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SUSTAINABLE URBAN DEVELOPMENT AND THE CHALLENGES OF URBAN SPRAWL IN 'ABUJA' THE FEDERAL CAPITAL CITY OF NIGERIA

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The urbanization process in Africa and particularly in Nigeria has resulted in urban sprawl with attendant effects in socio-economic dimensions and environmental degradation. Such effects as loss in biodiversity, decrease in vegetation productivity, uncoordinated waste disposal, generation of heat islands, environmental pollution; and asocial menace are common leading to some socio-physical, mental and health concerns. Undoubtedly, the phenomenon of urban sprawl is having inauspicious effects in city development in Africa; and it is a complex pattern of land use, transportation, and social and economic development due to the rapid expansion of metropolitan areas. However, a sustainable city development process is driven by social, economic and environmental factors in a manner that does not harm or damage the environment, nor exhaust resources utilization for the present and future generations to thrive. To achieve this goal, the city will need to continue its process of transformation, encouraging economic and social regeneration through the new development of opportunities and environmental enhancement. In view of this, this study is undertaken with the aim of seeking ways of accomplishing sustainable urban development in African cities, Abuja in particular. The objective is to examine the current urban sprawling effects on Abuja capital city using textual analyses of the Federal Capital Development Authority's planning/development reports and extant research reports; and thereafter proffer sustainable approaches to its urban planning and development schemes. This is geared towards reducing the liable effects of sprawling such as air pollution, urban heat, automobile-related morbidity and mortality; and encouraging physical activity and promoting mental health and a sense of communal dwelling in the suburbs of the newly growing capital city of Nigeria.

Keywords: Abuja, development, environment, Nigeria, sustainability, urbanization, urban sprawl

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INTRODUCTION

The process of urbanization is often associated with sprawling in both developed and developing countries of the world; and it is considered an ancient time phenomenon which is often characterized by low-density and unplanned residential areas surrounding most cities (Bruegmann, 2005). Urban sprawl is an attendant by-product of urbanization and city growth with socio-economic consequences on metropolitan areas. However, cities are considered as the vehicles for national development and growth as they play significant roles in the national/global economy; and also serve as the power nerve centre of politics, finance, innovation and cultural diversity (Chima, 2012). They are interdependent and are increasingly linked through the flow of global activities; and are in continued growth in population and socio-economic activities (NUDF, 2009). In fact, the urban areas contain half of the world's population as at 2008; and more than a third of world urban population live in large cities (UNFPA, 2011a&b; United Nations, 2011a; World Watch Institute, 2007 cited in Chima, 2012). This urban growth exerts a lot of pressure on the environment in multiple dimensions such as the reduction in the supply of ecosystem services, agricultural production, fresh water availability and waste absorption (Linard, Tatem & Gilbert, 2014). According to Adeponle (2013), rapid urban expansion without recourse to environmental consideration exposes a substantial fraction of the urban population at risk of both natural and human-induced environmental hazards.

Urbanization trends occur in both developed and developing countries but with varied patterns of sprawling. Development of urbanization in developed countries had taken unprecedented rates for many decades which led to the creation of cities with a lot of socio-economic and environmental problems. These include traffic congestion, environmental deterioration/pollution, poverty, crime, racial tension, poor public schools and services, etc. With these problems in sight, the rich people of developed nations, therefore, escaped from the inner cities in order to evade the problems and look forward to the high quality of life leading to a phenomenon of suburbanization. This is because; the suburban areas have access to open space which provides the incoming city dwellers with a chance to enjoy nature and an easy escape from city problems (Brueckner, 2000). However, the scenario in developing countries and particularly sub-Saharan Africa is different. Urbanization in sub-Saharan Africa is characterized by an increasing population of poor people living in urban areas. The number of people living in slum conditions in the urban periphery is prohibitive and has doubled in 15 years to reach nearly 200 million people, about 72% of the urban population in 2005 (Campbell & Campbell, 2007; Dye, 2008; UNPF, 2007 cited in Linard, Tatem & Gilbert, 2014). Ironically, Africa is currently the fastest urbanizing continent in the world, with an annual growth rate of between 4.5% - 5%. This migration influx from rural to urban centres is in response to perceived economic and social opportunities in the cities (Okpala, 2009).

Nigeria is one of the biggest and most populous countries in sub-Saharan Africa, with a population of about 180 million people. It has one of the highest rates of urbanization in Africa (see figure 1). The urbanization pattern in Nigeria takes the form of a central core city with peripheral areas that are suburban; peri-urbanization (Okoye, 2013). Abuja the federal capital city of Nigeria is located in

the geographical centre of the nation and was selected as the new capital in 1975 due to its potentials as an alternative to 'Lagos' which was experiencing heavy population and congestion with enormous environmental problems. Today, Abuja is equally undergoing heavy population growth with associated urban sprawling of a very high degree due to the inadequacies in planning and development strategies evident in the growing suburban slums springing up in almost all directions of the growing capital city. This has given birth to the question of how effectively and efficiently can the issue of the prevailing urban sprawl in Abuja be addressed to attain a sustainable level of city planning and development? To address this question, it becomes imperative to evolve and introduce sustainable urban development strategies as a check to the ongoing malady in the overall physical development pattern of the growing new capital city of Nigeria. Before then, it is helpful to have a look at the theories of urban sprawl as well as the urban sprawl characteristics in an African setting, and as it is currently taking place in Abuja in order to be able to proffer appropriate and sustainable development strategies or models for rectification.

