	.070
Age(2)	-2.090	1.236	2.859	1	<b>.091</b>	.124
<b>Approval</b>			.697	2	.706	
Approval(1)	-.419	.564	.551	1	.458	.658
Approval(2)	-.497	.609	.665	1	.415	.609
<b>Floor</b>			6.010	3	.111	
Floor(1)	.278	1.084	.066	1	.798	1.321
Floor(2)	.053	1.030	.003	1	.959	.948
Floor(3)	.732	1.057	.480	1	.489	2.079
<b>Main Use</b>			.366	4	.985	
Main Use(1)	.136	.687	.039	1	.843	1.146
Main Use(2)	.989	1.647	.361	1	.547	2.688
Main Use(3)	4.196	43412.949	.000	1	1.000	66.450
Main Use(4)	-.022	1.988	.000	1	.991	1.023
<b>Rooms</b>			2.603	5	.761	
Rooms(1)	.341	1.640	.043	1	.835	1.407
Rooms(2)	-.772	1.283	.362	1	.547	.462
Rooms(3)	.179	.965	.034	1	.853	.836
Rooms(4)	.338	.742	.208	1	.648	1.402
Rooms(5)	-.615	.601	1.045	1	.307	.541
<b>Residential Weight</b>			2.890	5	.717	
Residential Weight(1)	-23.080	16407.599	.000	1	.999	.000
Residential Weight(2)	.794	1.148	.479	1	.489	2.213
Residential Weight(3)	-.324	.884	.134	1	.714	.724
Residential Weight(4)	-.743	.664	1.254	1	.263	.475
Residential Weight(5)	-.351	.561	.391	1	.532	.704
<b>Type Title</b>			<b>107.646</b>	2	<b>.000</b>	
Type Title(1)	-1.866	.746	6.258	1	<b>.012</b>	.155
Type Title(2)	1.231	.734	2.813	1	<b>.094</b>	3.425
<b>Occupancy Status(1)</b>	1.962	.319	<b>37.845</b>	1	<b>.000</b>	7.112
Constant	3.080	1.889	2.660	1	.103	21.766

*Source: Field Survey, 2013*

The contrast exhibited by the significance of variables that are associated with the event of use-conversion in the metropolis at aggregate level and the reclassified regions of the commercial-use intensity of the metropolis is theoretically sound. It is an indication that the decision to activate building use conversion is stronger in the entire metropolis especially where the socio-economic milieu supports it in terms of the variables found significantly associated with the event of use-conversion.

## **CHAPTER SEVEN**

### **SPATIO-TEMPORAL ANALYSIS OF SERVICEABILITY RATING OF UTILITIES OR THEIR RELATED SURROGATES**

#### **7.0 Introduction**

Studies which examine the pattern of building-use conversion would not be exhaustive in coverage if they omit the analysis of the incidence of use-conversion on satisfaction derived from the supporting utilities in the inhabited properties and the neighbourhood such properties situated. This section presents the result of the assessment for the study area on how the residents of the neighbourhoods in the study area perceived the serviceability of the utilities and their related surrogates in their building over a specific period of time. That is, the rating as perceived by the residents in the study neighbourhood was done for the period before 1991, 1991, 2001 and 2011.

#### **7.1 Temporal Analysis of Serviceability Rating of Utilities or Related Surrogates**

In this section the study presents the result of the serviceability rating of utilities or their related surrogates' condition drawn from the list of variables under neighbourhood factors as analysed under the building-use-conversion factors in chapter six. This study adopted the variables; noise level, flooding condition, public water, solid waste disposal, drainage condition, parking situation, pipe water supply, road condition, building material quality, air space between building, building structure and setback in building as the utilities or their related surrogates that are vulnerable to use-conversion pressure. Specifically, respondents gave their assessment of the level of serviceability of the utilities or their related surrogates for each specified year by expressing the satisfaction or dis-satisfaction they derived from the use of the utilities or their related surrogates in the specified years of the study.

**Table 7.1 Spatio-Temporal Analysis of Serviceability Rating of Utilities or Related Surrogates in Study Neighbourhoods**

Year	LGA	Noise Level	Flooding Condition	Public Water	Solid Waste	Drainage Condition	Parking Situation	Set-Back	Road Condition	Building Material	Air-Space	Pipe Water	Building Structure	Summary
Before 1991	Ifako /Ijaiye	2.75	2.04	1.79	1.57	1.65	4.10	2.84	1.71	2.75	3.52	1.71	2.93	2.45
	Ikeja	2.12	2.29	2.88	2.38	3.02	2.99	4.27	3.13	4.15	3.63	3.22	3.82	3.16
	Lagos Mainland	2.89	2.28	3.75	1.86	2.82	2.95	2.92	3.96	4.53	4.67	3.96	3.65	3.35
	Somolu	2.23	3.26	3.30	2.36	2.57	3.64	2.77	3.63	3.65	2.80	3.63	2.87	3.06
	Surulere	2.38	1.49	2.27	2.60	2.36	2.34	3.78	2.56	4.48	4.24	2.56	3.93	2.95
	Total	2.42	2.26	2.79	2.21	2.54	3.15	3.44	3.00	3.96	3.75	3.02	3.49	3.00
1991	Ifako /Ijaiye	2.15	2.11	1.34	2.11	1.41	2.85	2.70	1.29	3.04	2.95	1.29	2.32	2.13
	Ikeja	2.14	2.86	2.39	2.38	2.65	2.56	3.30	2.96	3.87	3.39	2.96	3.98	2.95
	Lagos Mainland	3.04	2.81	2.03	2.25	2.54	2.81	4.17	3.45	4.44	3.56	3.45	2.88	3.12
	Somolu	2.39	3.26	3.30	2.30	2.57	3.05	2.77	3.63	3.65	3.25	3.63	2.99	3.07
	Surulere	2.41	2.47	2.29	2.90	2.47	2.15	3.98	2.56	4.48	2.71	2.56	3.93	2.91
	Total	2.39	2.72	2.31	2.41	2.37	2.65	3.39	2.80	3.91	3.17	2.78	3.34	2.85
2001	Ifako /Ijaiye	2.18	2.06	1.24	1.57	2.72	2.90	2.21	1.33	3.42	2.40	1.33	2.32	2.14
	Ikeja	1.79	2.83	2.08	2.30	2.38	2.08	2.84	2.96	4.32	3.30	2.95	4.54	2.86
	Lagos Mainland	2.61	2.65	2.80	2.52	3.68	2.74	4.15	1.96	4.59	3.43	1.96	3.71	3.07
	Somolu	3.00	3.30	3.26	2.16	2.99	2.77	2.77	2.32	3.65	3.65	2.32	2.99	2.93
	Surulere	2.40	2.46	2.32	2.60	3.93	2.78	3.98	2.46	4.48	2.59	2.46	4.38	3.07
	Total	2.34	2.68	2.33	2.25	3.09	2.60	3.18	2.31	4.12	3.09	2.20	3.72	2.83

Year	LGA	Noise Level	Flooding Condition	Public Water	Solid Waste	Drainage Condition	Parking Situation	Set-Back	Road Condition	Building Material	Air-Space	Pipe Water	Building Structure	Summary
2011	Ifako /Ijaiye	2.16	2.09	1.05	4.61	2.95	2.33	2.34	1.55	2.72	2.20	1.55	3.40	2.41
	Ikeja	1.97	3.41	2.56	4.52	4.48	2.51	3.96	2.83	4.58	2.82	2.82	4.59	3.42
	Lagos Mainland	2.84	3.22	3.09	4.65	3.88	3.11	4.17	2.29	4.81	3.66	2.29	3.61	3.47
	Somolu	2.60	2.75	3.41	4.58	2.99	2.70	2.77	3.90	3.30	2.76	3.90	2.96	3.22
	Surulere	2.50	2.45	2.60	4.48	3.98	2.47	3.98	2.60	4.48	2.47	2.60	4.10	3.23
	Total	2.37	2.82	2.56	4.56	3.74	2.60	3.51	2.68	4.05	2.78	2.63	3.81	3.18

***Source: Field Survey 2013***

The computer output of the descriptive analysis of data on the rating of utilities or their related surrogates' use-pressure as a result of building-use conversion using Bonferroni descriptive test presented in table 7.1 shows that before 1991; at the aggregate the entire variables for the assessment in Lagos metropolis is rated fair (3.00) but in both the urban fringe (2.45) and post colonial neighbourhood (2.95) it was rated bad. While the rating in the administrative (3.16), colonial (3.35) and traditional (3.06) neighbourhoods was fair.

In 1991 the mean value shows that the rating has dropped in the urban fringe (2.13), administrative (2.95), post colonial (2.91) and the colonial neighbourhoods (2.91) while it improved in traditional neighbourhood slightly (3.07). The aggregate rating for the entire metropolis in 1991 was bad (2.86).

In 2001 the rating of the utilities or their related surrogates serviceability shows that the mean value of urban fringe (2.21) remain bad and the value further dropped in the administrative neighbourhood (2.86), it equally dropped in the traditional neighbourhood (2.93) and rated bad while the value improved in the colonial neighbourhood (3.07) and the post colonial neighbourhood (3.13) dropped but rated fair. In general the entire metropolitan area was also rated bad (2.83).

In 2011 all the neighbourhoods experience improvement in the rating of the utilities or their related surrogates' serviceability. Though urban fringe neighbourhood rating remained bad the mean value improved to 2.41 while the mean value of administrative (3.42), colonial (3.47), traditional (3.22) and post colonial (3.23) neighbourhoods. The entire metropolis rating improved to fair.



Worthy of mentioning here is that in 2010-2011, Lagos state government embarked on massive urban renewal programme and the impact of the metropolitan upgrading policy during this time may possibly accounts for the improved rating of the study utilities or their related surrogates' which is in deviance to the expected result of further reduction in level of satisfaction derived from the utilities or their related surrogates.

Furthermore, in the entire metropolis, the study observed variations in the rating of the assessed utilities or their related surrogates' serviceability in the entire metropolis. Before 1991, Noise level (2.42), flooding condition (2.26), public water supply (2.79), solid waste management (2.21) and drainage condition (2.54) were rated 'bad while other utilities were fair in the year.

In 1991, noise level (2.39), flooding condition (2.72), public water supply (2.31), solid waste disposal (2.41), drainage condition (2.37), parking situation (2.65), road condition (2.80) and pipe water supply (2.78) were rated bad whereas, set-back (3.39), quality of building materials (3.91) and structure of building (3.34) were rated fair in 1991.

