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THEME

ENVISIONING NIGERIAN CITIES BEYOND 2020:

AN AGENDA FOR SUSTAINABLE DEVELOPMENT

CONFERENCE PAPERS

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2020 NITP CONFERENCE PAPERS

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1. INTRODUCTION

The increasing concentration of population in cities poses challenges to sustainable development, including inequalities, social and economic exclusion and environmental degradation. The consequences are too many and obvious. It is time to think urban and the elephant in the room question is how to mobilize the global community and focus all levels of human settlements, including small rural communities, villages, market towns, intermediate cities and metropolises for demographic, economic growth and development.

Yet, urbanization also offers greater and unique opportunities for economic growth and development, social and cultural development, and environmental protection. In response, town planners, governments and developers are increasingly interested in making cities livable. The co-benefits of urban livability for the economy, social inclusion, environmental sustainability, social sustainability, economic sustainability and governance sustainability and public health are now well recognized by all levels of government in Nigeria, regionally in Africa and internationally.

This is also in tune with the New Urban Agenda 2030 and the Sustainable Development Goal #11 (2030). While the New Urban Agenda will help to:

- End poverty and hunger in all its forms and dimensions;
- Reduce inequalities;
  - Promote sustained, inclusive and sustainable economic growth;
  - Achieve gender equality and the empowerment of all women and girls in order to fully harness their vital contribution to sustainable development;
  - Improve human health and wellbeing;
  - Foster resilience; and

- Protect the environment.

The Sustainable Development Goal #11 (2030), entitled: Make cities inclusive, safe, resilient and sustainable is in line with the New Urban Agenda. The SDG #11 will provide support to the NUA and guide sustainable development for the next 10 years, since we are already in 2020. This suggests that time is not on our side and we have to quicken programs of action geared towards achieving both NUA and SDG #11 by the end of 2030.

Perhaps, before we can make responsible and reasonable moves, we need to know where we are now in terms of these two goals. The Economist Intelligence Unit of the Economists Magazine (2019) made a list of the 10 most livable cities in 2019. Nigeria is not included in the list. However, the same unit also made a list of the 10 least livable cities in 2019 and Nigeria ranked #138 out of 140 countries surveyed. We simply took 3rd position from the rear. We were only ahead of Bangladesh and Syria. I know that many of you here will not be pleased with these statistics. The time to grief has passed and the time now is to understand what went wrong and what we can do as a people in going forward.

2. WHAT ACCOUNTS FOR THE GAP?

The Economist Intelligence Unit (2019) provides us with ideas of what went wrong with Nigeria and several other countries in similar mess. These causative factors were grouped into five broad categorizations:

a. Stability

- Prevalence of petty crime
- Prevalence of violent crime
- Threat of terror
- Threat of military conflict
- Threat of civil unrest/conflict

b. Healthcare

- Availability of private healthcare
- Quality of private healthcare
- Availability of public healthcare
- Quality of public healthcare
- Availability of over-the-counter drugs

- General healthcare indicators

c. Culture & Environment

- Humidity/temperature rating
- Discomfort of climate to travellers
- Level of corruption
- Social or religious restrictions
- Level of censorship
- Sporting availability
- Cultural availability
- Foods & drinks
- Consumer goods & services

d. Education

- Availability of private education
- Quality of private education
- Public education indicators

e. Infrastructure

- Quality of road network
- Quality of public transport
- Quality of international links
- Availability of good quality housing
- Quality of energy provision
- Quality of water provision
- Quality of telecommunications

In addition to these five broad factors and the 30 specific determinants, it is on record that over the last 20 years, Nigerians have witnessed and are witnessing the following unpleasant experiences:

- Homelessness remains pervasive and its consequences are on the rise.
- Informal settlements continue to multiply and the development control department can testify on the challenges of dealing with unplanned areas.
- Housing programs lag behind targets. After Gwarimpa Housing Estate was built before the 1999 Civil Administration takeover, very little has been done in the area of providing mass housing for Nigeria. Even though the few housing programs do not provide for Nigerians who are not in the services of the government.
- Poor's vulnerability aggravated.

3. WHAT NEEDS TO BE DONE

Several programs of action can be undertaken. Some of these are:

a. Developing professionals for the future

If ideas about cities we have versus cities we need are to be realized, then we need to insure that the next generation of talented students to pursue careers in town planning, architecture and engineering professions. Developing professionals for the future is one of several activities that can encourage university and polytechnic students to pursue studies and careers in science, technology, engineering and mathematics.

b. Establish future city competition in the universities and polytechnics.

The competition can occur during the academic year. Participation in the competition can be incorporated into regular classroom activities, and in other cases may be extra-curricular, which means that students and teachers/mentors invest extra hours, similar to the participation in team sports. During the competition period, teams are guided to follow these steps:

- Identification and understanding of the problem.
- Brainstorming ideas.
- Concept design of the city developed using software.
- Test and evaluate the initial design and refine/redesign as needed.
- Build a scale model of their future city using recycled materials.
- Prepare and submit a 1,500 word description of their city.
- Orally present the model to a team of judges.

c. Designing future cities

Future cities start with a question, how can we make the world a better place? To answer it, universities and polytechnics students imagine, research, design, and build cities of the future that showcase their solution to a citywide sustainability issue.

d. Town planning and engineering a solution

The relevant development authority should set up a project team consisting of town planners, architects, engineers, developers, government officials and other stakeholders to develop a long-term, sustainable solution to eliminate the growing cities problems. Due to the wide spread and ever-changing nature of these issues, the traditional approach of bringing the problem to the solution was infeasible, so the team should take the solution to the problem through innovative plans.

e. Development of the Cities

Beyond the capital cities in Nigeria, development has not reached other cities. The consequence is rural-urban migration with attendant consequences; pressure on the facilities, traffic jam, loss of economic activities, poor road, high cost of maintenance of infrastructure. Just imagine if Lagos were to remain the country's capital, you will agree with me that travellers will spend a week to enter Lagos. Even Abuja has become a nuisance, beyond the belief of the planners and developers. Imagine the experience of entering into Abuja in the morning and leaving in the evening from Zuba, Airport way and Nyanya axes.

f. Prosperity in a New Land

Let the new cities we are planning to build rests in a vast plain with surrounding clouds above. Let the inhabitants enjoy life with the city's dome providing protection from the inhospitable environment, allowing citizens to enjoy the same activities others from developed countries are enjoying, such as shopping and going to parks. Let us reuse resources to give back to the community, enabling the city to provide a stable government, homes, schools, and jobs for its citizens. Everyone is an equal in the new cities, a utopia for any and all to enjoy.

g. Clean up Efforts.

Build capacity to clean up the environment. Ask Abuja residents when Governor El-Rufai was Minister of FCT and the series of administrations that have come thereafter in terms of environ-

mental cleanup and the rest is history as the saying goes. Future cities must be clean to attract visitors and tourists. Imagine the dollar revenue that can be received from tourists from outside the country. See Vienna, Melbourne, Osaka, Calgary and Sydney, the most livable cities in the world according to a survey by the Economic Intelligence Unit (2019).

h. Technology for Self-Survival

Build future cities based on technologies using artificial intelligence, big data, cloud technology, and machine-based technology.

i. Reflections on the city design

Living on an entirely new city comes with a multitude of good and bad things. One tradeoff that the citizens face is a small living area with public transportation. The citizens do not have much privacy, however, this preserves resources. The largest tradeoff that is unlikely to occur is a system failure, which may result in death. However, the citizens are aware of this and there must be systems in place to prevent this from happening, which include safety pods and emergency domes. Living on a new city comes with its highs and lows, however, the benefits outweigh the drawbacks by a large amount. Using innovative and futuristic solutions, new cities are the definition of the future.

j. Walkability

In livable cities, streets and neighborhoods are designed to encourage walking instead of driving. Homes, jobs, shops, schools and other everyday destinations are within easy walking distance of each other. The street network is convenient for pedestrians, with high-quality footpaths and short blocks.

k. Housing affordability

We see all over the world how decent and affordable shelter is intricately woven into better opportunities for children and their parents.

Families find better health, more financial freedom, independence, and a stability and security that far too many families simply can't achieve without a helping hand. The need for affordable housing is immense, and the lasting impact it can have on homeowners and their families is undeniable.

l. Community

Building a sense of community is key to creating livable cities. Facilitating the early establishment of local retail and community amenities would provide speedy activation of neighbourhood town centres in new developments.

m. Public transport

Livable cities promote public transport use instead of driving. Most homes are within easy walking distance of transport stops, and services are frequent enough to be convenient. Good access to public transport supports community health in two ways: by encouraging walking and by reducing dependence on driving.

n. Public open space

In livable communities, most people live within walking distance of a green, publicly accessible open space such as parks, playgrounds or reserves. Green space has many physical and mental health benefits for people, and social and environmental benefits for communities. Parks provide opportunities for physical activity, such as jogging, ball sports and walking.

4. CONCLUSION

Livable cities mean healthier, happier residents. However, town planners, policymakers must keep pace with development to make sure good urban planning leads to better overall health and wellbeing of every citizen or resident.

The implications are that we need to act and we need to act now – before it is too late and our cities become places where no-one can live well.

5. ACKNOWLEDGEMENTS

I would like to extend my deepest appreciation to the hosts and organizers of this year's Conference in Abuja, especially to the President and Chairman of Council, Council Members, Tpl. Toyin Ayinde FNITP, who is the Chairman, Conference Planning Committee, Tpl. Nathaniel Atebije and Tpl. Barnabas Atiyaye, who have been on my neck to ensure I turn in the paper on time. It is through the energy and enthusiasm of the numerous members of the LOC that this Conference will be both meaningful and memorable. Once again, thank you very much for the rare privilege and opportunity to be here and to share my thoughts with professional town planners and others.

God bless the Nigerian Institute of Town Planners.

God bless the Federal Republic of Nigeria.

SECTION 1

CONCEPTUAL AND METHODOLOGICAL ISSUES IN ENVISIONING NIGERIAN CITIES BEYOND 2020

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CHAPTER 1

THE PHENOMENON OF URBAN LAND USE DYNAMICS AND ITS IMPLICATIONS ON THE SUSTAINABILITY OF URBAN ENVIRONMENT IN NIGERIA.

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Abstract

In Nigeria planning agencies rarely consider neither the externality nor fiscal and exclusionary implications of proposed building and redevelopment plans or the change of use applications by developers in granting planning permit. When land use change is poorly regulated economic, social and environmental sustainability issues are adversely affected. Against this background the paper appraises the phenomenon of land use dynamics in four capital cities in Nigeria between 2002 and 2020 and attempts to assess the implications of land use change on the sustainability of urban environments. A combination of experimental and survey methods involving geospatial technologies and interview schedule were used for data collection while data as subjected to descriptive statistics for analysis. The results show significant changes in the size and density of buildings and vegetation in the study locations with underlying consequences for the region. Based on the study findings the paper recommends that area planning offices should engage in the preparation and periodic review of planning instruments to guide future urban planning activities as a strategy for promoting the emergence of less chaotic, disorderly and unsustainable cities in Nigeria beyond 2020. This the paper argues will make town planning agencies more open, transparent, accountable and more civic-oriented profession in Nigeria as we enter the 2020 years.

Key terms: land use dynamics, geospatial techniques, urban planning strategy, civic-oriented profession

1.0 INTRODUCTION

Land use affects distribution of wealth, individual and collective wellbeing, and is a critical factor in meeting the overarching goals of environmental sustainability, economic growth and social inclusion (Organisation for Economic Co-operation and Development (OECD), 2017). For example in a study on the impact of land use change on the distribution of wealth in OECD countries, the result obtained were extrapolated for six OECD countries and the findings showed that land and the buildings on it constitute 86% of the total capital in the OECD and have a val-

ue of approximately USD 249 trillion and given the very high aggregate value of land and property, even small changes in valuations have major consequences on the distribution of wealth (OECD, 2017). It then argued based on the evidence suggesting that a large part of the rising wealth inequality in recent decades in the OECD countries can be explained by rising land and property prices (OECD, 2017). Uncontrolled land use change is arguably the most pervasive socio-economic force driving changes and degradation of ecosystems and has been implicated in frustrating long term economic growth, intensifying income segregation and economic disparities among communities (Wu, 2008, 2013; Metternicht 2017; OECD, 2017). Unchecked and unmanaged urban growth has been attributed to lack of adoption of efficient and effective urban planning tools (Olayiwola & Igbarboa, 2014).

The UN-Habitat (2008) global report on planning sustainable cities, noted that developed countries have adopted (in recent decades) some innovative approaches for achieving sustainable urban environments. These approaches include like the use of spatial planning to integrate public sector functions, new land regularization (including land value and monitoring) and management, participatory processes and partnerships at the neighborhood level, and planning for new and more sustainable spatial forms like compact cities and new urbanism. The developing countries on the other hand are still using older forms of master planning that fails to accommodate the ways of life of the majority of the inhabitants in rapidly growing and largely poor and informal cities. It has not been flexible to planning spatial structures of the cities which have enhanced the unbridled expansion of cities as well as laxity in monitoring and evaluation of urban plans which has over time often directly contributed to social and spatial marginalization (Olayiwola & Igbarboa, 2014). It is a well-known fact that existing land use, physical and urban planning and management practices adopted since independence have largely been responsible for the myriad of urban problems and planning challenges in Nigeria. The problems of rapid population growth and urban sprawl (Ade and Afolabi 2013, Rilwani and Gbakeji 2009), buildings without approvals, unauthorized redevelopment (Adepoju 2005, Izueke and Eme 2013), low density urban sprawl (Adegboyega and Aguda, 2010), uncontrolled development and poor development control (Olayiwola and Igbarboa, 2014), use of outdated planning instruments and tools by planning agencies (Owei, Obinna and Ede, 2010, Olayiwola and Igbarboa, 2014) including rapid urban land use conversion (Enaruvbe and Atedhor 2013) are some of the problematic outcomes of recent past and current urban planning and land use management practices in Nigeria.

It is argued that the present apparent poor planning situation in our cities and the current multi-dimensional urban problems in Nigeria would not change for the better if we continue to use the same planning approaches and tools within the ever-changing political economy and its concomitant challenges for the planning profession in the country. It is also argued that only the adoption of the full complement of town planning principles tailored and responsive to the

needs of scientific decision making, and that optimizes the opportunities inherent in the existing administrative and legislative challenges of planning agencies in Nigeria and or that seeks to cure or mitigate widespread development control failures in Nigeria are required to achieve desirable planning outcomes for our cities beyond 2020. It is against this background that the paper appraises the phenomenon of land use dynamics in four capital cities in Nigeria and attempts to assess the implications of land use change on the sustainability of urban environments and suggests a practical strategy for achieving improved regulatory compliance with development control regulations and guidelines in Nigeria. The rest of the paper is presented in four sections. The review of related literature and research methodology are examined in sections two and three respectively. Section four discusses the scope and impact of land use changes in the study area and the paper is concluded with planning implications and recommendation of a more sustainable planning strategy by planning agencies in section five.

2.0 LITERATURE REVIEW

The assessment of the driving forces behind land use and land use change is necessary when analyzing and explaining past patterns, as well as when aiming to forecast future patterns (Metternicht, 2017). Land use planning influences both land use, land use change and the state of the environment; land use affects individual and collective wellbeing, it has been argued to be a critical factor in meeting the overarching goals of environmental sustainability, economic growth and social inclusion (Organisation for Economic Co-operation and Development, OECD 2017). In both developed and developing countries land use matters because it generates bundle of benefits and amenities: land use makes people attached to land and places, affects the attractiveness of towns and cities, creates a sense of belonging and land use is closely linked to many cultural aspects in peoples' lives. Also land use affects the distribution of wealth since changes to land use may result to changes in existing values in land and property prices. Extrapolated estimates for six OECD countries of Australia, Canada, Czech Republic, France, Japan and South Korea showed that land and the buildings on it constitute 86% of the total capital in the OECD and have a value of approximately USD 249 trillion and given the very high aggregate value of land and property, even small changes in valuations have major consequences on the distribution of wealth (OECD, 2017; Pp1-2). In fact, evidence suggests that a large part of the rising wealth inequality in recent decades in the OECD countries can be explained by rising land and property prices (OECD, 2017). Land use practices have major consequences for environmental and public health and climate change mitigation. Evidence from OECD countries also indicates that land use has been linked to approximately one third of all man-made CO2 emissions (Op Cit). In light of the importance of land, it is not surprising the land use policies tend to be contentious and that conflicts over land frequently emerge and this underpin the necessity for planning to always balance the private and public interests related to land. Planning

is also needed to co-ordinate public and private investment decisions on land. Since it is difficult to change land use once land is built-up, development needs to be coordinated in advance in order to avoid inefficient patterns of development, in other words, planning has to balance private and public interests and ensure efficient patterns of spatial development.

Given this role, planning whether land use or spatial planning or both need to create the preconditions to achieve a type of land use that is environmentally sound, socially just and desirable and economically sound: a land use that adequately reconciles land use with environmental concerns and resolves potential conflicts between sector interests and uses in a manner that is economically sound both in the present and in the future. Planning needs to balance multiple objectives such as economic competitiveness, environmental sustainability and social inclusion, in other words meet the demands of "the planners' triangle" (OECD, 2017). Even though land use planning is primarily a local task and concerns local issues, it has consequences for issues of national and global importance: the long-term stability of ecosystems, social justice, food and energy security, long-term economic growth, housing costs, and the mitigation of and adaptation to climate change (OECD, 2017). In this connection planning also has a crucial role to play to accomplish six of the 17 UN Sustainable Development Goals which include calls for access to energy, the construction of resilient infrastructure, inclusive cities, and climate change mitigation, sustainable use of oceans and protection of ecosystems. Instruments designed to affect land use rely primarily on restrictions on how land can be used. Planning primarily uses restrictions on land use as instruments because it has few tools to influence how individuals and businesses want to use land, as a consequence, it has to rely on restricting the possibilities for development, i.e. it makes it impossible that the demand for some form of land use is met by corresponding development (Schultink, Memon and Thomas, 2005). While such supply restrictions may ensure that specific land uses at specific locations do not occur, they cannot change the underlying demand for them and may increase the pressure for development at other locations (Schultink et al 2005).

The rationale for the control of urban land use falls into three broad categories. These comprise externalities, fiscal and exclusionary purposes as motives for regulating land use and in particular for zoning and growth controls (Goytia and Pasquini, 2013). From the perspective of welfare economics, the production of regulation is seen as an optimal solution to market failures, correcting for externalities, especially in densely populated places and are designed largely to manage externalities which need some mechanism for dispute resolution (Goytia and Pasquini, 2013). Existing literature clearly identified four principal instruments used by public authorities to control land use and these include the use of spatial planning, land use planning, environmental and building code regulations. In the analysis of land use regulation, zoning is the regulatory instrument that is most commonly studied in urban land use change and management due to its flexibility and amenability to effective monitoring and evaluation in order to ensure that

key objectives are achieved. Zoning regulates the range of uses to be developed in each area as well as the intensity of each use (density or floor area-ratio) and aims to promote the general welfare by separating land uses in order to mitigate negative externalities. This means that zoning is intended to correct for an inefficient market allocation of land when externalities are not internalized (Goytia and Pasquini, 2013). Restrictive land use regulation and zoning may confer particular benefits to owners of existing real estate properties (homeowners) by reducing the supply of developable land or the number of available dwelling units (Goytia and Pasquini, 2013). When this happens, homeowners see the value of their property increase and thus may have a monetary interest in restricting growth (Quigley, 2007).

A second motivation for zoning and growth control is not only to manage externalities, but fiscal reasons which relate to the responsibilities of local governments or municipalities for economic development and financing of public goods and services which are significantly affected by patterns of land use. Thus, municipalities take into account the fiscal implications of alternative forms of development when considering regulatory measures that influence the size of the local tax base and the demand for local government services (Goytia and Pasquini, 2013). Ideally, countries should use the potential of public policies – in particular tax policies – to provide incentives as a tool to steer land use in a manner that assure public policies outside the domain of spatial and land use planning do not run against land use related objectives (Schultink et al 2005). Thus, municipalities take into account the fiscal implications of alternative forms of development when considering regulatory measures that influence the size of the local tax base and the demand for local government services (Goytia and Pasquini, 2013). Since it's generally believed that growth controls or zoning may act to exclude certain groups of potential residents like the poor or minorities, a third motive that is now considered in the literature on the use of zoning and other land use regulations is an exclusionary purpose aimed to maintain community homogeneity. In that respect, although the composition of the tax base is considered, it is the exclusionary aim which prevails (Inhanfeldt 2004 quoted in Goytia and Pasquini, 2013). In general, homeowner preservation of real estate value appears as of first importance in motivating exclusionary regulations (Inhanfeldt, 2004). The argument is that the homeowners' prospect of capital gains and losses is the most consistent motivator for local government regulatory activity due to the fact that the great part of the wealth of the residents is tied up in their homes (Fischel, 2001).

Considering the motives and mechanisms for land use controls or regulations as discussed in the foregoing literature, neither the use of zoning and growth control regulations, fiscal considerations of the size of local tax base of an area and the demand for local government services including the preservation of property values of owners of real estate are adequately taken into consideration in Nigeria in the management of urban land use. It is argued that the current planning practice in Nigeria whereby the execution of urban planning functions by Area Planning

Offices revolve primarily around building plan and poorly prepared planning scheme approval processes, achieving the goal of orderly, balanced, consistent and functionally aesthetic cities in Nigeria will remain unfulfilled. The approval of proposed building and redevelopment plans, and change of use applications by planning agencies in Nigeria rarely considers the externality nor fiscal and exclusionary implications of such developments even for so called policy plans in densely built-up areas. The need to adopt best practices in the regulation of urban land use in Nigeria further underscores the need for this study.

3.0 STUDY AREA AND RESEARCH METHODOLOGY

Four cities in the South East and South South regions of Nigeria constitute the study area. The two geopolitical regions are among the most populated and urbanized areas in Nigeria with a host of ancient and modern cities and was considered suitable for studying the phenomenon of urban land use dynamics and its implications on the sustainability of urban environment in Nigeria. The study area (Figure 1.0) falls within the humid tropical rain forest belt of Nigeria. It experiences two weather regimes, the rainy season and the dry season.

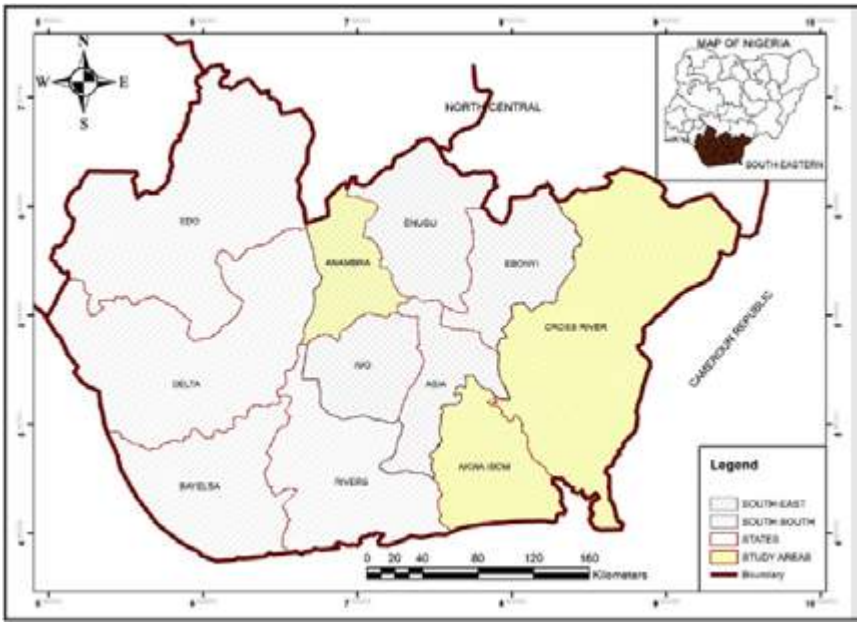

Figure 1.0: Map of Nigeria showing the south-south and south-east geopolitical zone

The four cities selected for the study are Enugu from the Southeast region, Port Harcourt, Asaba, and Benin City from the South South regions. These cities were selected based on the familiarity and experiential knowledge of the researchers' having lived and worked for several years in the cities with reasonable understanding of their land use dynamics. The population of the four cities have transformed over the years along with the changing political status. Enugu at different times in the past was the capital of the old Enugu province, Eastern Region, East

Central State and the presently the capital of Anambra state. The population growth of the city had been tremendous. From 3, 1 70 people in 1926 to 138,457 people in 1963, 166,541 people in 1978, 342,786 people in 1986, 465,072 people in 1991 (Ikejiofor, 2009). Its current population is projected to be 1,011,400 million (Ajaelu, 2019; Okereke, 2020). Another city used for the study is Port Harcourt the capital of Rivers state and is one of Nigeria's major sea ports and the centre of the nation's oil and gas industry. Port Harcourt has recorded rapid growth in population and territorial spread. From an estimated population of 500 in 1915 it grew to 30,200 in 1944. By 1963, its population was 179,563 and by 1973 it has reached 231,532 persons. The Port Harcourt municipality's population was given as 440,399 by the 1991 national census. In terms of its physical size, the city grew from 15.54 sq. km in 1914, to a metropolis covering an area of 360 sq. kilometers in the 1980s and to 106.77 sq. km in 2008. With the recent creation of the Greater Port Harcourt City which covers an area of approximately 1,900 square kilometers (40,000 hectares of land) the population of the city is projected to be about two (2) million people (Owei, Obinna and Ede, 2010). The creation of Delta State and the subsequent siting of the capital in Asaba in 1991 resulted in the rapid urbanization of the city. The population of the Asaba is projected to be 364,971 people in 2020 with area coverage of about 773 square kilometers. The proximity of Asaba to Onitsha a major commercial city in a neighboring Anambra State has been significantly responsible for the rapid urbanization of the Capital territory. The fourth location used for the study is Benin City, a one time capital of the old Mid-western and later Bendel State and the present capital of Edo state. The population of Benin City increased at a growth rate of 271.69 percent over a period of 152 years between 1800 and 1953 (Olayiwola et al 2014). Between 1953 and 1963, the population of Benin City increased at a decreasing rate of 80.61 percent. Furthermore, the growth rate decreased by 77.23 percent in 1983 but increased again by 142.73 percent in 1991 and it is projected to 1, 644,006 people by 2020.

This study adoted experimental and survey methods. The experimental research involved the acquisition and classification of satellite data for land use land cover (LULC) types. Landsat imageries, Landsat 7, 8 & 9 imageries were downloaded and stored from the archives of the United States Geographical Survey (USGS) website (USGS, 2016) http://www.usgs.gov/org using remote sensing and geographical information systems (GIS) respectively. Landsat images are medium-resolution -remote sensing tools that are used for land use and land cover change analyses (Hailemariam, Soromessa and Teketay, 2015). The Landsat program is the oldest Earth observation program which was started in 1972 and is useful for mapping land cover, land use, soils and geology (Bakker, Girte, Janssen, Pohl, Prakash, Reeves, Weir and Woldai, 2001). Due to the problem associated with cloud in optical satellite sensors data capture (Globus et al, 2003) which renders observation useless (He and He, 2013), the satellite imagery data sets were acquired only during the dry season. Field information about previous land cover (2002), existing cultural land use in the respective areas of interest (AOI) (around each

of the selected residential neighborhoods) were used to determine the thematic classes. Due to the concerns expressed by residents about the Covid-19 restrictions, it was not possible to carry out detailed field research (ground truthing) to verify the satellite imagery dataset as such only relative changes in land use/land cover was possible (but not exact determination). The procedures and techniques used for the analysis of acquired satellite imagery datasets include image processing or preparation, geometric correction, slipping, image classification, accuracy assessment, change detection and area quantification of detected land use/ cover categories. On the other hand the survey research involved using two key methods. First, in-depth interviews were conducted to establish new oral facts and to corroborate some facts already established by the experimental research. The approach involved administration of pre-tested questionnaire (more of an Interview schedule) involving lay people (160 respondents) and built environment professionals like town planners (civil servants), practicing architects, civil/structural engineers, estate surveyors, construction contractors, real estate developers and public health officials (120 respondents) asking the respondents about their experiences and opinions about town planning activities and outcomes in the last 30-50 years. The data acquired from remote sensing and GIS methods were analyzed using a combination of AutoCAD and Archi CAD computer software-into non-differential building index (NDBI) and non-differential vegetation index (NDVI), that is, involving the quantitative measurement of vegetation and building changes that took place within the study period (between 2003& 2020) while simple descriptive statistics were used to present collected data from questionnaire administration.

4.0 RESULTS AND DISCUSSION

The figures 1-4 are multi spectra imageries obtained from the four study locations were analyzed to obtain the NDBI and NDVI values presented in tables 1.0 and 2.0 (Appendix 1)

4.1 Empirical Evidence of Urban Land Use Change

The plates 1- 4 (see Appendix 2) show the Google Earth imageries obtained for two-time series (2002 & 2020 and in some cases 2003 and 2019) as well as some multi-spectra imageries used to determine building and vegetation feature changes (Appendix 1). From the Google earth imageries it is generally observed that land use changes in the physical development of the selected study locations or residential neighborhoods is manifest from the density and texture of the imageries. To determine whether such changes were significant, the non-differential building index (table 1.0) and the non-differential vegetation index (table 2.0) were determined quantitatively, that is, measured from obtained Landsat imageries. Buildings, physical structures and bare ground surfaces increased from 86.49% in 2002 to 98.36% in 2020 while vegetation declined from 13.5% in 2002 to 1.64% in 2020 for Obiagu neighborhood (Unplanned) in the city of Enugu. The data for the planned area (New Haven) shows non-vegetation increased from

81.79% in 2002 to 97.44% in 2002 while the size of vegetation decreased from 18.27% in 2002 to 2.56% in 2020 indicating a decrease of 15.65% within eighteen years. The data obtained for Benin City, Port-Harcourt and Asaba followed a similar pattern. Non- vegetation features was 96.11% in 2002 but increased marginally to 99.47% in 2020 while vegetation decreased from 3.81% (2002) to 0.53% in 2020 for Ring Road in Benin-City (unplanned area). For the planned area (Airport road) vegetation declined from 8.68% to 0.13% in 2002 and 2020 respectively indicating a decrease of 8.55% for the period. In Port-Harcourt, non-vegetation features such as buildings, physical structures and bare concrete surfaces increased from 93.22% in 2002 to 100% in 2020 (in Trans Amadi-planned area) while vegetation reduced from 4.19% in 2002 to 0.01% in 2020 for Woji and environs (unplanned area). Vegetation disappeared completely in Woji while building density increased marginally from 95.81% to 100% in 2002 and 2020 respectively (table 1.0).

OBI AGU 2002	2002			OBIAGU NDVI	2020		
Value	Count	%			Value	Count	
NON VEGETATION	2618	86.48827		NO VEGETATION	0	3785	98.36279
VEGETATION	409	13.51173		VEGETATION	1	63	1.637214
TOTAL	3027	100				3848	100
					2020		
NEW HAVEN NDBI 2002				**NEW HAVEN NDVI**	Value	Count	
Value	Count	%		NO VEGETATION	0	11745	97.43654
NON VEGETATION	7355	81.79493		VEGETATION	1	309	2.563464
VEGETATION	1637	18.20507				12054	100
TOTAL	8992	100					
					2020		
RING ROAD				**RING ROAD NDVI**			
Value	Count	%		OBJECTID *	Value	Count	
NON VEGETATION	12075	96.10793		NO VEGETATION	0	12498	99.47469
VEGETATION	489	3.892073		VEGETATION	1	66	0.52531
TOTAL	12564	100				12564	100
					2020		
AIRORT ROAD				**AIRPORT ROAD NDVI**	Value	Count	
Value	Count	%		NO VEGETATION	0	9847	99.86815
NON VEGETATION	9004	91.31846		VEGETATION	1	13	0.131846
VEGETATION	856	8.681542				9860	100
TOTAL	9860	100					
CORE AREA NDVI					**CORE AREA**		
	Value	Count	%		Value	Count	%
NO VEGETATION	0	25934	74.61733		NON VEGETA-TION	23697	86.8722
VEGETATION	1	8822	25.38267		VEGETATION	3581	13.1278
		34756	100		TOTAL	27278	100
UMUAGU ASABA				**UMUAGU NDVI**	Value	Count	

Value	Count	%		NO VEGETATION	0	9497	97.87695
NON VEGETATION	9331	96.16613		VEGETATION	1	206	2.123055
VEGETATION	372	3.833866				9703	100
TOTAL	9703	100					
TRANSAMADI				**TRANSAMADI**			
Value	Count	%		Value	Count	%	
NON VEGETATION	20218	93.22636		NON VEGETATION	21687	100	
VEGETATION	1469	6.773643		VEGETATION	0	0	
TOTAL	21687	100		TOTAL	21687	100	
WOJI				**WOJI**			
Value	Count			Value	Count		
NON VEGETATION	11424	95.80678		NON VEGETATION	11924	100	
VEGETATION	500	4.193224		VEGETATION	0	0	
TOTAL	11924	100		TOTAL	11924	100	

Source: Researchers' fieldwork April, 2020

With respect to changes in building feature, built-up areas increased from 54.69% in 2002 to 94.59% in 2020 (Obiagu in Enugu-unplanned area) while it changed from 48.05% in 2002 to 94.97% in 2020 involving a change of almost 46.92% for the planned area (New Haven) for the eighteen years period in Enugu urban. In Benin-city, built-up areas increased from 67.85% in 2002 to 99.02% in 2020 (Ring Road) and 67.42% in 2002 to 99.77% in 2020 (for Airport Road –planned area). In Asaba, built-up area increased from 69.68% in 2002 to 91.05% in 2020 (Core area-formally planned) and 69.79% in 2002 to 95.93% in 2020 (for Umuagu - un-planned area) while buildings increased from 69.62% in 2002 to 91.06% in 2020 indicating an increase of 22.03% for the period under study. For Port-Harcourt the data followed the same pattern; built up areas increased from 62.23% in 2002 to 96.92% in 2020 (Trans-Amadi which is the planned area) and 78.88% in 2002 to 96.13% in 2020 (Woji –Unplanned area). From the foregoing statistics it is observed that the disappearance of vegetation was faster in planned residential neighborhoods compared with unplanned areas while the rate of building activities were observed to be similar in both unplanned and planned areas. However, the rate of change in built-up areas was highest in New Haven with 46.92% and is closely followed by Obiagu with 39.90% both in Enugu urban. Trans Amadi (Port Harcourt) with 34.69%, Ring Road with32.92% (Benin City) while Woji with 17.25% (Port Harcourt) recorded the least figure. With respect to the disappearance of vegetation bodies 22.25% was lost in Core Area (Asaba), 15.65% in New Haven (Emugu Urban), 11.43% in Obiagu (Enugu urban), 8.55% in Airport Road (Benin City) and 1.76% in Umuagu in Asaba in that order (table 2.0).

Table 2.0: Non Differential Building Index for the Study Area

	OBI AGU 2002				**2020**		
OBJECTID *	Value	Count	%	OBIAGU NDBI	Value	Count	%
1	NON BUIL-TUP	1353	45.31145	NOT BUILT UP	0	209	5.431393
2	BUILTUP	1633	54.68855	BUILT UP	1	3639	94.56861
	TOTAL	2986	100			3848	100
					2020		
	NEW HAVEN NDBI 2002						
OBJECTID *	Value	Count	%	VALLEY CRESCENT NDBI	Value	Count	
1	NON BUIL-TUP	4586	51.95423	NOT BUILT UP	0	606	5.027377
2	BUILTUP	4241	48.04577	BUILT UP	1	11448	94.97262
	TOTAL	8827	100			12054	100
					2020		
	RING ROAD 2002			**RING ROAD NDBI**	Value		%
OBJECTID *	Value	Count	%	NOT BUILT UP	0	123	0.978988
1	NON BUIL-TUP	4015	32.15344	BUILT UP	1	12441	99.02101
2	BUILTUP	8472	67.84656	TOTAL		12564	100
	TOTAL	12487	100				
	AIRORT ROAD2002			AIRPORT RD NDBI			
OBJECTID *	Value	Count	%		Value	Count	
1	NON BUIL-TUP	3162	32.5845	NOT BUILT UP	0	23	0.233266
2	BUILTUP	6542	67.4155	BUILT UP AREA	1	9837	99.76673
	TOTAL	9704	100			9860	100
					2020		
	CORE AREA 2002			**OKPANAM NDBI**	Value	Count	%
OBJECTID *	Value	Count	%	NO BUILT UP	0	3108	8.942341
1	NON BUIL-TUP	7893	30.31805	BUILT UP AREA	1	31648	91.05766
2	BUILTUP	18141	69.68195			34756	100
	TOTAL	26034	100				
	UMUAGU ASABA2002			**UMUAGU NDBI**	**2020**		
OBJECTID *	Value	Count	%		Value	Count	
1	NON BUIL-TUP	3168	30.20595	NOT BUILT UP	0	395	4.070906
2	BUILTUP	7320	69.79405	BUILT UP	1	9308	95.92909
	TOTAL	10488	100			9703	100
	TRANSAMADI 2002				**TRANSAMADI 2020**		
OBJECTID *	Value	Count	%	OBJECTID *	Value	Count	%
1	NON BUIL-TUP	7643	37.77306	1	NON BUIL-TUP	643	3.17782
2	BUILTUP	12591	62.22694	2	BUILTUP	19591	96.82218

	TOTAL	20234	100		TOTAL	20234	100
	WOJI 2002				WOJI 2002		
OBJECTID *	Value	Count	%	OBJECTID *	Value	Count	%
1	NON BUIL-TUP	2340	21.11913	1	NON BUIL-TUP	340	3.068592
2	BUILTUP	8740	78.88087	2	BUILTUP	10740	96.93141
	TOTAL	11080	100		TOTAL	11080	100

Source: researchers' fieldwork April, 2020

4.2 Relationship between Land Use Change and Density Parameters

For the four study locations, an inverse relationship was displayed between increasing building density and open space depletion whether in terms of streets, formal open space recreation facilities and incidental green areas and bare grounds. For instance, in Woji Area of Port-Harcourt metropolis open space as expressed by streets, bare ground, planned and unplanned open spaces declined from 21.12% in 2002 to 3.07% in 2020, a decrease of about 70% in 18 years. In Trans-Amadi non-built-up areas declined from 37.77% in 2002 to 3.18% in 2020, a decline of over 91.59% in the 18 years under consideration. In Umuagu an inner core area in Asaba metropolis, non-built-up areas decreased from 30.21% in 2002 to 4.07% in 2020 while in the Core areas (planned) non-built up areas declined from 30.31% in 2002 to 8.94% in 2020. The study also indicated that non-built up areas decreased precipitously from 45.31% to 5.41% in Obiagu (Unplanned Area) and from 51.95% in 2002 to 5.02% in New Haven (planned area) in 2020. These grim statistics are symptomatic of the failures of town planning in Nigeria!