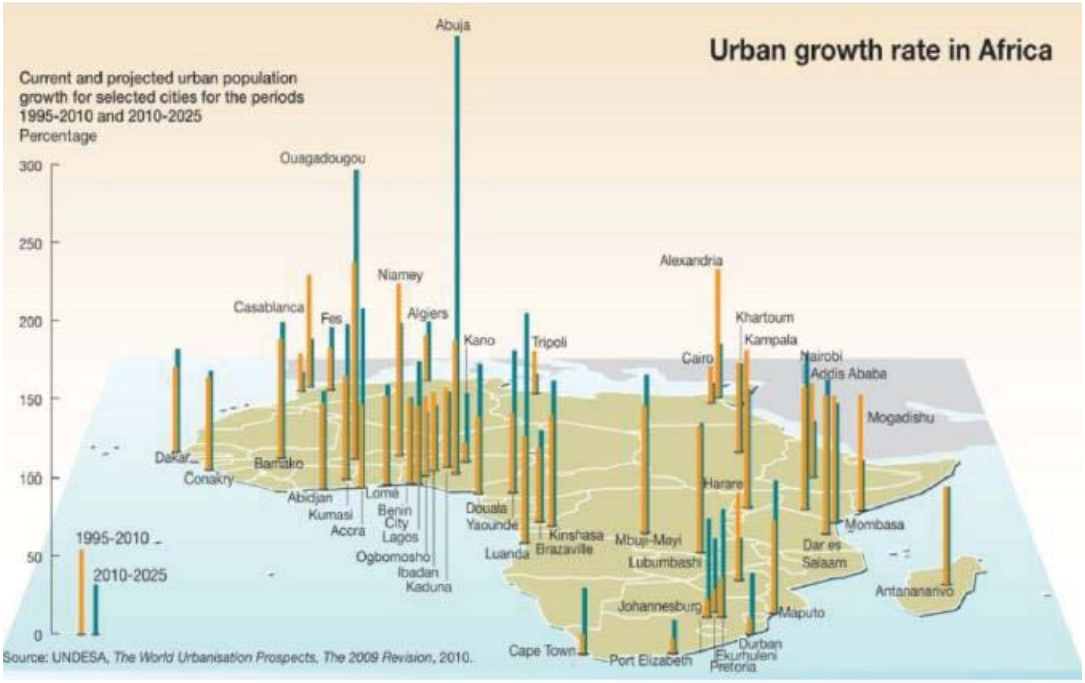

Fig. 1: Urban Growth Rates in Africa
Source: Adapted from Pravettoni, UNEP/GRID-Arendal (2011)

THEORETICAL ANALYSIS OF URBAN SPRAWL

Urban sprawl is a complex phenomenon associated with informal growth and outward expansion of city centres having social and environmental impacts on its setting. It is often characterized by an unplanned and uneven pattern of growth giving birth to situations of inefficient resources utilization. It is an irresponsible and poorly planned development that does not contribute significantly to revenue. It is responsible for the destruction of green spaces and the creation of traffic congestion, and thus has negative impacts on air quality and public health (Chima, 2012; Ewing, 1994). It is a low-density and auto-dependent development on rural land that directly impacts traffic congestion leading to the increased cost of transportation, public infrastructure and of residential and commercial

developments. Urban sprawl adds to the urban divide, pushing social segregation along economic lines that result in a spatial difference in wealth and quality of life across various parts of the cities. In fact, it is referred to as urban decentralization in which the physical outward expansion of cities is characterized by low densities, separated land uses and car-dependent communities (Owusu, 2013). The sprawling nature of cities is evident in the developmental growth associated with increased energy and land consumption. These impacts threaten the natural and rural environments by raising the levels of pollution (air and noise) which often exceed human safety limits, and greenhouse gas emissions that cause climate change. All of these have a telling impact on the quality of lives of people living in the cities (European Environment Agency, 2006).

In the quest for further understanding on the phenomenon of urban sprawling, two schools of thoughts have emerged in the argument for and against the features of urban sprawl (Owusu, 2013) as follows;

i. The opponent school of thought;
   The opponents of urban sprawl have advanced their arguments on the adverse effects of the phenomenon; and have put the responsibility of the control on the government rather than on local devices (Yin & Sun, 2007). They are supported by environmentalists and have agreed that the phenomenon results in increased automobile travel and congestion, high levels of pollution, loss of farmlands, duplicative infrastructure at high costs to society, limited employment accessibility, concentrated poverty and some other undesirable issues within the metropolitan (Owusu, 2013). This is typical of situations in developing countries.

ii. The proponent school of thought.
   The proponents of urban sprawl on the other hand seem to believe more on the positive outcomes of the phenomenon through urban decentralization. The emphasized positive outcomes include improved satisfaction of housing preferences, good quality and serene environment (especially air quality and noise pollution), lower crime rates and better public schools (Glaeser & Kahn, 2003 cited in Owusu, 2013). This argument seems to hold true only for urban sprawling in developed countries as these positive outcomes do not showcase in developing countries.

Though urban sprawl is interlinked with urban growth; urban growth may be observed without the occurrence of sprawl. But sprawl, in reality, induces growth in urban areas from population growth and increase in demand for services; and the lack of strict planning policies (Bhatta, 2009; Bhatta, 2010 cited in Chima, 2012).

In general, it has been noted that city development and growth in developing countries is highly dynamic, diverse and disordered; and increasingly land and space intensive (UNFPA, 2007).

Further studies have identified three main factors responsible for sprawl as follows;

a. The natural phenomenon;
   Jaret et al. (2009) have described urban sprawl as a natural phenomenon, portraying cities as the hub of economic activities with a natural tendency

for its population to expand outwards. This signifies that urban decentralization is an orderly natural growth process and not the result of a market system out of control.

b. Flight from blight;
Wasserman (2008) portends that the phenomenon of urban decentralization goes beyond natural forces. That the phenomenon is partly driven by certain repellant factors of higher tax rates, higher crime rates, crumbling infrastructure, low-performing public institutions, and a greater presence of the poor and lower class in central or inner-city neighbourhoods. This is particularly true for sprawling situations in developed countries where the rich attempt to escape from the problems of the inner city for a better life on a rural land.

c. Effects of land speculation.
This factor is particularly prominent in developing countries where land speculation is rife because of the weak land market and poor urban governance systems. Here, land developers who need land for housing and other development activities go far away from the city centre at minimal costs for development. This results in low-density development with the extension of city footprints beyond the central or inner-city centres (UNFPA, 2007; Owusu, 2013).

Development of sprawl in both developed and developing countries are known to take some spatial forms. These according to literature are identified as low-density continuous sprawl, ribbon sprawl, and leapfrog development sprawl (Harvey & Clark, 1971 cited in Chima, 2012) all of which have showcased as suburban settlements in and around Abuja city. The low-density continuous sprawl usually happens along the fringes of existing metropolitan areas as in Lugbe and Karmo settlements, etc. The ribbon sprawl type typically develops along major transportation routes away from the core of the city as in the case of Gwagwalada/Zuma Rock lane, and Nyanya/Mararaba lane. The leapfrog type is a discontinuous pattern of urbanization in which the areas of developed lands are widely separated from each other due to physical geography (e.g. water bodies, rugged terrain, etc.) or restricted land use policies. This type of sprawl is evident in the villages springing up away from the airport, Kado-Abuja Lake (Jabi village) and Usuman dam (Bwari village), etc. within Abuja. It is disheartening to know that most of the sprawling areas mentioned above are in reality in a deplorable state of human existence.

APPROACHES AND METHODS

This study focuses on achieving sustainable urban planning and development in Abuja the federal capital city of Nigeria by identifying the factors responsible for the prevailing urban sprawl in an attempt to addressing its implications. The objective is to examine the current and prevailing urban sprawling effects around the city so as to be able to proffer appropriate measures of accomplishing a sustainable setting in terms of planning and development. As such, a textual analysis of studies on urban planning and development in African cities in view of

sprawling and in conjunction with a review of Abuja Urban Development Reports by FCDA is undertaken.