The rating in 2001 shows that noise level (2.34), flooding condition (2.68), public water supply (2.33), solid waste (2.25), parking situation (2.60), road condition (2.31) and pipe water supply (2.20) were rated bad but drainage condition (3.09), set-back (3.18), air space in buildings (3.09) and building structure (3.72) were rated fair. Interestingly, quality of building material in this year was rated good (4.12).

The result of the assessment of utilities or their related surrogates in 2011 shows that, noise level (2.37), flooding condition (2.82) and public water supply (2.56) were rated bad and it was observed that these utilities or their related surrogates were rated bad through the specified year of the study. Apart from these, parking situation (2.60), road condition (2.68), air space in

buildings (2.78) and pipe water supply (2.63) were equally rated bad. Utilities or their related surrogates such as; set-back in buildings (3.51) and the building structures (3.81) were rated fair not only in 2011 but all through the study year. Also, drainage condition (3.74) was rated fair in 2011 and solid waste disposal (4.56) and quality of building material (4.05) improved to the level been rated good.

## **CHAPTER EIGHT**

### **‘PARETO-EQUITY’ ASSESSMENT OF SERVICEABILITY OF UTILITIES AND THEIR RELATED SURROGATE CONDITIONS IN LAGOS METROPOLIS**

#### **8.0 Introduction**

Analysis under the ‘Pareto-equity’ serviceability assessment examines the degree to which residents experienced a change, either positive or negative, in the level of satisfaction they derived from their building and neighbourhood utilities; including other specified surrogate conditions, given the expected intensification in their use-pressure arising from use-conversion. The analysis is carried out for all the sampled buildings (that is, it includes those that have been converted and those that have not been converted) in order to see whether levels of expressed satisfaction or dissatisfaction with utilities serviceability reflects whether a respondent dwells in a use-converted or no-conversion building.

The analysis is carried out first to contrast between urban regions and secondly between respondents conceived as landlords and tenants stakeholders in the metropolis. Generally, the series of analysis in hypothesis format employed the independent-samples t-test to determine if there are significant differences in their perceptions of the serviceability rating of the building supporting utilities and other related surrogate conditions.

## 8.1 Pareto Equity Assessment of the Serviceability of Building Utilities and other related Surrogates

The stated hypothesis is that;

**H<sub>0</sub>** - There is no significant difference in the serviceability assessment of the concomitant utilities and their related surrogate conditions for buildings which experienced use-conversion and those that did not experience it in Lagos metropolis.

**H<sub>i</sub>** - There is significant difference in the serviceability assessment of the concomitant utilities and their related surrogate conditions for buildings which experienced use-conversion and those that did not experience it in Lagos metropolis.

Table 8.1 shows the mean score values of the assessment of the serviceability rating (SR) of the building and neighbourhood utilities and surrogate conditions affected by increased use-pressure arising from use-conversion. It shows that the Levene's test of equality of variance is 0.003 in pre 1991 and 1991 respectively and 0.001 in 2001 and 2001 respectively. Hence; for each of the static year each dependent variable was not normally distributed for use-conversion buildings and non use-conversion buildings. That is, there is variation in the serviceability rating (SR) mean score distribution of use-conversion buildings and non use-conversion buildings. Generally, the SR mean scores for use-converted buildings varied between 35.95 and 40.57 while that of non use-conversion varied from between 34.51 and 37.96.

The mean score of use-conversion serviceability rating (SR) for pre 1991 is 35.95 and the standard deviation is 4.296. This score varied from the mean score of non use-conversion which is 34.51 and the standard deviation (SD) (4.971). The variability between the two categories of

use-conversions is significantly different and the t-test 2-tailed result is **0.001** which is less than **0.05**.

The same variations occur in the case of other years of the study where, in 1991 the SR mean score in use-conversion buildings was 35.28 and their SD is 4.458 while in non use-conversion buildings the mean score of their SR is 32.68 and the SD is 5.505. In 2001, the mean score for use-conversion building SR is 35.77 and their SD is 4.957 whereas the mean score for non use-conversion buildings SR is 33.24 and their SD is 6.293. In 2011, the SR mean score for use-conversion buildings is 40.57 and their SD is 5.431 but in non use-conversion buildings the mean score SR is 37.96 and their SD is 7.166. The test of significance shows that there is significant difference in the serviceability assessment of the concomitant utilities and their related surrogate conditions for buildings which experienced use-conversion and those that did not experience use-conversion in Lagos metropolis all through the years pre-1991 (0.003 significant level), 1991(0.003 significant level), 2001(0.001 significant level) and 2011 (0.001 significant level) respectively. The study concludes by accepting the alternate hypothesis that there are significant differences in the serviceability assessment of concomitant utilities including their surrogate conditions between the buildings that experienced use-conversion and those that do not experience use-conversion in Lagos metropolis

**Table 8.1 ‘Pareto Equity’ Assessment via Serviceability of Utilities/Surrogates in Use-Conversion/Non Use-Conversion Buildings**

Time	Levene’s Test of Equality of variance		Mean 1 (Conversion)	Standard Deviation 1	Mean 2 (Non Conversion)	Standard Deviation 2	Degree of Freedom	Mean Difference	Standard Error	Significant Level	Remarks
	F	Significance level									
Pre 1991	8.975	0.003	35.95	4.296	34.51	4.971	583	1.444	0.399	0.003	Significant
1991	8.650	0.003	35.28	4.458	32.68	5.505	583	2.595	0.410	0.003	Significant
2001	24.744	0.001	35.77	4.957	33.24	6.293	583	2.529	0.478	0.001	Significant
2011	41.764	0.001	40.57	5.434	37.96	7.166	583	2.609	0.533	0.001	Significant

*Source: Field Survey, 2013*

## **8.2. 'Pareto Equity' Assessment of Serviceability of Utilities/Surrogates in the Regions**

The result presented in section 8.1 established that there is a significant difference between the level of satisfaction derived by residents in properties which experienced use-conversion and those occupying properties that do not experience use-conversion in the context of changes occurring to the concomitant utilities and other related surrogate conditions. The analysis probed further other dimensions of the 'Pareto equity' problem as it may be presented in the sub-regions of the metropolis. Specifically it examined whether differences in the pattern of satisfaction with the conditions of the concomitant utilities and their related surrogates exhibit a regional bias across the metropolis through the stated hypothesis below;

**H<sub>0</sub>** - There is no significant difference in the serviceability assessment of the utilities or their related surrogates' conditions between the categorized regions across the study year in Lagos metropolis.

**H<sub>1</sub>** - There is significant difference in the serviceability assessment of the utilities or their related surrogates' conditions between the categorized regions across the study year in Lagos metropolis.

In the Urban Core/Fringe, the Levene's test of equality of variance as presented in Table 8.2.1 is 0.001 in pre 1991, 2001 and 2011 respectively and 0.034 in 1991. Hence; for each of the static year each dependent variable was not normally distributed. That is, the variability in the SR mean scores of urban core and urban fringe buildings are not the same. The mean score of urban core serviceability rating (SR) for pre 1991 is 36.67 and the standard deviation (SD) is 3.864. This score varied from the mean score of urban fringe which is 29.41 and the standard deviation (SD) (2.728). The t-test result show that the variability between the two categories of the

metropolitan regions is significantly different and the t-test 2-tailed result obtained (0.001) is less than 0.05. The same variations occur in the case of other years of the study where, in 1991 the SR mean score in urban core buildings was 35.97 and their SD is 3.443 while in urban fringe buildings the mean score of their SR is 26.58 and the SD is 2.678. In 2001, the mean score for urban core buildings SR is 36.63 and their SD is 4.256 whereas the mean score for urban fringe buildings SR is 26.33 and their SD is 2.670. In 2011, the SR mean score for urban core buildings is 41.74 and their SD is 4.329 but in urban fringe buildings the mean score SR is 29.39 and their SD is 2.985. The test of significance shows that there is significant difference in the serviceability assessment of the concomitant utilities and their related surrogate conditions for buildings in urban core region and the buildings in urban fringe of Lagos metropolis all through the static years of the study the significant level is 0.001 respectively. The study concludes by accepting the alternate hypothesis that there are significant differences in the serviceability assessment of concomitant utilities including their surrogate conditions between the buildings in the urban core and the urban fringe of Lagos metropolis all through the time of the study.



**Table 8.2.1 ‘Pareto Equity’ Assessment via Serviceability Rating of Utilities/Surrogates Urban Core versus Fringe**

Time	Levene’s Test of Equality of Variance		Mean 1 (Urban Core)	Standard Deviation 1	Mean 2 (Urban Fringe)	Standard Deviation 2	Degree of Freedom	Mean Difference	Standard Error	Significant Level	Remarks
	F	Significance level									
Pre 1991	10.486	0.001	36.67	3.864	29.41	2.728	583	7.260	0.413	0.001	Significant
1991	4.528	0.034	35.97	3.443	26.58	2.678	583	9.382	0.372	0.001	Significant
2001	20.788	0.001	36.63	4.456	26.33	2.670	583	10.294	0.451	0.001	Significant
2011	14.410	0.001	41.74	4.329	29.39	2.985	583	12.359	0.462	0.001	Significant

*Source: Field Survey, 2013.*

The results for the Commercial-Use regions of the study as presented in table 8.2.2 shows that the Levene's test of equality is 0.001 significant levels for all the static years of the study. This significant level is less than 0.05 hence; each dependent variable was not normally distributed. This means that the variability in the scores of high commercial-use region and low commercial-use region buildings are not the same. The obtained score for the high commercial-use region serviceability rating (SR) for pre 1991 is 37.13 and the standard deviation is 3.424. This score varied from that of the mean score SR of low commercial-use region which is 32.42 and the standard deviation (SD) (4.852). The variability between the two categories of metropolitan regions is significantly different at significant level 0.001. Indeed the obtained significance level in the 2-tailed t-test is 0.001 which is less than 0.05. The same variation occur in the case of other years of the study where, in 1991 the SR mean score in high commercial-use region was 36.04 and their SD is 3.369 while in low commercial-use region buildings the mean score of their SR is 31.45 and the SD is 5.976. In 2001, the mean score for high commercial-use region buildings SR is 36.90 and their SD is 4.170 whereas the mean score for low commercial-use region buildings SR is 31.33 and their SD is 5.976. In 2011, the SR mean score for high commercial-use region buildings is 43.03 and their SD is 3.648 but in low commercial-use region buildings the mean score SR is 33.62 and their SD is 5.127. The test of significance shows that there are significance differences in the serviceability assessment of the concomitant utilities and their related surrogates' conditions for buildings in high commercial-use region and the buildings in low commercial-use region of Lagos metropolis all through the static years of the study the significant level is 0.001.