To corroborate the results of the experimental research, the perception of residents of the four capital cities were sought. In the main we sought the perception of locals or Lay people (40 respondents who are mainly resident traders, artisans, house wives, youths and adults in each of the four study locations) and Professionals (30 respondents in each of the four study locations made up of built-up environment professionals like Town Planners, Architects, Estate Surveyors, Engineers and Landscape designers and) on the land use changes that have taken place in their locality with respect to the width, surface conditions and incidence of vehicular parking on the streets around the studied neighborhoods. Others include the size, height and volume of buildings, and lastly, the presence of planned open space areas, paved surfaces as well as bare grounds available within and around their neighborhoods. In all a total of two hundred and ninety (290) copies of the Interview schedule were administered and two hundred and seventy copies (270) were properly answered achieving a completion rate of 93%. In all four study locations respondents were randomly sampled among the Lay people while the sampling of respondents from the Professional population was done randomly (among practicing consultants) and purposively (among civil servants). The data is presented in the table 3.0. Thirty percent (30%) of the respondents (81 nos.) observed that the width of streets decreased among the inter-

nal streets, 170 (63%) respondents observed surface conditions of streets improved (paved and tarred) while vehicular parking activities along streets increased (176-243 respondents, that is, 65-90% of the respondents). Buildings were generally observed to have higher densities within the study period. More than 245 respondents (90%) observed the sizes and height of buildings increased, 181 (67%) of respondents observed incidences of high rise buildings in their neighborhoods while 232 (86%) of the respondents observed that building activities (redevelopment and use conversions) took place. The provision of street furniture was generally perceived to be low. It was also generally observed by respondents that vegetation and bare ground surfaces have declined significantly while concrete paved surfaces grew phenomenally in the four study locations (the State Capital Cities). The percentage score obtained by the lay people were generally higher than those obtained for the built-up environment professionals indicating that they perceived land use changes that have taken place within the study period as more significant or serious than the views of built environment professionals (table 3.0).

Table 3.0 Assessment of Urban Land Use Change in the Study Area.

Professional (Built environment)		**Frequency/ Percentage Score %**
Street	Width	36 (30%)
	Surface	76 (63.2%)
	Vehicular parking	79 (65.9%)
Buildings.	Size	108 (90%)
	Height	81 (67.3%)
	Volume	108 (86.6%)
Open space.	Vegetation/greenery	114 (95%)
	Concrete pavement	67 (56%)
	Bare ground	72 (60%)
Lay people (general public)		
Street	Width	74 (53%)
	Surface	99 (71%)
	Vehicular parking	120 (86%)
Building.	Size	127 (91%)
	Height	95 (68%)
	Vol**ume**	**134** (96%)
Open space.	Vegetation/greenery	137 (98%)
	Concrete pavement	88 (63%)
	Bare ground	87 (62%)

Source: researchers' fieldwork April, 2020

4.3 Land Use Change and Zoning Character

Data obtained from both the multi-spectra and Google Earth imageries (appendixes 1 & 11) suggest that zoning character in both planned and unplanned (developed with and without planning schemes) are apparently altered particularly along major roads. In Trans-Amadi industrial layout, significant presence of residential developments exists within the layout while in Airport Road in Benin-City, the low-density residential developments located adjacent to the Airport and secondary arterial streets have been significantly redeveloped to commercial uses. In New Haven (Enugu) and Core Areas in Asaba (both well planned medium/low density residential developments) significant number of buildings along major roads and within internal streets were converted into commercial and institutional developments. These redevelopment and or building use conversions significantly altered the initial zoning character in the four study locations (planned residential areas) and compromised the exclusionary principle in the unplanned areas (negative externality whereby land use change tend to inadvertently exclude certain category of people from a neighborhood whom in this instance are the urban poor). Based on above observations, negative externality effect which is the primary purpose why municipalities embark on land use regulation appear pervasive in all the four studied locations.

Table 4.0 presents some of the impacts of land use changes as observed by respondents and as determined from Desktop research. The disappearance of vegetation, greenery and open spaces around buildings as well as the relatively higher incidences of noise and air pollution in these hitherto serene residential locations as a result of widespread building redevelopment and use conversion activities may have led to several unintended consequences in the study area. From a comprehensive list of seventy (70) likely consequences of urban land use change drawn from literature, twenty-four (24) indicators were ranked as significant (they were rated high by more than 67% of the respondents) by 60 randomly selected respondents (comprising 30 professionals and 30 lay people) in a pilot survey. The rated impacts fall into three major categories involving socio-economic, environmental and aesthetic impacts (Table 4.0). Persistent rise in land and property values, scarcity of medium and low income residential apartments, spontaneous growth of corner/retail stores and increased human and pedestrian traffic were some of the commonly described socio-economic impacts associated with land use changes in their cities. Rising levels in ambient noise and air pollution, degradation of surface streams and rivers in the study areas from flash floods and uncontrolled building encroachment on the banks and inside the drainage basins of some urban surface streams/rivers are some of the potential and associated environmental impacts observed by respondents. For the physical developments along Ring and Airport roads in Benin City, New Haven in Eungu, and Trans Amadi in Port-Harcourt, the high rate of building re-development and use conversions impacted positively on the urban environment manifesting in noticeable presence of beautifully painted high rise buildings, orderly skyline and horticultural landscaping. However in Obiagu, Woji and Umuagu in Enugu,

Rivers and Delta States respectively, the correlation between building redevelopment and presence of functionally aesthetic built environment was less pronounced.

Table 4.0: Impact of Urban Land Use Change

Table 4.0: Impact of Urban Land Use Change

Socio-economics

Land and property value

Scarcity of residential accommodation

Employment opportunities

Retail activities

Crime level

Power and water supply

Vehicles

Environmental impacts

Disappearance of vegetation

Green space around the buildings

Concrete pavement around the buildings

Noise and air pollution

Pollution of surface streams/rivers

Buildings encroachment on existing streams/rivers

Environmental sanitation

Flash floods and soil erosion

Natural habitat

Organized open space

Marginal open space

Aesthetic impacts

Number and size of open space

Quality of open space

General environmental sanitation

Colorful buildings

Arrangement of good skyline and ordered buildings

General attraction of streets

5.0 PLANNING IMPLICATIONS AND RECOMMENDATIONS

One of the planning implications of the study results is the need for a more sustainable urban planning and management strategy for Nigeria as we enter the 2020 decade. The current practice where town planning is practically reduced to building plan and new subdivision approval activities without a comprehensive planning framework and in particular functional zoning plans is not an effective planning strategy. The preliminary results of the study has amply demonstrated this fact because the pattern of land use change in both the planned and unplanned areas did not show any significant difference in their planning outcomes. A situation whereby Land Surveyors and Architects prepare subdivisions for communities and private real estate developers respectively without observance of minimum desirable space standards for Community centres, open space recreation facilities and width of roads and sent to planning authorities for approval is not helping town planning in Nigeria (see Essaghah, Ighoruemufua and Omatsone, 2015). Since planning agencies in Nigeria are presently unable to prepare and enforce workable master plans and planning schemes as was done in the late 1960s and 70s due to combination of legal and administrative challenges, planning authorities should as a minimum prepare detailed zoning plans and supplementary floor space indexes (FSIs) or floor area ratios (FARs) to regulate urban land use and building densities in both planned and unplanned areas of their cities.

It is against this background that the study put forward the following recommendations to mainstream a more sustainable urban planning strategy by planning agencies in Nigeria. First and foremost zoning as a vital planning instrument must be given prime place and be made to factor into all building plans and new subdivision approval processes. In this connection area planning offices (APOs) should as a rule engage in the preparation, approval, publication and periodic review of area-based zoning schemes and ordinances, subdivision guidelines and regulations, floor area ratios / floor space indices (FARs/FSIs) including building design manuals and schedule of grasses, shrubs and plants for landscaping purposes for both areas of the city developed and not developed by master plans and or planning schemes as a strategy for promoting the emergence of less chaotic, disorderly and unsustainable cities in Nigeria beyond 2020. Secondly the review of existing zoning plans and preparation of new ones should be carried out in line with time-tested professional principles and practices- it should be advertised before award, prepared plans and FSIs/FARs should be publicly reviewed, legislated upon by the local legislative assembly (sent to the local government legislative councils or state houses of assembly as applicable for legislative action so that contraveners can be taken to the courts for adjudication) and the laws/guidelines published in the planning agency websites to guide future property developers and governments. Thirdly subdivisions prepared by communities and private real estate developers should be effectively regulated. The Director of Town Planning in each state of the federation should draw up and publish in their websites detailed comprehensive guidelines for the preparation of community/private layouts or subdivisions to provide due

guidance to communities and real estate developers in the preparation and management of such schemes. Lastly but not the least town planning agencies should publish the planning fees and charges for all categories of development on their websites to make the process of approval of applications for proposed planning schemes open, transparent and accountable to the Nigerian society. This we believe will make town planning more civic-oriented profession in Nigeria as we enter the 2020 years.

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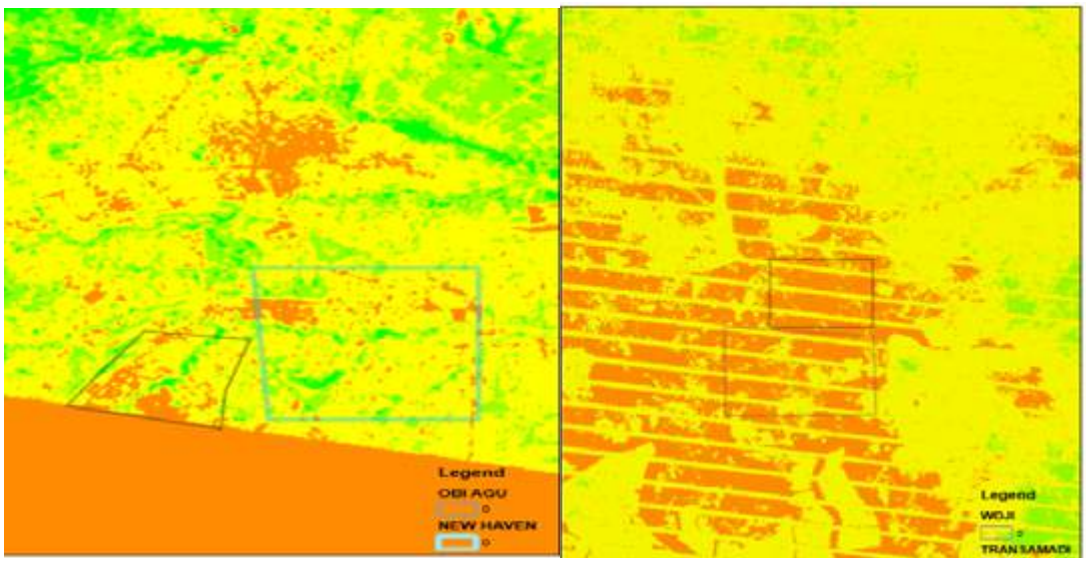
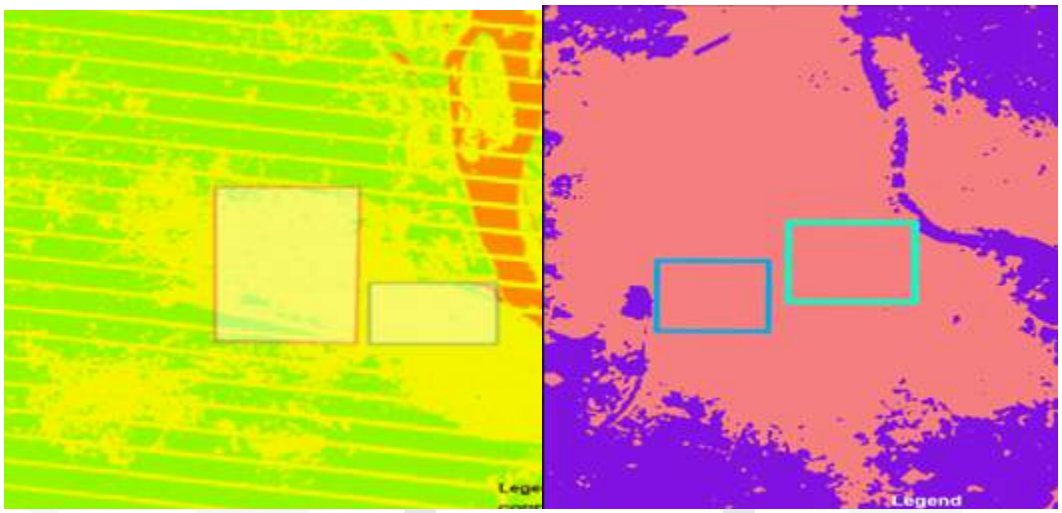
APPENDIX I



ENIUGU STATE **RIVERS STATE**



DELTA STATE **EDO STATE**

APPENDIX II

CABLE 2003

CABLE 2019

OBIAGU 2002

OBIAGU 2020

APPENDIX III

NDVI OBIAGU, EUNUGU

LC81880572013187L-GN00	L8/LC81880572013187L-GN00	7/6/2013	0		0.0037	0.0107	0.0072	0.0012	0	0.0063	0.0082	0.0074	0.0055	0.0087	Landsat 8
S2A_ tile_20151006_32NKL_1	S2/32/N/KL/2015/10/6/1	########	0		-0.1666	0.4193	0.0473	0.0425	0.0018	0.0246	0.0589	0.0395	0.0079	0.0912	Sentinel-2
LC81880572015305L-GN00	L8/LC81880572015305L-GN00	########	0		-0.0021	0.003	0.0007	0.0007	0	0.0002	0.0012	0.0008	-0.0002	0.0016	Landsat 8
S2A_ tile_20151125_32NKL_0	S2/32/N/KL/2015/11/25/0	########	0		-0.1633	0.5913	0.1471	0.0663	0.0044	0.1159	0.1709	0.1387	0.0909	0.2178	Sentinel-2
S2A_ tile_20151225_32NKL_0	S2/32/N/KL/2015/12/25/0	########	0		-0.0207	0.3476	0.1191	0.0318	0.001	0.0995	0.1355	0.1163	0.0842	0.1576	Sentinel-2
S2A_ tile_20160213_32NKL_0	S2/32/N/KL/2016/2/13/0	########	0		-0.0107	0.2838	0.0768	0.0256	0.0007	0.0647	0.0884	0.0755	0.0491	0.1041	Sentinel-2
S2A_ tile_20160403_32NKL_0	S2/32/N/KL/2016/4/3/0	4/3/2016	0		-0.2706	0.5026	0.1092	0.072	0.0052	0.0615	0.1519	0.104	0.0286	0.2005	Sentinel-2
S2A_ tile_20160503_32NKL_0	S2/32/N/KL/2016/5/3/0	5/3/2016	0		-0.1238	0.404	0.09	0.0494	0.0024	0.0583	0.1146	0.0798	0.0412	0.1544	Sentinel-2
S2A_ tile_20160622_32NKL_0	S2/32/N/KL/2016/6/22/0	########	0		-0.1333	0.3787	0.0681	0.0358	0.0013	0.0474	0.085	0.062	0.0337	0.1099	Sentinel-2
S2A_ tile_20160811_32NKL_0	S2/32/N/KL/2016/8/11/0	########	0		-0.1516	0.3589	0.0685	0.0381	0.0014	0.0588	0.0828	0.0732	0.0286	0.0971	Sentinel-2
S2A_ tile_20160907_32NKL_0	S2/32/N/KL/2016/9/7/0	9/7/2016	0		-0.1147	0.4754	0.0933	0.0511	0.0026	0.0614	0.1147	0.0825	0.0436	0.1539	Sentinel-2
S2A_ tile_20161030_32NKL_0	S2/32/N/KL/2016/10/30/0	########	0		-0.1356	0.5306	0.0783	0.075	0.0056	0.0311	0.1132	0.0654	0	0.1676	Sentinel-2
CBERS_4_ AWFI_20161125_ 108_093_L4	CBERS4AWFI/CBERS_4 _AWFI_20161125_108_093_ L4	########			-0.0217	0.2804	0.0474	0.0535	0.0029	0	0.0924	0.0211	0	0.1194	CBERS-4 (WFI)
CBERS_4_ AWFI_20170116_ 108_093_L4	CBERS4AWFI/CBERS_4 _AWFI_20170116_108_093_ L4	########			0	0.2067	0.0708	0.0381	0.0015	0.0591	0.0951	0.0821	0	0.1081	CBERS-4 (WFI)
CBERS_4_ AWFI_20170211_ 108_093_L4	CBERS4AWFI/CBERS_4 _AWFI_20170211_108_093_ L4	########			-0.0002	0.1923	0.0421	0.0299	0.0009	0.0208	0.0609	0.0451	0	0.0785	CBERS-4 (WFI)

CBERS_4_ AWFI_20170309_ 108_093_L4	CBERS4AWFI/CBERS_4 _AWFI_20170309_108_093_ L4	3/9/2017			0	0	0	0	0	0	0	0	0	0	CBERS-4 (WFI)
CBERS_4_ AWFI_20170404_ 108_093_L4	CBERS4AWFI/CBERS_4 _AWFI_20170404_108_093_ L4	4/4/2017			0	0.1841	0.0409	0.0494	0.0024	0	0.0855	0	0	0.115	CBERS-4 (WFI)
CBERS_4_ AWFI_20170430_ 108_093_L4	CBERS4AWFI/CBERS_4 _AWFI_20170430_108_093_ L4	########			0	0.1176	0.0009	0.007	0	0	0	0	0	0	CBERS-4 (WFI)
CBERS_4_ AWFI_20170523_ 109_093_L4	CBERS4AWFI/CBERS_4 _AWFI_20170523_109_093_ L4	########			0	0	0	0	0	0	0	0	0	0	CBERS-4 (WFI)
S2B_ tile_20170811_32NKL_0	S2/32/N/KL/2017/8/11/0	########	0		-0.0113	0.046	0.0218	0.0059	0	0.0188	0.0254	0.0222	0.0148	0.0284	Sentinel-2
S2A_ tile_20170905_32NKL_0	S2/32/N/KL/2017/9/5/0	9/5/2017	0		-0.2747	0.6162	0.097	0.0981	0.0096	0.0598	0.1391	0.1027	-0.0124	0.1952	Sentinel-2
S2B_ tile_20170930_32NKL_0	S2/32/N/KL/2017/9/30/0	########	0		-0.3828	0.7995	0.1802	0.1645	0.027	0.0909	0.2575	0.1609	0.0158	0.3908	Sentinel-2
S2A_ tile_20171025_32NKL_0	S2/32/N/KL/2017/10/25/0	########	0		-0.0153	0.1384	0.0445	0.0101	0.0001	0.038	0.05	0.0437	0.0333	0.0569	Sentinel-2
S2B_ tile_20171219_32NKL_0	S2/32/N/KL/2017/12/19/0	########	0		-0.179	0.3899	0.0748	0.0504	0.0025	0.0469	0.0985	0.073	0.0178	0.1332	Sentinel-2
S2A_ tile_20180113_32NKL_0	S2/32/N/KL/2018/1/13/0	########	0		-0.0628	0.3699	0.0826	0.0439	0.0019	0.0568	0.1036	0.0794	0.0328	0.1328	Sentinel-2
S2B_ tile_20180204_32NKL_0	S2/32/N/KL/2018/2/4/0	2/4/2018	0		-0.1898	0.3585	0.0642	0.0504	0.0025	0.0353	0.0917	0.0671	-0.0023	0.1191	Sentinel-2
S2B_ tile_20180306_32NKL_0	S2/32/N/KL/2018/3/6/0	3/6/2018	0		-0.3458	0.5843	0.1166	0.0927	0.0086	0.0673	0.163	0.1119	0.0154	0.2269	Sentinel-2
S2A_ tile_20180331_32NKL_0	S2/32/N/KL/2018/3/31/0	########	0		0.0193	0.0946	0.0584	0.0074	0.0001	0.0537	0.063	0.0584	0.0495	0.0675	Sentinel-2
S2A_ tile_20180423_32NKL_0	S2/32/N/KL/2018/4/23/0	########	0		-0.1069	0.3119	0.0449	0.0196	0.0004	0.0338	0.0541	0.0436	0.0244	0.0669	Sentinel-2
S2A_ tile_20180523_32NKL_0	S2/32/N/KL/2018/5/23/0	########	0		-0.155	0.6267	0.1043	0.0888	0.0079	0.0517	0.1426	0.0842	0.0227	0.2165	Sentinel-2
S2B_ tile_20180617_32NKL_0	S2/32/N/KL/2018/6/17/0	########	0		-0.0963	0.318	0.0606	0.0297	0.0009	0.0444	0.0717	0.0557	0.0328	0.097	Sentinel-2

S2B_ tile_20180714_32NKL_0	S2/32/N/KL/2018/7/14/0	########	0		-0.4259	0.6868	0.0751	0.0979	0.0096	0.0224	0.1181	0.0681	-0.0291	0.1865	Sentinel-2
S2A_ tile_20180808_32NKL_0	S2/32/N/KL/2018/8/8/0	8/8/2018	0		-0.3047	0.6911	0.1149	0.1234	0.0152	0.051	0.1696	0.0953	0.0022	0.2654	Sentinel-2
S2B_ tile_20180813_32NKL_0	S2/32/N/KL/2018/8/13/0	########	0		-0.1178	0.6334	0.0559	0.0336	0.0011	0.0402	0.0625	0.0497	0.0314	0.0845	Sentinel-2
S2A_ tile_20180831_32NKL_0	S2/32/N/KL/2018/8/31/0	########	0		0.0117	0.0329	0.0225	0.0027	0	0.0207	0.0244	0.0225	0.019	0.026	Sentinel-2
CBERS_4_ AWFI_20180929_ 109_093_L4	CBERS4AWFI/CBERS_4 _AWFI_20180929_109_093_ L4	########			-0.0131	0.5994	0.1904	0.1145	0.0131	0.1309	0.241	0.1801	0.0128	0.334	CBERS-4 (WFI)
S2B_ tile_20181025_32NKL_0	S2/32/N/KL/2018/10/25/0	########	0		-0.4189	0.7177	0.1274	0.1319	0.0174	0.053	0.1845	0.1057	0.0018	0.2938	Sentinel-2
S2A_ tile_20181116_32NKL_0	S2/32/N/KL/2018/11/16/0	########	0		-0.1664	0.3916	0.0975	0.0491	0.0024	0.0712	0.1225	0.0957	0.0442	0.1541	Sentinel-2
S2A_ tile_20181216_32NKL_0	S2/32/N/KL/2018/12/16/0	########	0		-0.3083	0.4711	0.0828	0.0706	0.005	0.0453	0.1179	0.0831	-0.0021	0.1625	Sentinel-2
S2B_ tile_20190110_32NKL_0	S2/32/N/KL/2019/1/10/0	########	0		-0.0048	0.2462	0.0782	0.027	0.0007	0.0641	0.0914	0.0761	0.0514	0.1101	Sentinel-2
S2A_ tile_20190204_32NKL_0	S2/32/N/KL/2019/2/4/0	2/4/2019	0		-0.1564	0.3692	0.0803	0.0413	0.0017	0.0555	0.1018	0.081	0.0311	0.1245	Sentinel-2
S2A_ tile_20190224_32NKL_0	S2/32/N/KL/2019/2/24/0	########	0		-0.3109	0.6483	0.1228	0.0958	0.0092	0.066	0.1699	0.115	0.0171	0.2414	Sentinel-2
S2A_ tile_20190329_32NKL_0	S2/32/N/KL/2019/3/29/0	########	0		-0.046	0.4168	0.1023	0.0535	0.0029	0.0675	0.1258	0.0937	0.0449	0.17	Sentinel-2
S2B_ tile_20190423_32NKL_0	S2/32/N/KL/2019/4/23/0	########	0		-0.1141	0.3045	0.0464	0.0238	0.0006	0.0369	0.053	0.0438	0.028	0.0682	Sentinel-2
S2B_ tile_20190520_32NKL_0	S2/32/N/KL/2019/5/20/0	########	0		-0.1419	0.2645	0.0138	0.0259	0.0007	0	0.0263	0.0057	-0.0058	0.0452	Sentinel-2
S2A_ tile_20190614_32NKL_0	S2/32/N/KL/2019/6/14/0	########	0		-0.0579	0.3086	0.0956	0.0403	0.0016	0.0637	0.1229	0.0966	0.0441	0.1472	Sentinel-2
S2B_ tile_20190709_32NKL_0	S2/32/N/KL/2019/7/9/0	7/9/2019	0		-0.0582	0.247	0.0485	0.0215	0.0005	0.0357	0.0571	0.0444	0.0286	0.074	Sentinel-2
S2B_ tile_20190729_32NKL_0	S2/32/N/KL/2019/7/29/0	########	0		-0.2395	0.3218	0.0493	0.0393	0.0015	0.0294	0.0653	0.0469	0.0074	0.0917	Sentinel-2
CBERS_4_ AWFI_20190828_ 103_093_L4	CBERS4AWFI/CBERS_4 _AWFI_20190828_103_093_ L4	########			0	0	0	0	0	0	0	0	0	0	CBERS-4 (WFI)

CBERS_4_ AWFI_20190926_ 102_093_L4	CBERS4AWFI/CBERS_4 _AWFI_20190926_102_093_ L4	########			0	0	0	0	0	0	0	0	0	0	CBERS-4 (WFI)
S2B_ tile_20191020_32NKL_0	S2/32/N/KL/2019/10/20/0	########	0		-0.0751	0.296	0.0952	0.0338	0.0011	0.0729	0.1136	0.0921	0.0567	0.1374	Sentinel-2
S2B_ tile_20191116_32NKL_0	S2/32/N/KL/2019/11/16/0	########	0		-0.0715	0.3582	0.0779	0.0315	0.001	0.0612	0.092	0.0745	0.0452	0.1131	Sentinel-2
S2A_ tile_20191211_32NKL_0	S2/32/N/KL/2019/12/11/0	########	0		-0.4161	0.5128	0.0523	0.0704	0.0049	0.0134	0.0789	0.0438	-0.0106	0.1349	Sentinel-2
S2B_ tile_20200108_32NKL_0	S2/32/N/KL/2020/1/8/0	1/8/2020	0		-0.0007	0.2601	0.0877	0.0263	0.0007	0.0718	0.0998	0.0839	0.0612	0.1204	Sentinel-2
S2A_ tile_20200202_32NKL_0	S2/32/N/KL/2020/2/2/0	2/2/2020	0		-0.0515	0.4186	0.0892	0.0501	0.0025	0.0633	0.1133	0.0858	0.0367	0.1479	Sentinel-2
S2A_ tile_20200229_32NKL_1	S2/32/N/KL/2020/2/29/1	########	0		-0.0101	0.2524	0.0651	0.025	0.0006	0.0517	0.0783	0.0638	0.0378	0.0949	Sentinel-2
S2B_ tile_20200325_32NKL_0	S2/32/N/KL/2020/3/25/0	########	0		-0.2017	0.5342	0.1092	0.0532	0.0028	0.0865	0.1272	0.1041	0.0623	0.1635	Sentinel-2
S2B_ tile_20200517_32NKL_0	S2/32/N/KL/2020/5/17/0	########	0		-0.3671	0.7673	0.0978	0.0949	0.009	0.0434	0.141	0.0831	-0.0013	0.2118	Sentinel-2

NDVI WOJI, PORT HARCOURT

scene_id	view_id	date	cloud	notes	Min	max	average	std	variance	q1	q3	median	p10	p90	satellite
LC81880572013187L-GN00	L8/LC81880572013187L-GN00	7/6/2013	0		0.0037	0.0107	0.0072	0.0012	0	0.0063	0.0082	0.0074	0.0055	0.0087	Landsat 8
S2A_ tile_20151006_32NKL_1	S2/32/N/KL/2015/10/6/1	########	0		-0.1666	0.4193	0.0473	0.0425	0.0018	0.0246	0.0589	0.0395	0.0079	0.0912	Sentinel-2
LC81880572015305L-GN00	L8/LC81880572015305L-GN00	########	0		-0.0021	0.003	0.0007	0.0007	0	0.0002	0.0012	0.0008	-0.0002	0.0016	Landsat 8
S2A_ tile_20151125_32NKL_0	S2/32/N/KL/2015/11/25/0	########	0		-0.1633	0.5913	0.1471	0.0663	0.0044	0.1159	0.1709	0.1387	0.0909	0.2178	Sentinel-2
S2A_ tile_20151225_32NKL_0	S2/32/N/KL/2015/12/25/0	########	0		-0.0207	0.3476	0.1191	0.0318	0.001	0.0995	0.1355	0.1163	0.0842	0.1576	Sentinel-2
S2A_ tile_20160213_32NKL_0	S2/32/N/KL/2016/2/13/0	########	0		-0.0107	0.2838	0.0768	0.0256	0.0007	0.0647	0.0884	0.0755	0.0491	0.1041	Sentinel-2
S2A_ tile_20160403_32NKL_0	S2/32/N/KL/2016/4/3/0	4/3/2016	0		-0.2706	0.5026	0.1092	0.072	0.0052	0.0615	0.1519	0.104	0.0286	0.2005	Sentinel-2
S2A_ tile_20160503_32NKL_0	S2/32/N/KL/2016/5/3/0	5/3/2016	0		-0.1238	0.404	0.09	0.0494	0.0024	0.0583	0.1146	0.0798	0.0412	0.1544	Sentinel-2
S2A_ tile_20160622_32NKL_0	S2/32/N/KL/2016/6/22/0	########	0		-0.1333	0.3787	0.0681	0.0358	0.0013	0.0474	0.085	0.062	0.0337	0.1099	Sentinel-2
S2A_ tile_20160811_32NKL_0	S2/32/N/KL/2016/8/11/0	########	0		-0.1516	0.3589	0.0685	0.0381	0.0014	0.0588	0.0828	0.0732	0.0286	0.0971	Sentinel-2
S2A_ tile_20160907_32NKL_0	S2/32/N/KL/2016/9/7/0	9/7/2016	0		-0.1147	0.4754	0.0933	0.0511	0.0026	0.0614	0.1147	0.0825	0.0436	0.1539	Sentinel-2
S2A_ tile_20161030_32NKL_0	S2/32/N/KL/2016/10/30/0	########	0		-0.1356	0.5306	0.0783	0.075	0.0056	0.0311	0.1132	0.0654	0	0.1676	Sentinel-2
CBERS_4_ AWFI_20161125_ 108_093_L4	CBERS4AWFI/CBERS_4_ AWFI_20161125_108_093_ L4	########			-0.0217	0.2804	0.0474	0.0535	0.0029	0	0.0924	0.0211	0	0.1194	CBERS-4 (WFI)
CBERS_4_ AWFI_20170116_ 108_093_L4	CBERS4AWFI/CBERS_4_ AWFI_20170116_108_093_ L4	########			0	0.2067	0.0708	0.0381	0.0015	0.0591	0.0951	0.0821	0	0.1081	CBERS-4 (WFI)
CBERS_4_ AWFI_20170211_ 108_093_L4	CBERS4AWFI/CBERS_4_ AWFI_20170211_108_093_ L4	########			-0.0002	0.1923	0.0421	0.0299	0.0009	0.0208	0.0609	0.0451	0	0.0785	CBERS-4 (WFI)

CBERS_4_ AWFI_20170309_ 108_093_L4	CBERS4AWFI/CBERS_4_ AWFI_20170309_108_093_ L4	3/9/2017			0	0	0	0	0	0	0	0	0	0	CBERS-4 (WFI)
CBERS_4_ AWFI_20170404_ 108_093_L4	CBERS4AWFI/CBERS_4_ AWFI_20170404_108_093_ L4	4/4/2017			0	0.1841	0.0409	0.0494	0.0024	0	0.0855	0	0	0.115	CBERS-4 (WFI)
CBERS_4_ AWFI_20170430_ 108_093_L4	CBERS4AWFI/CBERS_4_ AWFI_20170430_108_093_ L4	########			0	0.1176	0.0009	0.007	0	0	0	0	0	0	CBERS-4 (WFI)
CBERS_4_ AWFI_20170523_ 109_093_L4	CBERS4AWFI/CBERS_4_ AWFI_20170523_109_093_ L4	########			0	0	0	0	0	0	0	0	0	0	CBERS-4 (WFI)
S2B_ tile_20170811_32NKL_0	S2/32/N/KL/2017/8/11/0	########	0		-0.0113	0.046	0.0218	0.0059	0	0.0188	0.0254	0.0222	0.0148	0.0284	Sentinel-2
S2A_ tile_20170905_32NKL_0	S2/32/N/KL/2017/9/5/0	9/5/2017	0		-0.2747	0.6162	0.097	0.0981	0.0096	0.0598	0.1391	0.1027	-0.0124	0.1952	Sentinel-2
S2B_ tile_20170930_32NKL_0	S2/32/N/KL/2017/9/30/0	########	0		-0.3828	0.7995	0.1802	0.1645	0.027	0.0909	0.2575	0.1609	0.0158	0.3908	Sentinel-2
S2A_ tile_20171025_32NKL_0	S2/32/N/KL/2017/10/25/0	########	0		-0.0153	0.1384	0.0445	0.0101	0.0001	0.038	0.05	0.0437	0.0333	0.0569	Sentinel-2
S2B_ tile_20171219_32NKL_0	S2/32/N/KL/2017/12/19/0	########	0		-0.179	0.3899	0.0748	0.0504	0.0025	0.0469	0.0985	0.073	0.0178	0.1332	Sentinel-2
S2A_ tile_20180113_32NKL_0	S2/32/N/KL/2018/1/13/0	########	0		-0.0628	0.3699	0.0826	0.0439	0.0019	0.0568	0.1036	0.0794	0.0328	0.1328	Sentinel-2
S2B_ tile_20180204_32NKL_0	S2/32/N/KL/2018/2/4/0	2/4/2018	0		-0.1898	0.3585	0.0642	0.0504	0.0025	0.0353	0.0917	0.0671	-0.0023	0.1191	Sentinel-2
S2B_ tile_20180306_32NKL_0	S2/32/N/KL/2018/3/6/0	3/6/2018	0		-0.3458	0.5843	0.1166	0.0927	0.0086	0.0673	0.163	0.1119	0.0154	0.2269	Sentinel-2
S2A_ tile_20180331_32NKL_0	S2/32/N/KL/2018/3/31/0	########	0		0.0193	0.0946	0.0584	0.0074	0.0001	0.0537	0.063	0.0584	0.0495	0.0675	Sentinel-2
S2A_ tile_20180423_32NKL_0	S2/32/N/KL/2018/4/23/0	########	0		-0.1069	0.3119	0.0449	0.0196	0.0004	0.0338	0.0541	0.0436	0.0244	0.0669	Sentinel-2
S2A_ tile_20180523_32NKL_0	S2/32/N/KL/2018/5/23/0	########	0		-0.155	0.6267	0.1043	0.0888	0.0079	0.0517	0.1426	0.0842	0.0227	0.2165	Sentinel-2
S2B_ tile_20180617_32NKL_0	S2/32/N/KL/2018/6/17/0	########	0		-0.0963	0.318	0.0606	0.0297	0.0009	0.0444	0.0717	0.0557	0.0328	0.097	Sentinel-2