Urban sprawling characteristics in African setting

Though the phenomenon of urban sprawl affects all nations and all periods of civilization, this study is particularly focused on a new capital city in the present African setting. Acknowledging the fact that, the mode and trend of sprawling in developed countries run contrary to that in developing countries. In developed countries like America, Europe, etc., urban sprawl is a show of modernity and economic development; in which case, people move out of the city for a large house on a large lot, with good automobile access to facilities (Okoye, 2013). Informal settings are thereby established where the rich would be escaping from the problems of the inner city for a better life on a rural land. The people living in sprawled dwellings spend more time commuting longer distances to arrive in their work-places, schools and shopping malls. People never meet their neighbours as settlements are in isolation of one another, except when they pass by in their cars; and neighbourhood events never take place (Mieszkowski & Mills, 1993).

In developing countries like Nigeria, urban sprawl manifests as an unfortunate by-product of urbanization that can be tolerated but provides no status for its occupants (Okoye, 2013). This is a situation where the poor urban migrants are running away from the high cost of living in the inner cities which they find difficult to cope to establish informal and illegal patterns of land development with undesirable effects. Such effects as over congestion, pollution, poor welfare and health; with increasing social disorganization, economic stratification, unemployment and crowding are very prominent (Pacione, 2009). In these countries, sprawl is depicted as a symptom of an economic system gone wrong. This is because governments lack the resources to address issues of transportation and other costs associated with dispersed cities (Okoye, 2013). The set-up is characterized by lack of planning; and inadequacy and over utilization of housing and basic services and infrastructure (Ayeni, 1981). This is typically evident in the absence of motor-able roads, pipe borne water, standard schools, and well equipped healthcare facilities. But, common to both the developed and developing worlds, is the declining level of densities which is the key driver of urban growth and sprawl (Owusu, 2013).

According to Fulton (1996), urban sprawl in developing countries (e.g. Africa) has two main contrasting types of development as;

i. Large peri-urban areas with formal and illegal patterns of land use associated with lack of infrastructure, public facilities and basic services which are accompanied by little or no public transport and inadequate access roads.
ii. Suburban sprawl areas in which residential zones for high – and middle – income groups and highly valued commercial centres are connected by individuals rather than public transport (Ewing, 1994).

In general, the urban sprawling effects witnessed in Africa in some dimensions is as a result of a loophole in poor spatial planning and weak land governance which has been exploited by property developers in their quest for cheaper land developments on the outskirts of major cities (Cartwright, 2015). Indeed,

urbanization in the third world is often characterized by a multitude proportion of the poor people living in urban areas (Linard, Tatem & Gilbert, 2014).

The problem of the urban sprawl involving the poor communities of Africa results because of the inability of the Authorities to predict urban growth, and their failure to provide land for the urban poor. The urban poor is being denied land rights prompting them to drift towards the periphery of cities in search of shelter coupled with the fact that little attention is paid to slums, land, services, and transport (Brueckner, 2000). The toll in terms of cost on the government to provide community services in sprawling areas is usually enormous because houses and businesses are spread further apart and local governments could barely provide for the widely spaced services. Vehicular traffic is highly increased causing an increase in air pollution and smog. Sprawled development normally causes an increase in energy consumption per person in urban development (Mieszkowski & Mills, 1993). Today, there is an unprecedented form of urbanization taking place in Africa, putting the future economic and social development of the continent at stake in the face of the looming sprawl (Cartwright, 2015). It is, therefore, crucial to set in place certain sustainable strategies or framework to address it so as to ensure safe, productive and healthy lives of its vast growing cities for sustainable development.

Countries across the world have relocated their capitals for cogent reasons, among which are; ease of accessibility to various regions of the nation, national identity, and overcrowding. The new capital cities are designed to accommodate sustainable urban development and to avert some specific problems (e.g. sprawling) already identified with their predecessor capitals in order to pride the nation amidst comity of nations (Chima, 2012). Regrettably, the case of Abuja today depicts a picture far from this dream as the development plans have been abused through the inadequate implementation of planning policies occasioned by bad governance and wanton corruption in all facets of the city development.

Abuja city growth and development in the context of sustainability

Sustainable city development is the dimension of today's city growth and development, and sustainability in this sense according to Adeponle (2013) is a direction rather than a destination. City of Vancouver (2002) however defines a sustainable city "as one that protects and enhances the immediate and long-term wellbeing of the city and its citizens, while providing the highest quality of life possible." A sustainable society ensures improved public health and a better quality of life for the people in an environment of limited waste generation, devoid of pollution, maximizing conservation of resources and promoting efficiency; and developing local resources to revitalize the local economy. Accomplishing this level of sustainability requires integrated decision-making in the socio-economic, political, ecological and environmental dimensions. The city of Abuja was planned with the expectations of attaining this status.

Abuja officially became the Federal Capital City of Nigeria on 12th December 1991 after Lagos. The relocation from Lagos to Abuja was necessary for many reasons based on the recommendations of the Government Committee Report in 1975 on the need for a new capital city. Prime among the reasons are; that Lagos was incapable of performing a dual role as Federal and State capital due to the

problems of inadequate space for development commensurate with its status; and that a new capital was needed as a symbol of Nigeria's aspirations for unity and greatness; with Abuja being located at the geographical centre of Nigeria (Chima, 2012) as in figure 2.

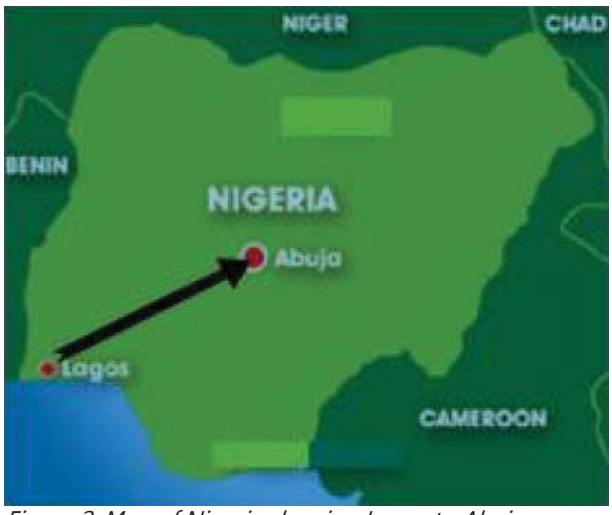

Figure 2: Map of Nigeria showing Lagos to Abuja
Source: Google map

Based on the commitment for developing Abuja as the new capital city, the Federal Capital Development Authority (FCDA) was established on the 5th February 1976 by Decree Number 6 to be responsible for this assignment. The FCDA in June 1977 commissioned a US-based consortium, the International Planning Associates (IPA) to produce a Master Plan for the capital city and its adjoining regions. On 15th February 1979, the IPA submitted the proposed master plan of Abuja to FCDA (Ikejiofor, 1998); meant for the creation of a modern city harbouring clean and healthy environment devoid of pollution, traffic congestion; and all that constitute a threat to the lives of the residents. The regional development plan was also prepared by the Doxiadis Associates Nig. Ltd in 1983 with the aim of guiding the overall physical and socio-economic development of the region (Chima, 2012). The master plan thereafter became the basis for the progressive development of Abuja, which commenced with construction work in 1980, and is to be executed in four phases. The FCT is divided into six Area Councils, namely; Abuja Municipal Area Council (AMAC), Bwari, Kuje, Gwagwalada, Kwali and Abaji Area Councils (see figure 3). It has major satellite towns on its fringes as; Karu, Nyanya, Kubwa and Lugbe which relieve the city from its population pressure (Sufiyan et al., 2015; Chima, 2012; Okoye, 2013).