The study concludes by accepting the alternate hypothesis that there are significant differences in the serviceability assessment of concomitant utilities including their surrogate conditions

between the buildings in the Low and High Commercial-use regions of Lagos metropolis all through the time of the study.

The results for the categorized regions show that there are significant differences in the sub regions of Urban Core and Urban Fringe classification as well as that of High Commercial-Use and Low Commercial-Use regions of the metropolis. One of the major probable explanations for these findings in the categorized regions is the likelihood of a better operation of the monitoring instrument in Urban Core and High Commercial-Use Regions, despite the fact that there is general laxity in the monitoring and control process in the entire metropolis.

**Table 8.2.2 ‘Pareto Equity’ Assessment via Serviceability Rating of Utilities/Surrogates High versus Low Commercial-Use Regions**

Time	Levene’s Test of Equality of Variance		Mean 1 (High Commercial-Use)	Standard Deviation 1	Mean 2 (Low Commercial-Use)	Standard Deviation 2	Degree Freedom of	Mean Difference	Standard Error	Significant Level	Remarks
	F	Significant Level									
Pre 1991	38.548	0.001	37.13	3.424	32.42	4.852	583	4.712	0.345	0.001	Significant
1991	132.024	0.001	36.04	3.369	31.45	5.976	583	4.591	0.371	0.001	Significant
2001	66.749	0.001	36.90	4.170	31.33	5.976	583	5.562	0.423	0.001	Significant
2011	58.785	0.001	43.03	3.648	33.62	5.127	583	9.415	0.366	0.001	Significant

*Source: Field Survey, 2013.*

### 8.3 ‘Pareto-Equity’ of serviceability of Utilities/Surrogates between Stakeholders

The human dimension of the ‘Pareto-equity’ situation was analysed through the stated hypothesis;

**H<sub>0</sub>**- There is no significant difference in the serviceability assessment of utilities or their related surrogate conditions between the building stakeholders across the study year in Lagos metropolis.

**H<sub>1</sub>**- There is significant difference in the serviceability assessment of utilities or their related surrogate conditions between the building stakeholders across the study year in Lagos metropolis.

The result for the stakeholders in buildings in Lagos metropolis was presented in table 8.3. The Levene’s test of equality of variance shows that the significant level of equality of variance were 0.815 in pre 1991, 0.530 in 1991, 0.746 in 2001 and 0.712 in 2011 respectively. These significant values are greater than 0.05 hence; each dependent variable was normally distributed. This means that the variability in the scores of building Landlords concerning the SR of utilities and their related surrogate conditions are the same to that of the tenants.

The obtained score for the Landlords serviceability rating (SR) for pre 1991 is 37.13 and the standard deviation is 3.424 while that of the tenants in the same year is 32.42 and the standard deviation (4.852). In 1991 the SR mean score for the Landlords was 36.04 and their SD is 3.369 while the tenants SR mean score is 31.45 and the SD is 5.976. In 2001, the SR mean score for the landlords was 36.90 and their SD is 4.170 whereas the SR mean score for the tenants is 31.33 and their SD is 5.976. In 2011, the SR mean score for landlords is 43.03 and their SD is 3.648

but the tenants SR mean score is 33.62 and their SD is 5.127. The test of significance shows that there is no significance difference in the serviceability assessment of the concomitant utilities and their related surrogate conditions between the buildings stakeholders in Lagos metropolis. The significant levels are 0.722 in pre 1991, 0.849 in 1991, 0.369 in 2001 and 0.841 in 2011. The study null hypothesis was accepted for the building stakeholders and concludes that there is no significant difference in the serviceability assessment of utilities or their related surrogates' conditions between the building stakeholders across the study year in Lagos metropolis. The implication of this result is that there may be some salient factors which are not within the scope of this study that accounts for the tenants to express the same level of satisfaction in the rating of the building and neighbourhood utilities or their related surrogates as the Landlords. The indifference of the Landlords could be explained from the fact that there may be given economic returns on the conversion of their buildings but the case of the tenants is not explicable because is like a case of 'suffering and smiling'.

**Table 8.3 Pareto Equity of Serviceability of Utilities/Surrogates between Stakeholders**

Time	Levene's Test of Equality of Variance		Mean 1 (Landlords)	Standard Deviation 1	Mean 2 (Tenants)	Standard Deviation 2	Degree of Freedom	Mean Difference	Standard Error	Significant Level	Remarks
	F	Significant Level									
Pre 1991	0.127	0.815	34.92	3.424	35.66	4.852	583	-0.740	0.439	0.722	Not Significant
1991	0.036	0.530	33.97	3.369	34.57	5.976	583	-0.600	0.463	0.849	Not Significant
2001	0.809	0.809	34.75	4.170	35.00	5.976	583	-0.252	0.535	0.369	Not Significant
2011	0.037	0.712	38.79	3.648	40.02	5.127	583	-1.226	0.592	0.841	Not Significant

*Source: Field Survey, 2013*

## **CHAPTER NINE**

### **SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION**

#### **9.0 Introduction**

The study set out to analyse the spatio-temporal patterns of building-use conversion and its explanatory variables with a view to assessing how such conversion influences the serviceability rating of degradable utilities in Lagos metropolis over the study period. Specifically it set out to identify the spatio-temporal use-specific patterns of building stock and the dominant building-use attributes at completion. Also, among the study spotlights are the spatio-temporal dynamics of building-use conversion and the factors that are associated with the event of use-conversion, the implication of use-conversion on its supporting utilities for livable neighbourhood and the ‘Pareto-equity’ problem of use-pressure on the utilities from the perception of the metropolitan regions and the stakeholders.

Using both purposive and multi-stage sampling techniques to obtain the metropolitan tracts in which the study samples were drawn. Also, further analysis differentiates the metropolis into commercial regions through the degree of commercial activity in the metropolitan area. Among others, the study analyzed the degree of building-use conversion in different regions of the metropolis and it examined the magnitude of loss and gain among uses to which the sampled buildings were used between their completion and the time of the study survey using Markov Chain analysis.

Factor analysis was employed to highlight the factor classification of the variables that underpin use-conversion. A more detailed analysis employed the logistic regression to model variables that are associated with the event of use-conversion. Analysis of the serviceability of the selected



utilities in the context of building conversion is operational in terms of whether such utilities have experienced positive or negative changes in their service performance rating across the years of analysis as perceived by the respondents in the metropolis using student's t-test analysis. Six hypotheses were tested.

## **9.1 Summary of Findings**

Findings among others show that majority of the sampled buildings had approval for residential-use while many of the other use types do not have approval for their use at the time of their completion. Also, there are variations in pattern of building-use approval among the study neighbourhoods of the metropolis. Some of the neighbourhoods had higher inclination to obtain building-use approval than the others. For instance, the regions of low commercial and urban fringe of the metropolis are not highly motivated to seek approval for the building-use at completion whereas the regions of high commercial-use and urban core are highly motivated to seek building-use approval.

Statistics at the point of building completion shows that residential-use constitute the dominant proportion of building-use. In addition, other use types such as commercial, religious, institutional and mixed use were fraction of the percentage use types while industrial-use is completely absent at completion of the sampled buildings in Lagos metropolis. The neighbourhoods of the study in the metropolis also exhibit similar statistics of the dominance of residential-use of buildings like that of the entire metropolis at completion. Also, in the differentiated regions of the metropolis in the categories of high and low commercial use intensity, the statistic recorded at completion of sampled building shows that residential-use is the dominant use types at the time.

Residential-use was found to experience greatest loss to other building-use types in the entire metropolis and in the categorized sub-regions and neighbourhoods of the study area. Besides, building in the mixed-use category experienced the greatest proportional gain from other building-use types. Consequently, building in the mixed-use category constitutes the modal group at the time of the study. Statistically, test of proportion analysis shows that significant differences exist in the proportion of building designated and approve for residential-use at their completion and at the time of field survey in the entire metropolis, the metropolitan neighbourhoods and the commercial categorized regions.

Principal component analysis extracted 21 variables as general variables of use-conversion in Lagos metropolis. Factor analytical procedure compressed the extracted 21 variables to two factors namely; building-related factor and neighbourhood-related factor.

Logistic regression analysis shows that location, age of building, type of title a building holds and ownership status are variables that significantly associated with the event of use-conversion in Lagos metropolis. Moreover in the commercial regions of the study differentiated region categorization shows that age of building, type of building title and owners' status are variables of use-conversion that significantly found associated with the event of use-conversion in the categorized regions of commercial-use regions. Finally, logit result in the metropolitan categorized regions of urban core and urban fringe shows that location of building, age of building, type of building title and owners' status are variables of use-conversion that significantly found associated with the event of use-conversion in the categorized regions of commercial-use regions.

Respondents on the average, perceived the changes in the serviceability rating of the building supporting utilities or related surrogates between designated years as ‘fair’ except those at the metropolitan fringe neighbourhood.

The serviceability rating (SR) between buildings experiencing use-conversion and non use-conversion experience shows that there are significant differences in the SR of concomitant utilities and their surrogates between building experiencing conversion and those that do not. Further analysis in the categorized region of commercial-use region of high and low commercial-use region shows that there is significant difference in the SR of concomitant utilities and their surrogates. Also, in the sub-region of urban core and urban fringe category there is significant difference in the SR of concomitant utilities and their surrogates between the regions. Hence, the findings show that ‘Pareto inequity’ existed between regions of the study and the building experiencing use-conversion and those that do not. Interestingly, observed differences in the levels of ‘approval/disapproval’ of SR of utilities or their related surrogate conditions across the designated period did not differentiate the landlords from the tenants. There no is significant differences in the SR of concomitant utilities and their surrogates between the landlords and the tenants in the metropolis. Consequently, ‘Pareto equity’ existed between the stakeholders (Landlords and Tenants) of buildings in Lagos metropolis.