S2B_ tile_20180714_32NKL_0	S2/32/N/KL/2018/7/14/0	########	0		-0.4259	0.6868	0.0751	0.0979	0.0096	0.0224	0.1181	0.0681	-0.0291	0.1865	Sentinel-2
S2A_ tile_20180808_32NKL_0	S2/32/N/KL/2018/8/8/0	8/8/2018	0		-0.3047	0.6911	0.1149	0.1234	0.0152	0.051	0.1696	0.0953	0.0022	0.2654	Sentinel-2
S2B_ tile_20180813_32NKL_0	S2/32/N/KL/2018/8/13/0	########	0		-0.1178	0.6334	0.0559	0.0336	0.0011	0.0402	0.0625	0.0497	0.0314	0.0845	Sentinel-2
S2A_ tile_20180831_32NKL_0	S2/32/N/KL/2018/8/31/0	########	0		0.0117	0.0329	0.0225	0.0027	0	0.0207	0.0244	0.0225	0.019	0.026	Sentinel-2
CBERS_4_ AWFI_20180929_ 109_093_L4	CBERS4AWFI/CBERS_4_ AWFI_20180929_109_093_ L4	########			-0.0131	0.5994	0.1904	0.1145	0.0131	0.1309	0.241	0.1801	0.0128	0.334	CBERS-4 (WFI)
S2B_ tile_20181025_32NKL_0	S2/32/N/KL/2018/10/25/0	########	0		-0.4189	0.7177	0.1274	0.1319	0.0174	0.053	0.1845	0.1057	0.0018	0.2938	Sentinel-2
S2A_ tile_20181116_32NKL_0	S2/32/N/KL/2018/11/16/0	########	0		-0.1664	0.3916	0.0975	0.0491	0.0024	0.0712	0.1225	0.0957	0.0442	0.1541	Sentinel-2
S2A_ tile_20181216_32NKL_0	S2/32/N/KL/2018/12/16/0	########	0		-0.3083	0.4711	0.0828	0.0706	0.005	0.0453	0.1179	0.0831	-0.0021	0.1625	Sentinel-2
S2B_ tile_20190110_32NKL_0	S2/32/N/KL/2019/1/10/0	########	0		-0.0048	0.2462	0.0782	0.027	0.0007	0.0641	0.0914	0.0761	0.0514	0.1101	Sentinel-2
S2A_ tile_20190204_32NKL_0	S2/32/N/KL/2019/2/4/0	2/4/2019	0		-0.1564	0.3692	0.0803	0.0413	0.0017	0.0555	0.1018	0.081	0.0311	0.1245	Sentinel-2
S2A_ tile_20190224_32NKL_0	S2/32/N/KL/2019/2/24/0	########	0		-0.3109	0.6483	0.1228	0.0958	0.0092	0.066	0.1699	0.115	0.0171	0.2414	Sentinel-2
S2A_ tile_20190329_32NKL_0	S2/32/N/KL/2019/3/29/0	########	0		-0.046	0.4168	0.1023	0.0535	0.0029	0.0675	0.1258	0.0937	0.0449	0.17	Sentinel-2
S2B_ tile_20190423_32NKL_0	S2/32/N/KL/2019/4/23/0	########	0		-0.1141	0.3045	0.0464	0.0238	0.0006	0.0369	0.053	0.0438	0.028	0.0682	Sentinel-2
S2B_ tile_20190520_32NKL_0	S2/32/N/KL/2019/5/20/0	########	0		-0.1419	0.2645	0.0138	0.0259	0.0007	0	0.0263	0.0057	-0.0058	0.0452	Sentinel-2
S2A_ tile_20190614_32NKL_0	S2/32/N/KL/2019/6/14/0	########	0		-0.0579	0.3086	0.0956	0.0403	0.0016	0.0637	0.1229	0.0966	0.0441	0.1472	Sentinel-2
S2B_ tile_20190709_32NKL_0	S2/32/N/KL/2019/7/9/0	7/9/2019	0		-0.0582	0.247	0.0485	0.0215	0.0005	0.0357	0.0571	0.0444	0.0286	0.074	Sentinel-2
S2B_ tile_20190729_32NKL_0	S2/32/N/KL/2019/7/29/0	########	0		-0.2395	0.3218	0.0493	0.0393	0.0015	0.0294	0.0653	0.0469	0.0074	0.0917	Sentinel-2
CBERS_4_ AWFI_20190828_ 103_093_L4	CBERS4AWFI/CBERS_4_ AWFI_20190828_103_093_ L4	########			0	0	0	0	0	0	0	0	0	0	CBERS-4 (WFI)

CBERS_4_ AWFI_20190926_ 102_093_L4	CBERS4AWFI/CBERS_4_ AWFI_20190926_102_093_ L4	########			0	0	0	0	0	0	0	0	0	0	CBERS-4 (WFI)
S2B_ tile_20191020_32NKL_0	S2/32/N/KL/2019/10/20/0	########	0		-0.0751	0.296	0.0952	0.0338	0.0011	0.0729	0.1136	0.0921	0.0567	0.1374	Sentinel-2
S2B_ tile_20191116_32NKL_0	S2/32/N/KL/2019/11/16/0	########	0		-0.0715	0.3582	0.0779	0.0315	0.001	0.0612	0.092	0.0745	0.0452	0.1131	Sentinel-2
S2A_ tile_20191211_32NKL_0	S2/32/N/KL/2019/12/11/0	########	0		-0.4161	0.5128	0.0523	0.0704	0.0049	0.0134	0.0789	0.0438	-0.0106	0.1349	Sentinel-2
S2B_ tile_20200108_32NKL_0	S2/32/N/KL/2020/1/8/0	1/8/2020	0		-0.0007	0.2601	0.0877	0.0263	0.0007	0.0718	0.0998	0.0839	0.0612	0.1204	Sentinel-2
S2A_ tile_20200202_32NKL_0	S2/32/N/KL/2020/2/2/0	2/2/2020	0		-0.0515	0.4186	0.0892	0.0501	0.0025	0.0633	0.1133	0.0858	0.0367	0.1479	Sentinel-2
S2A_ tile_20200229_32NKL_1	S2/32/N/KL/2020/2/29/1	########	0		-0.0101	0.2524	0.0651	0.025	0.0006	0.0517	0.0783	0.0638	0.0378	0.0949	Sentinel-2
S2B_ tile_20200325_32NKL_0	S2/32/N/KL/2020/3/25/0	########	0		-0.2017	0.5342	0.1092	0.0532	0.0028	0.0865	0.1272	0.1041	0.0623	0.1635	Sentinel-2
S2B_ tile_20200517_32NKL_0	S2/32/N/KL/2020/5/17/0	########	0		-0.3671	0.7673	0.0978	0.0949	0.009	0.0434	0.141	0.0831	-0.0013	0.2118	Sentinel-2

CHAPTER 2

PUBLIC PARTICIPATION AS AN INSTRUMENT FOR PROJECT MANAGEMENT, SUSTAINABILITY AND ENVIRONMENTAL GOVERNANCE

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ABSTRACT

Over the years, public participation has contributed immensely to the development of project management, sustainability and environmental governance. Public participation is a two-way communication and collaborative problem solving with the goal of achieving better and more acceptable decision. The paper presents public participation as an instrument for project management, sustainability and environmental governance. The theoretical underpin of the paper is the Habermas' Communicative Planning Theory which favors free and equal participation of parties to dialogue as a way to reach consensus, and normative argument for participation which is guided in democratic logic. Data was selected from secondary sources to explain the utility of public participation, its neglect by policy makers and the attendant dangers of such neglect to the body polity, one of which is political instability. The study also noted that participation by stakeholders is the fulcrum of democracy, a denial of which is tantamount to violating basic human rights. Based on the foregoing, recommendations were made to the effect that in every community there should be a liaison officer, working in alliance with the community development committees (CDCs) to serve as link between agencies of government and the community and to co-ordinate development and project management at all levels as well as the state level. Also, that planning should be a "button-up" practice rather than a "top-down" approach, respecting the views, idiosyncrasies and mediocrities of stakeholders, who are the ultimate clientele. It is by so doing that public participation in project management, sustainability and environment governance will be harnessed.

KEYWORDS: Communicative Planning, Environmental, Governance, Project Management, Public Participation, Sustainability

1.0 INTRODUCTION

Public participation is the process by which an organization consults with interested or affected individuals, organizations, and government entities before making a decision. It is a deliberate process by which interested or affected members, civil society organizations, and government actors are involved in policy-making before a political decision is carried out. Other terms associated with public participation include; "public involvement", "stakeholders involvement," or "community involvement." However, when it comes to describing the process of gathering stakeholders into an institution's and organisation's decision making process, with the aim of making better, and more sustainable decisions, public participation becomes the most produc-

tive process.

Since creation, man has tried to apply some form of organized thoughts to his actions corresponding progressively to complexities in his activities. When he was principally a nomadic hunter he could and often did survive on a day to day basis without much organisation. When he became agrarian, he was forced to organize his activities more systematically and to give considerations to some of the relatively long term implications of his actions. Progressively, as man began to concentrate in more permanent settlements the need to develop and maintain a kind of order in economic, social, physical and spatial patterns of the settlement became a sine-qua-non.

There is a growing trend of loss of trust and interest in authorities, private and public projects as well as programmes. This ugly situation is more obvious towards politicians and government institutions that initiates and develop these development projects and programmes at all levels. Besides low trust in government creates a climate in which it is difficult for political leaders to succeed Hetherington, (1998). Consequently, this level of development necessitated the development of such complex institutional frameworks as the Milliary, Governmental Departments, Environmental firms to effectively tackle the task of regulating "PLANNING" process.

Similarly, the motivations and actions of political leaders cannot be known with certainty in advance, Pizeworksi, (1991).This seemed to have more meaning to Nigerians in light of their political expectations that failed to match evolving realities. A Gallop Poll conducted among Nigerians confirmed that 94% of Nigerians distrust government because of empty promises made by their government, (Amuwo, 2012). All these do not sum up to promote the kind of patriotism that will distress citizenry to have a common trust to government. According to Warren, (2013), a pervasive distrust of a political institutions and elected official surely indicates that something has gone wrong in democracy. Such wrong as noted in this statement points directly to the disconnection and lack of symbiotic relationship (master and servant) which for the purpose of this paper is regarded as public participation.

However, this paper attempts to make a case in support of public participation in decision making, not only by the government, but by all agencies, establishments, and in private industries whose operational activities abut public relations and project or human developmental activities in the communities where they operates,because it serves as an instrument for project sustainability and environmental governance.

2.0 STATEMENT OF THE PROBLEM

According to Sidney Verber (1999), the challenges of public participation include the summation of all the factors which restrict its adoption and effectiveness as a major administrative

tool for decision making by government. These according to him include legislative provisions, timing, of the involvement opportunities and information provided by agencies. Harold Goldbalt,(2000), in his contribution to the above theme included involvement mechanism used by the various agencies funds and manpower of private groups and individuals as well as general literacy level of the people while Wood (2001), included authorities or responsibilities of agencies, and organizational arrangements of private groups and individuals. Besides project implementation affects individuals or groups in the communities. When planning is done for the people, the people became dependent on the government, but when planning is done with the people, it promotes self confidence; self respect and encourage interdependence amongst them. It is not unusual to note incidents of vandalisation, apathy on the part of citizens towards government projects, particularly, where the stakeholders are precluded from its conceptualization to implementation. In some cases, incidents of theft are recorded because the stakeholders did not contribute their ideal labour, time and money to the implementation of the project.This is in line with the observation by Awogbade and Kolawole, (1980) regarding the popularly cherished negative opinion amongst many citizens of Nigeria, that 'government projects are often seen as cherished negative opinion amongst many citizens of Nigeria; that government projects are often seen as "theirs", as opposed to "our", and that where government projects fail, those formulated and executed by local communities often thrive. It is on the basis of these perceptions by stakeholders against government projects and these factors raised scholars form the major focus that this paper attempts to advocate for public participation practices and approach in both the private and public environment.

3.0 THEORETICAL AND CONCEPTUAL FRAMEWORK

The planning process at different times and point has varied in reaction to complexities in planning as well as planning theory. Geddes, (1962) postulated that planning process was made up of three stages; survey, analysis and plan. This view which is essentially simplistic was later expanded by Steiss, (1968) and classified the process into stages; foresight knowledge of future needs opportunities and available resources. Goal clarification is establishment of reasonable clear goals formulated in the light of identified issues and problems to ensure that decisions on the use of limited resources will result in the desired objectives.

However, this paper hinged on Jurgen Habermas' Communicative Planning Theory which is both descriptive and normative. The transitive, collaborative and negotiate planning mode is subsumed in this mode of planning, which operate on the basis of consultation, dialogue, mutual agreement and respect for client's views and opinions. Basic concern is how best to organize an inclusive and interactive discourse, where all those involved can explain their value judgments, but those problems and issues for which no mutual consensus is available become

subsequent discursive process, (Abdul, 2003).What is rational is not given, prior to a dialogue but rather, an end product, based on the power of better argument and "ideal speech" on a real dialogue, performed under sustainable conditions, without recourse to power and violence, in a discussion, free from domination (Habermas,1970). The outcome is rational in a broad sense, as there is consent of capable participants speaking to each other in framework of 'a life world' (public sphere). The life world is distinct from and outside the system of formal economy and government. According to Habermas,(19970) faith in civil society is a source of democracy, and as an instrument of pressure on the state to act more responsively on the issue concerning participatory planning because between state and civil societies there is congruence.

4.0 DEVELOPMENT OF PUBLIC PARTICIPATION IN PLANNING

The adoption of public participation in various parts of Europe could be traced to the British 1947 Town and Country Planning law reviewed by the Planning Advisory Group (P.A.G).The early 1934 planning law ignored this procedures of considerations of objections and representation before final submission of the plan to the minister for approval; a procedure which this group held to be largely unparticipatory in character and democratically retrogressive. In contrast, they suggested that: "To ensure that the planning system serves its purpose satisfactorily both as an instrument of planning policy and as a means of public participation in the planning process, a better understanding of both the general aims of planning policy in a way in which it affected the individual is required through a proper participatory experience."

This recommendation which was later reflected in the British 1968 Town and Country Planning law generated a conflict between greater consultation of the public in all planning issues of planning agencies on one hand and the need for quicker development in the planning process. As a follow up to this another commission headed by Sir Author Skeffington was commissioned to look into various ways of re-solving this conflict. Their report which was later entrenched in Section 12(1) of the British 1971 Town and Country Planning law recommended not only the need for representative democracy in the planning process but also the creation of discretionary powers to the planning organization for enhancement of their productive efficiency.

In United States of America and other parts of the American continent the adoption of this procedure has its earliest origin in the Urban Renewal programmes of the Department of Housing and Home Development (H.U.D) following the amendment in 1954 of the existing renewal legislation to require cities to formulate a workable programme in order to be eligible for funding assistance. Consequent to the (H.U.D'S Predecessor) issued administrative regulations making public participation a necessity in the programme.

In Africa, Asia and many developing countries, the adoption of public participation is yet to be fully legislated even though it is obviously adopted in some spears of endeavour, to an appre-

ciable level.

In Nigeria, this procedure is not fully enshrined into the legislative procedures for planning. The procedure has been utilized in the formulation of some importantimportant national policies of such as on the I.M.F. loan, Abuja Federal Capital relocation plan and most recently the open ballot election issue among others. However the earliest attempt by the government at the National level to recognize public participation in planning was contained in the federal government document issued by the central planning office in July 1973 under the guideline for a Third National Development Plan (1975-1980).This guideline contained a provision which gave members of the public albeit the public sector an opportunity to make input to the plans objectives.

Nevertheless, it is not until 1978 that a conference involving academics, civil servants and other opinion leaders from the various professions and the society at large was held as the first major attempt to ensure the operation of the public participation provided in the guideline. In another spirited effort the government provided legislative bodies to provide avenue for channeling public input in government planning. However these channels have became ineffective since their establishment possibly because the provision remained silent on how, when and which issues on which which the procedure should be applied.

Thus, the government has used this only on issues which it deems fit to listen to the public input. The result of this is the numerous conflicts between various communities in the country and government plan implementation teams or the outright rejection of governmental plans after completion. These are aptly illustrated by rejection of the federal housing schemes by most communities in the northern part of the country, the abandonment of the Kainji Dam resettlement scheme at New Bussa, by the villagers, the rejection of the Abaji resettlement scheme at Abuja among others.

The states on their own part have a similar arrangement for the procedure as in the national level since the problems that occur at the national level are also prevalent in the states. At the local government level this procedure and process is entirely absent and should be considered as developmental approach for sustainability development.

5.0 OBJECTIVES OF PUBLIC PARTICIPATION

However, the objectives frequently identified for public involvement in government planning can be categorized into four (4) as:

i. Expanding public support and understanding for planning efforts through the development of means to inform and educate the public regarding the type of substantive problems and issues which must be dealt with and how this might be done.

ii. Obtaining action from the public to governments plan proposals and inclusions in order to test their political and social viability in terms of allocation of limited public funds and resources.

iii. Eliciting information from the public regarding their perceptions of important problems and needs requiring solution and assessment of institutional arrangements and management strategies.

iv. Developing public trust in planning personnel and commitment to the plans through active involvement in plan formulation processes.

6.0 FUNDAMENTALS OF PUBLIC PARTICIPATION

Right to Public Participation: According to the Rio Declaration of 1992 as well as public participation in its 27th principle where Principle 19 states that "Environmental Issues are best handled with participation of all concerned citizens, at the relevant level." In furtherance of Rio Declaration a close link between access to information and public participation, averts that, at the national level, individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available and as well, provide effective access to judicial and administrative proceedings, including legitimate litigation of legal redress, conformity and remedy in all public ramifications.

6.1 THE LEGAL BASIS FOR PUBLIC PARTICIPATION IN NIGERIA

In Nigeria, the legal basis for public participation can be found in the following degrees:

- Environmental Impact Assessment (EIA) Degree No.86 of 1992 stipulates that; "government agencies, members of the public, experts in any relevant discipline and interested groups should be given opportunity to examine and comment on the environmental impact of an activity whether it is a screening report or mandatory report, before the agency- Federal Environmental Protection Agency (FEPA) takes a decision on the activity (section 7 and 22(3)".
- The Nigeria Urban and Regional Planning Law (NURPL) Decree No. 88 of 1992 part 1, section D of the 1992 Planning Law gives clear guidance on public participation. Section 13(1) of the degree stipulates that: "for the purpose of securing integration,

consistency and coherence within and between all levels of physical development plans in Nigeria, the National Urban and Regional Commission shall during the preparation of National Physical Development Plan call for submission from all the relevant government organizations, non-governmental organizations and interested members of the public whose contributions shall serve as part of the input towards the preparation of a Draft National Physical Development Plan".

TEN (10) PRINCIPLES OF PUBLIC PARTICIPATION IN DECISION MAKING AT THE LOCAL LEVEL

Public participation in decision making process at local level should be conducted with adherence to the following ten principles:

i. **PURPOSEFULNESS**: Citizen Participation should have real influence on the decisions, regulations and public policy of local self-government.

ii. **SYSTEMATIC APPROACH**: Public participation approaches should be conducted in a structured manner, with the use of adequate procedures and resources in order to ensure the effective work of all actors involved and quality results.

iii. **TIMELINESS**: In order to create preconditions for real influence of citizens on the decision passed, it is essential that the public participate in the early phases of decision-making.

iv. **REPRESENTATION AND INCLUSION**: The participation of different groups of citizens in decision-making processes is necessary. Those categories of citizens with impeded participation should be encouraged in particular and equal participation opportunities should be ensured for all.

v. **EFFICIENCY AND EFFECTIVENESS:** Citizen Participation processes in decision-making will be organized as efficiently as possible, with optimal use of human, financial and material resources available. Effectiveness of participation should be ensured by creating conditions for the public to truly influence the passing of decisions, regulations and public policies.

vi. **INDEPENDENCE AND IMPARTIALITY**: Decision-making processes should be conducted in an independent and impartial manner.

vii. **QUALITY AND CLARITY OF INFORMATION**: Information published by local self-government units should be in a clear manner offering all details necessary for quality and timely public participation in decision-making.

viii. **TRANPARENCY**: Full transparency of citizen participation process should be en-

sured in order to provide insight into the nature of participation, the various interests and the principles of decision-making.

ix. **FEEDBACK ON THE RESULTS OF PARTICIPATION**: Local self –government will inform citizens of the results of participation by publishing in a timely manner the views, suggestions and requests expressed during the consultation process, as well as the final decisions, with a clear explanation of the decision-making criteria.

x. **USE OF CONTEMPORARY COMMUNICATION TECHNOLOGY**: Use of contemporary information and communication technologies (ICTs) should be stimulated, as an efficient tool of communication with citizens and documentation of the participation process.

7.0 PUBLIC PARTICIPATION IN ENVIRONMENTAL GOVERNANCE AND PROJECT SUSTAINABILITY

Environmental governance is a concept in political economy and environmental policy that advocates sustainability (sustainable development) as the supreme consideration for managing all human activities- political, social and economic. It is a multifaceted term, which includes social, institutional and environmental elements. Governance includes government, business and civil society, and emphasizes whole system. Governance is broadly defined as "the structure and processes by which people in society make decisions and share power" and "creating the conditions for ordered rule and collective action or institutions of social coordination," to discuss how they apply for environmental problems (Folk et al.2005:444). The normative dimension of environmental governance relates to promoting sustainable development, (Hempel, 1996; Gibson et al. 2005). A narrow approach focused on management of fisheries, sees environmental governance as "the whole of public as well as private interactions taken to solve societal problems and create societal opportunities" (Kooiman and Bavinck 2005:17). Kooiman and Bavinck, (2005), view government as an inclusive term, which borrows from the literature on environmental policymaking and management both theoretical and practically oriented mechanism. More specific definitions emphasize the institutional aspect of environmental governance as a "set of regulatory processes, mechanisms and organizations," which deals with environmental conflicts (Lemos and Agrawal, 2006; Paavola, 2007).

The benefits of public participation in environmental governance can be approach from both normative and pragmatic perspectives. The normative argument for participation grounded in democratic logic (enhancing representatively and legitimacy), claims that stakeholder's involvement reduces the marginalization of society units. If participatory processes are perceived as fair and taking into account conflicting views, then they may increase public trust in decisions (Reed, 2008). Participation promotes transformation of adversarial relationships by apprecia-

tion of other's views, then through social learning (Reed 2008). Pragmatic argument focuses on the quality and durability of co-governance decisions. Co-governance may enhance the rate of adoption of decision and meet the local needs Rydin and Pennington, (2010). By taking into account local concerns and interests, a project design may be enriched with locally specific information, unavailable to professional agencies. For example, environmental planning can benefit from detailed knowledge of the local environment and its use by local communities (Rydin and Pennington, 2010). From ethical perspective, environmental governance is expected to operate within a framework coinciding with the constitutional principle of fairness (inclusive of equity), which inevitably requires the fulfillment of "environmental rights" and ultimately calls for the engagement of the public. In the context of considerable scientific uncertainties surrounding environmental issues, the public participation helps to counter such uncertainties and bridges the gap between scientifically-defined environmental problems and the experiences and values of stakeholders.Through joint effort of the government and scientists in collaboration with the public, better governance of the environment is expected to be achieved by making the most appropriate decisions possible when needed.

However, participatory processes can lead to high –quality decisions, as they are based on more complete information and negative scenarios can be analyzed and ameliorated before they occur. Participatory is also advocated to reduce conflict during policy-making and implementation. Who should be involved and at what points in the process of environmental decision-making and what is the goal of this kind of participation becomes central to the debates on public participation as a key issue in environmental governance. Engaging citizens at an early stage of policy processes can prevent disagreement later on and guarantee greater legitimacy.

8.0 ISSUES AND PROBLEMS OF PUBLIC PARTICIPATION IN THE SOCIETY

Based on previous sections of this paper the following problems are identified as challenges in the public participation process.

i. Lack of adequate legislative guidelines and provisions.

ii. Representativeness of public participation.

iii. Shortage of skilled manpower.

iv. Ensuring effective participation response to public participation.

v. Lack of adequate public mobilization channels.

vi. Responsibilities in the public participation process.

vii. The financial resources

viii. Securing adequate public response in the participation programme.

9.0 CONCLUSION AND RECOMMENDATIONS

9.1 CONCLUSION

This paper assessed the contributions of public participation in environmental governance and project sustainability on citizens. It stipulates that public participation is in tandem with democratic principle where everybody is involved in decision making. It is a deliberative process by which interested or affected members, civil society organizations and government actors are involved in realities. The absence which is a denial of citizen rights, and that the Habermasian communicative planning paradigm which has been used synonymously in the literature with transitive and collaborative planning provides answer to the issue of public participation and it forms the theoretical bases upon which this paper is anchored.

However, the benefits of public participation in environmental governance are approach from both normative and pragmatic perspectives, where the normative argument for participation is grounded in democratic logic. While pragmatic argument focuses on the quality and durability of co-government decisions. The advantage of public participation is enormous as it leads to equity, transparency, stability and progress, through project sustainability and good governance in all levels. From the ideal of both normative and communicative approach, is the process through which the governed, the government and other cognate agencies involved in policy decision making at the community level arrived at a generally accepted consensus devoid of manipulation and domination. Sustainability of the project depends on the project participants and community/land owners for whom the project is designed for. They should be involved from first to the last stage of the project (ie conceptualization, initiation, design, implementation, evaluation. monitoring and review).

Finally, the field of public participation can benefit all from establishing a consensus link between the benefiting community and the co-government where true public involvement/ local communities as well as stakeholders are considered as agent of project sustainability and environmental governance. By so doing, the array of abandoned projects, environmental decay and dilapidation which littered all over our cities and local communities will be a thing of the past.

9.2 RECOMMENDATIONS

In order to operationalise and enhance the effectiveness of public participation in environmental governance and project sustainability the following recommendations are made in light of the issues and problems raised previously.

- Provision of more information throughout the planning process.

- Establishment of liaison offices in all communities. The role of this office is to serve as a link between the CDCs and governmental and non governmental agencies in charge of development.
- Planning should be "bottom-up not top-down." No project should be imposed from the top without the stakeholders participation.
- The current institutional arrangements characterizing planning would be modified through the following:
    a. Co-operative public participation by planning agencies.
    b. Planning agency initiated technical assistance.
    c. Establishment of reviewable public participation.
    d. Support for private groups and members of the public.
    e. Increased the use of Colleges and Universities.
- Community forums should be established in the communities to aid speedy discussion of ideals regarding development in their areas,
- An inter-departmental/governmental agency on projects should be established to avoid project duplication and overlap in implementation.
- The issue of public participation should be internalized and adopted by government at all levels as a policy framework for decision making that involves developmental projects at all levels.
- There should be continued public participation research. Such researches could be focused on issues like determining the extent to which it would be possible to involve a greater percentage of the people in any given environment to participate in the governmental agency activities or the impact of the various public information and education programme in terms of increasing the public awareness or even the evaluation of the programme performance criteria among several others.

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CHAPTER 3

CONCEPTUAL AND STRATEGIC FOUNDATION FOR EFFECTIVE INTEGRATION OF CULTURAL HERITAGE IMPACT ASSESSMENT IN SITE ANALYSIS REPORT AND PLAN

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Abstract

Cultural Heritage protection and management is an integral part of the solution to the challenges of urbanization and achieving the New Urban Agenda. Yet in Nigeria, Urbanization has posed serious threat to its continual existence; exposing them to destruction, removal, damage, neglect and extinction. This paper reviewed International and local institutional issues in protection of cultural heritage; and some of the problems exhibited in implementing planning schemes in different parts of the country and how they threatened Cultural Heritage. It described an integrative framework of Cultural Heritage Impact Assessment (CHIA) in Site Analysis Report and Plan (SARAP) to mitigate damage and ameliorate inclusiveness of Cultural and natural heritage for working documents. The urgency to safeguarding and harnessing cultural heritage presents an unusual opportunity for Town Planners to demonstrate their ability and advance their discipline through their design, implementation and evaluation of inclusive designs that have firm conceptual and strategic bases.

Key Words: Cultural Heritage, Environmental Impact Assessment, Site Analysis

1.0 INTRODUCTION

Cultural Heritage properties are inevitably, tangible manifestation of Indigenous Knowledge systems (IKS) which is the sole driver of socio-economic, political, environmental and, most importantly scientific innovations employed to guide developmental goal among local communities in many parts of Africa (Wahab and Ojolowo, 2018). Regrettably in Nigeria, the existence of external forces especially rapid rise in Nigeria's urban population growth at 4.3 per cent per annum with 20 per cent annual increase in housing demand (Urbanet, 2018) creates tension between heritage property protection and planned development. This indicates a need for coherent planning capable of linking the objectives of heritage property protection and urban socio -economic development.

Indigenous architectural structures, Monuments, historic buildings and landscapes of ancient landmark settlements in Nigeria, display authentic planning values that reveal ageless patterns of adaptation and profiling which brought harmony, self-reliance and sustained development in

the three epochs of Nigeria's historiography – the pre-colonial, the colonial and the post colonial (Afigbo, 1981). Several historic scholars (Thurstan Shaw, 1972; Abimbola, 1977; Dmochowski, 1990) assent that Nigerian artifacts, indigenous architecture and landscapes consolidate ancient civilization dating back as far as 9th Century. Wangboje (1977) explained further that the history, development and therefore the civilization of Nigeria can only be derived from her tangible heritage.

They have been growing concern for environmentally sustainable development and appropriate resource management on the universal value of Indigenous architecture, historic settlements, monuments and cultural landscapes. Heritage conservation of these properties is in direct confrontation with values and practical management issues related to planning of the built environment to satisfy emerging needs. In developing countries like Nigeria, they are threatened by demographic growth, increase of private motor transport, change in industrial and commercial operations, introduction of modern functions and lack of maintenance and understanding of their functional cultural values.

In other parts of the World, heritage properties are being integrated in master plans and upgraded from pure restoration to serve proposed functions while their historical or architectural value/ integrity are maintained with consequent economic value added to the salvage structure. Examples of cities inherent of this strategy include Venice, Laos, Istanbul, Rome, Brsec, Erbil, Aleppo, Tongli, Guangzhou andLuoyang to mention a few. These cities grew on ancient and prehistoric settlement, with traces of prehistoric fortifications incorporated into the structure of modern towns.This methodology of their approach is what Feilden, and Jokilet (1998) termed as integrated conservation

Monuments, archaeological and historic sites, indigenous architecture, historic towns and cities abound in the 36 States of Nigeria (Onyejekwe, Awonusi & Babagana, 2019). Scheduled heritage properties by the National Commission for Museums and Monuments (NCMM) have shown remarkable relevance in the socio-economic prosperity of the communities they are situated. This is evident in the management of Nigeria's two World heritage Sites- Sukur Cultural landscape in Adamawa State and the Osun Oshogbo sacred grove in Osun State which are currently reaping the plethora of tourism in terms of recognition, attraction, revenue, employment, popularity, pride and attraction of infrastructural development (Ozomah, 2018).

On the contrary, these World Heritage assets as well as other speculative cultural heritage properties are endangered due to the ignorance of guiding laws that protect these properties and absence of coordination or due process to obtain consent of the status of cultural properties before demolition, alteration or planned development by professionals in the built environment especially Town Planners. This problem can be hinged on the assessment of planned developments squarely within the framework of Environmental Impact Assessment (EIA) and/or Social

Impact Assessment (Patiwael, Groote & Vanclay, 2019). The primary inadequacy of the EIA framework is the exclusion of heritage in its site analysis plan and inadequate impact assessment method on heritage which tends to occur too late to salvage the cultural heritage property (King 2000; Fleming 2008; Jones and Slinn 2008;Antonson, Gustafsson, & Angelstam 2010; Bond et al.2004; Langstaff & Bond 2002; Teller & Bond 2002; Jerpåsen & Larsen 2011); (Teller & Bond 2002; Bond et al. 2004; Masser 2006; Antonson, Gustafsson, & Angelstam, 2010; Lindblom 2012).

This paper explores the development of an integrative framework for planning in areas distinguished by specific Cultural Heritage values. It explicates Cultural Heritage Impact Assessment (CHIA) in Site Analysis Report and Plan (SARAP) by consultant Town Planners during appraisal of proposed plan applications for planning permit by prospective developers to mitigate damages to cultural artifacts and promote inclusiveness of cultural heritage in the practice of urban and regional planning in Nigeria for working planning documents.

To achieve this, we reviewed - conceptual and institutional issues (international and local) in the protection of cultural heritage; and Implications of contemporary SAP in the protection of Cultural properties in Nigeria. We also formulated a framework for integrating CHIA that urban planners and professionals in the built environment can easily relate to. Recommendations were made for Town Planners to demonstrate their ability and advance their discipline in CHIA and concluded in the last section of this paper.

2.0 CONCEPTUALIZATION ANDINSTITUTIONAL ISSUES ON CULTURAL HERITAGE PROTECTION

2.1 The Concept of Heritage and Conceptualization of Cultural Heritage Impact Assessment

The concept of heritage is multifaceted holding multiple meanings depending on different sets of values on objects (tangible) and practice (intangible). According to Osuagwu (2006) and Usman (2013), heritage is a broad concept that includes cultural and natural environment; it consists, landscapes, historic places, Sites and built environment, biological diversity collection, cultural practices, knowledge and living experience. It also record and express the long process of historic development forming the essence of diverse national, regional, indigenous and local identity of a people. Conclusively, it is a dynamic reference point and positive instrument for growth, change, peace, international corporation, socio-economic development and vision for the future (Osuagwu, 2006) passed down from previous generation and worthy of preservation (Harrison, n.d.). Consequently, heritage is classified into three – cultural (artifacts, monuments building, music etc.), natural (geological formations, plants, animals, aesthetics etc.) and mixed heritage (cultural landscapes) which can be categorized into tangible (moveable and immov-

able) and intangible. An explanatory illustration of the typology and categories of heritage is shown in figure 1. Preservation was also emphasized in their definition which suggests the need to maintain and retard deterioration of existing state of a cultural property for posterity and sustainability.

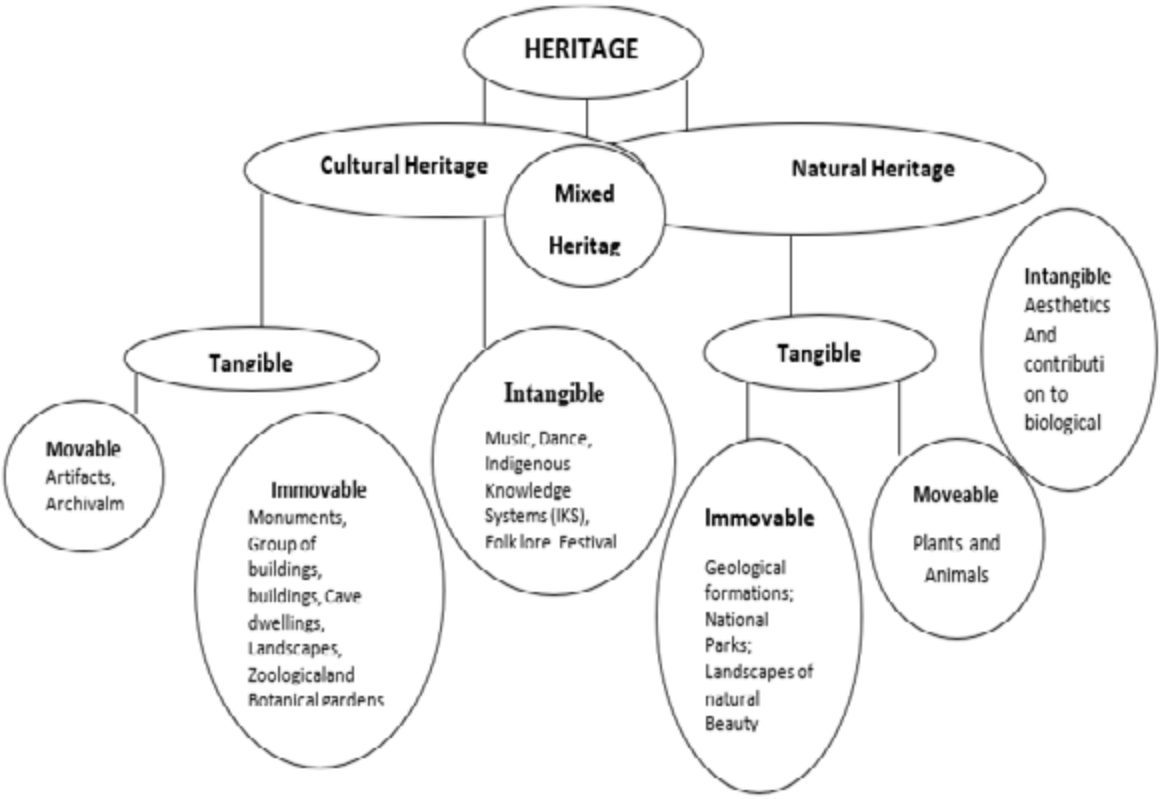

Figure 1: Illustration of heritage type and category.

Source: Onyejekwe et al.