The land area of Abuja is 8,000 Km2 of which the actual city (FCT) occupies 250 Km2; and is located on latitudes 90 0'N and 90 70'N and longitudes 60 45'E and 70 32'E. It is located within the Middle Belt region of Nigeria which is a transition zone between the northern ecological zone having grassland vegetation (majorly guinea savannah) and the southern ecological zone of majorly rainforest vegetation. It experiences three weather conditions of the warm, humid rainy season, and a hot dry season annually (Chima, 2012).

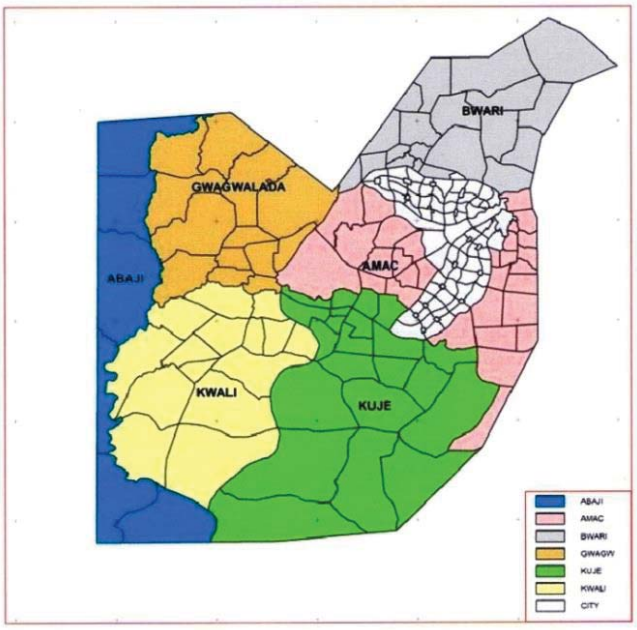

Figure 3: The Core-city Abuja and the Area Councils
Source: Abuja Geographic Information Systems (2011)

The Abuja master plan was prepared to embrace a sustainable outlook in a manner that land use development, infrastructural provision and social services are coordinated and inter-related based on well-articulated objectives that are socio-cultural and environmentally-biased. As such, the new capital city was designed as a national public space to replicate to some extent the forms and structures of existing Nigerian urban centres; and to conserve the natural and cultural environment of the territory (Abba, 2003; Ikoku, 2004; FCDA, 1979). According to FCDA (1979), three major issues that are related to urban form and design were considered as follows;

i. Image-ability: this refers to an observer's perception of the city's purpose, organization and symbolism.
ii. Efficiency: this is the ease with which government decisions are carried out, and
iii. Flexibility: the ease with which growth and change can be accommodated.

The master plan vividly incorporates open space and vital urban restructuring elements, places for recreation and amenity such as the longitudinal parkway system interval to the city, retention of the stream valley and water-course network for both aesthetic and drainage purposes. The preservation of the surrounding escapement of hills and inselbergs in the form of the Gwagwalada plains form the visual back-drop to the city and major focal points within the city. This was accompanied by the provision for the development of recreational facilities like a variety of gardens and parkways. The city was designed to be accomplished in phases as an efficient and attractive environment at every stage of its growth (FCDA, 1979).

The efficiency of the master plan was considered in the context of the city form, and the sites of its natural geography. That is, providing a design form that will help achieve the fastest travel times; and the subsequent use of the physical terrain

to provide efficient services. This culminated into a linear form of transportation with nodes to minimize travel times and to ensure the possibility of incremental growth in the future (see figure 4). By this arrangement or concept, the networks of water, sewage and drainage infrastructures were designed to take advantage of the gravity of the natural environment and as well respect and maintain the natural drainage patterns of the landscape (Chima, 2012). Background studies according to FCDA (1979) on earlier relocated capital cities like Brasilia, Washington and Chandigarh revealed that issues of efficiency and flexibility were compromised for stronger order of symbolic meaning to government functions. This discovery prompted the adoption of the following considerations in order to avert such a compromise.

i. City's location within the geography of its natural environment,
ii. The efficient/effective relationship among public functions, and
iii. Identifiable units within the city's internal organization.

The development of the Abuja capital city was designed to be accomplished in four (4) phases to accommodate an orderly urban growth over an extended period of time (see figure 5). As such, frameworks for growth that can deal with predictable and unpredictable changes were initially put in place (Chima, 2012) for a clearly defined population target of three (3) million inhabitants.

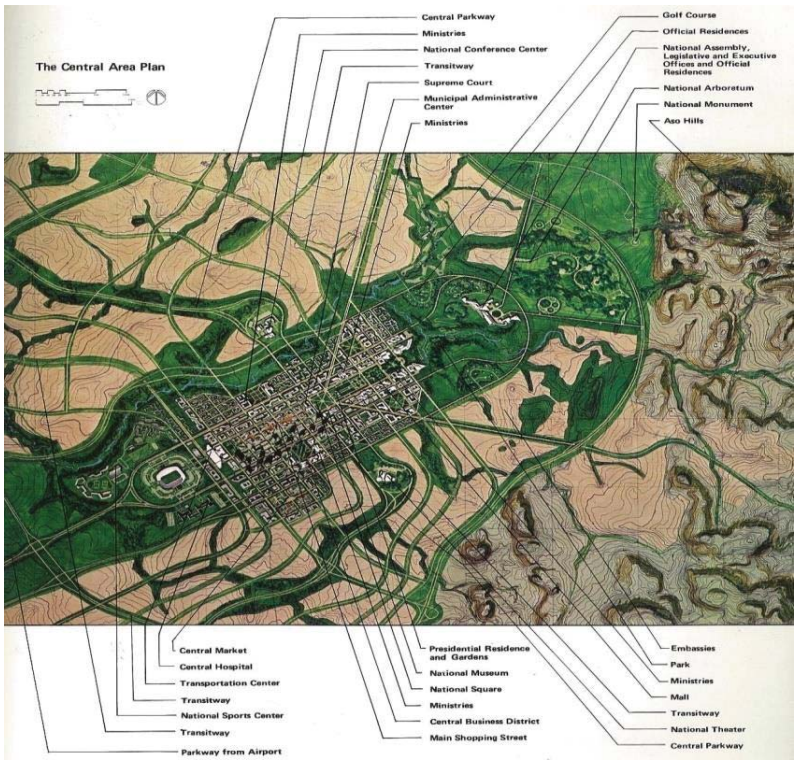

Figure 4: Central Area District Concept Plan
Source: FCDA (1979)

Phase I (one) which constitutes 5 districts as; Central Area, Garki (I & II), Wuse (I & II), Asokoro and Maitama was projected to accommodate 230,000 people; Phases II & III to accommodate 585,000 and 640,000 respectively; while Phase IV is targeted to accommodate 1 million people (Chima, 2012; Adeponle, 2013). According to FCDA (1979) the city is planned and scheduled to be completed in 1986, but due to changes in government and the associated abuse of the

masterplan with great distortions, resulting from the lack of willingness in governance and acute corruption, the city as at today (2019) is still in a developing trend. Four decades into the city development, work on Phase II (two) is yet to be completed; Phase III (three) has been prepared for development implementation by Federal Housing Authority, and work is yet to commence on Phase IV (four).