## **9.2 Conclusion and Recommendation**

The study findings show that, there is variation in rate at which use-approval is been sought in the regions of Lagos metropolis. Also, there is a reduction in residential building stock and established that spatial location, age, owners’ status and type of title a building holds are variables that significantly exhibit explanatory influence on use-conversion model. On this premise, the study concludes that building-use conversion is inevitable and the new use often

introduces new set of utility conflicts either at the property or neighborhood levels. It is imperative that urban land use design and policy formulation should include provision for future use conversion. To facilitate the workability of such policy requires periodical serviceability assessment of utilities or their related surrogate in the building and in the neighbourhood through auditing exercise to determine the intensity of degeneration occurring to different utilities or related surrogates in the metropolis.

### **9.3 Contributions to Knowledge**

This study contributed to knowledge in the following ways;

1. The study devolves from the macro traditional perspective of analysing the research problem as a land-use essence by examining it as a micro process involving changes of the individual building usage.
2. There is variation in rate at which use-approval is been sought for building-use among the regions of Lagos metropolis.
3. The study established the spatio-temporal matrix leading to building-use conversion in Lagos metropolis.
4. The study is a prime demonstration at generating valuable micro-level indicators for analysing building-use conversion and utilities serviceability in the study area.
5. The study shows continuous diminishing rate in residential stock among other housing uses.
6. The study uniquely adapts the 'Pareto Equity' analytical perspective to examine the reaction of relevant stakeholders to building-use conversion in Lagos metropolis.
7. The study by its findings has come up with a valuable statistics on property-use conversion dynamics for Lagos metropolis which should assist policy decisions in the

relevant domain. The work has been able to identify some variables of use-conversion applicable to Lagos metropolis which may not necessarily be applicable to other cities. This raises the question of comparative analysis for further exploration of other metropolis.

#### **9.4 Suggestion for Future Research**

This study is a major step at understudying housing profile and its supporting utilities in Lagos metropolis. The study findings show that properties dynamics is a phenomenon that is common in a metropolitan area and occurs with time which often determine by the driving factors recognized by the study as factors of use-conversion both in the building and neighbourhood of the building. It has therefore opened up opportunity of embarking on further studies in area of;

##### **9.4.1 Wider Scope of the Study**

During the course of this study, it was discovered that all existing planning policy and master plan designs did not envisage future possibility of change in functional use; hence, there is ineffective development control. This faulty policies and plans call for policy review both at national, state and local level that will integrate change in functional use to its policy and plan. Also, the results from the sub-regions of the study show that some regions of the study show sign of high motivation in seeking use-approval while some are not. Planning authority in the metropolis should embark on investigation to know the level of use-approval and adherence in these regions and probably seek reasons why some regions are highly motivated to seek approval than the others.

A major setback to this study was lack of data on housing and its supporting infrastructures in the study area which led to use of secondary data on ward dissemination from electorate

Commission office and an elaborate field survey to create working data on housing population by identifying and labeling streets and buildings in the selected study area. This calls for research at the state and local level on housing stock and its supporting infrastructures and auditing of this should be periodical.

#### **9.4.2 Academic Research**

For progressive improvement, research in this area should be continuous for other developing urban areas. There is need for further study on why given regions of the metropolis are motivated to seek use-approval than other regions. Likewise analysis of use-conversion should be well examined in such places, realizing that underpinning factors may vary from city to city given the import of cultural values in the spatial characterization of cities.

The carrying capacity of existing urban infrastructure and the use-conversion should be another research issue for sustainable environment. Also, there is need to investigate the fate of the displaced residents from the converted residential buildings and their contribution to growth of informal settlement will be an important issue for further study.

Interpretation of principal component analysis often may be conjectural and not very specific other times, hence there is need for more studies on variables that associate with event of conversion to clarify the imprecise nature of the study findings.

## References

- Adebayo, M.A. (2009). Impact of Urban Land Use Changes on Property Values in Metropolitan Lagos. *Social Sciences*, 4(1), 117-119.
- Adejumo, A. A., (2008). Social Housing in Nigeria – An Imminent Mass Housing Revolution? [www.nigeriavillagesquare.com](http://www.nigeriavillagesquare.com). June, 2014.
- Adeniyi, P.O. and Omojola, A. (1999). *Land Use/Land Cover Change Evaluation in Sokoto-Rima Basin of North Western Nigeria*. Based on Archival of the Environment (AARSE) on Geo-information Technology Applications for Resource and Environmental Management in Africa.
- Agbo, N.O. (2014). *Strategies for Achieving Sustainable Housing in Nigeria by Private Initiative*. AARCHES Annual General Meeting on Theme: Beyond 50 Years of Nigeria, Jos Plateau.
- Agbola, T. and Agunbiade, E. M. (2009). *Urbanization, Slum Development and Security of Tenure: The Challenges of meeting Millennium Development Goal 7 in Metropolitan, Lagos, Nigeria*. Paper presented at PRIPODE Workshop on Urban Population, Development and Environment Dynamics in Developing Countries. Nairobi.
- Akunnaya, P. O. and Adedapo, O. (2014). Trends in Urbanisation: Implication for Planning and Low-Income Housing Delivery in Lagos, *Journal Architecture Research*. 4 (1). 5-26
- Alonso, W. (1964): *Location and Land Use*. Cambridge. Harvard University Press. Retrieved <http://www.Britannica.com>, October, 2010.
- Aluko, O.E. (2010). The Impact of Urbanization on Housing Development: The Lagos Experience, Nigeria. *Ethiopian Journal of Environmental Studies and Management African Research Review*. 3(3) 2010 64-74.
- Barlowe, R (1965). *Land Resource Economics*. Hall USA: Prentice
- Braimoh, A.K. (2006). Spatial Analysis of Residential Land Use Change in Lagos, Nigeria. *UNU-IAS Working Paper*. (144). 1-22.
- Braimoh, A.k. and Onishi, T. (2007): Spatial Determinants of Urban Land Use Change in Lagos, Nigeria. *Journal of Land Use Policy*: 24(2007) pp 502-515.
- Burgess, E.W. (1972). *Growth of the City*. (R.E. Park, E.W. Burgess, and R.D. Mckenzie Eds, IL. Chicago: University of Chicago Press.
- Chapin, F., S. Jr. and Kaiser, E.J. (1979). *'Urban Land Use Planning'*. Urbana: University Illinois Press, 1979.

- Cohen, B. (2004): Urban Growth in Developing Countries: A Review of Current Trends and a Caution Regarding Existing Forecasts. *World Development*. ELSEVIER LTD. Volume 32 (1) pp 23-51.
- Colonial Possession, (1863 and 1864): As cited in Aluko, O.E., (2010), 'The Impact of Urbanization on Housing Development: The Lagos Experience, Nigerian', in *Ethiopian Journal of Environmental Studies and Management*, (3) 64 – 71.
- Deinde, G. O. (1999): "Town Planning in Lagos State: 1973 – 1995". A. M. Olaseni Ed. Urban and Regional planning in Nigeria. Lagos: Nigerian Institute of Town Planners, Lagos State Chapter. 68-75
- Edward, B.B., Joanne, C.B. and Alan, G. (2009). The Forest Transition: Towards a Comprehensive Theoretical Framework. *Land use policy*, Vol.27, Pp 98-107.
- Emilio, C., Alessandra, M. and Stanca, L. (2012). La Dolce Vita: Hedonic Estimates of Quality of Life in Italian Cities. Retrieved 15 June, 2014.
- Fabiya, O.O. (2006). Urban Land Use Change Analysis of a Traditional City from Remote Sensing Data: The case of Ibadan Metropolitan Area, Nigeria. *Humanity and Social Sciences*, 1(1), 42-64.
- Federal Office of Statistics: *National Population Commission Report*, 1953; 1963, 1999 and 2006.
- Gallent, N. (2009). The Future of Housing and Homes. *Land Use Policy*, 26S (S93-S102.).
- Glass, R. (1964). Introduction: Aspects of Change in London: Aspects of Change. *Centre for Urban Studies*, xiii–xlii.
- Glen, B., Leishman, C. and Watkins D. (2007). Understanding Neighbourhood Housing Markets: Regional Context, Disequilibrium, Sub-markets and Supply. Retrieved 15 June, 2014
- Haque, S.M., Katsuya, S. and Makoto, O. (2003). Simulation of Urban Land-Use Changes: A case study of Higashi-Hiroshima city. Retrieved 28th January, 2011 from [www.aginternetwork.org](http://www.aginternetwork.org)
- Ibem, Eziyi O. (2011). The Contribution of Public- Private Partnerships (PPPs) to Improving Accessibility of Low-Income Earners to Housing in Southern Nigeria. *Journal of Housing and the Built Environment*, 26 (2). pp. 201-217. ISSN 1573-7772



- Ifatimehin, O. O, Musa, S. D, and Adeyemi, J. O. (2009). An Analysis of the Changing Land use and its Impact of the Environment of Anyigba. *Sustainable Development in Africa*. 10(4). 357-364.
- Independent National Electoral Commission (2011). List of Ward and Street in Lagos State. Lagos State Publication.
- Izueke, Madu E. C, and Eme, O. I. (2013). Urban Planning Problems in Nigeria: A Case of Onitsha Metropolis of Anambra State. Retrieved June, 2014, from [http://www.singaporeanjbem.com/pdfs/SG\\_Vol\\_1\\_%2812%29/4.pdf](http://www.singaporeanjbem.com/pdfs/SG_Vol_1_%2812%29/4.pdf)
- Jeffery, S.A., Kang Shoulu and Thomas, D.P. (1999). 'A GIS-Based Analysis and Prediction of Parcel Land Use Change in A Coastal Tourism Destination Area'. In *1999 World Congress on Coastal and Marine Tourism*, Vancouver, British Colombia, Canada.
- Jianguo Wu, Jenerette, G. Darrel, Buyantuyev, Alexander, and Redman, Charles L. (2011). Quantifying spatiotemporal patterns of urbanization: The case of the two fastest growing metropolitan regions in the United States. *Ecological Complexity*, 8(1), 1-8.
- Jin S. D., Ke W., Yang, H. and Jia G. Q. (2009). Spatio-Temporal Dynamics and Evolution of Land Use Change and Landscape Pattern in Response to Rapid Urbanization. *Landscape and Urban Planning*, 92 (3–4).187-198.
- Kadiri, W. A. (2010): *Attempts at Regional Planning*. Paper presented at the 2010 Edition of the NITP/TOPREC MCPDP, Abuja, June.
- Kaur, D., Gangesh, K. and Shilpi, V. (2005). *Spatio-Temporal Analysis of Land Use in Dewas City of Madhya Pradesh*. Web book. Accessed at [www.incaindia.org/spatiotemporal.pdf](http://www.incaindia.org/spatiotemporal.pdf) 10th September, 2011.
- Lagos State Government Publications;
- Health Act of 1917
  - Housing and Town Planning Act of 1909
  - Lagos Local Government Act 1954 – 1964 Cap 77 Section 126
  - Lagos Planning Ordinance 1928
  - Lagos State Law of Nigeria Nq 14 of 1983
  - Lagos State Law of Nigeria Nq 15 of 1982
  - Lagos State Law of Nigeria Nq 42 of 1980
  - Lagos State Law of Nigeria Nq 5 of 1982