For the purpose of this paper, Cultural heritage is as defined by the United Nations Educational Scientific and Cultural Organization (UNESCO, 2019), as monuments: architectural works, works of monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings and combinations of features, which are of outstanding universal value from the point of view of history, art or science; groups of buildings: groups of separate or connected buildings which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science.

The character defining element of UNESCO's definition include the material, form, location, spatial configuration, uses and cultural association that adds significance to the heritage value. In line with UNESCO's guidelines of 1998 and 2019 for nomination of cultural heritage, Horayangkura (2005) stated that cultural property must satisfy one or more of the following

eight critical criteria to qualify as heritage -

1. Represent a master piece of creative genius;
2. Exhibit a major interchange of human values on development in architecture or technology, monumental arts, town planning or landscape design;
3. Expressing a unique testimony to a cultural tradition/civilization which is living or has diapered;
4. Being an outstanding example of a building type or architectural or technological ensemble or landscapes in human history;
5. Being an outstanding example of a traditional human settlement or land use of a culture under vulnerable impact of irreversible change;
6. Being associated with events or living traditions, with ideas or beliefs, with artistic or literary works of outstanding universal significance;
7. Meeting the test of authenticity in design, materials, workmanship, setting and cultural landscapes in their distinctive character and components;
8. Having adequate legal/ contractual/ traditional protection and management/planning control mechanism.

Nigeria possesses rich sources of cultural properties that meet one or more of the listed criteria; some of which are documented and others that are yet to be publicly known. These cultural properties and their attributes are constantly under threat by public infrastructure development leading to the deterioration or disappearance of the cultural heritage property, the message they conveys as well as compromising the attainment of sustainability.

To address this situation, the United Nations Educational Scientific and Cultural Organization (UNESCO) adopted several recommendations concerning the protection of heritage properties in the 1972 UNESCO general conference. It stated in article 5(a) to adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programmes.

According to Yang and Phares (2002), this UNESCO's clause paved an innovative approach that emphasized the intricate links between heritage property protection and harmonious development. In article 5 (d) it stated that appropriate legal, scientific, technical, administrative and financial measures necessary for the identification, protection, conservation, presentation and rehabilitation should be established.

In October 1987, the International Council on Monuments and Sites (ICOMOS) approved the

Washington Charter for protecting the ancient urban center of a city and other historical landscapes. This charter originated from the impact of urban development on historic urban areas, large and small, including cities, towns and historic centres or quarters, together with their natural and man-made environments. According to the Charter, the spatial layout and the relationship between the block and its environment must be given special attention. This suggests that the conservation of historic towns and other historic urban areas should be an integral part of coherent policies of economic and social development and of urban and regional planning at every level.

These recommendations by UNESCO and ICOMOS Washington Charter heightened interest in preserving cultural heritage and thus, the issue of cultural impact assessment was conceptualized.

Cultural Heritage Impact Assessment (CHIA) as defined by Awoniusi, (2004) is the process of identifying, predicting, evaluating and communicating the probable effects of a current or proposed development policy or action on the heritage life, institutions and resources of communities, then integrating the findings and conclusions into the planning and decision making process with a view of mitigating adverse impact and enhancing positive outcomes. It follows an Environmental Impact Assessment (EIA) protocol, which 'disaggregates all the possible cultural heritage attributes and assesses impact on them separately … without applying the lens of OUV (Outstanding Universal Value) to the overall ensemble of attributes' (ICOMOS, 2011).

According to Ozomah (2018), CHIA is the analysis of potential positive and negative impact on the full range of cultural resources of an area which may result from proposed development or work or environmental trends; and the design of measures to mitigate impacts which are unacceptable and maximising those which are beneficial. Awonusi, (2013).The procedure of Cultural Heritage Impact assessment involves consecutive steps starting with initial development and design; early consultation; identifying and recruiting suitable organisations to undertake works; establishing scope of work; data collection and collation; characterizing the heritage resource; modelling and assessing impacts; drafting mitigation; drafting report; consultation; moderation of assessment results and mitigation; final reporting and illustration- to inform decisions; mitigations and dissemination of results and Knowledge gained.

Invariably, implementation of CHIA requires well established protective legislation at the International, national, State and local government level. Thus, knowledge of laws and policies for its enforcement is imperative.

1.2 International Response on Law and Policy for preservation of Cultural Heritage

The first international treaty for protection of Cultural heritage property was the Hague Con-

vention for the Protection of Cultural Property in the Event of Armed Conflict in 1954. The law stemmed from the widespread destruction from bombings and lootings during the World Wars (I and II). The preamble states that "the preservation of cultural heritage is of great importance for all peoples of the world and that it is important that this heritage should receive international protection (Guruswamy, Roberts, and Drywater, 2013). The limitation of Hague convention is its implementation only in time of Military conflict but this setback was compensated for in the United Nations Educational Scientific Cultural Organization, UNESCO 1972 World Heritage Convention.

Concerning Labour mandate in respect of Cultural Property Protection, the International Labour Organization (ILO) Convention No. 169 -Project to promote ILO policy on Indigenous and Tribal Persons or PRO 169, stated in Article 2: 'Governments shall have the responsibility for developing, with the participation of the [indigenous and tribal] peoples concerned, co-ordinate and systematic action to protect the rights of these peoples and to guarantee respect for their integrity', (ILO, 2007). It also stipulated in Article 4 subsection 1 that, 'special measures shall be adopted as appropriate for safeguarding the persons, institutions, property, cultures and environment of the [indigenous and tribal peoples concerned (ILO, 2007; Guruswamy, Roberts, and Drywater, 2013). These can be interpreted that the participation of indigenous people in developmental project is imperative to mitigate detrimental effect to their heritage. This is also in line with the United Nations Draft Declaration on the Rights of Indigenous PeoplePart III, Articles 12 and 13 (Cultural Survival, 1994).

Recent references in support of the integration of cultural heritage in Urban development can be found in the New Urban Agenda adopted at the UN Conference on Housing and Sustainable Urban Development (Habitat III) held in Quito in 2016. Governments gathered 'committed to the sustainable leveraging of natural and cultural heritage…in cities and human settlements, …through integrated urban and territorial policies,…, to safeguard and promote cultural infrastructures and sites, museums, indigenous cultures and languages, as well as traditional knowledge and the arts,..' (Baltà Portolés, 2018). This statement refers to the inclusion of cultural heritage properties as a priority component of urban plans. Thus strategies and tools for their inclusion are imperative.

The World Urban Forum 10 held in Abu Dhabi in 2020, officially declared in section 3 that culture is an integral part of the solution to the challenges of urbanisation and to achieve the new Urban Agenda. They were in agreement that Culture and heritage are essential in the context of peoples' empowerment as well as their universal access to services and thus, need to be planned, designed and managed to attain sustainable cities and communities. This can be emphasized that integrated urban and regional planning that provides tools to ensure the integration of cultural heritage is expedient in achieving sustainable and resilient cities and communities.

1.3 Legal Support for the Protectionof Cultural Heritage in Nigeria

Nigeria became a signatory and a state party of the World Heritage in 1972. Her duty is to co-operate in protecting, assisting, identifying and conserving sites and not to take deliberate measures that may directly damage cultural heritage properties. In line with International treaties in the protection of Cultural Heritage and local efforts to protect and preserve these resource, National Commission for Museums and Monuments (NCMM) CAP 242 of 2000 (Decree 77 of 1979) was enacted with the responsibility to acquire, declare, exhibit and manage cultural heritages. The commission was given power to protect and preserve all heritage properties in danger of being destroyed or under threat from injurious treatment (NCMM, 2013).

According to Onyejekwe, Awonusi & Abdul (2019), a total of sixty-five (65) National Monuments declared by the National Commission of Museums and Monuments (NCMM) spread across the six-geo political zones of Nigeria. Two of these Monuments are United Nations Educational Scientific and Cultural Organization (UNESCO)/ International Council for Monuments and Sites (ICOMOS) World Heritage Properties- Sukur Cultural landscape in Sukur Adamawa State and Osun Osogbo Sacred Grove in Osun State. Twelve sites are in UNESCO/ ICOMOS tentative list for declaration as World Heritage while 100 have been proposed for declaration in commemoration of Nigeria's centenary celebration.

The attributes of these sites does not only satisfy the criteria(s) highlighted by Horayankura (2005) but can be summarized as some of Africa's most extensive ruins, ancient earthworks, ecclesiastical architecture, extensive forest with endangered biological diversity and techno-spiritual Iron and bronze casting sites (Oluwole, 2014)

Other statutes in Nigeria protecting Cultural Heritage include the Environmental Impact Assessment (EIA) Procedural Guidelines, 1995 and the Nigerian Urban and Regional Planning law, 1992 (CAP 18, 2000). The EIA procedural guidelines include full scale assessment of projects located or close to heritage properties. The Nigerian Urban and Regional Planning law (CAP N138 LFN 2004 Part III section 64 to 72) enables NCMM to list all buildings of special architectural or historic interest. According to the law, owners have to seek permission from NCMM for the demolition, alteration or extension in any manner that changes the character of a listed building (NCMM, 2013; Onyejekwe, Awonisi and Babagana, 2019).

However, Onyejekwe et al. (2019) affirmed that even though the above laws exist, sites are highly threatened in the course of development projects in Nigeria. They added that the approach of heritage protection in accordance with the provision of the Urban and Regional Planning Law, 1992 (CAP 18, 2000), shows leniency in penalty in the destruction of cultural heritage. There is therefore the need for heritage practitioners and town planners to collaborate and strengthen the legal, management and physical planning instruments for the preservation of cultural heritage property and their integrity through inclusive national and state policies, guidelines and

regulations in line with the global best practices that will enable the integration of CHIA in Site Analysis Plan (SAP).

3.0 SITE ANALYSIS PLAN AND CULTURAL HERITAGE PROPERTY PROTECTION IN NIGERIA

Site Analysis Plan (SAP) is a land survey plan (Realserve, n.d) which forms the basis for good site planning, retention of desirable landscape elements, establishing building footprints, determining building orientation, and protecting heritage fabric (Lake Macquarie City Council, 2013). Incorporating Site Analysis Plan (SAP) into the development review process can result in designs that offer superior protection to important natural and physical features as well as determine whether a development meets a municipality's natural resource protection standards and other ordinance requirements (Lowenthal, 2000). In this respect, SAP is expected to take cognizance of heritage properties and existing legal and institutional framework that protect them.

Heritage properties in Nigeria are significant to the sustainability of communities, but implementation of planning schemes without regards to existing legal and institutional framework for their protection has posed serious threat to their continual existence. This could be hinged to the obsolete Site Analysis technique that excludes assessment of heritage impact within the framework.

For instance, shortcoming of approved development plan of the construction of the road passing through Zungeru in Niger State, led to the destruction of a colonial prison (Fatusin, 2006). Other cases include the Encroachment of Olokun groove/archaeological site (Fatusin, 2006); the destruction of Ilojo Bar (Awonisi, 2018) and defacement of Coal Corporation Headquarters (Udoh, Onyejekwe & Okorie, 2014; Onyejekwe, 2017) which were all scheduled for declaration as National Monument were depleted; creating ignorance of the past and ignorance of the future. Destruction of these symbolic markers, break links with the past, the people and their cultural heritage identity.

Another weakness of SAP in Nigeria is demonstrated in the displacement of indigenous communities and their livelihoods that have stood the test of time when planning schemes are implemented. The Cross River National Park project in an attempt to protect the best remaining area of the tropical moist forest did not only displaced livelihood of vulnerable groups but also introduced an alien ideology of forest protection that conflicts with indigenous forest systems in protection of biological diversity (Onyejekwe, 2016). This is also similar to the forceful eviction and demolition of indigenous structures which adversely affected the cultural ties and relics of the Gwaris and Gbayis (ISHPS, 2018). In these two relative cases people have been displaced, indigenous production systems have been dismantled, kingship groups were scattered,

long established harmonious settlements were disorganized, local labour market are disrupted, daily sustenance systems are dissolved.

The effect of the lacuna in SAP in Nigeria is consequential to official neglect of monumental structures to destruction, decline in historic skill and knowledge, displacement of livelihoods and harmonious development. These cumulative effects of government neglect of cultural property heritage is capable of tearing apart the socio-economic fabric of communities leading to impoverishment, joblessness, landlessness, food insecurity, deteriorating health and loss of access to community assets.

However, National Commission for Museums and Monuments (NCMM) in 2011 conducted the first Cultural Heritage Impact Assessment in Osun Oshogbo in accordance with 2011 International Council for Monuments and Sites (ICOMOS) Heritage Impact Assessment Guidance on World Cultural Heritage. Though the assessment was limited to the buffer region, it effectively evaluated the impact of development on the Outstanding Universal Value (OUV) of the property and has been adequately put to use for the management of the groove without compromising the authenticity of the site and its tourism potentials.

It is therefore obvious that contemporary modus operandi of Site Analysis in Nigeria needs to be upgraded by integrating the impact of Cultural heritage in its analysis. In this way, Town Planners can be skilful in forestalling damage to heritage properties and reconceptualise them in ways that will be compatible with a nature of development that respects the landscape resources of humanity.An integral and holistic approach towards heritage resources protection during urban and regional planning is thus required.

4.0 ASSESSMENT MODELS FOR CULTURAL HERITAGE IMPACT ASSESSMENT

Several analysis and evaluation models exist in the assessment of development impact on heritage resources. Commonly used ones aside from Cultural Heritage Impact Assessment (CHIA) which have been earlier criticized are Environmental Impact Assessment (EIA) and strategic environmental assessment (SEA).Others not popularly known include the landscape-based-approach, historic urban landscape approach (HUL), Interdisciplinary approach, morphological-historical approach, participatory triangulation and Cross sector approach .

The Landscape approach an inclusive, holistic way in which to consider heritage, where the site in itself is no longer an end; it is placed in a social, economic, ecological, and cultural context, whereby the process becomes emphasized, in addition to or even over the site itself. This means that, even when targeting the protection of individual buildings, the emphasis should be on the whole, at the scale of the urban and the individual building, both including spatial, operational, and narrative qualities. Not only should the protection of historical monuments be integrated in

a larger strategy of sustainable urban management, but also it should be more aware of how individual buildings, monuments, and special areas relate to one another and are part of a process of change (Veldpaus, Roders, & Colenbrander, 2013).

The Historic Urban Landscape (HUL) model was established as a management approach in the Vienna Memorandum 64 and was officially adopted at the Thirty-sixth General Conference of UNESCO in November 2011. It builds upon the assumption that, when an urban settlement is properly managed, initiatives, opportunities and development can contribute to both quality of life and conservation of cultural heritage, while ensuring a social diversity and justness. The steps include (i) Comprehensive surveys and mapping of the city's natural, cultural, and human resources; (ii) Reach consensus by participatory planning and stakeholder consultations on values and attributes conveying those values; (iii) Assess their vulnerability to socioeconomic pressures and impacts of climate change; (iv) Integrate the outcomes of i, ii, and iii into a wider framework of city development; (v) Prioritize actions for conservation and development; (vi) Establish the appropriate partnerships and local management frameworks for each of the identified projects and activities.

The interdisciplinary model makes use of multiple methods and techniques of analysis, such as operative sheets, panoramic optical cones, map-overlay, and historical-spatial analysis. These techniques allow us to follow trends from past to future projections, highlighting the sustainability of the processes (Lowenthal, 2000).

Morphological-historical model analyzes the dynamics of growth/urban transformation, spatial analysis and relationship of urban land plots; both the built and of green and water. The analysis is effective for identifying homogeneous urban areas, highlighting extraordinary events and allowing the definition of actions based on specific spatial-morphologic units. On the other hand the participatory triangulation model is a qualitative approach used in social research to ensure higher quality of research and reduce measurement error and consists of collecting data using two or more techniques followed by comparing and combining results (Prokopowicz,2020) (Mrak, 2013). Common techniques used include participatory mapping (Narayan, 2000), opinion polls, focus groups, referendum, citizen forums, citizen juries, deliberative surveys, citizen panels and e-forum (Coote & Lenaghan, 1997; Landry, 2000).Mrak (2013) indicated that the aforementioned techniques can increase the transparency and rationality of discourse while clarifying the objectives and hidden interests, revealing the bases for new creative proposals of intervention on the landscape.

Cross sector approach is used for evaluations in social life cycle assessment (SLCA) in terms of the effects on what is important in human life (Reitinger, & Hillerbrand, 2011). It is also used to elucidate the notion of human well-being in the context of sustainable development (Comim et. al. 2007; De Vries and Peterson 2009; Holland 2008; Van Ootegem and Spillemaeckers 2009).

Its indicators include number of jobs created and local employment in relation to five main stakeholder groups – workers, consumers, local community, society and value chain actors (Realserve, 2020). Though this model have not been expressly utilized in heritage assessment, it is important in analyzing the inherent product of heritage assets in relation to employment and level of material comfort derived from their existence.

From the overview of the existing models in cultural heritage assessment, it is obvious that there is a need for a model that could somehow assessthe impact of transformation of both built heritage/monuments and cultural landscape features.

5.0 INCORPORATING CULTURAL HERITAGE IMPACT IN SITE ANALYSIS

This paper aim to evolve a model that can actually be useable and rational, logical and coherent in balancing the protection of heritage properties while providing for infrastructural development in order to attain sustainable cities and communities. For this reason the designed model is adaptable in various contexts as well as integration with different techniques of issue-based analysis. The model is articulated for any category of heritage property. The adapted framework for the analysis and identification of heritage property incorporates elements of the HUL, Morphological-historical and Cross sector models or approaches as it relates to on site features and constructed potential casual chain which encompass the following stages like identification of cultural heritage property, planned project activities, presume changes to cultural heritage attributes, potential impact and mitigation strategy (Figure 2).

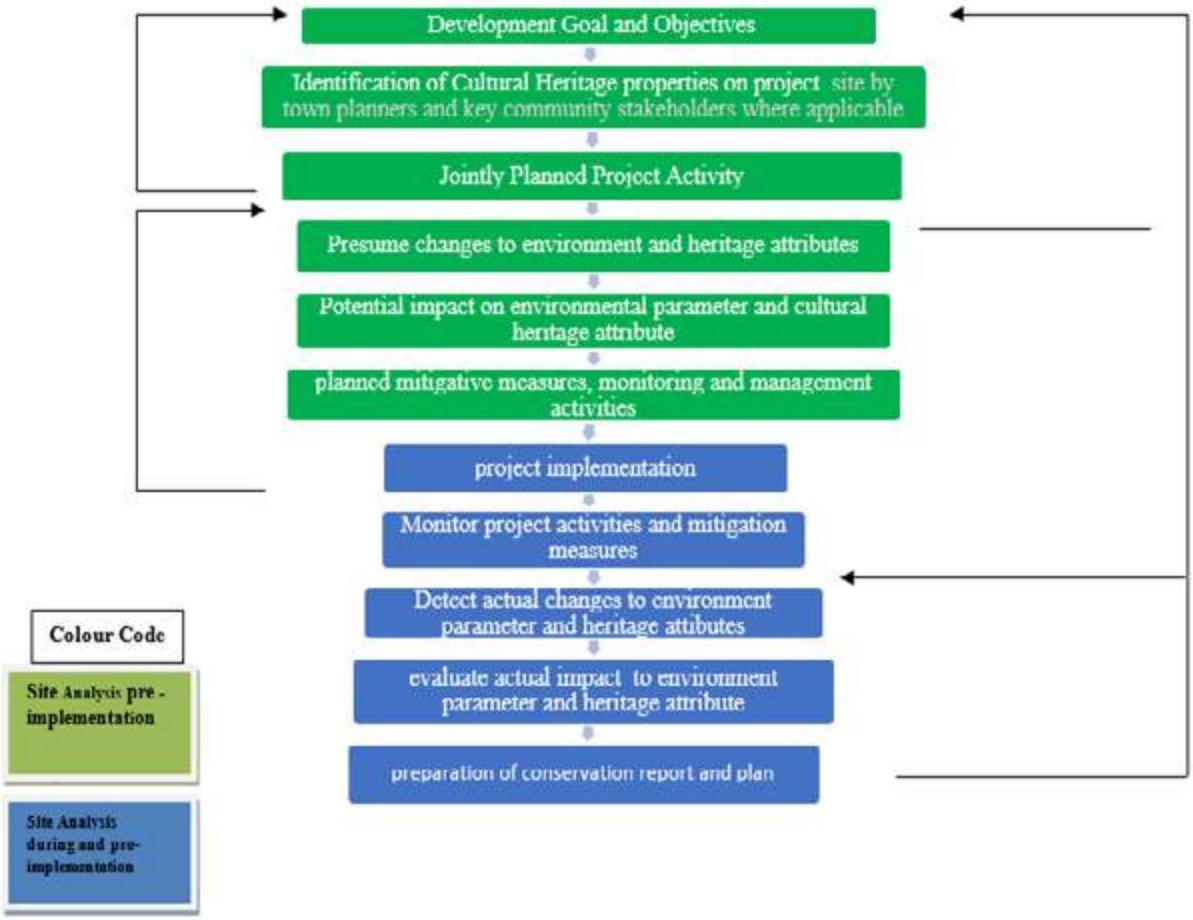

Figure1. Overview of the evolved Framework for Integrated Heritage Impact in Site Analysis
Source: Adapted from from Lohani et al, 1997)

From the above framework, goals and objectives of proposed project development directed at improving level of material comfort are formulated to the developers. Cultural heritage properties are then identified taking cognizance of its location, ownership, significant features, description of cultural resources located within the site where necessary in company of key community stakeholders; description of international, federal, state, local or communal recognition of the heritage assets; and depiction of adjacent heritage property and cultural resources to the heritage property. Also, a comprehensive review of the heritage property through archival, historical, archaeological written and visual records is imperative (Ozomah, 2018). Reconnaissance survey, particularly transect walk, participatory mapping, key informant interviews, oral traditions and questionnaires can be employed to identify the heritage property.

The next stage is identification and description of development activities in relation to cultural heritage attributes using an adapted Leopold Heritage Matrix (Table 1). On the horizontal axis of the matrix table are the planned actions that potentially cause heritage and environmental impact. These are sub-grouped into Land Modification, Land transformation, Resource extraction, Land Alteration, Resource Renewal, Traffic/ Transportation, Climate, Agriculture,

Waste management, Chemical Treatment and Accident. On the vertical axis are the existing heritage attributes and environmental conditions that will be affected by the actions. These are sub-grouped into Ecological, Biological, Physical, Chemical and Cultural Heritage. Under Cultural Heritage subgroup, the attributes include: Ancestral relics, Cultural ties, Architecture, Cultural landscape, cultural land mark, Human History, Art work, Social life (Functionality) and Finance. The matrix will provide a comprehensive review of the interactions between proposed development activities and the heritage attributes to rate magnitude of the impact. Once the assessment of the magnitude of impact by each development action to the cultural heritage attribute have been completed, mitigation measures are set jointly with custodians of the cultural heritage property and are prescribed to prevent, reduce or displace attributes to the cultural heritage property. This may lead to project relocation or other adaptive measures or revise the proposed development goal and objective(s).

In the next phase still under impact identification, a network of system diagrams can be used to identify casual basis for impact by accommodating higher order stages from the initial stage. This is capable of making qualitative predictions of the cumulative impact of a number of activities on the heritage attribute and this can thus be used to express the impact hypotheses (Lohani, Evans, Ludwig, Everit., Richard, Carpenter & Tu, 1997). The potential impact of the development project and attributes of the cultural heritage property is then classified into one of these five possible categories adapted from (Lohani et al 1997) -

1. No Impact – implies the proposed development activity does not interfere with the cultural heritage attributes.
2. Significant Impact – this is defined to encompass a number of attributes and criteria including that the proposed development activity have potential to affect the cultural heritage attribute under the following impact criteria or dimensions:
   i. Spatial scale of Impact.
   ii. Time horizon of impact
   iii. Magnitude (small, moderate, large)
   iv. Importance to cultural custodians
   v. International profile of outstanding universal value
   vi. Importance in evaluating the impacts of development and in focusing regulatory policies.
3. Insignificant Impact – implies potential impact does not meet the criteria to qualify for significant impact.
4. Unknown Impact – the potential impact of the six criteria are unknown.

5. Mitigated Impact – there is potential for significant impact and the proposed mitigation measure will prevent the impact or reduce deterioration to acceptable levels.

Based on the outcome of the evaluation of significance of impact from each heritage property attribute the impact hypotheses will then be constructed for each major potential impact – (Significant, Unknown and mitigated) to heritage attribute. To provide the information base upon which the terms of reference (ToR) of the impact assessment of the heritage property is derived the following information is presented for each hypotheses:

1. A detailed description providing a statement for each network in the impact hypotheses;
2. Documentation of evidence for and against the statement in the hypotheses;
3. List potential or proposed jointly set mitigation measures;
4. List areas for further research and monitoring requirement (Lohani et al 1997).

As the project moves toward implementation, a heritage management plan must be put in place to ensure that the planned mitigation or adaptive measures will be implemented. The Plan should also specify monitoring that must take place to determine actual impacts and to evaluate the effectiveness of the mitigation measures. When the development project begins implementation, the development activity may lead to actual changes and impact to the heritage attribute. Depending on the feedback obtained from monitoring and evaluation programs on the project implementation operational activities the actual impacts and effectiveness of mitigation measures, the implementation activities may be altered. As development progresses, activity monitoring results may lead to the revision of the initial development goal and objectives.

The report will contain the conservation plan for the heritage property and norms for the implementation. These consists of: the location map at a scale that can identify individual properties; the ownership map; a survey showing the histography or epochs of the heritage property; Typology surveys of architecture/function, public and private open spaces as well as townscape and landscape analyses; Condition status; and conservation plan defining propose conservation, policy and degrees of treatment as well as norms and regulations for implementation.

Table 1: *Modified Cultural Heritage Impact matrix*

s/n				Existing Cultural Heritage property Attribute									Development Action causing impact	
	Ancestral relics	Cultural ties	Cultural landscape	Architecture/technical	Cultural Landmark	Art work	Social life functionality	History	Finance/ Revenue	Educational	Political			
1												Urban renewal	Modification and development regime	
2												Change of Use		
3												Land fragmentation		
4												housing		
5												Road construction		
6												Building encroachment		
7												demolition		
8												Climate change	Climate	
9												mining	Resource extraction	
10												Oil exploitation		
11												poaching		
12												Effluent discharge	Waste treatment	
13												Legal waste dump		
14												Illegal waste dump		
15												Vandalism	Security	
15												Boundary trespass		
17												terrorism		
18												Fire outbreak	accident	
19												Operational failure		
20													Agriculture	

Source: Onyeje kwe, Essaghah and Nduka modified Leopold Matrix, 2020

6.0 RECOMMENDATIONS

For the developed integrative framework to be effectively implemented into SARP the following recommendations were made:

1. Collaboration with National Commission for Museums and Monuments-

   Nigeria Institute of Town Planners and Town Planners Registration Council, NITP – TOPREC should collaborate with National Commission for Museums and Monuments (NCMM) to strengthen the legal bases for protection of cultural heritage properties through inclusive national and state policies, guidelines and regulations in line with UNESCO's operational guidelines and the Washington Charter.

2. Collaboration with other professional-

   Integrated conservation of heritage properties should involve the skills of archeologist, ethnographer, sociologist, historian, architects, and engineers under the leadership of a conservation-conscious qualified Town Planner (Feilden, and Jokileto, 1998).

3. Inclusion of Heritage studies in the Planning curriculum-

   This will facilitate understanding and appreciation of cultural heritage property among future planning professionals and foster public awareness and engagement in the need for their protection and conservation. It will also proffer skills and understanding in documenting heritage properties and communicating the significance its historic fabric and cultural values; protecting them from the adverse impact of intrusive interpretive infrastructure, inappropriate interpretation, create respect authenticity and inclusiveness or adaptive re-use in future plans.

4. Contextualization -

   Physical plans and planning schemes designed within a cultural heritage property should relate to the property's wider social, cultural, historical, and natural contexts and settings. This should also take into account all groups that have contributed to the historical and cultural significance of the cultural heritage property. According to UNESCO (2019), the surrounding landscape, natural environment, and geographical setting are integral parts of a site's historical and cultural significance, and, as such, should be considered in its interpretation.

5. Inclusion of multi-disciplinary expertise-

6. Other professionals such as archaeologist and ethnographers should be integrated in the plan formulation where a heritage property is involved. The traditional rights, responsibilities, and interests of property owners and host and associated communities should be noted discussed, clarified, and agreed in the planning process.

Linkage-

Form linkages with other international efforts on the protection of Cultural heritage propert such as International Council on Monuments and Sites (ICOMOS), International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), International Federation of Landscape Architects (IFLA) etc.

7.0 CONCLUSION

Cultural heritage in Nigeria display authentic planning values that expose ageless patterns of adaptation and profiling which brought harmony, self reliance and sustained development. However, the demand for infrastructural development to meet the growing population in Nigeria has threatened the continual existence of these irreplaceable assets and challenges the actualization of sustainable cities and communities in the country. Though several international (UNESCO) and local (NCMM laws) legislation and charters exist in favour of its protection, the continual defacement of Heritage properties indicates that planners and developers are unaware of these regulations, legislation and operational guidelines. Scholars attributed the destruction of heritage properties to absence of cultural heritage impact in SARAP and the inadequacy of EIA's for its assessment. National Commission for Museums and Monuments (NCMM) have successfully utilized the Cultural Heritage Impact Assessment for Nigeria's two World Heritage sites with positive significant results that are sustainable and at the same time, did not interfere with the integrity of the properties.

An integrative framework of CHIA in SARAP was developed - a holistic approach in analyzing cultural heritage impact in site analysis plan without compromising the economic objectives of infrastructural development and the integrity of the property. The authors presume that the developed framework will equip Town Planners in contextualizing cultural heritage properties for adaptive re-use if necessary in their SARAP. For effective implementation of the developed framework, it was recommended that NITP/TOPREC collaborate with NCMM to strengthen laws concerning the protection of Cultural heritage; include heritage studies in planning curriculum; contextualize heritage properties in planning schemes; include multi-disciplinary expertise in planning process and form linkage with international bodies in the protection of heritage.

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CHAPTER 4

PLAN PREPARATION AND IMPLEMENTATION: AN AGENDA FOR NIGERIA BEYOND 2020

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ABSTRACT

Critical aspects of the scope of services of town planners in the public and private sectors are the preparation and implementation of physical development plans. Plan preparation is a service or activity that brings to fore the value of town planning. It is more fulfilling to town planners when plans prepared by them are effectively implemented. The society also benefits immensely from such initiatives. Governments tend to outsource or contract plan preparation to consultants. Paradoxically, with the increasing need for plan preparation, less plans of various categories are prepared. The fewer plans prepared are either implemented partially or ineffectively or they are not implemented at all. This brings to question the intention and the value of the resources expended on plans. For plan preparation to be given more importance and their implementation made more effective, there should be extensive considerations for new approaches in plan preparation. There is also the need for rethink in designing implementation strategies.

Keywords: Plan Preparation, Scope, Approach, Plan Implementation.

1.0 INTRODUCTION

A principal area of core competence of town planners is preparation of various types of physical development plans. When the task of plan preparation is accomplished by a town planner / town planners, it brings fulfillment as they are able to display or exhibit their skills or expertise. Such efforts bring about ordering or reordering of land uses culminating in efficient management of other natural resources. Generally, when a development plan is made for a particular space – neighbourhood, community, town or city, the tendency is that the level of livelihood, well-being / wellness in such a space will be at higher pedestal than in a community without a plan (Olokesusi, 2019; Falade, 2010)

A community without a physical development plan could be described as delinquent. Thus, going by the value of a physical development plan, as a guide to the growth of community or town, it is almost obligatory that no community should be without a plan (Ogunleye, 2019, Daniel and Daniel, 2003 and Keeble, 1969). If such is allowed, the physical environment, the economy, health and safety of the people will be jeopardized.

However, as mandatory as development plan should be for a town or settlement, a value adding activity for a plan lies with its implementation. A challenge that has confronted the growth of human settlements in Nigeria is not only that most towns and cities do not have physical development plans, the few plans prepared are either implemented with some form of lethargy or not implemented at all. In such situation, the entire resources that have been committed to the project usually by the team of consultants on one hand and governments on the other hand, virtually become misapplied or a waste. It is observed that many developed countries have now put more faith in physical planning through plan preparation (Oduwaye, 2015).

In an attempt to x-ray physical development plans preparation and their implementation in Nigeria, this paper discuss the value of development plans of various categories. Besides, it examines trends in plan preparation, and highlights the challenges of the influencers – governments – in development plan preparation. The dilemma involving parties in the implementation of plans; like governments, communities, private sector organisations and consultants are also highlighted. Strategies for strengthening consulting services in plan preparation and implementation were identified. Since a physical development plan is not an end in itself, but a means to achieving various ends, it is evident post 2020, that implementation schedules prepared for a development plan must not only be very suitable, but considerate of socio-economic realities and must be financially yielding.

2.0 THE VALUE OF PHYSICAL DEVELOPMENT PLANS

The value attached to a product or the need it will satisfy dictates largely the commitment to the search for that product by an intending user or owner (Cope, 2003). Such commitment can be through finance, human capital and /or other resources. It should be noted that physical development plans are products of physical planning process. The need for them is inextricably linked to the level of understanding of the role of a plan in impacting positively on the physical, economic and social lives of human settlements.

By their characteristics, physical plans are futuristic. In other words, they are concerned with events that would occur in years ahead and how to locate or manage them. Thus, depending on the objectives of a plan, it could be short, medium or long range between 5, 10 and 20-25 years respectively. The plans are made after extensive and rigorous analysis, evaluation and reviews. Since the development process is dynamic, development plans, whether short, medium or long range are not sacrosanct for the entire period for which the plans are made, hence they are subject to review at certain intervals. This guaranteed their realities (Ogunleye, 2019; Ogunleye, 2018a). Generally, they could be referred to as land use plans, although their content deals with many more issues. Preparing such plans and reviewing them at intervals of some years are parts of the areas of core competence of town planners.

The Nigerian Urban and Regional Planning Law of 1992 (CAP N138 LFN 2004) made it mandatory for the three tiers of government – Federal, State and Local to initiate, prepare, review and implement various types of physical development plans. Sections 1-5 of the Law identify types of plans. Similarly, in practice, other plans are also being prepared. Types of development plans are:

i. National Physical Development Plan

ii. Regional Plan

iii. Sub-Regional Plan

iv. Master Plan

v. Structure Plan

vi. Local Plan

   a. District Plan

   b. Action Area Plan (E.g. sub division or layout plan, city centre development plan, urban regeneration plan)

   c. Subject Plan (Reclamation or Derelict Area Plan, Pedestrian Plan, Campus Plan)

vii. Village or Rural Area Plan

Items I-V could be referred to as high-order plans, hence they are usually comprehensive, broad and of long range. Those listed in VI and VII are known as lower-order plans. They are prepared for lesser land areas, relatively detailed and they complement the plans identified in I-V above. However, there are instances where a rural area plan identified in VII or a subject plan may also be referred to as a higher-order plan, depending on the size of settlement or the focus of the plan being made.

3.0 PURPOSE OF PHYSICAL DEVELOPMENT PLANS

Whether long or short range, these plans are to serve some purposes. These purposes, which are highlighted below give the plans immense value.

3.1 Promotion of Public Interest

Ogunleye (2019), observed that one of the principles being promoted through plan preparation and town planning practice is that of "no one should have unlimited right". Thus, individuals, organisations and governments are expected to exercise their rights with due respect for the rights of others. A development plan usually reconciles the interests of all parties in a planning

area (Oyesiku, 1998). A plan will do this via the principle of allowing compatible uses to stay together, while the incompatibles are separated.

3.2 Makes Functional Spaces Possible

A physical development plan facilitates the emergence of functional, beautiful, economy / investment rewarding setting. Value is created through a plan when order is ensured in space or land utilisation (Obateru, 2005; Obialo, 1999). Besides, in a neighbourhood with a layout plan, the value of the plan is better appreciated where every structure is within a building line and accessible by road or automobile. Thus, in such neighbourhood, access to shopping area, school, play area and others is almost taken for granted. The economic value of real estate investment in such area can be immense.

3.3 Reconciling Short and Long Actions

It can be said that most physical development plans are long range in their conceptualization. Nevertheless, their strength lies in the ability to provide leeway for carrying out programmes or projects within the plan period over the life of the plan (Daniels and Daniels, 2003). It is expected that a plan will state the projects that should be executed within the various year- range in the life of the plan. In case of circulation or road development, the plan will indicate them in hierarchies, their purpose and the period within which they should be built will be stated. In a regional plan, for synergy and balanced development among sub regions, the uniqueness of the various growth centres and the period they will be developed would also be stated. This is usually at some intervals of years.