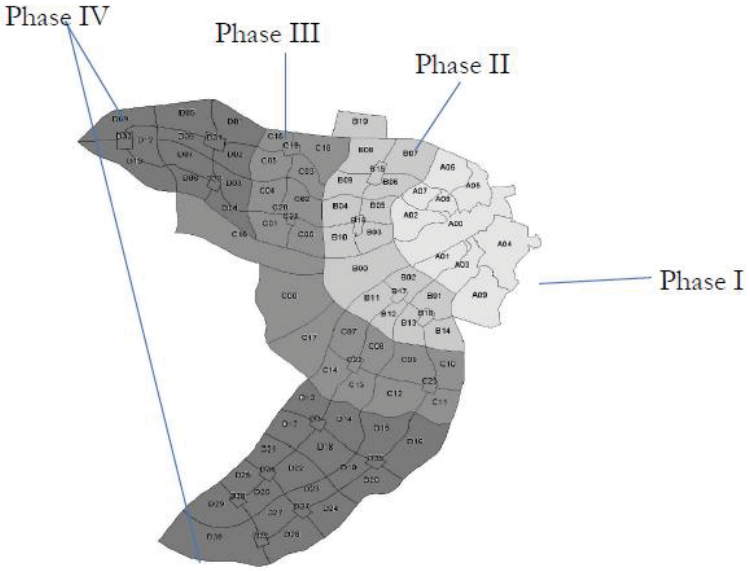

Figure 5: Location of Development Phases in the Federal Capital City, Abuja
Source: Department of Urban and Regional Planning- FCDA (2009)

DISCUSSIONS ON THE OBSTACLES TO SUSTAINABLE URBAN DEVELOPMENT IN ABUJA

The city of Abuja was planned to be a modern sustainable city that is physically developed to ensure well organized urban activities with a consideration for the protection of public interests which include health, safety, convenience, efficiency, energy conservation, environmental quality, social equity, social choice and amenity (Sufiyan et al., 2015). Unfortunately, the reality on ground after decades of city development is far from accomplishing this goal due to the distortion of the master plan. The master plan has been subjected to enormous abuse and distortions arising from a gap between the regulatory framework and enforcement of land and development policies. This is evident in the creation of the Ministry of Federal Capital Territory (FCT) in 1980 by a military regime whose functions were superimposed with those of the already existing Federal Capital Development Authority (FCDA) created in 1976 having a professional bias. This development first created the problem of insufficiency of professional personnel to contain the master plan (Sufiyan et al., 2015).

As a developing city and a new federal capital, there was a great influx of people into the city due to the manner of relocation which created an extreme shortage of serviced land for housing to meet the growing demand. This is occasioned by some anomalies in the noncompliance of government to the policies and regulations of the master plan as early as 1982/83. The relocation of government officials from Lagos to the new capital city in 1982/83 when the stipulated time

according to the master plan was 1986 was the initial cause. This led to the creation of urban fringes around the city to house city workers and low income earners. This development marked the beginning of the creation of informal settlements of slums and squatter bases just before the completion of Phase I (one) development. The Government of Nigeria has neither the sufficient technical and financial capacity to deal with this problem; nor the willingness to effectively manage the springing urban fringe growth. The urban sprawl that ensued is characterized by unplanned and incremental urban development with a low-density mix of land uses on the urban fringe (Ujoh, Kwabe & Ifatimehin, 2010). Since then, Abuja has been witnessing uncoordinated rapid expansion, urbanization and significant changes in its urban landscape (Sufiyan et al., 2015; Olakunle, Elegbede & Babatunde, 2010). The city has witnessed significant growth in both government and private establishments; and is experiencing a high scale of rural and urban migration. It has a recorded increase in population from 107,067 in 1991 to an estimate of 1,078,700 in 2011 (NPC, 1991; UNFPA, 2011a); and to over 3 million in 2019 according to world population review (2019).

In fact, the population dynamics in Nigeria as in many other African countries produced miserable effects that are difficult to comprehend. There is the problem of rapidly deteriorating physical and living environment in the form of slums and squatter settlements associated with traffic congestion, flooding and erosion, shortfalls in service delivery and deteriorating infrastructures occasioned by poor governance and management of the cities as in the case of Abuja today (Olurin, 2003; Agbola & Olurin, 1998).

In general, the growth of informal settlements in and around the city of Abuja is due to many factors, some of which are; the lack of affordable housing units for both the public and private workers, the failure of the relevant agencies to institute proper regulatory mechanisms for development control, and the lack of effective and good governance needed to ensure rational level of equilibrium between the growing population, the city environment and existing infrastructure; culminating into increasing poor living conditions and low livability index of the city and its suburbs (COHRE, 2008; Jiboye, 2011b; Daramola & Ibem, 2011).

In 1999, the Federal Government of Nigeria convened an International Conference on the Review of the Abuja Master Plan which eventually highlighted on the major distortions to the master plan (Adeponle, 2013), some of which are as follows;

i. The conversion of the "Accelerated District" in Phase 1 (one) meant to house the low income and city workers to accommodate relocated civil servants was a big mistake. The accelerated district was to serve as a model for testing out the detailed plan concepts of the master plan; and also to prevent the emergence of shanty towns. This development (mistake) led to the emergence of slum areas like Nyanya, Lugbe, etc. to cater for the population influx of workers.
ii. The presidential palace which was located in the middle of the central area of the city in the master plan was moved away by the post-civilian military regime to a secluded location close to Aso Rock. This site was initially meant for the National Monument and as such usurps its potential of beauty and grandeur as a prominent and salient feature of Abuja.

iii. There was a massive distortion in the allocation of building plots by the staff of FCDA both in the motive of allocation of the plots and in the distribution of allottees. Meanwhile, building plots allocation according to the master plan is to be based on some equitable biases of federal character.
iv. There was a scheduled time for the construction of the transit-way, and to introduce rapid rail transit system to serve the city. This was deliberately delayed and consequently allowed the right of way reserved for the transit-way to be encroached upon through indiscriminate plot allocation in several of such places. This eventually created a menace for the future development of transit-way for buses and rapid rail system.
v. The abuse of the parkway concept established by the master plan is of great concern. This concept was a major element of the open space system of planning for the city which had given way to other physical developments especially in Phases I & II.
vi. Most of the Green Areas and Hill Tops within the city have been converted to Housing development and other ancillary facilities. Though these buildings enhanced the beauty of the city and have added value to the housing stock, they are a major distortion to the master plan.
vii. There are also cases of incidental designs of residential neighbourhoods mostly in areas reserved as green to meet the urgent desire for residential development.