- Lagos State Law of Nigeria Nq 6 of 1986
- Lagos State Town and Country Planning Edict of 1985 Nq1 of 1986
- Lagos Town Planning Act 1964
- Lagos Town Planning Decree 1964
- Swamp Improvement Act 1877
- Town and Country Planning (Building Plan) Regulation 1986
- Town and Country Planning Edict 1985
- Town Improvement Ordinance 1863
- Town Planning Edict 1971
- Township Improvement Schemes 1924
- Western Region Law Nq 41 of 1959
- Lagos State Government (1985) *Master Plan for Metropolitan Lagos 1980–2000. (Regional development plan for Lagos State)*: Dioxadis Associates.
- Lagos State Government (2002) *Review of the Lagos State Regional Plan*. Lagos: John Asiyanbi and Associates.
- Lagos Metropolitan Area Transport Authority (LAMATA), (2003). *Procedural Manual on Environmental Assessment on Road Improvement*.
- Lean, W., and Goodall, B. (1966). Aspects of Land Economics London. *The Estate Gazette Limited*. (74). 132-157.
- Lee, Y. (1974). A Conceptual Discussion and an Empirical Analysis of Commercial Land Use Succession. *Environmental and Planning*. 6(6). 655-674.
- Nubi, T.G (2008, October, 2008). *Affordable Housing Delivery in Nigeria*. Paper presented at the The South African Foundation International Conference and Exhibition, Cape Town.
- Nwanna, C.R. (2012). Gentrification in Lagos State: Challenges and Prospects. *British Journal of Arts and Social Sciences*. ISSN: 2046-9578, Vol.5 No.2 (2012). pp 163-176.
- Obialo, D.C. (1999): *Town and Country Planning in Nigeria*. Asumpta Printing and Publication, Owerri, Nigeria. 168-182
- Oduwaye, A. O, and Okusipe, O.M. (2004). *Spatio- Temporal Planning Implications of Changing Land Use Structure of Metropolitan Lagos, Nigeria*. Paper presented at the 42nd Annual Conference of the Urban and Regional Information Systems Association, Reno Hilton, Reno Nevada USA.

- Oduwaye, A. O, and Lawanson, T.O. (2007). Poverty and Environmental Degradation in the Lagos Metropolis. *Environmental Sciences*, 11(1), 63-70.
- Ogue, V.I, and Ogbuozobe, J.E. (2001). Housing Policy in Nigeria: Towards Enablement of Private Housing Development. *Habitat International*, 25(4), 473-492.
- Ogunbemi, O.A. (2012). Factor Influencing Changes of Use and its Attendants Problems: Case Study of Yaya Abatan Ogba, Lagos State. *Engineering Trends in Economics and Management Science*, 3(6), 901-906.
- Okpala, D.C I (1977): *Strengthening Urban Local Government for Development Planning. The Critical Need for Urban Chief Executives*. Nigeria Economic Society Ed. *Urbanization and Nigerian Economic Development*. Ibadan: Nigerian Economic Society 153 - 154
- Olayiwola, L.M., Adeleye, O.A., and Oduwaye, A.O. (2006). *Spatial Variation in Residential Land Value Determinants in Lagos Nigeria*. Paper presented at the Promoting Land Administration and Good Governance, 5th FIG Regional Conference, Accra, Ghana.
- Omofonmwan, S.I, and Osa-Edoh, G.I. (2008). The Challenges of Environmental Problems in Nigeria. *Human Ecology*, 23(1), 53-57.
- Omole, K.F. (2010). An Assessment of Housing Condition and Socio-Economic Lifestyle of Slum Dwellers in Akure, Nigeria. *Contemporary Management Research*, 6(4), 273-290.
- Onibokun, P. (1986) *Housing needs and responses: A planners' Viewpoint*. Housing in Nigeria. Book of Reading. NISER, Ibadan.
- Oshodi L., (2010). Housing, Population and Development in Lagos, Nigeria. International Development and Urban Governance. [www.worldpress.com](http://www.worldpress.com)
- Oyesiku, O. K., (1998): *Modern Urban and Regional Planning Law and Administration in Nigeria*. Ibadan: Kraft Publishers.
- Oyinloye, R.O, and Oloukoi, J. (2013). *An assessment of the Pull between Landuse and Landcover in Southwestern Nigeria and the Ensuing Environmental Impacts*. Paper presented at the FIG Working Week 2013 Environment for Sustainability, Abuja, Nigeria.
- Paulussen, J. (2003). *Managing Eco-Development by Regional Planning: Tasks, Instruments and Application*. Paper presented at the Proceedings of the Internet Conference on Eco-city Development.

- Pepple, A. (2012). New National Housing Policy. Retrieved June, 2014, from <http://www.nigeriarising.com/ng/sector-report/infrastructure/new-housing-policy>
- Peterside, C S. (2003). Policy Foundation for Affordable Housing in Nigeria: Role of the Secondary Mortgage Market. Retrieved June, 2014. [www.nigeriaworld.com](http://www.nigeriaworld.com)
- Qiong W., Hong-qing L, Ru-song W., Paulussen, J., Yong He, Min W., Bi-Hui W., and Zhen W. (2005). Monitoring and Predicting Land Use Change in Beijing using Remote Sensing and GIS. *Landscape and Urban Planning Journal*. 78 (4). 322-333.
- Rupesh, G. and Anjansen. (2008). Monitoring Physical Growth of Ranchi city by using Geoinformatics Techniques. *ITPI Journal*, 5(4), 38-48.
- Sada, P.O. (1984). *Urban Households and Housing Conditions in Nigerian Cities with special reference to Benin and Warri*. Paper presented at the Migrations, Urbanisation and Living Conditions in Nigerian Cities, University of Benin, Benin City.
- Sebastáin Martinuzzi, William A.G. and Olga, M.R.G. (2006). Land Development, Land Use, and Urban Sprawl in Puerto Rico integrating Remote Sensing and Population Census Data. *Landscape and Urban Planning*, Vol. 79(3-4). pp 288-297.
- Shankar, B. and Vidhya, D. (2013). Vani Vilasa Mohalia Mysore. *International Journal of Modern Engineering Research (IJMER)*. WWW.ijmer.com Vol.3, Issue.2, pp-678-684.
- Shishir, M. (2013). Impact of Urban Growth Boundary on Housing and Land Prices: Evidence from King County, Washington.
- Turgay, K. K. and Vedia, D. (2012). Spatial Determinants of Housing Price Values in Istanbul. *Downloaded as Agora Consortium* 15 June, 2014.
- Turner II, B.L, Clark, R.W, Kate, J.F, Richards, J.T., Mathews, & Meyer, W.B. (1990). *The Earth as Transformed by Human Action: Global and Regional Changes in the Biosphere over the past 300 Years*. Cambridge: Cambridge
- United Nations (2001): *World urbanization prospects: The 1999 Revision*. New York: United Nations.
- United Nations HABITAT. (2003a). Guide to Monitoring Target 11. Improving the Lives of 100 million Slum Dwellers: Progress towards the Millennium Development Goals. UN-HABITAT, Nairobi.

- Webster, D. (2002). On the Edge: Shaping the Future of Peri-Urban East Asia. *Shorenstein APARC Publications*. May 2002, Stanford, USA. Accessed at <http://aparc.stanford.edu/publications> September, 2008. 5-26.
- Yuzhe, W., Xialing Z. and Liyin, S. (2011). The Impact of Urbanization Policy on Land Use Change: A Scenario Analysis. *Cities*. 147-159.

## APPENDIX

### APPENDIX 1 Population Projection formula

*(Formula:  $Nt = P * e^{(r * t)}$ )*

*Nt= Future Population*

*P= Base Population*

*e=Base of Natural Logarithm (2.71828)*

*r= Rate of Natural Increase (3.0%)*

*t= Time Period*

## **APPENDIX 2                      Streets Identification and Labeling for Selection of Buildings**

### **LIST OF LABELED ROAD/STREETS IN IFAKO-IJAIYE LGA**

#### **MAJOR/LONG ROADS/STREETS IN IFAKO IJAIYE**

- |                                |                                     |
|--------------------------------|-------------------------------------|
| 1. Ijaiye road                 | 16. Compound road                   |
| 2. Iju road                    | 17. Bolaji Tiwalade street          |
| 3. Yaya Abatan road            | 18. Thomas Salako street            |
| 4. College road                | 19. Kayode street                   |
| 5. Kosoko street               | 20. Aderinto street                 |
| 6. Adeogun Adewale street      | 21. Shorinmade street               |
| 7. Orimolade street            | 22. Adedoyin street                 |
| 8. Oluwasijibomi street        | 23. Oladoyinbo street               |
| 9. Ajayi street                | 24. Ogunshola street                |
| 10. Gospel Crusader road       | 25. Oyatoguwa street                |
| 11. Oshinkeye street           | 26. Iyalode Adeshina street         |
| 12. Emmanuel Olorunfemi street | 27. Erinoshos street                |
| 13. Mojisola street            | 28. Otunba Adeyemi Babatunde street |
| 14. Oyemekun street            | 29. Sumonu street                   |
| 15. Dada street                |                                     |