3.4 Allowing Expert Knowledge in Development

What is seen as the output of a physical planning process, which is the plan, is the combination of the expertise of various professionals involved in the process. Oduwaye (2015), argued that a well prepared plan is an important tool for making decisions on matters of physical development of a country, state or local government. It therefore, means that since every proposal in the plan is the outcome of a well evaluated situation, it will enrich decisions on land use, natural resources management, settlements expansion, employment, urban regeneration and others. Thus, the plan will also boost co-ordination of technical, technocratic and political matters relating to the development of a community or town (Ogunleye, 2019, 2011)

3.5 Land Value Enhancement

There are evidences by real estate investors on how development plans have rapidly shot-up rthe value of their land and associated resources or properties. According to Bloomberg and Burden (2010), whatever could have been the criticisms of physical development plans, they have been negated by the increase in value brought to a piece of land in a planned area or scheme. Nigerian cities of Lagos, Kano, Abuja, Port Harcourt and others have the highest value of land or property and other investments in parts of the city with well implemented plans.

3.6 Opportunity for Organised Response to Change and Emergency

The dynamics of human settlements growth and development makes them susceptible to disasters, emergences and other risks (Kadiri, 2012). A physical plan allows for a co-ordinated and efficient response to incidents like intense migration within a region, as well as disasters like flooding and erosion. For example, a District Plan or Action Area Plan would have studied / analysed the flow pattern of a river, its history of flooding, the characters of its basin, and thus the impact of likely flood would be predicted. Mitigation would also have been proffered (Ogunleye, 2019).

3.7 The Beauty and Green Value

Physical development plan or town planning activities have received credits for aesthetic values of neighbourhoods and communities. All development plans are expected to relate the plans to enhancing the landscape of the spaces concerned. A town or city with an operative development plan has a high probability of looking beautiful, from all perspectives (Falade, 2019; Olokesusi, 2019).

3.8 Others

Apart from the advantages identified above, others are: opportunity for igniting urban renewal or regeneration, as well as providing guidelines for development components of settlements like housing, transportation, environmental management, preservation of historical and cultural artefacts and monuments. A plan could also stimulate growth in otherwise depressed areas and be used for population redistribution.

4.0 THE QUANDARY OF PHYSICAL DEVELOPMENT PLAN PREPARATION

Governments in many countries of the world as principal stakeholders in plan preparation have

stated their commitments and understanding of the need for plans. For instance, at the lower level of governance in the United Kingdom, a Borough – the Herstmere Borough Council stated in its Local Plan (2013) that "the planning system has a key role to play not just in controlling land use, but in positively promoting sustainable development. The Government emphasizes that planning should be plan led and that all local authorities should have up to date District-wide Local Plans, which are reviewed regularly"

In South Africa, it is the belief of government that "if its land use is planned better, our city can also take better advantage of land resources" (DMC, 1998). Expectedly, in Nigeria, there have been similar commitments by governments at various levels to town planning and invariably plan preparation. The Federal Government stated that it initiated the National Physical Development Plan among others, in order to "rationalise national spatial planning for economic efficiency, global competitiveness and to optimize utilisation of land and natural resources for sustainable development" (FGN / FMLHUD, 2014).

At a lower level, the Lagos State Government could unarguably be described as the most active in terms of understanding and resource commitment to physical planning in Nigeria. It has taken the initiative to formulate a series of Model City Plans and Master Plans across Lagos State to be better able to manage the physical growth and direction of development and investments within Lagos State (Fashola, 2013).

Prior to the recent initiatives by governments and private sector organisations who are compelled by legislations to prepare plans, there have been over a century of practice of plan preparation in Nigeria. For instance, it was through the 1917 Township Ordinance (No. 29 of 1917) that many Township Improvement Schemes were undertaken (Aduwo, 1999). There were also Planning Schemes prepared or designated for some parts of Lagos in the 1920s. For instance, Apapa was developed around 1926, as a self-contained unit separated from Lagos Island by the harbour and from the mainland by a belt of swampy land (Aduwo, 1999). Several parts of the country also have lower order plans like slum area improvement plans and schemes. Examples are: the plans prepared by the Lagos Executive Development Board (LEDB) an agency of Lagos Colony.

Nigeria as a country that was hitherto governed by the British, expectedly it took after the British system of physical planning administration. The Nigerian Town and Country Planning Law of 1946 was modelled after the United Kingdom's Town and Country Planning Act of 1932. The law led to the establishment of Town Planning Authorities (TPAs), that were authorised to prepare and approve as well as, execute schemes, and embark on financial matters for successful implementation of the scheme (Oyesiku, 1998).

Some plans or schemes were prepared across the country as witnessed in cities like Lagos, Ibadan, Enugu, Abeokuta, Kaduna and Calabar (Ogunleye, 2019). It is worthy to note that higher order plans have also been prepared for settlements across the country, post-independence. The trend started in the 1960s with the preparation of master plans for Kano and Kaduna in the 1960s, as well as Ilorin in 1974, all in northern Nigeria. In the southern part, Owerri Master Plan (1977), while Master Plans for Epe, Badagry and Ikorodu in Lagos State were commissioned in 1972 (Awogbemi, 1999). Also, the United Nations assisted in the preparation of Master Plan for Metropolitan Lagos (1980-2000) which was commissioned in 1975 and the Abuja Master Plan in 1979. There have also been various physical development plans prepared between the Second Republic Era till the present period. Some were commissioned directly to consultants – foreign, indigenous, while some were funded or prepared with the assistant of UN agencies like the UN Habitat. The cases of structure plans for cities in Anambra, Osun and Nasarrawa States are examples.

Apart from plans for settlements, there are also other categories of development plans like the plans for institutional areas - campus plans, religious area plans, recreational area plans, industrial area plans (including Free Trade Zones) and private estate development plan (layouts or sub-divisions).

The various efforts, attempts, and seeming commitment to preparation of plans have been fraught with some challenges, which have deterred the benefits that would haveaccrued therefrom. The dilemmas in preparation of plan can be traced to many factors. These are as follow:

- Poor understanding of the value of plan.
- The nature and context of physical development plans
- The political game factor
- Consultancy of plan preparation - foreign versus indigenous
- The lack of fund excuse

Perhaps, the most intriguing or perplexing of the forces shaping the commitment to plan preparation is the poor understanding of the value of a plan. Preparing a plan is about the vision of a visioner, who has seen the need to have a plan (Ogunleye 2019, Daniel and Daniel, 2003 and Kebble, 1969). Whether as a leader in government – president, governor, a local council chairman or head of a private sector organization, due to the political structure of Nigeria, state governors or local council chairmen are in a position to commission the preparation of various types of physical development plans. This however, depends on the value attached to the need for it. If they know that citizens should have access to potable water, did they know that a physical development plan will be an activator of water generation and distribution for any

settlement? They certainly cannot find a link, hence poor or no commitment.

Closely linked with above is what is referred to as the political game factor. Since there is poor understanding of the need for a plan, the tendency is to rundown any attempt to push a case for development plans. For example, the politician believesthat building one health care facility each in three senatorial districts of a state are tangibles that can be seen when completed Indeed, the structures will be commissioned with pomp and pageantry. These, to them, are the real "dividends of democracy".Rather than sees plans as bigger tangibles, upon which all other development evolve, they described them as mere sheet of papers. According to Ogunleye (2019) in the 1980s, a governor of a state in south western part of Nigeria was taken aback when he was informed that what a team of consultants that bid for master plan projects for major towns in the state will submit to government on completion of their work are reports, plans and three dimension models. He was quoted to have said "no one would see these documents. We should consider spending the money to construct new roads that will be widely visible"His concern was a project that can be commissioned with a plaque inscribed at conspicuous spot, for media reportage. But then, the idea of new roads should have first been located on a physical development plan, prior to contract award for commencement of construction.

By their nature and within the context in which they are prepared or are to be prepared, physical development plan project, particularly, those of higher order, usually takes a long time of between six and nine months. The practice of the need to take inputs from stakeholders, as recognized in many parts of the world is critical within this context. Even in instances in which six or nine months is the contract duration, there are usually time overrun of between 200 and 300%. The reasons for this are legion. Primary among which are: delays at the initial period of contract commencement, due to administrative laxity and inability of client to respond within the agreed period to submissions made at critical milestones of the project. There is also nonadherence to payment schedule by the client. These get the project bogged down, draw down the expectations of stakeholders. Consequently, the excitement hitherto created on the plan dwindles.

As stated earlier, funding expectedly plays a major part in plan preparation. Since political office holders have barely strained understanding of the value of plans, the tendency is to make very low budgetary allocation to matters of physical planning and development. It is within the paltry allocation that plan preparation as a sub-head will have its own funding. There are even many instances of zero budget allocation for plan preparation by some states for upward of five years. As observed by Ogunleye (2019), and Obialo (1999), one of the realities confronting plan preparation in Nigeria is lack of commitment to funding plans. This is because political leaders are ill informed about plan preparation. This trend has continued for over four decades. (Obialo, 1999). It is worthy to note that even when the low allocation is made, they are not released. In

many instances, less than 30 percent of budgetary allocation to physical planning is released. The cases of Federal Ministry of Power , Works and Housing (2016 and 2017) and Lagos State 2016,2017 and 2018) are apt in this regard " it is evident that there are competing needs of the citizenry , which a government is expected to meet, sadly, preparation of physical development plans have not been seen as one of the priorities (Ogunleye, 2019)

Table 1 shows budgetary allocation for physical planning in Lagos State for 10years (2007-2016). As shown, the highest allocation is 9.1% of the total budget and 17.15% of the capital budget. It is observed that for most years, environmental protection budget is lumped with that of physical planning. Thus, if properly disaggregated, the percentage for physical planning in the total budget and capital budget will be less.

Table 1. Budgetary Allocation to Physical Planning in Lagos State (2007-2016)

Year	Allocation (₦ million)	% of Total Budget
2007	226.467	4.99
2008	403.401	17.32
2009	405.000	10.6
2010	429.596	6.68
2011	445.180	8.20
2012	485.292	9.10
2013	497.277	8.87
2014	489.690	8.11
2015	489.69	7.10
2016	662.588	8.01

Source: A Collection of Budget Speeches 1968-2019, Ministry of Economic Planning and Budget, Lagos State

Apart from this, there is also the game of who execute the preparation of the plan, particularly for public procurement. Usually, physical development plans funded by the private sector (Campus Master Plans, Free Trade Zone Plans) do not witness such "game". But for development plans of human settlements, there have been the worrisome quandary of which is the preferred consultancy group – wholly indigenous or foreign firm.

For some reasons, political office holders have preferred foreign consultants to indigenous. This can be contextualized post-independence, up till 1970s, but it is worrisome and unacceptable that two decades after the country got its independence foreign firms of mix of architects and engineers and few town planners became champions of master plans preparation. Examples are

the Owerri Master Plan 1977, Kaduna Master Plan and Master Plan for Metropolitans Lagos (1980-2000). More recently, the Lekki Master Plan, Lagos State (2013) was awarded to a foreign –owned firm of engineers and planners in 2007. It is expected that this trend would be discontinued as more indigenous firms get strengthened. In any case, it is even an irony that there are over 400 registered firms of town planning consultants in Nigeria, yet some clients still prefer foreign-based firms for consultancy, in spite of the various laws and policies restricting them from practising in Nigeria.

5.0 SAILING THROUGH PLAN IMPLEMENTATION IN "MARSHY" SETTING

Nothing is as fulfilling to a team of town planners than to see the plan(s) prepared by them being effectively implemented. It is the fulfillment of a vision and a correct translation of multiples ideas of the planning team into reality. The reverse is the case when a plan is made to suffer various kinds of implementation paralysis. The reasons for these are many. The paralysis comes in different ways. These range from deliberate neglect of the plan, partial implementation or plan implementation "at the opposite", in which case, what is implemented is the reverse of the plan.

The setting of plan implementation in Nigeria is refered to here as marshy because of the antecedents of the process leading to preparation of most plans. The plans, which most of their funders (public office holders) are reluctant to prepare but are now ready for implementation. Indeed, a governor or a local government chairman is expected to champion the implementation of such plans. How can inhibitions to plan implementation be controlled and plan implementation becomes more result oriented. These are examined below.

5.1 Identifying Quick Wins Projects

With the relatively long nature of the process of plan preparation, it is evident that political officer holders who have three or four years tenure would not be able to wait for a higher order plan to be completed before the execution commences, Thus, at even 50 percent stage of Plan Preparation (Draft Plan) some Capital Improvement Programmes would have been identified or recommended and can be higher stake for the town planners to give value to the final output. The politician - client would then make reference to the plan as the light that directs those improvement programmes. Such could range from ring / link roads, industrial parks, community or town or regional recreational uses/ facilities. At this point, it is positive enough for the plan for the alignment of the roads to be established. For a governor that savours media mentioning, such is enough to put him in the news. This is about being politically savvy, socio- economically responsive and strategic in plan preparation and implementation.

5.2 Effect the Making of Physical Development Plans As Legislative Documents.

The Nigerian Urban and Regional Planning Law, CAP N138 LFN 2004 in Sections 18-20 made provisions for physical developments plans to be made as legislative documents and thus be gazetted. Some states in their Urban and Regional Planning Laws have semblance of this. They also have provisions that get approved development plan published in the State Official Gazette. Nevertheless, these provisions are rarely effected, as very few plans are translated to become legal documents.The import of these provisions in the laws is to strengthen plans and make their implementation a good bite. It is also meant to criminalize instances of deviations and abandonment of plans by politicians or bureaucrats:

(i) Non implementation of a plan; and

(ii) Alteration of plan without regards to sections of the laws on plan review or amendment;

Governments or their agents have been more guilty in this regard, than any other stakeholder. They believe that since they are the custodian of the plans, they reserve the unbefitting rights to either alter or deviate from them. (Ajayi , 2013). Town planners as individuals or NITP as a body need to be very vocal in ensuring more level of compliance to the few plans prepared in the country.

5.3 Making Implementation Separate Phase of Plan Preparation

A plan is incomplete if or when there are no well stated implementation guidelines. Often times, the planning team assignment ends when the final plan is delivered to the client. At this point, the contract is delivered and the tasks is accomplished, if the consultant is not invited to offer his services at the implementation, he cannot impose himself or the team on the client, otherwise he will be labelled a busy body . However, for every physical development plan, it may be appropriate to have a two – phase separate contract- the First phase, being Plan Preparation and the second phase–Plan Implementation. It is synergic to have the same consultancy team executing the two phases. The import of this is to bring to fore, the importance of implementation. In order to ease contract execution at this stage, the fee or remuneration mode for the consultant should be purely on man-hour rate, as the services or activities in implementation could spread over many months or even years. However, the option of retainership could be considered by the client, in which case, a fixed rate is paid over a period of time, no matter the volume of tasks carried out within the agreed duration of contract.

5.4 Create or Establish A Process for Monitoring and Evaluating Implementation.

Another effective method is to have a process for monitoring and evaluating implementation of a plan. This again, will give a value to the plan. For a 20 year plan, the monitoring and evaluation should start before the first five years of the life of the plan. In fact, the first three years is better. This will allow for gaps identification at the embryonic stage. Such can be worked at for effective result and for overall benefits of stakeholders. It will also activate actions towards the review of the plan within first five or ten years of the plan period. The monitoring and evaluation could be done by a Ministry, Department or Agency (MDA) or could be contracted. The implication of this including that of the issue raised in 4.3 above is that an MDA should make budget provision for three components for a particular plan vis:Preparation, Implementation Advisory, and Evaluation and Monitoring of Implementation.

5.5 Department/ Unit for Development Plan Implementation

At present, implementation monitoring for development plan is not considered a key aspect of the process of plan implementation in Nigeria. Hence, implementation has been in quandary. Lately, MDAs in states and at the Federal levels were mandated to establish Procurement Departments or Units. If such exists, there is a reason why MDAs in charge of Urban and Regional Planning and particularly in states where many physical development plans have been prepared should have Plan Implementation Monitoring Unit or Department. The responsibilities of such Unit or Department should be clearly spelt out in order to avoid conflicts.

5.6 Owning the Plans

The broad concept and the principle of planning practice is that town planners "plan with the people" rather than "plan for the people". It means that the planners know and accept the fact that a development plan should be inclusive as much as practicable at the two stages of plan preparation and implementation (Abiodun, 2015). The various laws on physical planning were definite on involving the people or stakeholders in the planning process with heavy commitment expected of the planning team in this regards.

Generally, there have been improvements in the level of citizen participation. In spite of this, stakeholders have been made to play little or no role at the implementation stage. This needs to be improved upon. Ironically even when the plans are specific on the responsibilities of parties – private sector groups, communities and governments, little is heard by private sector groups and communities involvement in plan implementation. An option at improving this is to make them part of the Steering Committee or Group on implementation. This has been done

recently for some plans funded by the Federal Government in Nigeria. For example, the Orile-Owu Physical Development Plan, Osun State, the Brass Physical Development Plan, Bayelsa State and the Ibadan Inner City Regeneration Plan, Oyo State. This will give a major boost to achieving the objectives of the development plans.

6.0 STRENGTHENING CONSULTANCY SERVICES IN PLAN PREPARATION AND IMPLEMENTATION

Consultancy practice in town planning has witnessed some form of growth and transformation, particularly in the last two decades. For instance, there has been increase in number of wholly town planning firms, from about five, pre-1980, to 428 in 2019 (TOPREC, 2020). Although, less than 50% of the firms are active, there have also been improvements in the number of staff employed by firms and in the structure of the organisations. Ogunleye and Kadiri (2016), ranked advocacy / representation as first, preparation of physical development plans as second, while implementation of plans was ranked fifth, out of the six categories of services from which consultants derived major sources of income. It therefore, means that plan preparation is among the top services through which firms of consultants earn income.

Notwithstanding the earnings from plan preparation and implementation, these services can be better rendered to put the various firms at the cutting edge of service delivery. Doing this will elevate the practice in the decades ahead. The efforts will be through the principal stakeholders in matters of physical development plans preparation and implementation. These are: the Nigerian Institute of Town Planners (NITP) and the umbrella body for consulting town planning firms, the Association of Town Planning Consultants of Nigeria (ATOPCON). TOPREC, as the regulator should enforce laws to put deviants, whether as individuals, corporate bodies or MDAs in check. Another stakeholder is government at all levels.

The first critical task is that of conveying the message of the necessity for plan preparation to key players by NITP and ATOPCON. Such key players are: state governors, heads of legislative bodies, local government chairmen, traditional leaders, community heads, the organised private sector, and civil society organisations. This will require reaching out to political office holders of all groups – executive and legislature, as well as private sector organisations. It is tantamount to selling the town planners' areas of core competence. Essentially, it will be an enlightening venture for securing their buy-in and make them get committed to physical development plan preparation. The outcome is the likelihood of a major increase in plan preparation services. It will engender far reaching effects on consultancy practice.

Besides, and closely related to the above is the need to build up the idea of Speculative or Unso-

licited Proposals for the clientele. By this, the consultant will identify a problem or a challenge, prepare a proposal for service delivery on the problem and submit same to a potential client. This is one area ATOPCON member firms should put their drive. There may be the arguments by consultants that if they attempt such, three things will likely happen. These are:

(i) their proposals will never be considered;

(ii) proposal may be passed to another person (who may not even be a town planner) to execute; and

(iii) May be invited for a meeting to clarify issues, after which further discussions is halted.

In business, particularly in the Nigerian setting, such things are common. Nevertheless, it is usually said that "nothing ventured, nothing gained". However, there have been success stories of Speculative Proposals. So, it means the consultants should continue to try in this regard.

In order to minimize likely "infringements" on ideas by uncooperative potential clients in the case of unsolicited or speculative proposal, it is advisable that such proposal be done with little information, in order not to let out the full ideas at the early stage. Speculative proposal will certainly shot up the value of physical planning and ultimately that of physical development plans preparation.

Another likely booster to the process, context and business of plan preparation will be the need for the client to ensure that it has unambiguous, measurable and time-achievable scope of work (SOW). It is surprising that in some instances, items on the scope of work, particularly of consultancy services by government agencies are vague. In instances where there is no ambiguity, some items on the SOW or Terms of Reference (ToR) do not have direct and beneficial value to the work. When a scope of work has such gaps, the project must have been poorly contextualized. Hence, the output will not be of good quality. There is need for the client who requires the services of the town planner for plan preparation to evolve robust ToR or SOW. When the client, whether as private sector organisation or an MDA is not clear with what should be the full content of SOW, a consultant Town Planner can be engaged to offer service solely for this purpose.

In addition, there is also the need to reconsider items listed as deliverables in projects involving plan preparation. The usual deliverables are the plans / reports and in few instances three dimension models. Such reports are: Inception, Interim (Draft), Draft Final and Final Reports. For more effects and in order to stimulate actions for implementation, it is advised that another deliverable be added. This is a document that will contain drawings or graphics all through. It is meant to effectively direct and guide implementation. It will bring the plan closer to the view of the client and other key players and make them appreciate the plan. Indeed, since the Final Report is usually a detailed, voluminous document, a totally graphical document, playing the

role of a "photo book" and easy-to-read, will be value-adding. It will for instance, provide more information on dimensions of spaces, volumes of structures, vista or views of landscapes or right-of-ways, road junctions, etc. The documents should be known as ACTION PLAN. It has the potential of endearing town planning practice in general and physical development plan in particular to the client and the public.

7.0 CONCLUSION

Preparation of development plan is one of the areas of practice of the town planners. More than many things, physical development plans bring to the public, the skills and competence of town planners in space management and in creating functional communities. Preparation approach should be renewed, by establishing strong networks with development partners – governments, private sector groups, and community based organisations on the need or necessity of physical development plans.

Beyond 2020, it is expected that planning practice in Nigeria will witness some changes. The occurrences in natural environment, the economy, the socio-cultural milieu and the political setting will be stimulants in this regard. In view of these, plan preparation is likely to receive a little more attention in the short term. With particular persistence by town planners in educating stakeholders on the need for physical development plans, more clients-public and private will yield.

Plan implementation strategies and schedules should be made more realistic by being conscious of the political setting, as well as the nuances and leaning of the political gladiators. The required resources – human, material and financial need to be properly articulated. Post 2020, consultancy services will be more demanding as the clients' requirements or expectations for performance will tend towards higher scale.

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SECTION 2

ISSUES IN ACCESS TO URBAN LAND, URBAN INFRASTRUCTURE, TRANSPORTATION PLANNING AND MANAGEMENT AND THE NIGERIAN CITIES BEYOND 2020

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CHAPTER 5

NIGERIAN PORT CITIES AND TRANSPORTATION PLANNING: ISSUES BEYOND 2020

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ABSTRACT

The Nigerian port cities enjoy remarkable social, economic, political and international relevance which in addition have impacted positively on the Nigerian state. Port cities are known to have similar relevance which includes job opportunities, revenue generation as well as promoting overall economics of scale. This paper presents the problems of transportation associated with Nigerian port cities such as traffic gridlocks, absence of transit and terminal parking facilities and poor access in and around port areas. Efforts at managing traffic gridlocks and improvement in port cities shows that only the movement of people and cars that are planned for without adequate consideration for the volume of cargo handled through the ports. The consequence revealed by the study shows that the failure to incorporate the huge cargo from the ports have contributed to the overall transportation problems associated with port cities. With increasing volume of cargo traffic, it is necessary to incorporate further cargo growth in the overall transportation planning of Nigerian port cities. This paper reveals the need to develop a long term integrated intermodal transport infrastructure development within the context of considering both people and cargo / freight transportation needs subsequently. As a result of the uniqueness of port cities in Nigeria, its transportation planning for intermodal transport, intelligence transport system and logistics chain applications cannot be compromised. The paper concludes that beyond 2020, transportation planning for Nigerian port cities require more strategic, comprehensive and scientific approach. Hence, explains how best to drive transportation infrastructure development beyond 2020.

1.0 INTRODUCTION

The importance and relevance of transportation in the national economy of any nation be it developed or developing one is great and essential. Therefore, efforts are regularly put in place to ensure that policies and measures capable of sustaining the sector are put in place. Without transport, it is obvious that achieving the desired goals and objectives of man at the very least effort will probably be unrealizable. Generally, transport facilitates interaction between places and therefore adds values to resources. It is transport that has made it possible for the assemblage of natural resources whose end products justify an improved quality of life. Transport

however involve the application of various modes such as air, waterways, road, rail, pipeline etc. the commonest being the road mode. It is important to note that there exist huge problems and challenges associated with the Nigerian transport sector and by implication affecting the overall economy of the country. The problems of transportation in Nigeria are very prominent and visible in its port cities such as Lagos, Port Harcourt, Warri and Calabar. The Nigerian port cities mentioned have common problems and challenges such as traffic congestion parking dilemma in and out of the ports deteriorated transport infrastructure especially road network with potholes dependence on the use of one mode of transport for the evacuation of port traffics and cargo. It becomes desirable to correct and reverse this lopsidedness and the physical dominance of heavy good vehicle around the port areas. It has been observed that transport planning in Nigerian port cities is lopsided and there seems to exist an overall absence of transport planning. It is the focus of this discourse to examine the missing links and subsequently incorporate or integrate them into the future transport planning for the Nigerian ports cities.

2.0 PROBLEM DESCRIPTION

Traditionally, in most of the countries worldwide, transport planning is treated as a part of general economic planning and no special attention has been paid to treat transport planning as a standalone process. Today, not only the developed countries but also developing countries have also realized the need for separate planning for the transportation not only for the existing system but for the future development as well. Can this omission be responsible for the transportation problems and challenges of port cities? As port cities that interface with other socio – economic activities of the city, has the peculiarities of ports within the city system been considered in the transportation planning of the city? If it has been, why is the transportation problem so huge and pathetic? The transportation problems associated with the port cities include, absence of truck terminal for parking, traffic congestion especially gridlocks along port areas, absence of intermodal transport and overall dominance of truck vehicles. Can it be said that the activities of the ports have grown so much that the transport infrastructure are unable to accommodate the growth of the ports or there is a general omission in planning for port activities when the transport planning process of the city commences?

Again, with the increasing volume in ports throughput and activities, there is need to deliberately ensure that ports throughputs are analysed and taken into consideration for the transportation planning of Nigerian ports cities of the future. Also, transport infrastructure provided is observed to deteriorate quickly especially the road mode. The railway again has not been properly incorporated into ports operations while the waterways potentials for inland distribution of goods have no effect on the port system. Hence, for an effective transportation planning for Nigerian ports cities, there is need to incorporate the ports activities into the city transportation

planning agenda.

3.0 AIM AND OBJECTIVES

The aim of this paper is essentially to examine the Nigerian port cities and transportation planning issues. While the objectives are to seek for improvement in the transport problems and challenges that are associated with port cities in Nigeria. Also, with a view of addressing the problems encountered through the activities generated from the ports. It is hoped that the

outcome will be of benefit to other sea ports being contemplated by some states like Lagos (Lekki) Ogun (Olokola) and Ondo State.

4.0 THE STUDY AREA - NIGERIA

For the purpose of this discussion, it is desirable to elucidate and ventilate about the study area. Nigeria is the most populous country in Africa. Further, Nigeria was colonized by the British until 1960 when the country gained its independence from Britain. Since independence, Nigeria has experienced both military and civil governances. However, since 1999 Nigeria has been under democratic government based on presidential system of government. Nonetheless, it is important to note further that Nigeria operates federal system of government with 36 states, a Federal Capital Territory and 774 local government areas that are expected to accelerate socio-economic development and good governance. The economy of Nigeria is import – export dependent. A greater percentage of its trade and commerce is import dominant while its principal source of income which is oil and gas are export focused. The non-oil sector is predominantly made up of agro-allied and solid mineral resources. It is also necessary to observe that Nigeria is increasingly becoming an attractive investment destination through foreign direct investment (FDI) globally. Furthermore, the huge human population advantage of the country provides the more needed labour and manpower resources for the manufacturing and industrial sector as well as other sectors of the economy such as transportation, communication and agriculture. The Nigerian port cities are as shown in figure 1 which include Lagos (Apapa, Tin Can Island, and Lekki Deepsea), Port Harcourt, Warri, Calabar and Onne ports. The major ports cities therefore are Lagos, Port Harcourt, Calabar, Warri and Onne. The major problems associated with all the cities mentioned above is transportation and mobility.

Generally, the government since independence in 1960 had invested and committed huge financial outlay for transport infrastructure development and sustainability. It is unfortunate that despite huge financial and investment commitment of government to the development of transport infrastructure, the outcome from this investment are reminders of failure. It has been observed through quantitative, empirical and scientific approach that physical distribution logistics and

management is a fundamental omission in the overall effort towards improved transportation and physical distribution across the Nigerian space economy. These problems are more visible in port cities of the country where the volume of goods / cargo that require transportation to their different locations remain inadequate. Suffice to say that the absence of integrated transportation system justifies the nation's transport quagmire. With deliberate correction of the lopsidedness, the physical distribution potentials of port cities in the country is guaranteed.

Figure 1: Map of Nigeria

Figure 2: Map Showing Nigerian Port Cities

5.0 LITERATURE REVIEW

Transport is an essential element in the function of any society. It influences the location of both essential services and human activities. Production of goods and services, residence, leisure, commercial and other social facilities / land use depend on transportation. This is a reflection of Nigerian port cities. Ikya (1993) stated further that the development of a society is closely related to development of its transport infrastructure and the efficiency of the service provided. Fryer (1965) further postulated that transportation is so intimately connected with both production and trade that it is very often difficult to separate the activities from one another. Hence, an effective transport system is indispensable to the progress of any nation. This again justifies the growth of the Nigerian port cities. However, he reiterated further that in modern world economy, transportation, production and trade evolve in the development of transport facilities and infrastructure capable of overcoming distance at relatively low cost effect. This argument affirmed that transport is essentially a sector that affect major economic activities and human endeavor. There is no escape from transport. Given these, why are Nigerian port cities handicapped transportation wise?

Furthermore, Ekpe (1991), Filani (1995), Bolade (1990), Kadiri (2005) and Badejo (2014) support Fryer's position that without adequate facilities and infrastructure properly, coordinated, integrated and planned for moving goods and people from place to place, the economic and

social activity of such defined area could be paralyzed and destroyed. This may seem to be the current situation with the movement of goods and people from place to place throughout the Nigerian port cities where it has been observed by Badejo (2014) that planning only for the movement of people without deliberate planning and integrating the freight component agenda for the overall transport development of the country suggest for why the current transport and logistics quagmire experienced in the port cities exist. Hence, Williams (1979) explained that the need to meet the huge demand especially for the future diversed range of products or goods suggest for massive infrastructure investment in the expansion of our transport system along port cities of the country. Meaning that to move the huge quantities of goods out of the ports in an extensive web-like integrated, interrelated, extensive intermodal transportation network need to be developed. However, in the case of Nigeria despite extensive availability of information and human capacity to respond to how essentially its transport infrastructure, integrated, interrelated and intermodal transport system should be has unfortunately omitted and ignored the transport needs of the ports.

Again, Badejo (2018) revealed that there seems to be a wrong notion in the understanding and appreciation of transport and logistics distribution as they affect ports activities. As observed, the focus of transport planning in Nigeria is essentially directed to the movement of people and passengers believing that such approach no doubt has accommodated the freight and logistics distribution needs of ports cargo throughput. Increasing evidences have shown that transport planning only for people and passengers transportation does not accommodate the complex relationship and requirements of freight and logistics demand in the Nigerian economy. Hence, the complex nature of freight and logistics generated from the ports which include transport, warehousing, inventory / stock-taking, material handling and management information systems are all missing in the transportation planning process simply because of the omission of the essential ingredients for sustainable freight and logistics policy and planning development in the overall transport planning of the port cities.

6.0 CONCEPTUAL / THEORETICAL FRAMEWORK AND METHODOLOGY

The method used in discussing this paper is essentially qualitative and secondary data dependent, while the conceptual consideration focused on the transportation planning process and system analysis.

6.1 Conceptual / Theoretical Approach: The conceptual approach that were used to galvanize this study are the transportation planning process and system theory or approach. Planning for transportation involves the consideration of so many factors and complex parameters. These parameters are vital if future transportation efficiency for Nigerian port cities of tomorrow can

be guaranteed.

6.1.1 Transportation Planning Process:

In most countries transport planning is treated as a part of general economic planning and no special attention has been paid, but now not only developed countries but developing countries have also realised the need for separate planning for the transportation, not only for the existing system but for the future development also of which Nigeria is no exemption. The study of development and planning is basically a study of interaction between man, land and activity in the form of spatial organisation of economy. After the industrial revolution and rapid growth of urbanisation, development in the field of transport is enormous both in infrastructure, speed, as well as technology. Nowadays every country of the world is having its own national transport system, not in isolation but as a part of international system of transportation.

Transport now has, as ever, become an integral and essential part of the economy and requires a planned growth, which should be 'sustainable'. In fact, transport planning is the process of regulating and controlling the provision of transport to facilitate the efficient operation of the economic, social and political life of a country at the lowest social cost. In practice, this means assuring adequate transport capacity and efficient operations to meet the needs generated by the nation's geographical array of activities. This provides the foundation and justification for transportation planning

Transportation Planning Process: The primary aim of transport planning is the identification and evaluation of the future transport needs. The basis of transport planning process has been depicted in Figure 3 below:-

The four main stages of the transportation planning process are as itemized.

i. Transportation survey, data collection and analysis;

ii. Use of transportation model;

iii. Future land use forecasts and alternative policy strategies; and

iv. Policy evaluation.

6.1.2 System theory:

System theory is another concept considered in this paper. It is the inter-disciplinary study of systems. A system is a cohesive conglomeration of interrelated and interdependent parts that is either natural or manmade. It is an interdisciplinary theory about the nature of complex systems

and is a framework by which one can investigate and or describe any group of objects that work together to produce some results. Furthermore, changing one part of the system usually affect other parts and by implication the whole system providing predictable patterns of behaviour. In other words, and by implication, transport can be seen or observed through the system theory. The systemic relationship associated with the modes of transport once it is omitted or disregarded the overall transport system will collapse to cause problems. This is probably why port cities in Nigeria have transport related problems that is more complex than Nigerian cities that are not port cities. The transport family (mode) is seen as a group of interacting or interrelated entities that form a unified whole. The interrelated entities are air transport, road transport, rail transport, water transport, pipeline transport and others as shown in Figure 4.

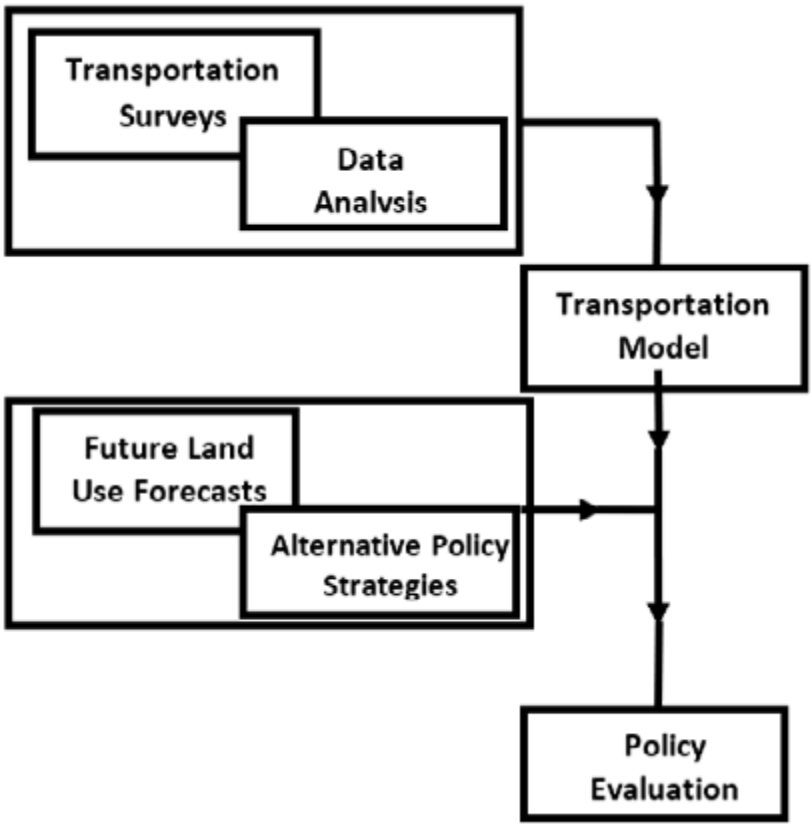
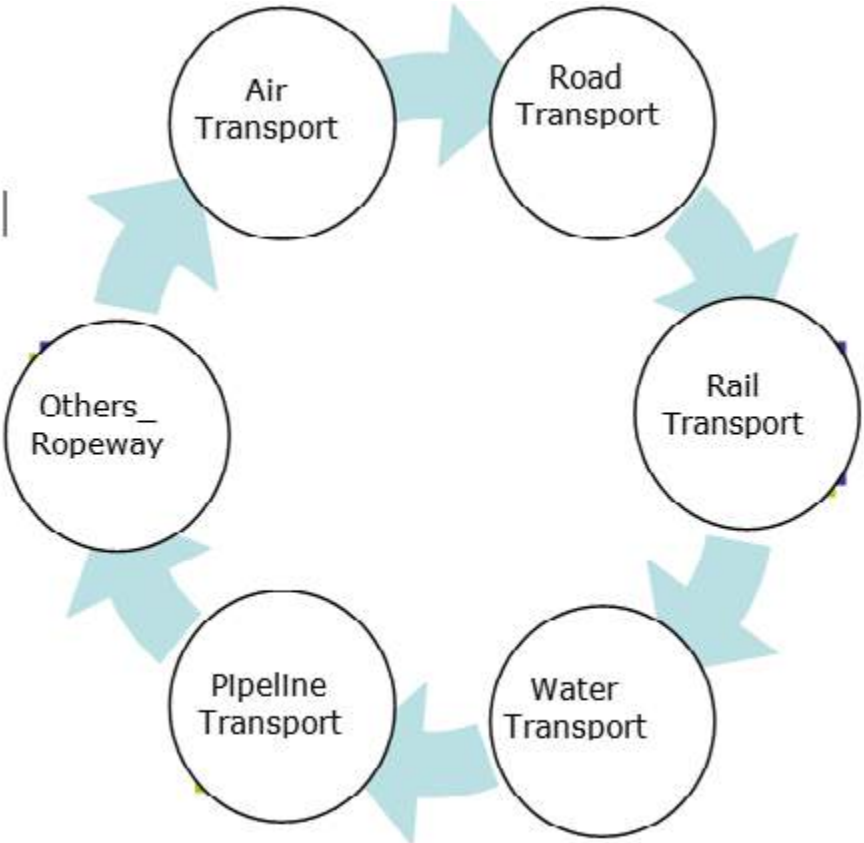


Figure 3: Transportation Planning Process

When examined from the point of view of transportation the relationship and interrelationship that is expected amongst these modes are revealed. Meaning that each of these modes of transportation as a system have their competencies such as Strengthen, Weakness, Opportunities and Threats (SWOT), which are relevant towards abating or mitigating the transport problem in port cities.