Among others, the city is currently growing in a discontinuous and uncoordinated manner most prominent at the suburbs; creating a low-density form of development that is not sustainable. There is also the problem of inadequate utilization of public spaces in the city centre, and actual neglect of such at the periphery where the neighbourhood layout do not allocate spaces for public facilities like schools, hospitals, markets, police stations, sporting/recreational areas, etc. There is great neglect for the condition of the streets and their alignments; forgetting the fact that streets are the foundations of the city and its unifying elements which are needed to create a hierarchy of order and the structure of the urban space to ensure connectivity. The issues of poor infrastructural development and service delivery are agonizing because there is no visible connection between land use planning, infrastructural development and service delivery. There are no programmes that are linked to major infrastructural investments like the creation of super highways, power networks, industrial parks, modern waste-water treatment, slums improvements and general neighbourhoods' revitalization programmes. For example, there is the outright neglect of the needs of pedestrians, cyclists and mass transit on a large scale within the city as well as the periphery (UNHSP).

It is obvious that little or no climate mitigating dimension is employed in the ongoing development pattern. That is, climate change factor is poorly integrated into the current growth and development process particularly in the planning tools and related investments.

Above all, there is the limitation of adequate and appropriate research resources to accomplish the task of attaining sustainable planning and development. In fact, there is limited information on updated and upgraded planning and development schemes especially maps and other necessary geographic information available to

the public, coupled with the low documented research works on sprawling and its effects on the Abuja city development is a great concern.

Evidence of abuse in the distortion of the Abuja master plan

The Federal Government of Nigeria in 2003 set up a 'Ministerial Committee on Illegal Structures in FCT' to collate a list of illegal structures within the FCT and present a strategy for demolition. Since the exercise which was followed up with actual demolition to some extent, there has not been such effort in addressing the problem of the enormous abuse except for partial and insignificant implementation of the report. In recent times, the little effort has been diffused with further abuse due to political influence by the succeeding government regimes relegating earlier efforts to jeopardy. Some of the distortions as observed by the committee are presented in table 1.

Table 1: Distortions in the Implementation of the Abuja Master Plan

Type of distortion	Number of plots
Encroachment into Green Areas	84 plots subdivided and allocated as residential.
	30 neighbourhood parks converted to corner shops.
Encroachment on sewer lines	70 plots
Encroachment on water pipelines	166 plots
Encroachment on highway corridors	216 plots
Development of residences on plots allocated for educational institutions	22 plots

Source: Ministry of Federal Capital Territory (2003)

According to the Committee Report, the distortions are so enormous that over 500 plots have been contravened in Phase I (one) alone. 22 plots out of 55 plots allocated for educational uses were converted to residential use. In Phase II, changes in land use are equally witnessed. Plots meant for public institutions were converted to residential plots. For example, the Ministers' Quarters in Maitama were not provided in the master plan.

These distortions advertently affected the development of the capital city in multiple dimensions that put the idea of Sustainable City Development in jeopardy. Some of these as observed by Adeponle (2013) are;

i. Inadequate services provision/delivery for the rapidly growing population. The problem of water scarcity as the available dam could no longer cater optimally for the population. The power supply has become inadequate and erratic; with the unsightly overhead power lines instead of the underground cabling proposed by the master plan for both electricity and telecommunication.
ii. Inefficient infrastructural development and uncoordinated service lines as buildings are constructed on services designated lines especially in Phase II.
iii. Uncoordinated developments leading to distortions in the panoramic view of the city landscape as unplanned constructions of residential estates are continuously added thereby exerting more pressure on existing infrastructure.

iv. The de-greening situation of the city and its suburbs, and the lack of concern for the entire landscape and climate change phenomenon.

PROPOSED SUSTAINABLE DEVELOPMENT CONTROL STRATEGIES FOR ABUJA CITY GROWTH AND DEVELOPMENT

The theme, 'Sustainable Development' is a recent call for effective and efficient utilization of all resources for all societies at all times and for all generations – today and beyond. Therefore, all developments, local, regional and global must imbibe the principles of sustainable development for the continuous survival of lives on the planet. In this regard, Bruegmann (2005) declares that an adaptation of sustainable patterns of development is crucial to the advancement of today's infrastructure. Subsequently, the maintenance of balance between human existence and biodiversity is essential to sustainable development. However, the absence of sustainable development practices has generated the phenomenon of urban sprawl in city growth and development around the world, particularly in developing countries. This phenomenon is taking a significant toll in the disappearance of wild forests, meadows, and wet-lands which are being replaced by pavements, buildings and sterile urban landscaping, resulting in an unpleasant, unsustainable and unhealthy/unsafe environment for humans and biodiversity.

In general, Sustainable Development in the context of urban growth and development portends an atmosphere of desired quality of lives for urban and suburban dwellers in all ramifications for all times. But the current situations in most developing countries, Nigeria inclusive in terms of urban growth and development have surpassed the capacity to maintain acceptable standards of public health, environmental safety; and sustainable economic growth (Daramola & Ibem, 2010; Adedeji ,2005).

Jiboye (2011) relates that issues of sustainable urban development can be addressed by ensuring good and effective governance as well as advocacy for urban regeneration coupled with enhanced infrastructural development and improved collaborative efforts of all stakeholders. United Nations Development Programme (UNDP) and the United Nations Centre for Human Settlement (UNCHS) have suggested strategies for urban development and management based on the principles of sustainable development. Among these is the Sustainable City Programme (SCP) which promotes the idea of adequate shelter, healthy and safe environment, and freely chosen employment opportunities for all humans in a community. It further advocates on gender equality, partnership and good governance (Olujimi, 2009); and could serve as a good recipe for Abuja city.

Strong emphasis on adequate and efficient land use planning and implementation is the key factor to sustainable urban growth and management. The United Nations Conference on Environment and Development in 1992, included land use planning as one of the eight (8) programme areas of agenda 21. The objective of this is 'to provide for land requirements of human settlement development through environmentally sound physical planning and land use so as to ensure access to land to all households' (Sufiyan et al., 2015). Therefore, FCDA and FCT have no

option than exercise adequate review and implementation of the master plan to accommodate this concept.