#### **MINOR/SHORT ROAD IN IFAKO IJAIYE**

- |                            |                               |
|----------------------------|-------------------------------|
| 1. Tunji Rowaye street     | 26. Apostle Muiyiwa avenue    |
| 2. Segun Asenuga street    | 27. Kayode Alabi street       |
| 3. Sholanke street         | 28. Bolaji Taylor street      |
| 4. Delly street            | 29. Alhaji Aruna street       |
| 5. Oladire street          | 30. Fawowe street             |
| 6. Dosumu street           | 31. Olatunji street           |
| 7. Ojemuyiwa street        | 32. Coker road                |
| 8. Onijemo street          | 33. Kayode Farm road          |
| 9. Abeokuta street         | 34. Olowolajuogun street      |
| 10. Ola Omibiyi street     | 35. Sat Guru Maharajji street |
| 11. Oshinyemi street       | 36. Ogundimu street           |
| 12. Adeyemi Adebisi street | 37. Olalekan Awoyele street   |
| 13. Aliu Durojaiye street  | 38. Adeolu Aderayo street     |
| 14. Ileri Oluwa crescent   | 39. Folorunsho street         |
| 15. Olatunji street        | 40. Popoola crescent          |
| 16. Olubisi street         | 41. Jobore street             |
| 17. Adeyeri crescent       | 42. Alhaji Salawu street      |
| 18. Adenike lane           | 43. Jagunmolu street          |
| 19. David Hughes street    | 44. Oladele Ogundeji street   |
| 20. Ceaser Abioye street   | 45. Araromi street            |
| 21. Ayorinde street        | 46. Church close              |
| 22. Taiwo Okolu street     | 47. Araromi street            |
| 23. Babalola close         | 48. Ebiye street              |
| 24. Shobola street         | 49. Idowu Awonusi street      |
| 25. Ibukun Oluwa street    | 50. Biladu way                |

51. Bamidele street
52. Thompson street
53. Shoboyejo street
54. Lidipe street
55. Jagunmolu crescent
56. Galilee Avenue
57. Alhaji Ogundimu Avenue
58. Oluwatosin street
59. Akinbami street
60. Aina street
61. Ayodele Avenue
62. Ayodele street
63. Adedeji street
64. Akanni Taiwo street
65. Omotayo Soyombo street
66. Folarin street
67. Makanjuola street
68. Lawanson street
69. Balogun street
70. Idowu Awolumate street
71. Odediran street
72. Fatai street
73. Akinsanya street
74. Omonojule street

75. Abdullai street
76. Adeosun close
77. Ajibode street
78. Adepeju street
79. Amusan street
80. Olasupo street
81. Aga road
82. Orisanya street
83. Lawal Aga close
84. Ayinde street
85. Ifelodun street
86. Kogberegbe street
87. Adelani Baikewu street
88. Irepodun street
89. Kosemani street
90. Oludayo crescent
91. Okunsanya street
92. Adesanya street
93. Sanu Aje street
94. Ayo Adefila Oriowo street
95. Jas Ojo avenue
- 96. Olarenwaju close**
- 97. Ayinde Ajibode street**

Total major/long road/streets in Ifako-Ijaiye **29**

Total minor/short road/streets in Ifako-Ijaiye **97**

### **30% Each of Major/Long and Minor/Short Road/Streets**

Major/Long road/streets  $30/100 * 29 = 8.7$  **Roads/Streets**

Minor/Short road/streets  $30/100 * 97 = 29.1$  **Roads/streets**

Number of Buildings from major/long road/streets  **$8.7 * 6 = 52.2$  Buildings**

Therefore, to the nearest figure selected buildings from major/long roads/streets in Ifako-Ijaiye LGA are **52 Buildings**.

Number of Buildings from minor/short roads/streets  **$29.1 * 3 = 87.3$  Buildings**

Therefore, to the nearest figure selected buildings from minor/short roads/streets in Ifako-Ijaiye LGA are **87 Buildings**.

**Total of buildings selected from Ifako-Ijaiye LGA are 139 Buildings but 96 questionnaires were returned.**

### **LIST OF LABELED ROADS/STREETS IN IKEJA**



## **MAJOR/LONG ROADS/STREETS IN IKEJA LGA**

- |                              |                              |
|------------------------------|------------------------------|
| 1. Oregun road               | 18. Olowu street             |
| 2. Ikosi road                | 19. Oba Akran road           |
| 3. Opebi link road           | 20. Oba Akinjobi road        |
| 4. Opebi road                | 21. Joel Ogunnaike           |
| 5. Allen Avenue road         | 22. Adekunle Fajuyi          |
| 6. Toyin Street              | 23. Sobo Arobiodu            |
| 7. Obafemi Awolowo Way       | 24. Aderibigbe Shitta street |
| 8. Adeniyi Jones             | 25. Shonny Highway           |
| 9. Mobolaji Bank-Anthony Way | 26. Adeoye Adeyemi street    |
| 10. Ladipo Oluwole Avenue    | 27. Emmanuel street          |
| 11. Acme road                | 28. Maryland crescent        |
| 12. Wempco road              | 29. Oremeta street           |
| 13. Lateef Jakande road      | 30. Olasumbo street          |
| 14. Akeem Balogun road       | 31. Ajanaku street           |
| 15. Billing way              | 32. Jimoh Balogun            |
| 16. Isaac John               | 33. Allen lane               |
| 17. Isheri Agege road        | 34. Community road           |

## **MINOR/ SHORT ROADS/STREETS IN IKEJA LGA**

- |                           |                               |
|---------------------------|-------------------------------|
| 1. Bamishile street       | 28. Alphena street            |
| 2. Folawemo street        | 29. Theophilus Fagbola street |
| 3. Ondo close             | 30. Yusuf street              |
| 4. Ajayi street           | 31. Harold Shodipo crescent   |
| 5. Adegbeyemi street      | 32. Kam Salem road            |
| 6. Jogunosimi street      | 33. Francis street            |
| 7. Bamgbose street        | 34. Kosedinu street           |
| 8. Adebowale close        | 35. Ramonu oyedele close      |
| 9. Aba Johnson close      | 36. Ola Adeshega street       |
| 10. Wure Esan close       | 37. Omotayo lane              |
| 11. Otunba Adewale street | 38. Ayinde Salami street      |
| 12. Alli- Balogun street  | 39. Odunukan Avenue           |
| 13. Sapura Avenue         | 40. Sadatu street             |
| 14. Olorunmbe street      | 41. John Odollo street        |
| 15. Adejojo street        | 42. Bankole street            |
| 16. Ojore Avenue          | 43. Oladapo street            |
| 17. Eric Moore street     | 44. Fashade close             |
| 18. Seriki Aro street     | 45. Sanyaolu street           |
| 19. Balogun street        | 46. Uwa close                 |
| 20. Araromi street        | 47. Olayiwola street          |
| 21. Akinyemi street       | 48. Akingbola street          |
| 22. Ola Ayeni street      | 49. Mustapha street           |
| 23. Oshitela street       | 50. Balogun street            |
| 24. Olaide street         | 51. Ladoke Akintola street    |
| 25. Francis street        | 52. Remi Fanikayode street    |
| 26. Pepple street         | 53. Oduduwa crescent          |
| 27. Illo street           | 54. Sowemimo street           |

55. Works road	89. Bayo Adejumo
56. Rev. ogunbi street	90. Adebowale Tade street
57. Ayoola Coker street	91. Olorunfunmi street
58. Esugbayi street	92. Oladejo street
59. Oba Kososko street	93. Anisere crescent
60. Adeyemo Allakija street	94. Odunakan close
61. Micheal Ogun street	95. Shodipe close
62. Oladipo Obateye street	96. Henry Adefowope crescent
63. Akinsete Close	97. Awose Est road
64. Yusuf street	98. Omodara street
65. Harold Sodipe crescent	99. Folusho Alade street
66. Worksyard road	100. Alfred Olaiya street
67. Ijiola street	101. Thomas Ajute street
68. Ajegunle street	102. Oyetola street
69. Oke-Ita street	103. Abel Oremiyi street
70. Araromi street	104. Methodist church street
71. Akerele street	105. Salvation road
72. Ibadiaran street	106. Joseph street
73. Irawo street	107. Gafaru balogun street
74. Omolake street	108. Olayemi abiola str
75. Olaide benson street	109. Idowu lane
76. Dokun Ogundipe street	110. Igbasan street
77. Ist Avenue	111. Ibadan close
78. Ismaila street	112. Agbaoku street
79. 3 <sup>rd</sup> Avenue	113. Oyediran close
80. Aina Eleko street	114. Agbarebo close
81. Yusuf Okunmade street	115. Felicia koleosho street
82. Adebisi Close	116. Adebayo Banjo street
83. Fasola street	117. Adefolu drive
84. Alh. Adejumo Avenue	118. Musa Akor close
85. Bero crescent	119. Siyanbola street
86. Abiola Close	120. Adebowale close
87. Etsoye close	121. Solanke close
88. Tola Adewunmi street	122. Kudeti street

Total major/long road/streets in Ikeja LGA **34**

Total minor/short road/streets in Ikeja LGA **122**

### **30% Each of Major/Long and Minor/Short Road/Streets in Ikeja LGA**

Major/Long road/streets  $30/100 * 34 = 10.2$  **Roads/Streets**

Minor/Short road/streets  $30/100 * 122 = 36.6$  **Roads/streets**

Number of Buildings from major/long road/streets  $10.2 * 6 = 61.2$  **Buildings**

Therefore, to the nearest figure selected buildings from major/long roads/streets in Ikeja LGA are **61 Buildings**.

Number of Buildings from minor/short roads/streets                       $36.6 * 3 = 109.8$  **Buildings**

Therefore, to the nearest figure selected buildings from minor/short roads/streets in Ikeja LGA are **110 Buildings**.