An Illustration of Open System

6.2 Methodology

This study relied on secondary data sources comprising of journal articles, publications by private and public organisations especially agencies of government in the maritime industry and the national bureau of statistics as well as the Federal Ministry of Transportation. The secondary sources of data also provide secondary based insights for the study such as the conceptual issues considered for this study. Other secondary sources of information were drawn from the port cities.

7.0 RESULTS

This section is to provide the secondary data used for subsequent discussion on Nigerian port cities and transportation planning. Table 1 presents cargo throughput at Nigerian ports from 2007 to 2018, these are data generated from the operational activities of all the Nigerian ports and by implication port cities of Nigeria from the Nigeria Port Authority and National Bureau of Statistics. Table 1 further revealed the types of cargo berthed in Nigerian ports as well as the volume of tonnages handled through import and export throughout the corresponding years of

2007 – 2018. Table 2 is essentially container statistics of which Lagos port complex is known to dominate in the handling of container cargo, while Table 3 shows cargo throughput by type while Table 4 provided information about the numbers of vessels in and out of the Nigerian port cities.

The essence of this discussion is to reveal the quantum volume of cargo handled by the Nigerian port cities and to imagine any transportation planning process capable of responding positively to the transportation and mobility needs of every stakeholder, in these port cities without taking cognisance, capturing and incorporating of these cumulative volume of port cargo at every stage of transportation planning process for the cities. It is obvious and unarguable that the transport infrastructure to be provided that will not take congnisance of all the parameters presented through Tables 1 – 4 which can be described as "dead on arrival". This observation is germane in Nigerian port cities because these port cities are known by all standard exhibiting transportation problems as well as accelerated infrastructure decay and deterioration. Transport facilities and amenities provided in Nigerian port cities are known to be facing numerous physical distribution and logistics quagmire. Again, it is justifiable to assert that the non- consideration of port operational activities when conducting transportation planning and transport infrastructure development seems to be responsible for why other modes of transportation especially rail and waterways have not been integrated fully into the transportation planning agenda of Nigeria port cities.

It is the focus of this paper to suggest for an integration and incorporation of port cargo along with other transport planning parameters in order to evolve a responsive and efficient transportation system in Nigeria port cities. The scenario that reveals itself again suggests that Nigerian port cities have been dominated by transportation planning efforts that focus only on providing transport infrastructure for people and passengers without factoring freight or cargo in the transportation planning programs. It can therefore be seen that if the transport needs and improvements of Nigerian port cities beyond 2020, there must be a paradigm shift from the present traditional way of transportation planning which seems to be selective and sectional to holistic and comprehensive.

Table 1: Cargo Throughput at Nigerian Ports (Excl. Crude Oil Terminals) Classified by Type of Cargo: 2007 - March 2018

TYPES OF CARGO		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	*JAN – MARCH 2019
GENERAL CARGO	IN	9,658,439	6,047,059	8,065,189	8,250,973	8,279,623	14,290,301	7,610,914	14,080,679	7,116,498	3,952,551	4,422,377	5,851,351	1,379,894
	OUT	589,934	1,377,446	3,838,784	6,029,503	4,936,884	5,231,335	4,297,328	5,936,029	3,633,440	2,637,387	997,917	920,279	367,425
CONTAIN-ERISED CARGO	IN	2,697,353	7,794,894	5,802,550	7,534,972	9,252,781	4,298,373	10,729,910	5,428,846	9,419,672	8,976,048	10,379,152	11,173,936	2,818,990
	OUT	298,627	685,248	897,994	1,224,443	1,239,600	662,815	1,435,972	750,620	2,263,594	2,103,798	2,325,091	2,498,206	486,978
DRY BULK	IN	11,500,338	13,350,161	14,267,917	12,683,482	13,082,771	10,102,158	9,693,13	9,847,860	9,154,171	9,704,453	9,818,494	8,778,357	1,888,446
	OUT	234,786	179,668	243,854	285,015	28,557	61,584	137,399	22,135	36,101	339,662	825,624	925,840	223,355
LIQUID	IN	11,688,835	14,003,502	17,621,493	18,459,421	21,406,930	17,531,295	21,971,645	24,413,798	22,421,020	20,837,594	18,479,066	19,395,337	5,124,951
	OUT	20,805,038	20,934,771	15,037,728	22,276,918	25,234,551	24,914,764	22,405,332	24,471,960	23,343,142	21,813,543	24,287,916	23,631,821	6,384,495
GRAND TOTAL		**57,473,350**	**64,372,749**	**65,775,509**	**76,744,727**	**83,461,697**	**77,092,625**	**78,281,634**	**84,951,927**	**77,387,638**	**70,365,036**	**71,535,636**	**73,175,127**	**18,674,534**

Source: Nigerian Ports Authority (NPA) (Annual Reports)

Table 2: Container Traffic Statistics at Nigerian Ports: 2007- March 2019

YEAR	INWARD (IMPORTS)				OUTWARD (EXPORTS)			
	NO. OF EMPTIES	LADEN		T.E.U.	NO. OF EMPTIES	LADEN		T.E.U.
		NO.	TONN.			NO.	TONN.	
2007	979	407,828	2,697,353	356,551	382,481	247,076	298,627	75,399
2008	2,844	400,119	7,794,894	551,682	286,897	47,197	685,248	61,300
2009	177	416,351	5,802,550	577,267	376,276	57,830	897,994	76,317
2010	738	430,923	7,534,972	603,479	337,308	66,289	1,224,443	82,458
2011	97	536,719	9,252,781	753,411	435,134	66,202	1,239,600	86,566
2012	273	556,900	4,298,373	783,279	496,237	72,774	662,815	97,318
2013	437	623,409	10,729,910	887,211	503,225	79,718	1,435,972	105,455
2014	106	649,514	5,428,846	935,309	522,942	102,081	750,620	128,177
2015	126	534,223	9,419,672	771,13	417,627	128,687	2,263,594	168,249
2016	7,839	446,645	8,976,048	654,166	309,546	121,037	2,103,798	154,421
2017	85,263	442,290	10,379,152	667,826	207,539	116,319	2,325,091	154,880
2018	112	285,408	10,914,966	808,516	365,754	130,862	2,413,868	178,805
***JAN - MARCH 2019**	**2**	**122,787**	**2,818,990**	**192,164**	**95,447**	**28,162**	**486,978**	**37,733**

Source: Nigerian Ports Authority (NPA) (Annual Reports)

Table 3: Cargo Traffic Excluding Crude Oil (Metric Tons): Cargo Throughput by Type Port

PORT	1ST QUARTER 2017				2ND QUARTER 2007			
	GENERAL CARGO	DRY BULK	LIQUID BULK	THROUGH-PUT	GENERAL CARGO	DRY BULK	LIQUID BULK	THROUGH-PUT
APAPA	1,617,368	1,463,063	1,486,132	**4,566,563**	2,135,876	1,504,809	1,502,947	**5,143,632**
TIN CAN ISLAND	1,388,537	540,308	1,989,394	**3,918,239**	1,557,414	602,859	1,748,457	**3,908,730**
RIVERS	59,265	252,134	596,440	**907,839**	80,103	199,458	695,424	**974,985**
ONNE	362,422	108,399	5,541,187	**6,012,008**	389,471	178,705	6,125,931	**6,694,107**
CALABAR	2,410	110,606	409,522	**522,538**	2,983	99,278	433,195	**535,456**
DELTA	723,041	56,026	765,136	**1,544,203**	662,194	74,772	935,936	**1,672,902**
TOTAL	**4,153,043**	**2,530,536**	**10,787,811**	**17,471,390**	**4,828,041**	**2,659,881**	**11,441,890**	**18,929,812**

Source: Corporate and strategic Planning Division, NPA

Table 4: Number and Gross Registered Tonnage (Grt) of Vessels that entered all Nigerian Ports: 2007-2019

YEAR	NO OF VESSELS	GROSS REGISTERED TONNAGE
2007	4,849	84,806,792
2008	4,623	89,505,702
2009	4,721	90,603,611
2010	4,881	106,689,553
2011	5,232	122,614,716
2012	4,837	120,818,683
2013	5,369	130,628,057
2014	5,333	148,323,065
2015	5,014	141,250,703
2016	4,373	134,066,547
2017	4,292	130,357,357
2018	4,009	128,671,805
***JAN - MARCH 2019**	**1,045**	**32,974,368**

Source: Nigerian Ports Authority (NPA) (Annual Reports)

8.0 IMPLICATION / CONSEQUENCES

Observation raised from earlier discussion have serious implications and consequences on the future of Nigerian port cities. There seems to be a common transportation problem affecting Nigerian port cities. None of the Nigerian ports as against the past situation is currently connected with the rail mode and does not apply coastal water and inland waterways for physical distribution movements of cargo from ports. In other words, Nigerian ports depend mainly on the use of road mode in the transportation process of cargo throughput recorded in their various ports. Given the nature of the ports cargo which are laden exert huge pressure and weight bearing on the road system, thereby accelerating the deteriorating rate of roads in Nigerian ports. Again, most of the corridors leading to the ports in Nigerian ports cities are probably the worst affected in terms of traffic congestion, parking problems and frequency in vehicular breakdowns and loss of lives, Oshodi Apapa Expressway in Lagos is a good example. The size of goods which are in containers and general cargo during breakdown generate problems of recovery.

In addition, because cargo throughput and vehicles frequenting ports have not been incorporated in the transportation planning process of these cities, amenities and facilities such as truck terminals, warehousing and heavy duty recovery equipment are absent. And where they are available are improvised. This is to say that generally the omission or neglect of port operations

and other activities outside the overall transportation planning of port cities has ended up to create more problems of mobility in the port cities. The consequences, therefore, are huge for the port cities. It has social, economic, environmental and health implication and these consequences, when measured in monetary value, reveal huge financial losses and infrastructure wastages. Some of the social consequences include spending long hours in the traffic, stress and entropy as well as rages. The economic implications are quite enormous especially from the point of view of operations and revenue losses. Environmental consequence is also visible in emission which affect the overall environment as well as aggravating climate change quagmire. Since there is general absence of terminals and parking for trucks, trucks park on highway which often leads to road traffic crashes and rapid road deterioration as a result of the absence of other modes of transportation to complement the road mode.

9.0 RECOMMENDATIONS

This discourse commenced with a position that port activities and operations are generally omitted within the context of overall transportation planning process of port cities. It is therefore not surprising that the Nigerian port cities experience similar transportation problems and therefore suggest that there is a general omission in the conduct of transportation planning in the port cities which does not take cognisance of the overall activities and operation of the ports into account. Again, it has also been observed that Nigerian port cities are primate cities, with huge population and other socio-economic dominance. It is therefore observed that the predominant focus of transportation planning in the port cities is geared towards the ease of movements of people and passengers with a gross omission of movement of freight, cargo and goods especially from the ports.

It is evident that Nigerian port cities in moving beyond 2020, transportation planning should begin to expand its interests and concern to incorporate and accommodate cargo throughputs generated from in and out of the Nigerian ports. Because without incorporating the activities of the ports, it is obvious that improved transportation infrastructure and physical distribution logistics around ports cities shall be in jeopardy.

Given this background, it is recommended that:

i. There is need to conduct a comprehensive survey of ports activities including ports operations and activities, so as to incorporate the transportation needs of the ports system in the overall transportation of the port cities.

ii. It is also important to correct the total dependence of movements or transportation of people, passenger, goods and services on the road mode. Given the quantum volume of cargo

and their weight bearing, it is advisable that other modes of transportation be develop to complement the road mode and to ease transportation and mobility.

iii. As a follow up to (ii) above, it is evident that there is need for the development of inter-modal, integrated and well-coordinated transport infrastructure development in a diversed and complex web-like distribution to many other parts of the country. In an attempt to mitigate transportation problem of port cities. The current transport infrastructure network available are not capable to cope with the growing and emerging economy that has been predicted for the country beyond the year 2020. It is therefore desirable to commence in earnest the process of rebuilding the nation's transportation system. And by implication mitigating port congestion, gridlocks and accelerated infrastructure decay.

iv. While some of the recommendations are long term transportation planning response, it is desirous to be mindful also of short-term responses capable of improving movements of goods out of ports within the context of the overall port cities. Hence, there is need to fast track the rehabilitation and reconstructions of failed sections on the nation's highway, especially along the port corridors.

This discourse further reveals an important composite segment in the survival in the port cities which is the need to expand the survey frontier of transportation planning process in port cites and the intermodal response that is more appropriate.

10.0 CONCLUSION

In conclusion, the Nigerian port cities as primate cities have some uniqueness which are of physical, social, economic and spatial dimensions. Population growth and agglomeration of people is quite enormous, suggesting accelerated population growth. Another major feature of port cities is the huge volume, tonnage and weight of freight and cargo dominance which compete favourably with passenger movement demands. Hence, there is high demand for transits, warehouses, storage and parking of all types. As a result the uniqueness of port cities in Nigeria, the consideration in its future transportation planning process for intermodal transport needs cannot be compromised. The paper concluded that beyond 2020 and for better movements in and around ports cities the transportation planning process is required to be more comprehensive and all encompassing, strategic, scientific and more analytical. This futuristic strategic transportation planning approach helps to explain how best to drive transportation infrastructure development and planning in Nigeria port cities beyond 2020.

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CHAPTER 6

CHANGING THE NARRATIVE: PROVISION AND MANAGEMENT OF URBAN INFRASTRUCTURE IN NIGERIAN FAILED CITIES

Hakeem Olatunji Badejo

ABSTRACT

An orderly environment comes with a functional urban infrastructure that adds value to the quality of living. What is the essence of having the best plan for a community or society without corresponding urban infrastructure that the citizens, urban planners, and urban managers can be proud of? It is interesting to note that while the urban managers who are providing the urban infrastructure are reducing the cost of provision of the infrastructure thereby reducing the quality and life span of the urban facilities. The citizenry on the other hand are reckless in the usage of the fragile urban facilities. This paper discusses availability, quality, appropriateness, maintenance, monitoring, and usage of different urban infrastructure (in particular roads) in our cities with special reference to Lagos. This was carried out by physical observations of the urban infrastructure over the years. This paper proffers practical feasible solutions.

Key words: city DNA, urbanization, urban infrastructure, urban managers, urban planners, hard infrastructure, soft infrastructure.

1.0 INTRODUCTION

Cities all over the world are experiencing extremely fast rates of urbanization, as rural populations continue to flock to them for white and blue-collar jobs. At the global level, New York, London, Toyo, Dubai, Hong Kong, Shanghai, New Delhi, and a host of others are witnessing a mass movement of national and international migrants.

The United Nations report on human settlement projected that by 2050, 70% of the world's population will live in cities. The story is not different in Nigeria with Abuja, Kano, Kaduna, Ibadan, Port Harcourt, and Lagos attracting internal migrations. The pull factors are the urban infrastructure, opportunities, and innovations provided by these cities.

Urban infrastructure is a major factor of attraction to the cities. In fact it is the soul of the city. It improves the living standards of the urban population through efficient transport, power supply (electricity), potable water, telecommunication networks, and services. Most cities have their unique identities occasioned by their infrastructure. Over the years, the author of this paper studied the symbiotic relationship between urban infrastructure and urbanization viz a viz the role played by Urban Planners, Urban Managers and users of the infrastructure in some Nigeri-

an cities with special reference to Lagos.

The term infrastructure has been given different definitions by different authors. This paper defines infrastructure as the aggregate of hard and soft facilities provided to enhance the quality of living in a community and for the socio-economic growth and development of the area. The hard infrastructure are the physical structures, buildings, roads, railways, pipes (sewers and water), and energy and telephone cables. On the other hand, the soft infrastructure are the greenery, breathable air, policy, and legal system that governs the usage of the hard and soft infrastructure, funds, and people that maintain the infrastructure.

The aim of this paper is to x-ray what needs to be put in place to change the narrative of Nigerian cities as failed cities using infrastructure as a barometer. Urban managers and urban planners need to accept road as urban infrastructure and as a veritable tool for socio-economic growth and development.

The objectives of this paper are centered on:

1. The roles of technocrats, urban managers, urban planners, and stakeholders in changing the narrative.
2. Evaluation of previous and existing modes for the provision of the infrastructure.
3. To ensure that the infrastructure provision and management are in line with best practices.

This paper limits its discussions to road facilities. This is due to the fact that mobility is vital to economic growth and improved quality of living. Roads serve as the blood circulation system that makes the soul of the city lively and the transport infrastructure network covers 20 -30% of the built-up areas.

This paper takes care of what we see in our daily activities but because we are not conscious of them on how they affect us we pay little attention to them.

2.0 IMPORTANCE OF INFRASTRUCTURE

We need to x-ray the importance of infrastructure in this discussion to be able to appreciate that it as a sine qua non to growth and economic development. In this regard transport comes to the front burners in all the elements that make up the infrastructure. If 80% of global GDP is generated from urban areas, then keeping the cities moving is vital to economic growth and improved quality of living. A good transportation system with the associated furniture is central to the pull factor to the cities.

When anything goes wrong on the transport system all users suffer. It is the main fabric of urban physical systems or bedrock on which economic development stands. If there is a problem with smooth transport, there will be serious disruption to supply chains therefore negatively impacting businesses as well as commerce and other daily social interactions.

Take for instance the most common transport challenge in Lagos anytime it rains. The roads are flooded making the roads impassable for motorists. This is often accompanied with traffic gridlocks and loss of valuable man-hour on the road. On July 26, 2019, the author was returning to Lagos from the US with Delta Airline Flight 54, at about 3.25 pm there was an announcement by the air hostess that the aircraft will be touching down in few minutes but she alerted the passengers that it was raining in Lagos and anytime it rains in Lagos it is always "wahala" (traffic gridlocks).The entire passengers inside the aircraft just laughed because it is the norm in Lagos, anytime it rains.This is what Lagos is noted for. In addition to the geographic coordinates of Lagos, this is the DNA of Lagos. Rain that is supposed to be a blessing to cities, is a serious challenge to the city of Lagos. As an urban planner, I saw it beyond the norm. It is not only a failure of our urban infrastructure but also an indictment on our urban managers and an international embarrassment recorded in the voice recorder of Delta Flight 54.

The reaction of Nigerian passengers in the aircraft (Delta Flight 54) was a clear demonstration of nonchalant attitude to good infrastructure and failure to hold the political class accountable for non provision of good road or infrastructure. This further proves that many people don't realize that infrastructure plays a key role in socio-economic growth and development of cities if it is intelligently designed, planned, delivered, and managed.

Let us briefly look at the position of some technocrats, researchers, urban planners, and providers on infrastructure. Abdou (2004) is of the view that infrastructure provision in Africa, "Among government officials, urban planners, and development workers are frequently understood as failed cities, unable to provide even basic services". In Nigeria, some of the views of concerned stakeholders are; "Nigerian cities are characterized by the inadequacy of urban services that do not keep pace with population growth and urbanization" - Vincent I. Ogu. Badejo (2013), observed that in Lagos, "infrastructure is inversely proportional to the square of the population". That is; $1/f \infty P2$, where f = infrastructure, P = population. Similarly, two researchers Udoidem and Udoudo (2017), carried out extensive work on urban infrastructure in some cities in Nigeria, concluded that "the Nigerian government has been guilty of neglecting or underfunding infrastructure development due to either poor budgeting, estimation of acquisition, maintenance cost or sheer mismanagement of funds, allocated for such projects".

Putting together all the above information, coupled with practical experience of what is going in the field before, during, and post-construction of infrastructure in Nigerian cities, the author concluded that any infrastructure provided without a minimum of 1% provision for its annual maintenance is a failed project. That is, a road project that costs N100 million should be accompanied with a corresponding N1million budgetary provision for its annual maintenance and ensuring that the fund is used for the purpose. This is a major recipe for Nigerian cities to get out of the classification of failed cities.

3.0 INFRASTRUCTURE INSTITUTIONAL FRAMEWORK

Let us now address who should be responsible for the provision of the infrastructure. In Nigeria, infrastructure is provided by four different entities. These are:

(a) **The State:** This is the dominant group in the provision of infrastructure. This is made of government at all levels (federal, state, and local). The Federal Government constructs regional and interstates roads, the state government constructs state and distribution roads, while the local government takes care of local and access roads.

(b) **Uncoordinated Private Sector:** This involves the provision by the private sector at a small to medium scale. The infrastructure provided by this group is usually private and not coordinated. This includes the provision of roads network within an estate only limited to the estate. Banana Island and Victoria Garden City both in Lagos are good examples.

(c) **International / Multinational Agency:** This usually involves the World Bank, International Monetary Fund IMF, Mobil, Chevron, and other agencies with good financial muscle to fund large community projects. Usually such projects are delivered at high quality. For the monetary agencies the fund usually comes as a loan. But for oil companies the projects are donations to the community as corporate social responsibility of the Multinational companies in the areas of operation of their businesses.

(d) **Non-Profit Organizations**: These include Non-Governmental Organizations (NGO), Community Based Organizations (CBO), and Faith Based Organizations (FBO). These often act as safe gaps to provide road or health facilities projects for the community of their interest. The infrastructure provided by this group usually comes with their challenges in the sustainability of the projects. Most often the community cannot maintain or service the project donated by this category of infrastructure provider in Nigeria.

4.0 URBAN INFRASTRUCTURE CHALLENGES

This section of the paper will address the problems confronting infrastructure in our cities. Aside from the challenges of population, pollution, potable water, energy, efficient transport system, sanitation, environmental degradation, and vandalism, urban infrastructure in our clime is designed for short and medium terms. The life shelve of our infrastructure is very short. These amongst others have made various researchers and authors on urban infrastructure to conclude that our cities are failed cities. The three tiers of government are not paying adequate attention to the provision of quality basic infrastructure. Many are of the view that the government pays more attention to the construction of new projects while giving little or no budgetary provision for the maintenance of the existing ones. In fact, in a democratic setting it is a rat race in constructing new projects at the expense of the existing ones. Every administration comes up with a new project regardless if previous administrations belong to the same political party. It is a worse scenario if the previous administrations belong to different parties. Good infrastructure projects are usually abandoned on the pretext that there are no funds to continue the project while new projects of higher cost are embarked upon. A good example on record is the aborted Lagos metro line in 1984. There are several examples of high demand infrastructure provided by the government but never maintained which became a serious embarrassment to the state. Lagos - Ibadan and Lagos Badagry-Expressways and Lagos-Okokomaiko Light Rail are vivid examples.

This brings us to the issue of the sustainability of infrastructure in Nigeria cities. How sustainable is our urban infrastructure? That is, is today infrastructure capable of meeting the need of future generations' socio-economic demands? This can only be achieved through unbiased political will, empirical urban planning, design, delivered through best practices, proper maintenance, with clear understanding of the decommissioning of the project at the end of its life span. If our infrastructure is only designed for 4 or 8 years life span of an administration, we shall continue to be categorized as failed cities.

5.0 ISSUES WITH URBAN INFRASTRUCTURE

This section of the paper x-rays how our roads and roads complimentary facilities are provided in the past and the method adopted in recent times. Which of the methods is working and sustainable? What are the grey areas and what needs to be done to get it right? Before we address how road infrastructure is supplied or provided in the past and now, let us ask ourselves these questions:

i. Why don't we seal road cracks but only wait until they develops to potholes that will re-

quire more resources?

ii. Why do we use different materials to repair our roads? Example asphalt and interlocking stones on the same road.

iii. Why are our road drain inlets usually at the right angle even if the gradient of the road does not favor the right angle?

iv. Why are our road drain inlet devoid of protective filtrexx (iron grills or traps that filter runoff)?

v. Why our roads devoid of road are studs where needed?

vi. Why is the gradient of our road sidewalk not physically challenged friendly?

vii. Why are our rugged old highway kerbs now replaced with less resistance kerbs?

viii. Why our finished road surface are not well cambered?

This paper is not unmindful of the fact that road infrastructure is not the only infrastructure that makes a city livable. But globally, it is the most vital element in the rating level of livability of modern settlements and cities. Asides, to town planners or town planning authorities, across the length and breadth of Nigeria, evidence of access road is a major consideration for granting Planning Permit or Development Permit.

5.1 Road Cracks and Potholes

Road cracks come in different forms. Similarly, potholes. The economic difference between the two is that it is cheaper in cost and time to seal road cracks than patching potholes. It costs between $0.10 and $0.35 per linear foot to seal a road crack, while it costs between $1 and $3 per square foot to fix a road pothole. In this part of the globe, we don't seal road cracks but wait until it develops into potholes and craters.

Again, our road engineers and urban managers need to explain this road maintenance strategy in Nigeria. American cities and other developed climes are noted for sealing road cracks. See plates 1 and 2.

Source; Field work *Source: Field work*

5.2 Dual Materials Road Repairs Strategy

Most often our urban roads are regarded as not friendly to vehicle tires and commuters through the use of two or more materials to repair the same length of road. Take for instance the combination of asphalt and interlocking stones as well as concrete cement or sandcrete to resurface the same road. This practice is very common in Lagos. For the fact that the same length of road is repaired at different intervals and spots with these materials, the wear and tears of the tires on the road cannot be the same. This equally translates to bumpy rides in our cities. This road maintenance practice by road engineers in Lagos is becoming contagious to other cities in Nigeria. *See plate 3.*

Source: Field work

5.3 Road Kerbs

As technology improves, coupled with durable construction materials one begins to wonder why Nigeria got it right in the provision of quality road kerbs in the 70s and 80s, now getting it wrong in the 90s to date. See plate 4 for kerbs of the 70s on Lagos Ibadan Highway and replaced with substandard road kerbs by 2020. The new kerbs along the same Lagos Ibadan Highway started breaking on the impact of vehicles less than two months of construction. Interestingly, the quality of the road was projected for a life span of 40 years. See **plates 5 and 6.**

Source: Field work *Source: Field work* *Source: Field work*

5.4 Angle of Inlet

This is a poser for our road engineers. Apart from the University of Ibadan Road and some few roads in the city of Ibadan, virtually all roads in Lagos including Lagos Ibadan Highway which is under reconstruction discharged the storm-water into the abutting drains at a right angle. The right angle reduces the rate of discharge of the stormwater into the drains, increases the sedimentation rate of the floating objects in the runoff, and impacts heavily on flooding. This will eventually damage the road. Right angle drain inlets are only appropriate for relatively flat terrain when road construction slopes to one side for the discharge of the storm-water. See plates 7 and 8. Nigerian road engineers will need to explain why they approved the design and construction of road drain inlets at right angles against acute angle along the direction of runoff.

Source: Field work *Source: Field work*

5.5 Road Drains Inlet Traps

A careful study of most of our major roads constructed in the 60s and 70s were provided with rugged side kerbs and filtrexx, a filter that traps sediments in stormwater. The filtrexx prevents large foreign objects from getting to the drain inlets**. Plate 9,** shows the drain inlet trap of the Gbagada Oshodi Expressway constructed in the 70s. Most often, the filtrexx are located at regular intervals at the drain inlets along the road kerb and prevent siltation of the underground drainage network. Foreign objects like bottles, papers, nylons, stones, pieces of wood, and vegetation are trapped at the entrance of the drain inlets for street sweepers to clean them regularly**. Plate 10,** shows recent road construction without filtrexx (inlets traps). This is the major cause of the flooding of Lagos roads during raining season.


Plate 9: Filtrexx at drain inlet along Gbagada road, Lagos


Plate 10: Unprotected drain inlet


Plate 11: Effect of unprotected drain inlet

Source: Field work

5.6 Unfriendly Walkway

It is very embarrassing that most of the walkways in our urban areas are not friendly to the sighted talkless of the unsighted and physically challenged. Most often the cover slabs of a walkway are removed without replacement. This raises the issue of the safety concerns of the users. Also, the slope of the gradient of the walkway is too high for the usage of any user in a wheelchair.


Plate 12: Unfriendly walkway along Kodesoh, Ikeja, Lagos


Plate 13: Steep gradient walkwayat Ikeja, Lagos


Plate 14: Typical walkway at Khalidiyah, Abu Dhabi

Source: Field work

6.0 COVID-19 IMPACT ON INFRASTRUCTURE

The COVID-19 pandemic which broke out globally at the commencement of this paper encouraged the author to extend the scope of the study to the impact of the pandemic on urban planning and infrastructure. The pandemic has far-reaching effects on urban infrastructure. The lockdown forced suspension of all ongoing public and private projects. It equally forced Lagos State Government to reorder her N1.17Trillion budget. This will have far-reaching effects on the provision of urban infrastructure. See **Plates 15, 16 &17.**

Source: Field work

The pandemic did not only expose the weakness of the state health facilities but also reveals no availability of public open spaces and recreation areas for the teeming population. **Plates 18, 19 & 20** show deviant Lagosians not obeying the lockdown and converted highway and access roads to recreation grounds.

Source: Field work *Source: Field work* *Source: On internet*

Earlier in the year, before the advent of COVID-19, Lagos embarked on massive desilting of drains in the city. Most of the drains cleaned were never cleaned in the last 6 years. This will go a long way in making Lagos roads flood free in the year 2020. **Plates 21, 22 & 23** are the evidence of desilting and drain cleaning between January and February 2020.

Plates 21,22 & 23: Desilting of Underground Drain at Ijaiye Road, Ogba, Lagos

Source: Field work

7.0 SOLUTIONS TO URBAN INFRASTRUCTURE CHALLENGES

Nigerian cities don't require rocket science to change the narrative as failed cities if the urban planners, engineers, technocrats, facilities manager and urban managers should not only consider the design and build phases of any public project but also put a high premium on the maintenance, upgrading as well as decommissioning of the project.

7.1 Politics of Infrastructure

The first thing that must be done in getting it right is for the urban managers or administrators to quarantine the politics of infrastructure delivery. Regardless of who initiated a public-friendly project or the party in government, infrastructure by previous administrations must be given the same attention and backed with good funding. Maintenance and upgrading of the existing infrastructure must be in the front burners of the government in power without foreclosing new improved projects.

7.2 Quality of Urban Infrastructure (Road)

It is important to note that the quality of urban infrastructure in Nigeria is very poor. Most often the quality of our infrastructure fall short of average standard as a result, the life span of the infrastructure provided is usually short thereby requiring frequent replacement. For instance, the lifespan of an average road in Lagos is less than 10 years. Table 1 shows the average life span of typical roads in cities of four different countries.

Table 1: Average Lifespan of Typical Roads in Four Different Countries

Country	City	Average Lifespan of Road (Yrs)	Asphalt Road Lifespan	Concrete Road Lifespan
Nigeria	Lagos	<10	<5	<8 (On BRT)
United States of America	Maryland	70	20	70
United Kingdom	London	60	15	60
Colombia	Bogota	40	12	50

Source: Author's Compilation from Reports of Road Construction in Selected Countries and Field Work

Table 1 shows that Lagos, Nigeria roads have the least life span with less than 10 years, while road life span in Colombia (a third world) and the United States of America is above 40 and 70 years respectively. In Canada road life span is 67 years. The quality of roads in different cities of the world made manufacturers of tyres to advertise the minimum coverage of their premium tyres. For instance, Pirelli P4 advertised that the tyre can cover 100,000 miles (160,934km), while Michelin advertised 50,000miles (80,467km), but only on Canadian and American roads. Whereas, the average lifespan of the same tyre will only cover 20 Kilometers (12.43 Miles) on Nigerian roads. The implication of the poor quality of roads in Nigerian cities leads to frequent replacement of vehicle tyres, which puts pressure on the Nigerian Foreign Exchange.

This report earlier showed substandard road kerbs/curbs along Lagos-Ibadan Expressway at Oworonshoki end. **Plates 24 & 25** show standard road kerb/curb at Maroko-Epe Expressway by Lagos State Government. If this standard is maintained at the Federal level, it will be very rare to see road kerbs of the 60s and 70s still maintaining the test of the time while new ones are failing during the construction phase.

Plates 24 & 25: Reinforced Road Kerbs along Maroko-Epe Expressway, Lagos

Source: Field work

7.3 Standardization of Project

Governor Babatunde Raji Fashola standardized road construction in Lagos State. Since 2008 all state and local government road projects must be accompanied by concrete drains, street lights, and pedestrian walkways. This was a clear departure from road construction without street lights, or side drains with the side abutting the road in concrete while the other side is constructed with block sandcrete. Similarly, all canals concrete linings must be reinforced. Also, all concrete materials used for public and private buildings must pass the cube test during construction and Non-Destructive test (NDT) post-construction. Plates 26, 27 & 28 show unreinforced canal wall lining at Oko-Oba, Lagos.

Source: Field work

7.4 Improving on Tested Model

The state and the private sectors should maintain consistency on any existing model used in the delivery of successful infrastructure. Over time, the stakeholders can master the project and also come up with improved variants of the infrastructure. Take for instance the old steel pedestrian bridge that was not meant for physically challenged, compared with recent covered concrete pedestrian bridge that is not only friendly for people of determination but also all-weather friendly. This is better than adopting a trial and error model on public infrastructure. What comes to mind in this regard is the removal of drain inlet traps in the construction of our roads. The only reason behind this practice is possibly a reduction in the construction cost. Unfortunately, the damages cost on the road occasioned by the siltation of drains, floods, and man-hour loss out weight the cost of the traps.

7.5 Regular Maintenance Culture

A major problem confronting infrastructure in Nigerian cities is the failure of the government to put in place a robust maintenance program for existing infrastructure. It is unimaginable that

any accountable government will not clean public drains in 6 years. Depending on the level of usage, this is expected to be cleaned every day, once in a week or at least once in a month. Nigerian road engineers, as well as urban managers, need to explain why road cracks are not given attention until when they mature to potholes, craters, or gullies. Or are the cracks on our roads in Nigerian cities not responding to sealing treatment? See **Plates 29, 30 & 31.**

Source: Field work

7.6 Road Signage and Furniture

Most Nigerian roads (rural and city) are devoid of signage and accessories that will reduce accidents and make the road users' friendly. This should be corrected by transport authorities in our cities and rural areas. The transport and urban managers in our cities always have a wrong conception that all road users are familiar with the terrain hence hardly install the needed road signs and furniture that will enhance usage, harmonious environment, and quality of life. All relevant road signs must be in place on all our roads. Similarly, road furniture like illuminated road studs, cat eyes, bollards, signs, striping, and traffic bollards should be in place and well maintained.

Our urban roads are devoid of cat eyes or road studs that will caution road users driving towards road medians or road islands. This often result to motorists over-running the road median especially at night. Some road ancillary facilities like the rebound Signmaster traffic bollards installed in many parts of Lagos city in 2018 only needs cleaning of road dust on them. See **plates 32, 33 & 34.** It is unfortunate that most of them were left for 2 raining seasons unattended as a result they lost their reflective quality and lost visibility to motorists that ran into them.

Source: Field work

7.7 Deter Vandals and Recklessness

It is very disturbing when infrastructure and road furniture are destroyed without putting in place measures to deter vandals in carrying out their willful acts. Most often, street light cables and bridge railings were removed by vandals for economic gain. Ditto, reckless drivers knock down road steel medians and street light poles without any recourse for replacement See **Plates 35, 36 & 37**. Vandals are not limited to reckless drivers and miscreants that remove public facilities for economic gains. The high profile entrepreneurs who seal road drain inlets to create drive ramp for their cars are also guilty of vandalizing public infrastructure.

The cost of replacement often impacts negatively on the finance of the government. There is an urgent need to correct the trend if we want to sustain our urban infrastructure. This can simply be achieved by 24/7 policing of the infrastructure with the aid of surveillance cameras, physical monitoring of facilities, proper bury of street electric cables with concrete, and fine for reckless drivers.