As a precautionary measure to avert further damage to the already abused master plan of Abuja, the Federal Government of Nigeria in 2003 decided to computerize the Abuja master plan and all the cadastral maps in GIS (Geographic Information System) in a bid to revitalize Abuja as a modern city. AGIS was then established as an agency to be responsible for controlling cadastral and land registration in Abuja. This has subsequently become an epitome towards good governance with a transformative project of Spatial Data Infrastructure (SDI) for the FCT (Sufiyan et al., 2015), and a step forward in remedying already created problems if well and sustainably applied.

Also, the application of Land Use and Urban Growth Modelling could help in a great deal in providing information on the likely spread of informal settlements in the future. This is necessary in order to have some idea on where and when these settlements would occur so that urban planners could get prepared for such developments. Chima (2012) argues that this preparation could serve to abort the process or to provide basic amenities like pipe borne water, healthcare facilities and necessary infrastructures for the wellbeing of the residents.

Another aspect that could yield positive result is the re-introduction of Integrated City Planning Approach into the existing plan with a transformative national urban policy. This approach according to Adeponle (2013) ensures that cities maintain their civilization, and are energy efficient by relying greatly on renewable energy resources. The need to recycle or at least reuse 60% of their materials, and encourage rather than assault biodiversity and by use of composting helping to create rather than destroy the soil is also essential. This is absent in the current Abuja city formation. Examples of cities that have applied the integrated planning approach are; Curitiba in Brazil, Midrand in South Africa, Davis in California in USA, Adelaide in Australia, etc. The policy should recognize the fact that urbanization can make a city more developed and advanced, creating higher levels of prosperity for all by reducing poverty in both the urban and rural fringes of the city. This can be achieved by exploring the gains of sustainable development based on the idea of optimizing endogenous development by nurturing and utilizing local assets in human capital, exploiting local potentials and maximizing local opportunities. In addition, a more compact city growth and development approach should be adopted rather than the continuous low-density development that entails long distances, which is unsustainable, socially divided, and economically unproductive (Adeponle, 2013; UNHSP).

Good governance is the key to the effective administration of FCT, and the relevant agencies should be empowered to provide and implement proper regulatory mechanisms for development control. According to Olakunle et al. (2010), a change in the present scenario is not possible without a commitment to good governance. This is an imperative measure to ensure proper land development control, and also to close the gap between land management strategies and its practical implementation. Resnik & Birner (2006) have asserted that good governance is the most crucial factor for prosperous cities around the world especially when applied to land planning and development. On this note, UN HABITAT (2003) has outlined

good governance as a feature of sustainability, subsidiary, equity, efficiency, transparency and accountability, civic engagement and citizenship, and security. Thus, the bane to sustainable urban development in FCT is actually corruption in the bureaucracy and all sectors of the economy due to the lack of good governance. However, the willingness and determination of the government to tackle it headlong through good and effective governance is the panacea to overcoming all the prevailing hurdles and obstacles to achieving sustainable city growth and development in Abuja.

The role of public enlightenment and awareness on the objectives of AGIS and the general transformative reforms cannot be undermined. This is necessary so that people do not deviate from or violate the rules and regulations when land allocation is made. The society should be engineered to collaborate at all levels and must learn to work together, at different levels of government, public and private, community or as individuals. This is to foster solidarity, identity, participation and collective actions so as to create and reorganize a more prosperous Federal Capital Territory, Abuja.

There is also the need for regular and periodic review of the master plan for updates/upgrades, and the need to make it available to public institutions and people within the FCT. This should be backed up with adequate machinery to enforce strict adherence to urban development policies by the people and institutions within FCT.

CONCLUSION

The Federal Capital Territory, Abuja was conceived as a modern capital city with great expectations and admirations; and the path to accomplishing this objective borders much on the implementation of the wondrous master plan produced by the International Planning Associates of America. The success of the implementation was anchored on a phase and gradual application of the master plan, which was short-lived even at the initial Phase 1 (one) development stage leading to urban sprawl in and around the city. This can be traced to manifest distortions and deviations from the master plan at various times of the city growth and development. Factors such as rapid population increase and poor implementation of the master plan are grossly responsible for the inefficiencies that ensued particularly in land allocation system. This led to the creation of Abuja Geographic Information System (AGIS) to sanitize and document all land uses in FCT and entrench some level of development and growth control. To further ameliorate the present scenario towards sustainable urban development, the need for good governance which has taken centre stage in development thinking and practice becomes vital. This will improve adherence to development control and land use policies and regulations as a sure way to accomplishing sustainable urban growth and development for the Federal Capital Territory Abuja. Other considerations like the practice of SD principles in all spheres of development, the application of Land Use and Urban Growth Modelling, the re-introduction of Integrated City Planning Approach with a transformative urban national policy, public enlightenment and awareness, and the need for periodic review of the master plan have been suggested.

REFERENCES

Abba, A. (2003**).** Saving the City of Abuja from Dirt, Faeces, Garbage and Disease. In-depth Analysis, Vol 3, NO 5 Nov 2003.

Abuja Geographic Information System (2011). The Core-City Abuja and the Area Councils.

Ade, M. A. & Afolabi, Y. D. (2013). Monitoring Urban Sprawl in the Federal Capital Territory of Nigeria Using Remote Sensing and GIS Techniques. Ethiopian Journal of Environmental Studies and Management. Vol. 6, No. 1, 2013.

Adedeji, Y. M. D. (2005). Sustainable Low- Cost Housing Technology in Cities: Accelerated Construction Initiative Option. Journal of Land Use and Development Studies. 1 (1), 10.

Adeponle, B. J. (2013). The Integrated City as a Tool for Sustainable Development: Abuja Master Plan. Journal of Educational and Social Research. Vol. 3(5). August 2013.

Agbola, T., Olurin, T. (1998). Sustainable Cities Programme (SCP): The Origin, Lessons of

Experience and a Case Study of the Sustainable Ibadan Project (SIP). In Adeniji K and VI Ogu (Eds.). Sustainable Physical Development in Nigeria, Ibadan: Nigerian Institute for Social and Economic Research (NISER) Publication, pp. 271-299.

Ayeni, B. (1981). Problems and Planning in Third World Cities. ed. by Pacione, M. London: Croom Helm, 127-155

Brueckner, J.K. (2000).Urban Sprawl: Diagnosis and Remedies. International Regional Science Review, 23(2):160-171.

Bruegmann, Robert 2005). Sprawl: A Compact History. University of Chicago Press,Chicago.

Cartwright, A. (2015). Better Growth, Better Cities: Rethinking and Redirecting

Urbanization in Africa. African Centre for Cities. Africa Progress Panel and the New Climate Economy. The Global Commission on the Economy and Climate. Available at www.newclimateeconomy.report.net

Chima, C. I. (2012). Monitoring and Modelling of Urban Land Use in Abuja Nigeria, using geospatial information technologies. Unpublished PhD thesis, Coventry: Coventry University.