**Total of buildings selected from Ikeja LGA are 171 Buildings but 163 questionnaires were returned.**

## **LIST OF LABELED ROADS/STREETS IN LAGOS MAINLAND LGA**

### **MAJOR/LONG ROADS/STREETS IN LAGOS MAINLAND LGA**

- |                          |                       |
|--------------------------|-----------------------|
| 1. University road       | 24. Freeman street    |
| 2. Herbert Macaulay road | 25. Kano street       |
| 3. Murtala Mohammed Way  | 26. Church street     |
| 4. Market road           | 27. Olumo street      |
| 5. Conwal road           | 28. Harvey road       |
| 6. Kadara street         | 29. Onike road        |
| 7. Tapa street           | 30. Hughes Avenue     |
| 8. McEwen street         | 31. Adekunle street   |
| 9. Spencer street        | 32. Wright street     |
| 10. Adams street         | 33. Glover street     |
| 11. Berkley street       | 34. Ibadan street     |
| 12. Lancaster road       | 35. Borno way         |
| 13. Adjacent steet       | 36. Simpson street    |
| 14. Olonode street       | 37. Cemetery street   |
| 15. Mcqueen street       | 38. Ransome Kuti road |
| 16. Pearse street        | 39. Ajoke street      |
| 17. Coetes street        | 40. Victoria street   |
| 18. Petgrave street      | 41. Aderupoko street  |
| 19. Makoko road          | 42. Salami street     |
| 20. Lagos street         | 43. Arowolo street    |
| 21. Abeokuta street      | 44. Moleye street     |
| 22. Ondo street          | 45. Akinwunmi street  |
| 23. Jebba street         |                       |

### **MINOR/SHORT ROADS/STREETS IN MAINLAND LGA**

- |                               |                      |
|-------------------------------|----------------------|
| 1. Old Yaba Link              | 11. Abiodun street   |
| 2. Carter street              | 12. Oguntokun street |
| 3. Edmund crescent            | 13. Atan street      |
| 4. Taylor drive               | 14. Moloney street   |
| 5. Little road                | 15. Olubi street     |
| 6. Ado Ibrahim Raymund street | 16. Osanyin street   |
| 7. Thurburn Avenue            | 17. Tokunboh street  |
| 8. Akintoye street            | 18. Odewale street   |
| 9. Barikisu Iyede street      | 19. Ikanre street    |
| 10. Aderibigbe street         | 20. Ayinde street    |

- |                                   |                                |
|-----------------------------------|--------------------------------|
| 21. Noble street                  | 42. Ogayemi street             |
| 22. Adebisi street                | 43. Otewale street             |
| 23. Kufeji street                 | 44. Balogun street             |
| 24. Odewale street                | 45. Audu Baale street          |
| 25. Osanyin street                | 46. Ogbe close                 |
| 26. Ishola street                 | 47. Umoru street               |
| 27. Odufa street                  | 48. Omotola street             |
| 28. Osholake street               | 49. Owodunni street            |
| 29. Bola street                   | 50. Pedro street               |
| 30. Willoughby street             | 51. Muyideen Bello street      |
| 31. Benton street                 | 52. Akinyelehin Adesina street |
| 32. Barikisu Iyejide street       | 53. Adegbenro street           |
| 33. Abiodun street                | 54. Aduragba street            |
| 34. Johnson street                | 55. Dele Olaoye street         |
| 35. Ademola street                | 56. Ayodele street             |
| 36. Afolabi Ayorinde street       | 57. Tobun street               |
| 37. Sodeinde Hughes street        | 58. Joseph Harrison street     |
| 38. Sojiru street                 | 59. Olaiya street              |
| 39. Oluwa Olorun Kosehunti street | 60. Ebun close                 |
| 40. Olaboye olaleye street        | 61. Oheken street              |
| 41. Odukoya street                |                                |

Total major/long roads/streets in Lagos Mainland LGA      **45**

Total minor/short roads/streets in Lagos Mainland LGA      **61**

### **30% Each of Major/Long and Minor/Short Road/Streets in Ikeja LGA**

Major/Long road/streets       $30/100 * 45 = 13.5$  **Roads/Streets**

Minor/Short road/streets       $30/100 * 61 = 18.3$  **Roads/streets**

Number of Buildings from major/long road/streets       $13.5 * 6 = 81$  **Buildings**

Therefore, to the nearest figure selected buildings from major/long roads/streets in Lagos Mainland LGA are **81 Buildings**.

Number of Buildings from minor/short roads/streets       $18.3 * 3 = 54.9$  **Buildings**

Therefore, to the nearest figure selected buildings from minor/short roads/streets in Lagos Mainland LGA are **55 Buildings**.

**Total of buildings selected from Lagos Mainland LGA are 136 Buildings but 91 questionnaires were returned.**

## **LIST OF LABELED ROADS/STREETS IN SHOMOLU LGA**

### **MAJOR/LONG ROADS/STREETS IN SHOMOLU LGA**

- |                        |                        |
|------------------------|------------------------|
| 1. Igbobi College road | 14. Oluwatoyin street  |
| 2. Morocco road        | 15. Alubarika street   |
| 3. Bajulaiye road      | 16. Surulere street    |
| 4. Ilaje road          | 17. Olujobi street     |
| 5. Okuta road          | 18. Oguntolu street    |
| 6. Community road      | 19. Olorunfunmi street |
| 7. Market road         | 20. Ajidagan street    |
| 8. Igi Olugbin road    | 21. Osisemo street     |
| 9. Apata str           | 22. Oshipitan street   |
| 10. Jagunmolu Str      | 23. Kusa street        |
| 11. Isaac John street  | 24. Obanlearo street   |
| 12. Anuoluwapo street  | 25. Adekoya street     |
| 13. Oluwalogbon street |                        |

### **MINOR/SHORT ROADS/STREETS IN SHOMOLU LGA**

- |                          |                                |
|--------------------------|--------------------------------|
| 1. Ibiwunmi streets      | 29. Odunuga street             |
| 2. Church street         | 30. Ajenipa street             |
| 3. Folami street         | 31. Ososa street               |
| 4. Okesuna street        | 32. Olatunde Ayoola street     |
| 5. Odunlami street       | 33. Sawyer Crescent            |
| 6. Fakorede street       | 34. Ilojo crescent             |
| 7. Esanogbogun street    | 35. Obanikoro street           |
| 8. Anepa street          | 36. Ogedengbe Akinsanmi street |
| 9. Ogunbadejo street     | 37. Bola Adesina street        |
| 10. Duro close           | 38. Buraimo street             |
| 11. Sanusi street        | 39. Ebinpejo street            |
| 12. Adurosakin street    | 40. Olatunde Akinsanya street  |
| 13. Balogun street       | 41. Odumuyiwa street           |
| 14. Oyebanjo street      | 42. Shodimu street             |
| 15. Awofeso street       | 43. Odubanjo street            |
| 16. Buwala Street        | 44. Salami street              |
| 17. Onagoruwa street     | 45. Majiyagbe str              |
| 18. Akeju street         | 46. Onisemo street             |
| 19. Agbeyiro street      | 47. Oluwalogbon street         |
| 20. Eyiowuawi street     | 48. Awofodu street             |
| 21. Abiola Sarumi street | 49. Onajimi Street             |
| 22. Olabiran street      | 50. Balogun street             |
| 23. Fadipe street        | 51. Oderemo street             |
| 24. Rufai Lane           | 52. Olorunkemi street          |
| 25. Oduse street         | 53. Awomodu street             |
| 26. Ogunbekun street     | 54. Onabola street             |
| 27. Akinpelu street      | 55. Ijagbemi street            |
| 28. Grace Ajoke street   | 56. Wright street              |

57. Oladehinde street  
 58. Durojaiye street  
 59. Olabiran street  
 60. Agbeyiro street  
 61. Oshineye street  
 62. Mutairu street  
 63. Soji oshodi street  
 64. Omolade street  
 65. Mabinuori street  
 66. Ebunolobubi street  
 67. Adeleye street  
 68. Johnson street  
 69. Ayinke street  
 70. Adewale street  
 71. Ogunbule street  
 72. Olaniyi street  
 73. Shanu lane  
 74. Marinori street  
 75. Ojelade street  
 76. Oremerin street  
 77. Wusu Akanbi street  
 78. Soyinka street

79. Owooso street  
 80. Egbrongbe street  
 81. Ayorinde street  
 82. Anifowoshe street  
 83. Akilo street  
 84. Banjo street  
 85. Wemimo street  
 86. Akinola street  
 87. Olugbemi street  
 88. Banji Adewole street  
 89. Oridami street  
 90. Awolaja street  
 91. Mafowoku street  
 92. Shobande street  
 93. Akinsola street  
 94. Olusoji street  
 95. Oluwaeere street  
 96. Ebun-Oluwa street  
 97. Odulesi street  
 98. Onafowokun street  
 99. Petti Daho street  
 100. Bashua street

Total major/long roads/streets in Shomolu LGA     **25**

Total minor/short roads/streets in Shomolu LGA     **100**

### **30% Each of Major/Long and Minor/Short Road/Streets in Shomolu LGA**

Major/Long road/streets      $30/100 * 25 = 7.5$  **Roads/Streets**

Minor/Short road/streets      $30/100 * 100 = 30$  **Roads/streets**

Number of Buildings from major/long road/streets      $7.5 * 6 = 45$  **Buildings**

Therefore, to the nearest figure selected buildings from major/long roads/streets in Ikeja LGA are **45 Buildings**.

Number of Buildings from minor/short roads/streets      $30 * 3 = 90$  **Buildings**

Therefore, to the nearest figure selected buildings from minor/short roads/streets in Lagos Mainland LGA are **90 Buildings**.

**Total of buildings selected from Lagos Mainland LGA are 135 Buildings but 109 questionnaires were returned.**

## **LIST OF LABELED ROADS/STREETS IN SURLERE LGA**

### **MAJOR/LONG ROADS/STREETS IN SURULERE LGA**

- |                             |                             |
|-----------------------------|-----------------------------|
| 1. Eric Moore road          | 32. Babs Animashaun         |
| 2. Bode Thomas              | 33. Adeniran Ogunsanya      |
| 3. Adedapo Mokuolu ave      | 34. Iganmu Road             |
| 4. Western Avenue           | 35. Ogunlana Drive          |
| 5. Itire road               | 36. Lawal Olawepo road      |
| 6. Jimoh Odutola str.       | 37. Imam Daudu str          |
| 7. Enitan street            | 38. Bale street             |
| 8. Odogbolu street          | 38. Adetola str             |
| 9. Animashaun street        | 39. Adesina street          |
| 10. Rasaki Gbadamosi street | 40. Aiyetoro street         |
| 11. Makanjuola street       | 41. Akerele road            |
| 12. Randle Avenue           | 42. Adelabu street          |
| 13. Adekunle Kuye street    | 43. Nuru Oniwo street       |
| 14. Agbebi street           | 44. Ogunlana street         |
| 15. Oshogbo street          | 45. Bashua street           |
| 16. Akinsulire street       | 46. Adetola street          |
| 17. Savannah Banwo street   | 47. Animashaun street       |
| 18. Onikoyi street          | 48. Johnson street          |
| 19. Babatunde road          | 49. Sam Shonibare street    |
| 20. Jubril Martins str      | 50. Olatilewa street        |
| 21. Lawan Tayo street       | 51. Nnobi street            |
| 22. Tafawa Balewa crescent  | 52. James Robertson street  |
| 23. Falolu street           | 53. Olawode street          |
| 24. Mogaji road             | 54. Jubril Martins street   |
| 25. Oshogbo street          | 55. Ogunsanmi street        |
| 26. Aina street             | 56. Adeniji Adefioye street |
| 27. Ayilara street          | 57. Ibidun street           |
| 28. Kasimu street           | 58. Adegoke street          |
| 29. Okanlawon street        | 59. Ajao road               |
| 30. Babatunde road          | 60. Michael Ogun drive      |
| 31. Ighehinadun street      |                             |