Source: Field work

8.0 CONCLUSION

As long as there is life, economic prosperity in urban areas and cities, urbanization will continue globally unabated. This agglomeration of people must be accompanied by sustainable urban infrastructure which requires a massive infusion of investment. Infrastructure is not only vital to socio-economic growth and development but also fundamental to daily life. It is the barometer to measure the quality of living.

In Lagos State, Governor Akinwunmi Ambode between 2017 and 2018 lit under the bridge at Maryland - Ojota to the admiration of Lagosians, after 6 months when the bulbs burnt that was the end of the project. His Administration equally introduced road sign-master within one year most of them were knocked down by motorists while the surviving remnants could not be given just cleaning that they required.

All over the world, there is a high demand for efficient infrastructure in cities, this places high pressure on government and organizations responsible for providing the infrastructure. Most developing countries and cities are just coming out of the 2008 global economic recession and now faced with COVID-19 pandemic. This will further delay the provision of urban infrastructure in less developed countries like Nigeria.

This paper has been able to x-ray the level of commitment of the dominant provider of infrastructure in two major cities in Nigeria, with special reference to road facilities. The paper highlighted urban facilities that were well delivered and those that were poorly or wrongly delivered. Also, it enumerated the danger of politicizing infrastructure at all levels of government and advised that politicizing infrastructure should be quarantined.

Sustainable urban infrastructure must pass the litmus test of the complete project life circle of conception, design, delivery, usage, and decommission. All relevant stakeholders must be involved in the conception and the role each key stakeholder will play must be clearly stated. The design must be simple and adaptable to the local environment and delivery time must be feasible and real. There must be a good program for monitoring with cash backing for its maintenance. Finally, at the end of the life span of the project there must be clear and safe decommissioning procedures.

From the foregoing it is evident that our cities don't require rocket science in providing workable solutions for our infrastructure to make the cities livable.

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CHAPTER 7

AN ASSESSMENT OF THE LEVEL OF COMPLIANCE TO PLANNING LAWS AND REGULATIONS IN OKENE TOWN, KOGI -NIGERIA

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Abstract

The paper investigates the level of private residential developers' compliance with planning laws and regulation in Okene town. A purposeful sample survey was adopted in some selected areas in the town. Analysis of the result shows that over 70% of the respondents do not comply with the tenets of Edict 1991; the official working document for regulation of planning activities in Kogi State. Several reasons were established as contributory factors for defaulters. The major factor is the administrative bottleneck associated with the process of obtaining development permit as stipulated in the Edict. The paper recommends complete overhauling of the process of development in the state and Okene town in particular by adopting and implementing the 1992 Urban and Regional Planning law in the state. The 1992 URP law is a better tool for enforcing planning regulations as observed in other parts of the country where the law has been implemented, though COVID 19 has exposed the inadequacies of planning tools in Nigeria and across the globe.

Keyword—PlanningStandards, Planning Regulations, Compliance, Non-compliance

1.0 INTRODUCTION

Planning standards refers to the level under which development should conform to in a planning area in terms of building height, road width, building size, roof plans. While regulations as described by Payne and Majale, (2004) is a rule or order of conduct prescribed by an authority in terms of requiring or prohibiting certain behaviour. Regulation is an essential instrument in the urban development process and is necessary for the effective functioning of the housing market. Therefore, the regulatory frameworks are necessary to achieve land development in an orderly manner, ease efficient land management, enable the poor access to improved housing and credit facility, attract and guide local investment (Payne & Majale, 2004).

Urban development and planning regulations can be seen as the regulatory procedures for controlling land use development in line with a plan (Clarke, 1994). Agbola (1985) and Onokerhoraye & Omuta, (1986), defined urban development and planning regulations as "a collection of interrelated statutory and administrative instruments and techniques designed to safeguard,

regulate, conserve and disburse land that is in the interest of the overall community, as well as control the character, appearance and arrangement of buildings and facilities to ensure economy, convenience and aesthetic appeal". However, in Nigeria, the increasing levels of urbanization and its accompanying problems tend to question the efficacy and hence the relevance of existing urban development and planning regulations (Arimah & Adeagbo; 2000). Cities are constantly changing as a result of human activities, physical and social processes as they constantly adapt to the new realities while embracing the opportunities and threats that come along with the changes (Obadoba, 2019). A major change in cities is the Coronavirus, a global pandemic questioning the way cities have been viewed and planned overtime.

The history of planning regulations in Nigeria is largely classified under pre-colonialand post-colonial planning laws. The pre-colonial planning laws emanent largely from the British Town and Country Planning Law of 1946. The latest of all the planning laws in Nigeria is the 1992 Urban and Regional Planning law (1992 URP Law) which repealed the 1946 law.The 1992 URP law was adopted as a uniform practice to regulate and coordinate standard development in the country ADDIN RW.CITE{{461 Omole,Felix 2012}} (Omole and Akinbamijo, 2012) . The 1992 law allowed the creation of a Planning Commission at the Federal level, Town Planning Boards at State Level and Local Planning Authority at the Local Government level. Many of the states in Nigeria are in the process of translating the 1992 URP law into a working document for implementation.However, before the 1992 law, individual states had developed edicts that guide and regulate planning activities within her jurisdiction.

Before the 1992 URP law, planning regulation in KogiState was guided by the Town Planning Edict No.5 of 1991 ADDIN RW.CITE {491 [NoInformation] 1991} (Kogi State Town Planning Edict, 1991). However, in 2018 the Nigerian Institute of Town Planners updated the planning standard in the State by providing a planning guideline for land developers in the state (Planning Standard, 2018) and 1991 Interim Development to serve as development control. The basic steps for land allocation for private residential development are as presented in Table 1.

Table 1: Basic steps for formal land allocation

Steps involved	Activities	Typical duration/Comment
1	Advertisement by the Ministry	2 weeks
2	Obtain and fill in an application form with 4 passports	6 weeks to 1 year or more
3	Submit the application form to the ministry of Lands	
4	LUAC meets to consider the application	
5	Informed successful applicants	
6	An offer letter is issued	
7	Payment of premium upon acceptance	Within 2 years of the offer
8	Deeds plan and approval by the ministry	Officially 3 months to 3 years, however, there has been very few C of O (less than 20,000) allocated between 1996 till date.
9	Director-General of land signs the draft certificates of occupancy	
10	Submission of draft C of O[3] to the governor for approval	
11	Governor returns the signed and approved C of O	
12	C of O is registered in the register	
13	Notify owners for collection of approved C of O	

Source: Kogi State Ministry of Lands, 2019.

Among several functions, the Edict empower the board to administer, execute, and enforce the provision of building lines regulatory laws and to formulate, control, monitor, and coordinate physical and regional activities. The Town Planning Edict and the 1992 URP Law also prohibits any development or alteration without an approved planning scheme for the area. The 1991 Edict provides standards for residential development in Okene as it is provided for in the Interim Development Order of the state. The Edict provides guidelines for a minimum area to be developed, the plot size, width of the road and the minimum setback for the right of way.

However, there are no data to ascertain the level of compliance with land use regulations and building standards in Nigeria generally. There is no research data available on Okene town in particular that establish the level of compliances to the above-stated functions. This gap in knowledge requires understanding in terms of compliance with planning standards and regulations by individual private developers in the town.Given this, the study attempts to assess residents'adherence to planning standards to ascertain the level of compliance and to establish reason(s) for lack of compliance.The paper argues that land use and building regulation managed by urban planners and officials in each state and local level may contribute to the incidence of compliance or non-compliance.

Urban development in Okene town has followed the path driven by population growth like other emerging economies faced by urbanisation challenges. Okene town is the headquarters

of the Okene Local Government Area of Kogi state. It is located at latitude 7°33'23.04" N 6°13'53.26" E bounded by Adavi, Okehi, Ajaokuta, Ogori-Magongo Local Government Areas and Okpella in Edo State.

Figure 1: Imagery of Okene Town

Source: Google map

The town is surrounded by hills and mountains and takes its source of water from the Uhobo River, a minor tributary of the River Niger. Agriculture and commercial activities are the strength of the economy. Okene is a nodal town attracting commuters in and out of the town to different parts of the country. Also, it is the traditional centre of the Ebira people. Indigenes living outside Okene and abroad ensures they have a structure on ground, one of the reasons that have transformed Okene Township. These and other factors make the town a centre of attraction, pulling high population influx into the town, making it a commercial hub. These attributes place a high demand on land for development by the residents. A place with high demand for land would likely experience abuse of planning standards and regulations as a result of pressure or demand for land use. This justifies the study.

2.0 METHODOLOGY

A survey of the town housing market was undertaken within the study period to ascertain the level of compliance with planning regulations. Houses were chosen from two distinct residential zones possessing characteristics of low and high-density residential neighbourhoods. A

sample size of 110 was chosen and allocated based on 40% and 60% low and high residential zones respectively. This was guided by the proportion of houses in each zone. The Anyoke (GRA) represent the low residential area, Inike, Idoji and Iruvucheba represent the high residential area. The sample comprises of privately owned or rented units. A pilot survey provided the ground for including rented units where the landlords could be reached for interviews. The publicly low-cost houses for residential buildings for government officials were excluded from the sample since the procedure for obtaining permits are not the same for private developers.

3.0 RESULTS AND DISCUSSIONS

3.1 Level of Compliance to Planning Regulations

Since the 1992 URP Law is yet to be operationalised in Kogi State the 1991 Edict and the Planning Standard guidelines serve as a regulatory framework for planning practice in the state. The various planning regulations for setbacks, building height, foundation, floor ratio, plot size development and scale of building plan drawings are spelt out by the Kogi State Town Planning Edict of 1991 which is same as the Planning Standards of 2018 as shown in Table 2.

Table 2: Planning Regulations for Residential Development in Kogi

Planning Regulations		Dimension
Plot size		450m^2 and above
Set back	Side	1.8 m
	Another side for drive-in	3m
	Rear	3m
	Between buildings on the same plot	3m
	Between 2-storey building structure on the same plot	4.5m
Building height	Restricted height in flying zones Storey building	3m on the first floor 2.75m on other floors
		Lift must be included when the building exceeds four floors.
	Fence	2.4m
Foundation		Not less than 1/2m below ground level
Floor ratio		11 m2

Plot size development	Low-density area	331/2%
	Medium-density area	501/2%
	High-density area	60%
The Scale of building plan drawings	4 copies to which include structural designs, architectural drawings, electrical drawings	1cm to 50 cm 1cm to 100cm

Source: Kogi State Town Planning Edict (1991).

Table 3 shows the extent of non-compliance to planning rules and regulations. Analysis of the results on the table shows that regulations concerning setbacks, building height, fence and foundation among others as stipulated in the Edict were largely violated. The regulations concerning set back, building height, fence and foundation as observed from Table 3 were violated.

Table 3: Residential Development Compliance to Planning Regulations

	Planning Regulation	Official Sizes	Actual Measurement
1	Set back to the side, drive-in, rear, between buildings, between 2 storey buildings	1.8m[1] / 3m / 3m /3m /4.5m.	1.0m / 2.0/ 1.m / 1.3m / 1.0m.
2	Building height Storey building/	Lift must be included more than 4 floors.	There is no structure exceeding 4 storeys in the study area.
3	Fence	2.4m high	vary between 1-5m high
4	Foundation	Not less than 2m below ground level.	Depending on the soil structure but less than 1.5m in the study area.

Source: Authors field survey (2020).

Analysis of the level of compliance with the regulations is further expressed in Figure 2 which shows variations in the level of compliance among the various land developers. From the one hundred and ten (110) developers purposively selected, over 70% did not comply with planning regulations while less than 30% follows the regulations in terms of the minimum setbacks to the road, the building height, floor area ratio and total land area coverage.

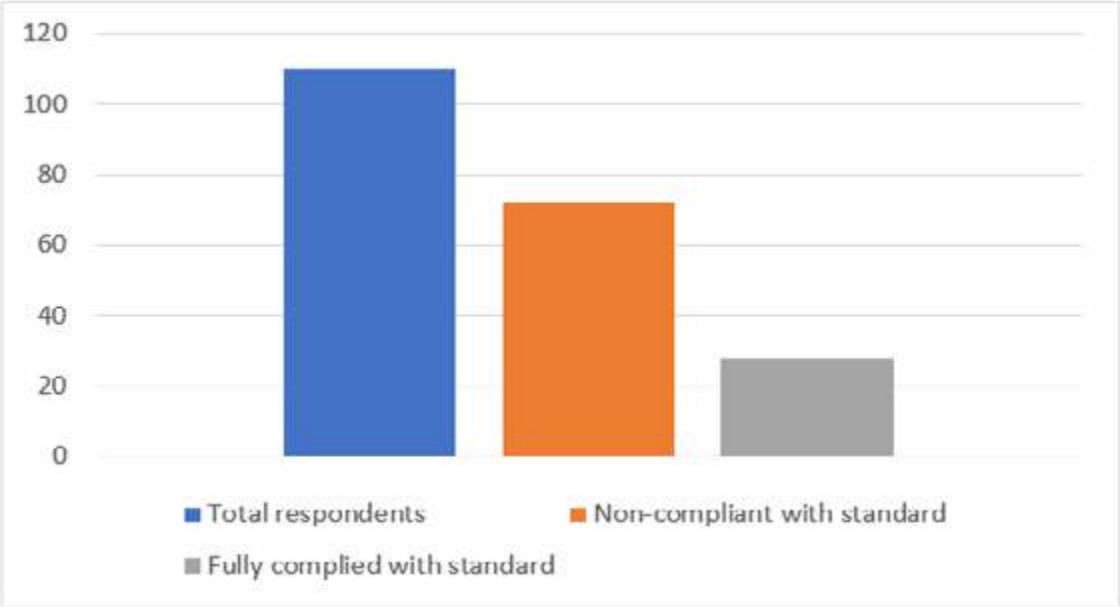

Figure 2: Level of compliance among respondents
Source: Authors field survey (2020).

Developers who did not comply with the required standard lowered the official standard in their developments. From the interviews conducted, it was established that developers who reside in the GRA tend to comply with planning regulations more than those in other areas of the town. The few developers in GRA who complied did so to avoid embarrassment from the planning authorities and for aesthetics purposes. However, the study observed that new developments in GRA belonging to Government officials dating from 2017 till date have no planning approval. Defaulters in other parts of the town varied measurements with no compliance to required planning standards and regulations.

Developers who engage in frugal construction design do not comply with 2m depth level for foundation level stating that it is a waste of resources. On the need, to add lift on structures exceeding 3-4 floors in the areas, developers generally express the view that there was no need since no structure exceeding 3-4 floors were found in the study area.

According to the Kogi State Town Planning Edict 1991 issued under the military administration the rules, the standard must be complied with for any development in the state. Also, no development can be put on the ground without obtaining the necessary permit.However, the general overview of the results of the analysis of the level of compliance shows a low level of compliance. A significant level of compliance was only found in the GRA which comprise of elites. Many private developers especially in the medium and high densities residential areas

in Okene do not comply with the minimum and maximum planning regulations as stipulated in the 1991 Edict.

3.2 Reasons for Non-compliance to Planning Rules and Regulations

The result of the study has shown that many residents do not comply with planning regulations. The reason for lack of compliance was set as the second objective for the study.Table 4 presents the analysis of reasons for non-compliance to planning regulations as expressed by the respondents.

Table 4. Reasons for non- compliance with formal procedures

S/No.	Reasons for evading formal procedure
1	Bureaucracy in the administration on land allocation and charges
2	Family sizes and cost of land,
3	Size of land and construction cost
4	Lack of political will to implement effective planning in the state.
5	Land speculation

Source: Authors field survey (2020).

The bureaucratic bottleneck associated with the process of land allocation and planning approval has surfaced as the core reason why residents do not comply with planning regulations. Bureaucracy in terms of the cumbersome process of building approval permit and the associated cost made a good number of residents to by-cut the process of adhering to planning standards and regulations in the study area. Other reasons put forward are issues associated with family size, cost and size of land and the cost of constructions. These findings are similar to findings on Lokoja as reported by a previous study (Obadoba & Baba; 2018). This that, suggest in preparation of the edict, these issues were not put in cognisance. The edict was enacted by the military administrator, hence opportunity to give the public the chance to make meaningful impacts and to participate in the formation of planning regulation that will affect them were violated. Lack of political will to implement effective planning regulations and land speculation was also observed as part of the reasons for non-compliance to planning standards and regulations. The politicians themselves flaunt planning regulations.

3.3 Land Use Regulation and Residential Segregation.

The study observed that residential development density zones have drastically changed from the 3 (low, medium and high) density zones to stylised 2 (low and high) density zones. According to the respondents, density accommodation is based on the affordability of land. Anyone

with the capacity to obtain land and develop the land can as well live in GRA. There is no segregation in land use or any strict policy for land use regulations as the same regulatory policy is applicable across the state. Both the rich and the middle class live in the same density zones. Much stylised housing can be found in Anyoke and even in high-density zones. However, many of these houses change the landscape of the area through modification of the buildings. These changes alter the vernacular landscape of the area.Results from the study show that lack of Master Plan is accountable for the changing landscape and uncontrolled development.

4.0 RECOMMENDATION AND CONCLUSION

Firstly, investment in public transport, creating green public spaces, and improving urban planning and management in participatory and inclusive ways is the foremost step towards improving planning such as inclusionary housing. As a global community, we must collectively invest in building a strong prepared system that is better adapted to increasingly urbanized settings. Consequently, a broad-based community process that builds support for the goal of increasing access to land and affordable housing is recommended.

Secondly, there is a need to move from auto-dependent cities and adopt the strategy of non- motorised sustainable transport. This requires redesigning city structure to be pedestrian-friendly and encourage cycling in cities as a means of reducing carbon emission in cities.

Thirdly, the current operational manual that governs the planning activities in Okene town and many parts of Nigeria is obsolete. Many citizens are not aware of planning laws and regulations.The Edict cannot provide best practice for the implementation of planning regulations in today's contemporary planning challenges. It is recommended that the Kogi State Town Planning Board should expedite actions in adopting the 1992 URP law which operational guidelines have better tools that will enhance implementation of planning regulations for sustainable development to match the current planning challenges confronting Okene town. It is noteworthy to mention that the 1992 URPL adopted by the state can be reviewed further by the state to include SDGs and means of achieving overall sustainability in Kogi State. The Nigerian Institute of Town Planners Kogi chapter has tried to review and adopt a state Urban Planning Law since 2010.However, ten years after, it is yet to be gazetted and is due for review, this act puts planning and compliance by citizens in precarious situations.

In conclusion, the bureaucratic administrative methods of applying planning regulations and standards have not been able to reduce irregularities in the enforcement of planning regulations in Okene town. Hence, there is a need for government to respond to the massive failure of land development in the city to align with goal 11 of the Sustainable Development Goals which

emphasizes the need to making cities sustainable by creating career and business opportunities, safe and affordable housing, building resilient societies and economies.

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SECTION 3

SMART DESIGN, PLACE MAKING AND INCLUSIVE CITIES

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CHAPTER 8

URBAN PUBLIC SPACE QUALITY EVALUATION IN IBADAN: A PREREQUISITE FOR PUBLIC SPACE DESIGN GUIDELINES AND MANAGEMENT SOLUTIONS IN NIGERIA

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Abstract

Public spaces are an important part of city life. The liveability, quality of life, environmental quality of the urban systems depends largely on the quality and nature of the urban public realm. Despite the importance of public spaces in cities, they are not adequate both in terms of quantity and quality in Nigeria. In view of this, this paper investigates public spaces in Ibadan. It identifies the quality attributes/criteria of public spaces based on empirical analysis and the semantic differential method. This is with a view to providing design guidelines and solutions to problems emanating from usage and activities in Nigerian public spaces. A framework for the evaluation of the quality of public spaces - the Public Space Quality Index (PSQI), was developed from 50 criteria grouped under six (6) broad criteria of urban design and placemaking. With data collected from survey of users' opinion and urban design audit studies, 25 different categories of public spaces in Ibadan were subjected to the PSQI to measure and determine their perceived and objective qualities. The results of evaluation indicated different degree of performance of the public spaces to the six (6) urban design and place making criteria. Factors responsible for the present situations were identified and diagnosed.Using set evaluation criteria, poor performance was recorded for several of the public spaces in the city. The paper concluded that it is necessary to revitalize certain public spaces in the city and thus advance guidelines for revitalising the existing public spaces and designing new ones with efficient management mechanism.

KEYWORDS: Public spaces, Public realm, Urban design, Placemaking, Design guidelines

1.0 BACKGROUND

Public open spaces have been part of the urban fabric since the first cities were created. Historically, they served as places for communication, entertainment, religious gatherings, political functions, and commerce (Mehta, 2014). Well-managed and maintained public spaces provide opportunities for interaction between all groups in society (Scottish Government 2008). They also offer a sense of place and a source of community pride, which emphasises the public sense of responsibility toward their local environment. These spaces were traditionally market places or town squares owned by the government but accessible to certain groups and individuals. More recently, public spaces have expanded to include parks, courtyards, sidewalks, prome-

nades, and memorials, to name a few. They also no longer need to be government-owned, as many private entities have started creating public openspaces.

Public spaces are those areas in the public realm that provide a public use or recreation function, such as parks, plazas and street spaces. Public spaces are generally located on publicly-held land, are accessible to everyone and are managed and maintained by both public and private owners. Some privately held land provides for controlled public access and use as a public space, such as a building forecourt, a walk-through, a shopping mall or a communal open space. Enhancing the physical quality in public open spaces helps to improve their liveability and functionality, thus affecting lifestyle and health conditions and contributing to conserving the built environment in the city. Different types of public open spaces have different character and make different contributions to the city.

Public spaces can be defined as 'publicly- and privately-owned open spaces in urban areas, primarily covered by vegetation providing areas for active or passive recreation and other public uses. They are directly or indirectly available for users with little or no restrictions. Definitions of public space that do not focus on ownership tend to focus on access and use. This is why Carr (1992) defines public open space as "publicly accessible spaces where people go for group or individual activities." Public spaces which accommodate a diversity of activities, and provide interest and amenity for people include green open space, cemeteries, family gardens, outdoor sports courts or fields, public gardens, squares, roundabouts, urban trees, urban forests, fallow land, wetland and riparian forest (Cooper and Francis., 1998).

Critical factors for successful public spaces are their location, size, dimensions and the interfaces with adjacent properties, the paths and arrangement of activities within the space. The area surrounding public spaces also influences how they are used and perceived. A functional system of public spaces offers direct connections to the surrounding pedestrian network and includes through-paths.Public spaces are essential for the wellbeing of everyone in a community. They provide opportunity for relaxation, recreation and socialising, and contribute to a neighbourhood's local character and sense of place. Active, safe and enjoyable public spaces draw people to them.

Modern public spaces have expanded their role to become economic drivers, places for relaxation, and areas for social interaction. Unfortunately, not every public open space is designed and located in such a way that it can fulfil these roles. Some public open spaces are empty for all or most of the day. This can lead to higher crime rates because criminals see empty spaces as places where they can perform criminal activities (McKay, 1998). It can also lead to surrounding businesses moving away due to a lack of patronage. In order to prevent this from happening,

cities need to evaluate their public open spaces to determine their qualities and functionality. Once the evaluation revealed the problems with the spaces and revitalisation strategies are put in place, the sites can become more desirable places to visit.

Successful public open spaces have to meet different perceptual, social, functional and visual criteria. Urban planning and design practice are the mechanisms behind providing public open space which entices and encourages the public to choose to spend more of their spare time in it. It is against this background that this paper assesses the quality of the existing public spaces in Ibadan using data from users perception and expert assessment with a view to know which of these spaces are performing well and which spaces are not.

2.0 LITERATURE REVIEW

2.1 Categories of Public Spaces

The following categories explain the extensive variety of open spaces that are of public value:

a. Parks and gardens – such as urban parks, country parks, forest parks and formal gardens;

b. Outdoor sports facilities (either public or private with natural or man-made surfaces) – examples are tennis courts, bowling greens, sport pitches, golf courses, athletic tracks, school and other institutional playing fields, and other outdoor sports areas;

c. Amenity green space (usually in residential areas) – it includes informal recreation spaces, communal green spaces in and around residences, and village greens;

d. Provision for children and teenagers – such as playgrounds, play areas, skateboard parks and outdoor basketball rings;

e. Green corridors – such as river and canal banks, amenity footpaths and bicycle ways;

f. Natural and semi-natural urban green spaces – such as woodlands, urban forestry, grasslands (e.g. meadows), wetlands, open and running water, and rock areas (e.g. cliffs);

g. Allotments and community gardens; cemeteries and churchyards; and

h. Civic spaces such as civic and market squares and other pedestrian areas designed with hard surfaces.

2.2 Values of public open spaces

A growing body of research provides evidence supporting the range of benefits across social, environmental and economic spheres that urban open spaces provide to people, wildlife and communities - benefits achieved only when communities have access to them. As cities continue to grow and develop people appreciate urban public space due to the beneficial services pro-

vided, which may vary for each user depending on their interests, culture, ethnicity and religion, as well as on their social and economic background. Opportunities for community engagement, recreation and physical activity are important for everyone. Urban open spaces provide the perfect context for social interaction and serve as reminders of childhood and memories of community life (Burgess, 1998).The value and importance of public spaces can be discussed under social, economic and environmental benefits.

The following are the functions of an Open space:

i. ***Strategic Functions*** – it defines and categorizes urban areas; creates community greenways, 'green lungs' or landscape buffers within urban areas; meet the recreational needs and connects town and country;

ii. ***Urban Quality*** **–** it provides beautiful green spaces around the people for the renewal and enhancing the quality of life within the communities;

iii. ***Improving Health and Well-Being*** – it serves as a place for informal recreation for all age groups. They can stroll, cycle or ride within parks and open spaces or along paths and river banks. It serves as a good place for physical exercise and other health activities;

iv. ***Havens and Habitats for Flora and Fauna*** – it serves as a home for various species of plants and animals. It also has the potential to be passages into various habitats;

v. ***Builds sense of community*** – it serves as a meeting place for various community events. Well-managed and maintained public spaces provide opportunities for interaction between all groups in society (Scottish Government 2008).

vi. ***Political*** - Public squares and plazas often become a rallying point for political demonstrations, as there are typically not any laws against large groups meeting in these places.

vii. ***As a Visual Amenity*** – it serves as attractive outlook for residents in surrounding areas with diversity in the urban scene, or as a positive landscape element.

viii. A well-designed and managed space offers great economic benefit. Based on evidence, good quality spaces can easily upgrade the commerce, retail and leisure developments, creating attractive investment potential for users and customers (Scottish Government 2008). Public spaces can help revitalize a neighbourhood by jumpstarting economic development (Project for Public Spaces, 2012).

2.3 Attributes of a successful public spaces

A successful place has varieties of uses and activities that allure people to the place. A place is made up of various elements and it is beyond the totality of its parts. In a case where a park has a fountain, playground, sit-outs and a mini kiosk, it will enable people to spend more time in

such a place. Other components that make successful places are good means of transport, easy accessibility and closeness to residential areas. People enjoy places that are safe, enjoyable, attractive and welcoming.

According to Singapore Urban Redevelopment Authority (2020), the qualities that set a good public space apart from others are encapsulated in the acronym PLACES. The acronym summarizes the qualities of a good public space.

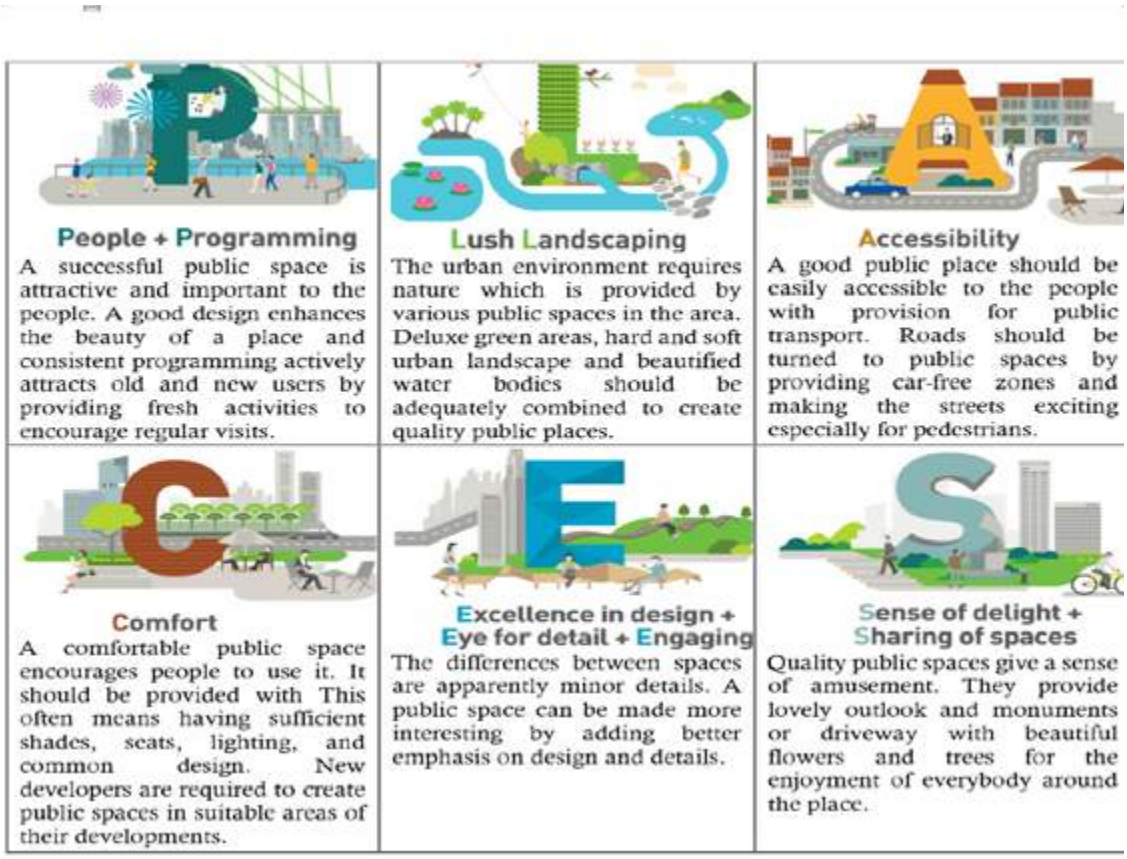

Figure 1: Attributes of Public Places /Spaces

Source: Singapore Urban Development Authority (2012)

2.4 Measuring the quality of Public spaces

There has been extensive research looking into the qualities that make a successful public space, (Jacobs, 1960; Whyte, 1988; Project for Public Spaces, 2012). However, there has been relatively little research into evaluating and scoring public spaces in order to determine how well they are working, thus putting cities in a difficult situation and planners / urban designers in a fix in understanding the issues with exiting public spaces and what to focus on in the design and re-development of new and existing spaces respectively. The Project for Public Spaces cre-

ated The Place Diagram (Figure 2) to look at what makes a place successful and to assess the quality and success of public spaces (Project for Public Spaces, 2009).

When people describe a place they especially enjoy, words like “safe,” “fun,” “charming,” and “welcoming” tend to come up repeatedly. These types of adjectives describe the Intangible Qualities—the qualitative aspects—of a particular space. Intangible qualities can also be measured quantitatively in a variety of ways by using statistics or conducting research. When combined, positive intangible qualities lead to tangible success in public spaces.

According to Project for Public Spaces (2009), public spaces can be evaluated according to four key attributes of spaces in the inner ring of the place diagram (Figure 2). These criteria are; Access and Linkage, Comfort and Image, Uses and Activities and Sociability. The middle ring its intangible qualities, and the outer ring its measurable data. These criteria should be considered for new development projects and public realm improvements to create interesting, vibrant and dynamic city spaces. In the ring outside these main criteria are a number of qualitative aspects by which to judge a place; the next outer ring shows the quantitative aspects that can be measured by statistics or research. In evaluating thousands of public spaces around the world, Project for Public Spaces (2009) has found that to be successful, they generally share the following four qualities: they are accessible; people are engaged in activities there; the space is comfortable and has a good image; and finally, it is a sociable place: one where people meet

Figure 2: The Place Diagramme – Measuring the Qualities of great public places
Source: Project for Public Spaces, (2009)

Although the diagram does identify four qualities found at successful places and measurements for these qualities, it does not provide a way to score the measurements. Without a way to score each variable, there is no systematic indices to measure and compare the quality of different public open spaces within a city. In a quest to derive a more thorough public space evaluation tool, Mehta (2014) developed the Public Space Index (PSI) as an improvement on The Place Diagram by going a step further in creating a scoring table and a weighting system that is not provided by the place diagram. The public space index developed by Mehta focuses directly on the user's experience based extensive empirical research and onsite observations to analyse and weigh all of the different variables that make up the index. The public space index evaluates five (5) different aspects in order to create a more comprehensive analysis of a public space. Focusing on inclusivity, comfort, safety, meaningful activities and pleasurability, the index directly measures the many social needs of the user. These qualities identified by Mehta are what makes the public space index a more comprehensive and, therefore, better way to evaluate public open spaces.

These five aspects comprise the main breakdown of the index. The aspect of inclusiveness measures access and looks at a person's ability to be in and use the public space (Mehta, 2014). Meaningful activities evaluatethe space's ability to support activity and sociability. It is not the number of activities or social events that is important, but rather the ability to support these events. Safety can be broken down into two types: real and perceived safety. For the index, the aspect of safety analyses perceived safety, or ability to feel safe from social and physical factors. This type of safety was chosen to be analysed by Mehta because perceived safety affects whether or not people go to the space. The aspect of comfort in the context of this index refers to physical and environmental comfort. Physical comfort measures suitable seating options, while environmental comfort measures temperature, shade, sunlight, and shelter in a space. Finally, the aspect of pleasurability analyses the image of a space and how it creates a pleasurable experience. Specifically, pleasurability is the spatial quality and sensory complexity that a public space has (Mehta, 2014).

2.5 Importance of evaluating the quality of public places.

People will not use public open spaces just because they are there; spaces must give people a reason to visit (Jacobs, 1961). The location and quality of public open space also has a large effect on its success. These sentiments stress the importance of why public open space needs to be designed and located correctly. The importance and value of public open spaces to cities have been identified.However, it is not guaranteed that they will automatically have this impact if their quality and functionality are compromised. They can also be a major breeding place for danger and thus becomes a problem to cities if the quality is not enhanced. This is in line with

assertion of Project for Public Spaces (2012) that a great urban park is a safety valve for the city, but a bad park is a place for fear and danger. A great square can be a focal point of civic pride and help to make citizens feel connected to their cultural and political institutions. More so, a bad square repels people, business and investment.

Public spaces are complex and need to evolve over time through improvements and refinements (Project for Public Spaces, 2012). Too often spaces are created and then forgotten, potentially causing major issues, hence the need to constantly assess their qualities against set parameter to serve as a mean of constantly upgrading them to set standards (Whyte, 1988). The evaluation of existing public spaces also helps in fashioning appropriate guidelines and strategies for creating new public spaces based on the experiences of the existing ones. Many planning theorists also place an importance on evaluation for the creation of future public spaces. Evaluation can provide the analytical and political information that is important when making future decisions (Brooks, 2002). Without evaluation of current public spaces, how will planners and politicians know what is or is not successful?

2.6 Physical Planning and Development of Public Space

In other perspectives, landscape is a physical aspect of public space planning that relates to soft and hardscape; active and passive green; and street furniture (Samadi et al., 2012). Elements of landscape and green area are significant in built environment which can create a place as a space to interact with each other and to feel the authenticity of public space in heritage site. As described by Namin et al. (2013), landscape features can increase the opportunity for social engagement and interaction among public space users while enjoying the peaceful landscapes. In designing public space, it should emphasize the physical setting of place with all design aspects and beautification of the landscape. Also, the landscape setting can improve the quality of life by providing a comfortable environment and can give a boost to urban life simultaneously as a catalyst for social interaction (Nasution et al., 2012).

The lack of natural features leads to the less functioning of public space facilities such as pedestrian walkway and bicycle trail about climate and air quality of the urban environment. As supported by Ja'afar et al. (2013), who stated that soft landscape is not just feature of public space for physical planning, but encompass the hard landscape features and street furniture such benches, lighting, signage and bicycle racks, they all work together to make the public spaces function to the satisfaction of users. Following this, Zendehdelan, Pouyanfar and Ahmad (2013) pointed that the design quality of public space presupposes that landscaping and other essential facilities should clarify the roads circulation, entrances, space environment to create sense of place and to establish continuity in public space. The elements of landscape can portray the

identity of a city.

Several studies explore that access and linkage about the human needs and comfort at public space. This aspect is important to ensure the convenience of users whereby it serves as accessibility to all facilities in the public space. This view is supported by Rosly et al. (2013) that development of public spaces should highlight the user's comfort, integrated with the surrounding urban fabric to create continuity in the public realm, green spaces and pedestrian networks. It means that physical planning of public space should emphasize the comfort and safety features so that the users will continuously and spontaneously use the public space without coercion.