City of Vancouver (2002). Creating a Sustainable City. Policy Report on Urban Structure and Environmental and Social Development www.city.vancouver.bc.ca

COHRE (2008). The Myth of the Abuja Master Plan: Forced Evictions as Urban Planning in Abuja. The Centre on Housing Rights and Evictions (COHRE) Social and Economic Rights Action Centre (SERAC). May 2008 Mission Report.

Daramola, A. & Ibem, E. O. (2010). Urban Environmental Problems in Nigeria: Implications for Sustainable Development. Journal of Sustainable Development in Africa. 12 (1), 124-144.

European Environment Agency (2006). Urban sprawl in Europe - The ignored challenge.

EEA Report No. 10/2006._pdf. (August 6, 2011)

Ewing, R. (1994). Characteristics, causes, and effects of sprawl: A literature review.Environ Urban Issues, 21(2):1–15.

FCDA (1979). The Master Plan of Abuja. The New Federal Capital of Nigeria

FCDA (2009). Department of Urban and Regional Planning, Planned Districts and Level of Development/Implementation, Federal Capital Territory, Abuja.

Fulton, W. (1996). The new urbanism. Cambridge: Lincoln Institute of Land Policy

Ikejiofor, I. (1998). Access to Land Development, Control and Low Income Housing in Abuja, Nigeria: Policy, Politics and Bureaucracy. Planning, Practice and Research, 1998: 299-309.

Ikoku, G. (2004). The City as Public Space: Abuja - the Capital City of Nigeria. Forum 6 (1), 34-45

Jaret, C., Ghadge, R., Reid, L.W. & Adelman, R.M. (2009). The Measurement of Suburban Sprawl', an Evaluation. City & Community 8(1), 65-84.

Jiboye, A. D. (2011). Sustainable Urbanization: Issues and Challenges for Effective Urban

Governance in Nigeria. Journal of Sustainable Development. Vol. 4, No. 6, December 2011. Available at www.ccsenet.org/jsd URL: http://dx.doi.org/10.5539/jsd.v4n6p211

Jiboye, A. D. (2011b). Achieving Sustainable Housing Development in Nigeria: A Critical Challenge to Governance. International Journal of Humanities and Social Science. 1 (9), 121-127.

Linard, C., Tatem, A. J. & Gilbert, M. (2014). Modelling Spatial Patterns of Urban Growth in

Africa. U.S. National Library of Medicine, National Institute of Health. Journal List HHS, Author Manuscript PMC4139116.

Mieszkowski, P. & Mills, E. S. (1993). The causes of metropolitan suburbanization.Journal of Economic Perspectives, 7: 135-47.

Ministry of Federal Capital Territory (2003) Report of Ministerial Committee on Illegal Structures in the FCT.

NPC (1991). Nigerian Census 1991. Ikeja, Lagos: National Population Commission.

NUDF (2009). National Urban Development Framework. Harnessing a Common Vision for Growth and Development of South Africa's Towns, Cities and City-Regions. Prepared by NUDF Steering Committee, Department of Cooperative Governance and Traditional Affairs and the Presidency, and in partnership with the South African Cities Network. Working Draft (10 June 2009) for consultation.

Okpala, D. (2009). Regional Overview of the Status of Urban Planning Practice in Anglophone (Sub-Saharan) African Countries. A regional study prepared for Revisiting Urban Planning: Global Report on Human Settlements 2009. Available at http://www.unhabitat.org/grhs/2009

Okoye, C. (2013). Urbanization and Developing Sustainable Cities: Abuja as a case study. Global Environmental Issues 6/5/2013.

Olakunle, O. B., Elegbede, O. T. & Babatunde, L. O. (2010). Urban Fringe

Management and Role of Good Governance: A case of Abuja. Journal of Management and Corporate Governance, Vol. 2, December 2010. Cenresin Publications. Available at www.cenresin.org

Olujimi, J. (2009). Evolving a Planning Strategy for Managing Urban Sprawl in Nigeria. Journal of Human Ecology, 25 (3): 201 – 208 (2009).

Olurin, T. A. (2003). Gender Participation and Environmental Planning and Management (EPM) Process: A Case Study of Water Supply in Bodija Market, Ibadan. Journal of the Nigerian Institute of Town Planners, XV1: 1 – 18.

Owusu, G. (2013). Coping with Urban Sprawl: A Critical Discussion of the Urban Containment Strategy in a Developing Country City, Accra. The Journal of Urbanism, Vol. 1 No. 26. Proceedings published in Jan. 2013. Available at www.planum.net

Pacione, M. (2009). Urban Geography. 3rd edn. London: Routledge

Pravettoni, UNEP/GRID-Arendal (2011). Available at http://www.grida.no/graphiclib/detail/urban-growth-ratein-africa_12bb

Resnick D. & Birner R. (2006). Does good governance contribute to pro-poor growth: An review of the evidence from cross country studies. Washington: International Food Policy Research Institute, 2006.

Sufiyan, I., Buhari, A. M., Abubakar, U. S. & Ubangari, A. Y. (2015). An Overview of the

Functions of Abuja Geographic Information System (AGIS) as a Tool for Monitoring Growth and Development in Abuja, Nigeria. Journal of Environmental Science, Toxicology and Food Technology (IOSR-TESTFT), Vol. 9, Issue II ver. II (Nov. 2015), pp 17-24. Available at www.iosrjournals.org

Ujoh, F. Kwabe, I. D. & Ifatimehin, O. O. (2010). Understanding Urban Sprawl in the Federal Capital City, Abuja: Towards Sustainable Urbanization in Nigeria. Journal of Geography and Regional Planning. Vol. 3 (5), pp 106 – 113. May, 2010. Available at http://www.academicjournals.org/JGRP

UNFPA (2007). UNFPA state of world population report 2007: Unleashing the Potential of Urban Growth. (New York: UNFPA).

UNFPA (2011a). State of the World Population 2011: People and Possibilities in a 7 Billion World. New York: United Nations Population Fund.

UNHSP. Territorial Planning and Basic Services in Africa: Optimizing the Urban Advantage. 4th Session of the African Ministerial Conference on Housing and Urban Development – AMCHUD IV. United Nations Human Settlements Programme. Available at www.unhabitat.org

UN-HABITAT, The Challenge of Slums: Global Report on Human Settlements 2003.

Wasserman, R. W.(2008). Causes of Urban Sprawl in the United States, Auto Reliance as Compared to Natural Evolution, Flight from Blight, and Local Revenue Reliance. Journal of Policy Analysis and Management, 27/3: 536-555.

World Population Review (2019). Available at www.worldpopulationreview.com Accessed on 17/06/2019.

Yin, M. & Sun, J. (2007). The Impacts of State Growth Management Programs on Urban Sprawl in the 1990s, Journal of Urban Affairs, 29/2: 149–179.