### **MINOR/SHORT ROADS/STREETS IN SURULERE LGA**

- |                            |                                    |
|----------------------------|------------------------------------|
| 1. Adebola street          | 22. Yesufu licina Johnson street   |
| 2. Odeku close             | 23. Abibu oki close                |
| 3. Bassey aganmo street    | 24. Calabar street                 |
| 4. Tafawa Balewa crescent  | 25. Mba street                     |
| 5. Thanni street           | 26. Ch. Onitana street             |
| 6. Olojodu street          | 27. Tapa street                    |
| 7. Ijesha road             | 28. Irepodun street                |
| 8. Oyedoyin street         | 29. Onikoyi street                 |
| 9. Efuntide street         | 30. Chief natufe street            |
| 10. Imam Daudu street      | 31. Alhaji Muritala Animashaun str |
| 11. Femi Ayantuga crescent | 32. Williams street                |

- |                             |                       |
|-----------------------------|-----------------------|
| 12. Adebola Ojomo street    | 33. Aiyetoro street   |
| 13. Olaiya Avenue           | 34. Onimole street    |
| 14. Jalupon close           | 35. Itolo street      |
| 15. Abosede Koboye crescent | 36. Eric Moore Close  |
| 16. Abibi street            | 37. Eric Manuel str.  |
| 17. Bishop Howells street   | 38. Olusegun close    |
| 18. Remi road               | 39. Ojikutu Avenue    |
| 19. Lawani street           | 40. Atunrase street   |
| 20. Fagbenro street         | 41. Moshalashi street |
| 21. Onasanya street         | 42. Oretedo street    |

Total major/long roads/streets in Surulere LGA      **61**

Total minor/short roads/streets in Surulere LGA      **42**

### **30% Each of Major/Long and Minor/Short Road/Streets in Shomolu LGA**

Major/Long road/streets       $30/100 * 61 = 18.3$  Roads/Streets

Minor/Short road/streets       $30/100 * 42 = 12.6$  Roads/streets

Number of Buildings from major/long road/streets       $18.3 * 6 = 109.8$  Buildings

Therefore, to the nearest figure selected buildings from major/long roads/streets in Ikeja LGA are **110 Buildings**.

Number of Buildings from minor/short roads/streets       $12.6 * 3 = 37.8$  Buildings

Therefore, to the nearest figure selected buildings from minor/short roads/streets in Lagos Mainland LGA are **38 Buildings**.

**Total of buildings selected from Lagos Mainland LGA are 148 Buildings but 123 questionnaires were returned.**



**Table 1: Number of Major and Minor Streets in the Study Area**

Local Government Area	Major/Long Streets	Minor/Short Streets	Total
Ifako-ijaiye	29	97	126
Ikeja	34	122	156
Lagos mainland	45	61	106
Shomolu	25	100	125
Surulere	61	42	103
Total	269	347	616

*Source: Field Survey, 2011.*

**Table 2: Number of Selected Buildings in the Study Area**

Local Government Area	Buildings in Major/Long Streets	Buildings in Minor/Short Streets	Total Buildings
Ifako-ijaiye	52	87	139
Ikeja	61	110	171
Lagos mainland	81	55	136
Shomolu	45	90	135
Surulere	110	38	148
Total	349	380	729

*Source: Field Survey, 2011.*

**Table 3: Distribution of Questionnaires**

Local Government Area	Number of Questionnaire Sent Out	Number of Questionnaire Returned	Percentage Returned
Ifako-ijaiye	139	96	69.0
Ikeja	171	163	95.3
Lagos mainland	136	91	66.9
Shomolu	135	109	80.7
Surulere	148	123	83.1
Total	729	585	80.2

*Source: Field Survey, 2011.*

## APPENDIX 2b

### QUESTIONNAIRE

**Oni, Adebukola Funke (979005034)**  
**University of Lagos,**  
**Geography Department**  
**Akoka-Yaba, Lagos**

## **BUILDING-USE CONVERSION AND THE PERCEPTUAL ASSESSMENT OF UTILITIES SERVICEABILITY IN LAGOS METROPOLIS, NIGERIA**

Dear Sir/Ma,

This is to introduce the above named student, Oni, Adebukola Funke of the Department of Geography (Regional Planning), University of Lagos who is currently working on her PhD on the above topic.

Please, assist in filling the attached questionnaire to help her get the best information on the study. Your response will guide her result for her academic pursuit and maximum policy guide for the neighbourhood under study to the best interest of the residents.

Thank you for giving adequate and reliable response.

Supervisor

-----  
Signature

Head of Department

-----  
Signature

**Ps:** Please contact any of the numbers listed below in case there is need for further clarification on the questions within.

**08033021211**

**08028274703**

**07056661684**

**08098265226**

**08134326776**

Local Government Area:.....

Street name: .....

1. When was the building completed originally?  
a. Before 1991 b. 1991 – 2000 c. 2001 – 2011
2. At the initial completion what was the type of the building?  
a. Roomy b. Self contain room c. Room and Palour d. Bedrooms flat  
e. Semi-detached House f. Detached House g. Others (Please specify).
3. Does the building have permit for this building type?  
a. Yes b. No c. I don't know
4. How many floors including the ground floor does the building have at this time of completion?  
a. 1floor b. 2 floors c. 3 floors d. 4 floors e. more than 4 floors (Please state)
5. At completion of the original building what is the main use? (Please mark one item)  
a. Residential b. Commercial c. Industrial d. Institution e. Religion  
f. Mixed g. Others (Please specify)
6. How many rooms were in the original building at completion? (Please do not count Bathrooms, Toilet, Kitchen, Pantry/Store, Laundry, Garage and Hallway).  
a. 1 – 2 b. 3 – 4 c. 5 – 6 d. 7 – 8 e. 9 – 10 f. More than 10
7. How many rooms were for dwelling at this time? (Please do not count Bathrooms, Toilet, Kitchen, Pantry/Store, Laundry, Garage and Hallway).  
a. 1 – 2 b. 3 – 4 c. 5 – 6 d. 7 – 8 e. 9 – 10 f. More than 10
8. How many rooms were for other use at this time such as; Shops, Offices, Boutique and others at completion? (Please do not count Bathrooms, Toilet, Kitchen, Pantry/Store, Laundry, Garage and Hallway).  
a. 1 – 2 b. 3 – 4 c. 5 – 6 d. 7 – 8 e. 9 – 10 f. More than 10 g. None
- 8b. Does the building permit in (3) above allow for this other use?  
a. Yes b. No c. I don't know
9. Has there been any form of modification /renovation or alteration of the building since completion?  
a. Yes b. No

10. If yes, (for Original Owner) please indicate the **Nature/Year** of the **Modification/Renovation or Alteration**?

	NATURE OF ALTERATION/MODIFICATION		YEAR
a.	Increment in the number of floors		
b.	Increment in the land area space		
c.	Increment in number of rooms		
d.	Reconstruction of part of (or all) the rooms office, shops, boutique, eateries and others		
e.	Reconstruction of the whole building for other use apart from dwelling		
f.	Reconstruction of the frontage rooms to other use		
g.	Expansion of the area of parking space		

12. Are you the original owner of the building?

a. Yes                      b. No

- 12b If No, what is your status in the building

a. Family House                      b. Inherited house    c. Outright Purchase    d. Leasehold                      e. Tenant

- 12c. If inherited what did you do with the building after inheritance?

a. Occupied    b. Converted part for other use    c. Shared    e. Sold  
f. a & b above    g. c & e above

- 12d. If bought, please tick when?

a. Before 1991    b. 1991 – 2000    c. 2001 – 2010    d. After 2010

- 12e. If on lease, please tick the period of lease?

a. Less than 20 years    b. 20 – 40 years    c. 41 – 60 years  
d. 61 – 80 years    e. 81 – 100 years.

- 12f. If tenant, what is your length of stay?

a. Since completion    b. Over 50 years ago    c. 40 – 50 years ago    d. 30 – 39 years ago    e. 20 – 29 years ago  
f. 10 – 19 years ago    g. Less than 10 years ago

13. What informed your choice of this area?

a. Land value/Rent affordability  
b. Availability at time of purchase/Vacant space  
c. Nearness to i) Work ii) Family and friends                      iii) Others (please, specify)  
.....  
d. Transportation cost to major daily activities  
e. Activities within the area.

14. Since you inherited/acquired/staying in the building, has there been any form of Modification /Renovation or Alteration of the building?

a. Yes    b. No

14b. If yes, please state the nature.

	NATURE OF ALTERATION/MODIFICATION		YEAR
a.	Increment in the number of floors		
b.	Increment in the land area space		
c.	Increment in number of rooms		
d.	Reconstruction of part of (or all) the rooms office, shops, boutique, eateries and others		
e.	Reconstruction of the whole building for other use apart from dwelling		
f.	Reconstruction of the frontage rooms to other use		
g.	Expansion of the area of parking space		

15. What is the main use of the building now?

- a. Residential b. Commercial c. Industrial d. Institution e. Religion  
f. Mixed g. Others (Please specify)

15b. Why the modification, alteration or renovation?

- a. Economic reason b. To meet demand pressure  
c. Socio-cultural attitude d. Property Development Trend  
e. Others (Please specify?).....

16. Does the modification, alteration or renovation has approval?

- a. Yes b. No c. I don't know

17. How will you best describe the building and neighbourhood in the years below?

Year		Noise Level	Environmental Pollution	Crowd Level	Flooding Condition	Public Water Supply	Solid Waste Disposal	Drainage Condition	Parking Situation	Setback	Pipe Water Supply	Road Condition	Building Materials Quality	Air space in between Buildings	Congestion of Structures	Toilet	Sewage Effluent into Gutter	Building Structure	Settlement Nature	Controlled Land Use	Conformity to Regional Plan	Planned Area	Degree of Presence	
Before 1991	V.Good																							
	Good																							
	Fair																							
	Bad																							
	Worse																							
1991	V.Good																							
	Good																							
	Fair																							
	Bad																							
	Worse																							
2001	V.Good																							
	Good																							
	Fair																							
	Bad																							
	Worse																							
2011	V.Good																							
	Good																							
	Fair																							
	Bad																							