3.0 RESEARCH METHODOLOGY

3.1 The Study Area

Ibadan the capital city of Oyo State, Nigeria is located in the south-western part of Nigeria within longitude 7°2', latitude 3°35' and Longitude 7°40'E, latitude 4°10'N of the Greenwich Meridian. It was founded in 1829 and was initially occupied by immigrants seeking security from inter-tribal wars. The city has grown rapidly both in area and in population from only 1km2 in 1830 to 12.5 km2 in 1931, 30 km2 in 1963, 112 km2 in 1973, 136 km2 in 1981 and 214 km2 in 1988. By the year 2000, it was estimated that Ibadan covered 400 km2 sprawling out to a radius of 12–15km along the primary roads. Similarly, in 1856, the population was estimated at 60,000; by 1890, it had increased to about 200,000; in 1963, it was 625,000 (Ayeni, 1994; Fourchard, 2002); and today, it is almost 2 million. The city, which is predominantly residential has a total of 109 neighbourhoods out of which 88 are residential (Oyo State Valuation Office, 1997).

3.2. Materials and Methods

In achieving the aim, this study applied a combination of qualitative and quantitative research method. The qualitative method involved literature review, site observation and in-depth interviews. Meanwhile, the quantitative approach was based on questionnaire survey on users' perception of different issues relating to public usage and functionality. A user perception survey was conducted using 400 questionnaires administered across 25 major public spaces in Ibadan. A Public Spaces Quality Assessment survey was also conducted with expert assessment method.The public space quality index (PSQI) adopted in this study is patterned after the Place diagram of the project Public Spaces and the Pubic Space Index of Mehta. The public space index is made up of 50 variables that are used to evaluate the quality of the 25 public spaces based on six (6) aspects (appendix 1) of public spaces Flexibility and Inclusiveness of space, Diversity

of Space and Activities, Human scale and Comfort, Sociability and Safety, Imageability and Pleasurability and Legibility and Accessibility (Appendix 1). In order to perform an evaluation following the public space index, each variable shown in Appendix 1, is scored on a scale ranging from 0 to 2. Scoring is performed by using expert assessment system. For each space, the variable ratings from each observation and survey were combined and averaged to determine the quality of each of the 25 public spaces. Within a maximum score of 100 points, public spaces scoring 0 to 40 were adjudged poor, those that score 41 to 70 have medium quality and score of 70 and above qualifies a public space to be adjudged high in quality.

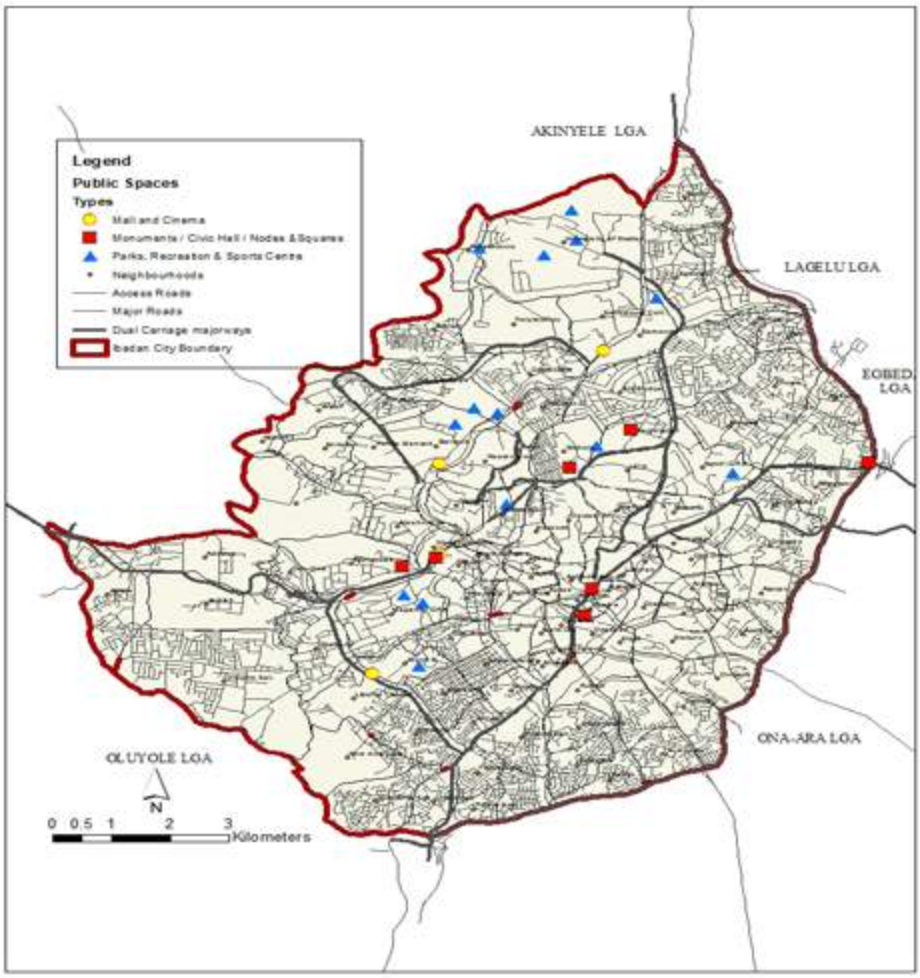

Figure 3: Location and Types of Public Spaces in Ibadan
Source: Field Survey, 2020

4.0 RESULTS AND DISCUSSION

4.1. Perception of the Nature of Public Spaces in Ibadan

The main focus of the analysis is to understand the characteristics and quality of urban public spaces in Ibadan through a combination of users' perception survey and expert assessment system of public spaces quality. The analysis is hereby presented in this section.

4.1.1 Regularity and purpose of visit to public spaces in Ibadan

It can be deduced from the study that just 30.7% of the respondents are involved in regular visit outdoor activities in public spaces within the study area. 43.9% are occasional visitors during festive period and public holidays. 25.4% visit only when they have specific reason to visit like events and functions. During the survey, the respondents were asked about their purpose of visit to public spaces. The most important motivation of visit to public spaces in Ibadan by respondents is to to have fun with friends (36.3%), relax and recreate (28.3%), walk and exercise (18.7%), for fresh air (6.8%) and the rest for other minor reasons. This shows that the purposes of visit to to have fun, relax and recreate, walk and exercise and for fresh air are influencing the uses and activity in spaces from the users perception. The implication of this is that an effective public space must meet these needs of the users. Facilities and environment to perform the activities in convenient and safe manner must be integrated into the redevelopment of the public spaces,

4.1.2 Perceived Satisfaction level of existing facilities and services in public space

Public facilities are important elements that need to be provided at the public space, if they must meet the needs of the users and attract more people to visit public spaces. The result of descriptive analysis on the perception of facilities and services in public space indicated that 52.8% of the respondents were not satisfied with the adequacy and level of quality and facilities provided in most of the public spaces in the city. They claimed that the facility provisions, visual and aesthetics quality as well as functionality of the places are not satisfactory except for the new shopping malls springing up in the city which also comes with series of recreational facilities. This is a call for the re assessment of the level and nature of facilities provided in these public spaces so that more funds can be injected to provide the lacking and substandard facilities. Adequate recreation and play facilities are important physical elements of public open space which increase comfort and friendliness of the spaces.

4.1.3 Perceived level of management and maintenance of public spaces

62.3% of the respondents claimed that the level of management and maintenance of the public spaces especially the government owned public spaces is very low. Agodi Gardens, a major public recreational space provided by Oyo State government however perform better in terms of management and maintenance whereas Trans Amusement park also owned by the same government suffers neglect and improper management. Majority of the respondents declared the following as problems of public pen spaces in Ibadan; poor planning, lack of political will for maintenance and management, security problem, poor provision of play facilities, inadequate public seating, poor maintenance of landscape features, and a host of other problems.

4.2. Assessment of Quality of Public Spaces in Ibadan

From the above analysis, only eight (8) of the 25 public spaces performed very well on the 50 indicators under the 6 criteria and so adjudged of high quality. It is interesting to note that the introduction of the Mall system into the commercial landscape of the city has greatly improved public spaces usage. The 4 major malls in the city are all privately owned and have some recreation and play spaces integrated into them coupled with the cinema in 3 out of the four. The malls satisfy the diversity of uses requirements for a public space. In all, 3 out of the 4 malls are of high quality with good performance to the evaluation indicators. Similarly, all the 4 recreation Clubs in Ibadan (Ibadan Recreation Club, Ibadan Golf club, Ibadan Tennis club and Ibadan Polo Club) are of high quality as well. They are all privately owned and enjoy adequate provision of facilities coupled with good maintenance and management system. They all performed very well to the indicators. Agodi garden scored highest (86%) with the indicators, it's the highest quality public spaces in the city. This is justified with the huge spending and revitalisation of the garden done by the state government recently. Incidentally, it is the only publicly owned public spaces among the 8 that are of high quality. It can therefore be concluded that privately owned public spaces are better managed, provided with adequate facilities and satisfy the requirements of a modern-day public spaces.

Table 1: Summary of evaluation of 25 public spaces in Ibadan city

		Open Space/Recreational Type	**Flexibility and Inclusiveness of space**	**Diversity of Space and Activities**	**Human scale and Comfort**	**Sociability and Safety**	**Imageability and Pleasurability**	**Legibility and Accessibility**	**Total / Percentage**	**Description**
			24	**14**	**14**	**14**	**24**	**10**	**100**	
1	Mall and Cinema House	Ventura Mall & Cinema House, Sango	14	8	10	11	19	8	**70**	**HQPS**
2		Heritage mall & Cinema House, Dugbe	16	10	10	10	18	8	**72**	**HQPS**
3		Palm Mall & Cinema House, Ring Rd.	18	10	11	10	19	8	**76**	**HQPS**
4		Jericho mall	12	8	8	9	18	7	**62**	**MQPS**
5	Monuments, Civic/ Town/ Events Hall, Nodes and Squares	Mapo Hall	11	8	9	8	20	7	**63**	**MQPS**
6		Mokola Cultural centre	6	5	5	6	7	6	**35**	**LQPS**
7		Captain Bowers Tower, Oke Are	6	4	5	6	7	6	**34**	**LQPS**
8		National Museum/ Children park, Ib.	10	7	8	8	19	8	**60**	**MQPS**
9		Cocoa House/Cocoa Dome	11	8	7	9	18	8	**61**	**MQPS**
10		Oyo State Secretariat, Complex	14	8	7	10	19	8	**66**	**MQPS**
11		Iwo road, Interchange, Open space	5	4	5	6	6	6	**32**	**LQPS**

12	Parks, Recreation and Sports Centre	Liberty Stadium, Oke-Ado, Ibadan	14	8	6	11	19	8	**66**	**MQPS**
13		Adamasingba Stadium	13	8	6	10	19	8	**64**	**MQPS**
14		Olubadan Stadium, Iyaganku, Ib.	5	4	5	5	5	6	**30**	**LQPS**
15		Gamaliel Onosode Park, UI Ibadan	12	8	7	10	20	8	**65**	**MQPS**
16		Love garden, The Polytechnic, Ib.	5	4	4	5	5	6	**29**	**LQPS**
17		Ibadan Recreation Club	19	9	12	11	20	7	**78**	**HQPS**
18		Ibadan Golf club	16	11	10	11	20	8	**76**	**HQPS**
19		Ibadan Tennis club	17	10	11	10	18	8	**74**	**HQPS**
20		Ibadan Polo Club	18	9	11	11	18	8	**75**	**HQPS**
21		Agodi Garden	20	12	11	12	22	9	**86**	**HQPS**
22		Trans Amusement Park	7	5	6	7	9	6	**40**	**LQPS**
23		University Zoological garden	13	8	7	10	19	8	**65**	**MQPS**
24		University Botanical garden	6	5	6	7	6	6	**36**	**LQPS**
25		Open space (GRA, Gov's House)	6	4	4	6	7	5	**32**	**LQPS**
	KEY 0 – 40% =Low Quality Public Spaces (LQPS); 41 – 70% =Medium Quality Public Spaces (MQPS); 71 – 100% =High Quality Public Spaces (HQPS)									

Source: Summary of Public Spaces Assessment using indicators and scoring in appendix 1

Nine (9) other public spaces have moderate quality, in these categories are the two main sports stadia in the city, Liberty Stadium with 66% score and Adamasingba stadium with 64% score. Two of the public spaces with the University of Ibadan. Gamaliel Onosode Park and UI Zoological Garden also performed moderately on the evaluation criteria, they both scored 65%. The two parks require the injection of more facilities like adequate walkways, park seats especially for the zoological garden and a host of others. Also, in the category of moderate quality public spaces in the city are publicly owned state secretariat complex, National museum and Cocoa house/ Cocoa dome. The three public spaces are for public activities of governance and administration, but they all processes good attributes of public spaces. They need to be more organised and injected with more facilities and urban elements to revitalise and upgrade them

for users' satisfaction.

In the category of low-quality public spaces are 8 public spaces that scored below 40%. The analysis of spaces in this category are those with little or no facilities and urban elements, they are therefore not frequently used by people because there is little or nothing to enjoy at those places. The Public spaces in this category are the historic Captain Bowers Tower which has been neglected by previous administration, the Mokola Cultural Centre is also a shadow of its former self. Little or no activities is happening within the place due to lack of basic facilities. Olubadan Stadium, the third stadium in the city is grossly inadequate, it performed very low to all the indicators of assessment, and it has greatly degenerated to the level of mere community playground because of the adequacy of virtually all required facilities and conditions. Trans Amusement Park used to be the major public recreational space in the city for a long time now. But the park has suffered neglect in recent times, most of the recreational and play spaces within the city have degenerated and most are not in working condition again. Weeds has overtaken a larger part of the parks which is an evident of neglect and poor management. The park has turned to a mere events venue for the very few people who wouldn't mind the decay in the park.

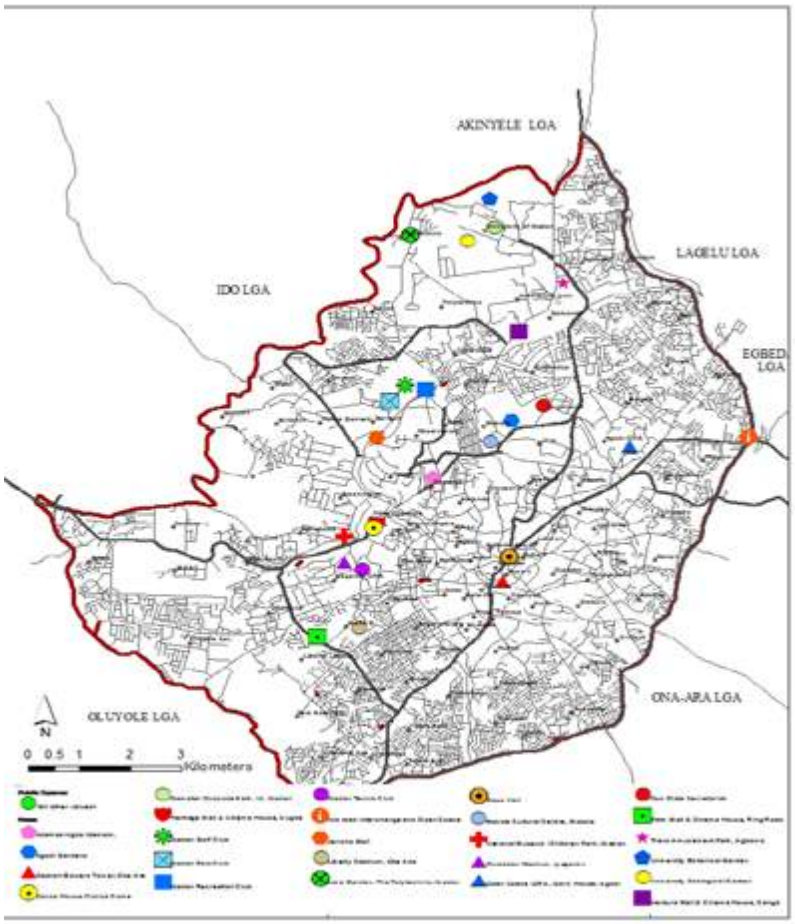

Figure 4: Public Spaces in Ibadan

Source: Field Survey, 2020

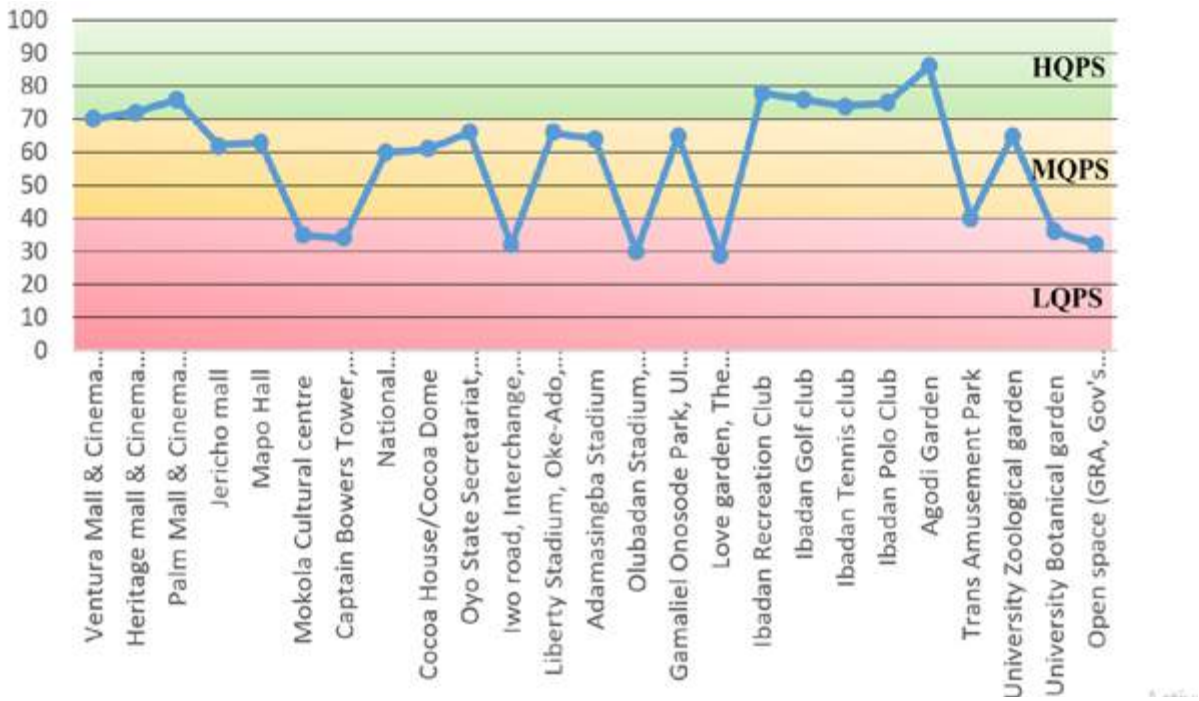

Figure 5: Quality of Public Spaces in Ibadan

Source: Field Survey, 2020

5.0 RECOMMENDATIONS AND GUIDELINES FOR PLANNING AND DEVELOPMENT OF PUBLIC SPACES

The following are guidelines recommended for the planning and redevelopment of public spaces. They tackle different aspects of the indicators adopted for the evaluation of public spaces. Specific issues about a particular public space will determine the aspect of the guidelines that are applicable. It is however recognised that while most public spaces share similar issues such as poor facilities and management/maintenance tensions, each site has its own unique qualities that require individual attention.

A. Ensure all users have convenient and safe access to and through public spaces

Open spaces should be Locatedto be convenient and accessible to users of different status and gender with a size that accommodates a wide range of activities and uses appropriate for diverse group of users. Remote, small or uncomfortable spaces are rarely used, and may become neglected or unsafe. They should be located to ensure convenient and safe access to and through the public spaces and also where pedestrian volumes will be high by connecting the public space to the surrounding pedestrian network. High pedestrian numbers help the public space

to feel safe and attractive.Pedestrian path should be provided around the park perimeter for walkers and joggers.

B. Ensure comfortable and enjoyable public spaces

To make the public spaces comfortable and enjoyable, paths, seating and main areas should be arranged to catch the sun during winter and be shaded during summer. Trees should be provided to enhance shade and shelter and protection from the strong winds. Concealment opportunities should be avoided when planting windbreaks, shade trees and general landscaping.Public spaces provision should adequately ensure landscape areas with sufficient space and soil volume for trees to grow.

Seats and tables should be located to cater for large gatherings of people and provide users with an interesting views of the space and opportunity to watch passers-by. Increase the number of seats in areas that are popular with people. This will help the resident gatherings and support social engagement where adults and children can gather and socialise.

Communal open space should be designed to be usable in a range of weather conditions and at all times of the year. This provides shelter and shading from wind, sun and rain. Within the public spaces, adequate lighting should be provided to support safe movement and evening use. Avoid light spill to adjacent sensitive uses. In larger public spaces, signs should be installed with maps to show connections and destinations, location of public facilities, and estimated walking times and distances.

C. Ensure amenity and safety in public spaces for users

In planning and design of public spaces, spaces should be surrounded on at least three sides, with streets and buildings with active frontages to overlook it to ensure opportunity for surveillance thereby improving security of park users. The design should located the paths, facilities and children's play areas in local parks where they can be seen from surrounding properties, paths and streets. Lay out public space to create informal surveillance opportunities within the space and from adjacent buildings. Low transparent fencing should be installed around children's play areas near busy streets or bicycle paths. A low fence around children's play areas protects children who may wander on to a street or bicycle path while maintaining its visibility from the street and surrounding areas.

To maintain sightlines between paths within a public space and surrounding streets and properties, trees and planting should be adequately located to. Lighting should be provided along main

paths and in areas intended for night-time use, lit to the same level as surrounding streets. Using the same lighting levels for park paths as the surrounding areas indicates they are intended as safe routes. Public toilets, play and recreation facilities should be located in accessible and active areas. Facilities that are located in secluded out-of-the-way places feel unsafe and users will avoid them. Also, utilities infrastructure should be located in a designated zone away from the main pedestrian through-paths and recreation areas. Poorly located infrastructure can block views, reduce the usable area and pose a hazard to pedestrians and cyclists.

D. Emphasise sense of place and local character in public spaces

To enhance sense of place with public spaces, select planting and landscape elements that support the existing character or preferred future character of the area. For big public spaces, large trees should be established to enhance the local habitat and microclimate of the sites. Protect natural features in or nearby to the park that contribute to a sense of place through selection of planting and landscape elements that engage senses.Locally relevant urban art should be integrated within the site, urban art that people can interact with is popular and can draw people to a space.

E. Encourage use and maintenance of public spaces at different times of the day by a wide range of users

Diversity of activities should be enhanced and integrated in public spaces that extend the hours of use. Aim for a public space to be attractive to a diversity of users and at different times of the day.

Features like fountain or water feature, sculpture should be located towards the centre of the public space to draw people into and through the space and provide a focus that invites people.

Spaces for vendor stalls should be located beside the main pedestrian through-paths.To make the public space functional for users, areas and comfortable seating for quiet pursuits. Seating areas are important for encouraging people, particularly the elderly, to use and enjoy public spaces.

There should be a maintenance program for public spaces prioritising prompt identification, removal and repair of any signs of damage and misuse.Regular maintenance of hard and soft landscape elements within public spaces is necessary to ensure that parks are inviting, comfortable and safe.

F. Management approach to public space

Public spaces have been developed by public and private organisations to meet the outdoor

and recreational needs of the populace. Irrespective of the large chunk of funds committed to providing space and facilities required in a public space, poor maintenance and management can render them useless and unattractive to users. Given this, good strategies and actions are important to promote respect in using public spaces by keeping them clean and well managed. Some of the management strategies are;

Management of public space should emphasize provision of public facilities to meet the needs and satisfaction of users. The management should access the facilities, their conditions and usability from time to time. The aspects of cleanliness and maintenance should be improved to avoid abandoned space. Comprehensive management is important in terms of responsibility for agencies which involved directly or indirectly in the management of urban public space in Ibadan. Maintenance and cleanliness of public space is a statutory requirement for enhancing the qualities and use of public spaces.

The management services of public space can be improved through integrated and productive management; and exciting promotion so that it can increase the number of users at public space. The branding and image projection of each public spaces includes issues like promotion, branding, tourism, public transport, safety, research, impact studies, public awareness and provide advisory services related to recreation, tourist and heritage sites. This approach is useful in monitoring the implementation and management of public space.

6.0 CONCLUSION

Public space offers excellent benefits towards enhancing quality of urban life. Public open spaces can be a great asset to a city, but too often they are built and left unattended for years. In order for cities and organizations to know if their public open spaces are truly functional, they need to be evaluated before and after they are built regularly in the life span of these spaces. This study demonstrates that evaluating public spaces can be done effectively using sets of indicators for a public space index.

This study revealed a different level of quality of public spaces in Ibadan. Majority of public shopping mall and attached spaces are of high quality and mostly used public spaces facilities in the city. The quality of monuments, Civic and squares in the city are from Low to moderate quality with majority of them greatly neglected and in deplorable conditions. A substantial number of privately managed parks, and recreation/sports centre in the city demonstrates high quality while majority of the public parks except Agodi gardens are of low quality.

The result of evaluation will help planners and government officials to know specific issue with each of the public spaces in the city. It will help in formulating specific strategies for replanning and renovations of existing public spaces, as well as create better public open spaces in the

future. For the government of Oyo state and the state Tourism Board, the outcome of the study will help to determine public open spaces that are flourishing and those that are not. The indicators of assessment can be adopted by other cities and government for assessing the quality of other public spaces. In this way, public spaces in Nigeria will be able to reach their full potential and serve the needs of their users and help their communities thrive.

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APPENDIX 1: PUBLIC SPACE QUALITY INDEX (PSQI)

Criteria	**Variables**	**Score**
Flexibility and Inclusiveness of space	1: Presence of people of diverse ages	
	2: Presence of people of different genders	
	3: Presence of people of diverse classes /status	
	4: Presence of people of diverse ethnic groups	
	5: Presence of people with diverse physical abilities	
	6: Control of entrance to public space: presence of lockable gates, fences, etc.	
	7: Same Space is used for other different activities - Variation of Activity	
	8: Opening hours and operation time of public space - daytime / nighttime intensity	
	9: Frequency of operation	
	10: Presence of posted signs to exclude certain people or behaviors	
	11: Presence of surveillance cameras, security guards, guides, ushers, etc. intimidating and privacy is infringed upon	
	12: Perceived ability to conduct and participate in activities and events in space	
		24
Diversity Meaningful Activities	13: Presence of community- gathering and Social interaction places	
	14: Different uses at the same times with range of activities, behaviors	
	15: Space flexibility to suit different types of users (Child-adult-elderly)	
	16: Availability of food within or at the edges of the space	
	17: Variety of businesses and other uses at the edges of the space	
	18: Perceived suitability of space layout and design to activities and behavior	
	19: Perceived usefulness of businesses and other uses	
		14

Human scale and Comfort	20: Places to sit without paying for goods and services	
	21: Seating provided by businesses	
	22: Location and appearance of urban furniture and artifacts in the space	
	23: Climatic comfort of the space – shade and shelter	
	24: Design elements discourage use of space	
	25: Perceived physical condition and maintenance - Clean and free of liters	
	26: Perceived nuisance noise from traffic or otherwise	
		14
Sociability and Safety	27: Visual and physical connection and openness to adjacent street/s or spaces	
	28: Physical condition and maintenance appropriate for the space	
	29: Lighting quality in space after dark	
	30: Perceived safety from presence of surveillance cameras, security guards, guides, ushers, etc.	
	31: Perceived safety from crime during daytime	
	32: Perceived safety from crime after dark	
	33: Perceived safety from traffic	
		14
Imageability and Pleasurability	34: Presence of memorable architectural or landscape features (imageability)	
	35: Sense of enclosure - Character and distinctiveness	
	36: Variety of subspaces	
	37: Density of elements in space providing sensory complexity	
	38: Variety of elements in space providing sensory complexity	
	39: Design elements providing focal points	
	40: Visual and physical connection and openness to adjacent street/s or spaces	
	41: Attractiveness (Visual appeal) and pleasantness of space (Cleanliness and neatness)	
	42: Orderliness and crowd control	
	43: Maintenance and Management	
	44: Peace with nature and preservation of Natural Environment	
	45: Scenic beauty (Aesthetics quality) and lush landscaping (Trees / attractive flowers/plants)	
		24

Legibility and Accessibility and	46: Adequate car Access and movement	
	47: Adequate pedestrian access and movement	
	48: Adequate Parking facilities	
	49: Ease of access and high connectivity	
	50: Legibility and wayfinding	
		10
	TOTAL	**100**

CHAPTER 9

SOCIO-ENVIRONMENTAL IMPLICATIONS OF THE PHYSICAL DEVELOPMENT (BUILT-UP) OF SWAMPLAND OF PORT HARCOURT, NIGERIA

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Abstract

The trajectory of Population growth and the physical development of swampy land are topical issues in the midst of environmentalist globally. This is pertinent given the socio-environmental implications of building-up swampy lands. However, this appears not to be so in a developing country like Nigeria going by both practice and research attention. This study therefore set out to unravel pertinent socio-environmental issues with swampland development in Port Harcourt and determine the pattern and consequences of the encroachment into swampy land. The research employed structured questionnaire techniques for data collection while Pearson product moment Correlation coefficient and mathematical percentage (MP) were the analytical tools used. The findings show that population (r = .268 p>.05), education (r = .255 p>.05), income (r = .241 p>.05) household size (r = .225 p>.05) were the significant factors for sprawling and by extension the development of swampy land in Port Harcourt urban space. In addition, the result also shows that the disappearance of fishing settlement (23%), water front dispute (11%), building collapse/structural defection (15%), loss of agrarian land (17%), obstruction of water ways (17%) and pollution of natural water bodies (17%) are the six (6) key implications. The paper concluded with recommendations on methodologies for deflecting population away from Port Harcourt through deliberate physical planning measures.

Keywords: Environment, Physical, Development, Population Swampland and Port Harcourt

1.0 INTRODUCTION

Human population growth rests the architecture for integration of urban swamplands to other land uses commonly found in almost all the urban environment of developing nations globally. However, the increase in human population appears to prompt over concentration of anthropogenic activities in swamp areas that should have been planned for agrarian and related development. This hampers access to swampland especially for naturally designated land uses like agriculture, forest reserved and natural open spaces. According to RobMcInnes (2010) swamplands include lakes and rivers, swamps and marshes, wet grasslands and peat lands, oases, estuaries, deltas and tidal flats, near shore marine areas, mangroves and coral reefs, and human-made sites such as fish ponds, rice paddies, reservoirs, and salt pans. Swampland advantages

include provisioning services, such as food and fibre which are essential for human welfare, and regulating services, such as recharge of groundwater and protection from natural hazards, which are critical to sustaining vital ecosystem functions to (RobMcInnes 2010). Wetlands also have considerable aesthetic, cultural, educational and spiritual values and provide sustainable opportunities for recreation and tourism. The impacts of human activities on wetland include; direct habitat loss (from development, land reclamation, roads, in-stream dredging), altered water regime (from dams/barriers, stream redirection, hard surfacing, water extraction), pollution (from garbage, sewage, oil and chemical spills, pesticides, airborne toxins), introduction of exotic species (weeds, pests and domestic pets) and other ecosystem modifications (for example, altered fire regimes, dieback and changes in salinity (Guto 2010).

Port Harcourt urban system has a huge presence of swampland. Physical development especially housing construction has encroached into the swampland. This is worrisome in view of the socio-environmental implications of the physical development (built-up) of swampland on the city system.

2.0 STATEMENT OF THE RESEARCH PROBLEM

There is a general increase built-up of swampy lands across riparian urban locations in Nigeria. Observation shows that the city of Port Harcourt appears to be a major culprit of this phenomenon. The increasing level of urbanisation nationally and the primate nature of Port Harcourt in its region may have accentuated the current development in the city. In and around Port-Harcourt and almost on a continuous basis swampland are been swallowed up with hard surfaces in the form of residential or commercial land use development. Urban sprawling has not spared the swamps either. This is not minding the attendant environmental and health implication including structural failure of buildings and waterborne sicknesses. The causes of building in swamplands are to meet housing demand in addition to public interest on reclamation of swamplands for urban development appears to be seen as a necessary outcome of speedy sprawl (Sithole and Goredema 2013).

The situation in the city may be summed up to mean, the scale and speedy urbanisation in Port Harcourt urban space has led to the physical development (built-up) of preserved swampy lands. This is a consequence of population pressure and associated socio-environmental issues of access to land for housing (Research 2020). The physical development of swampy lands seems to have increased since the emergence of democratic leadership in Nigeria urban governance since 1999-date. The rising rate of swampland development is worrisome and unacceptable. The preponderance of swampland encroachment via physical development may suggest that

policy makers are not interested in evolving pragmatic measures cable of reducing urbanization encroachment on swamplands. Therefore, the incidence of wetland losses within urban areas is not likely to abate. While sand-filling of wetlands for economic uses (construction) appears to be gainful, persistent flooding and the loss of valuable properties are painful realities.

Generally, there is paucity of studies establishing nexus of environment and physical development in the study area. For example, Asad, Sana and Muhammad (2014) study on population growth and urban expansion focused on Bahawalpur region of Pakistan, just as Hannes and Jennifer (2019) did a broad examination on the effect of population growth on the environment across the European regions. Sverre (1996) examined Population pressure and land degradation in Ethiopia. Local studies on Nigeria like Digha, Imaitor, Ariwadum and Osuji (2018) addressed the influence of population growth on land-use in Calabar Metropolis; Ignatius, (2019) did a broad study on spatial impacts of rural population pressure on agricultural land use in Nigeria while Tifwa and Alaci (2016) Goods as alternative payment vehicle in contingent valuation focused on wetlands in around the confluence in Lokoja, Kogi state. Indeed, available literatures are either about other parts of the world or about other parts of Nigeria and failing to address the peculiar situation of the study area. Therefore, the aim of this research is to investigate the socio-environmental implications of swampy land development in Port Harcourt urban space through an empirical discussion of the causes of vanishing swampland and the consequences of population pressure on swamplands.

3.0 EMPIRICAL REVIEW/PREVIOUS RESEARCH WORK

Sverre (1996) analysed the population pressure hypothesis of Ethiopian highlands through quantitative methods. The hypothesis stressed that underneath comparable physical conditions deeply battered areas occur in extremely populated regions chosen soil erosion index (SESI) and types of water erosion as the dependent variable. However, categorical and ordinal were included in the study but ordinal cumulative logit model was chosen for the analysis while the result imply that as pressure from people and livestock surpasses some threshold, a rapid degradation of land take place

Employing multiple data sets from the Chitwan Valley Family Study in Nepal, Dirgha and Lynette (2007) proved that entities from districts with larger proportions of land under farming experienced first birth at rates higher than those from areas with slighter scopes. Meanwhile, people from districts with larger sizes of land under public infrastructure experienced first birth at rates lower than those from zones with smaller proportions. Hamisai, Musisi, Raban and Frank (2005) used multi-date panchromatic aerial photographs of 1:25,000 and 1:50,000 scales over four time portions between 1963 and 1997 examine the environmental impacts of increasing population density in Zimbabwe's Serima communal lands of Gutu district in Masvingo

province. Their result indicate worsening environmental direction in the form of deforestation, increased soil erosion, decline in grazing resources and expansion of arable land into marginal areas. In furtherance, they maintained that high population density is in continuous initiation of unsustainable land use practices, releasing population pressure by land redistribution promises to offer long-term alternatives. Anette, (2001) while addressing the issue of field encroachment and land use pattern changes in the desert margin regions; the paper proposes to develop a model which recognises land use pattern changes as event-driven. The picture that underpins development efforts and policy works for environmental improvement in the Sudan–Sahel region often describes changes in agricultural landscape systems as a unidirectional expansion of fields onto marginal land in response to population pressure and resource degradation. It is proposed that models of land use pattern trajectories as well as of resilience of land use systems have to recognise a strong random element related to unforeseeable events.

In the assessment of the effect of population growth on carbon dioxide (CO2) discharges and urban land use change from the year 1990 – 2006, Hannes and Jennifer collected the statistics of 1062 counties within 22 European nation-states. The studies and data acquired was analysed via panel regressions, spatial econometric models while the result stressed that a significant effect from regional population growth on carbon dioxide (CO2) releases and urban land use expanded in Western Europe. But dissimilarity; the first-hand member states in the East, other factors appear more significant. The study of Ignatius (2019), determined the magnitude of impacts of population pressure on agricultural land practices in Nigeria. His studies pointed out that inadequate qualified pragmatic research required for holistic inferences on the dynamics of population-land connexion and the associated agrarian land use in the country. Reasonably, pouches of readings focused on insufficient vicinities in most conditions of the nation thus building impossible liken between the states in the nation. However, the investigation applied linear regression coefficients for multiplication of the impacted variables through the STIRPAT prototypical. Subsequently, classified the state conferring to their points of impacts based hierarchical gathering breakdown and plotted by GIS and Arc View 3.2a. The findings proved that the model explained 95% of the disparity of effect on agricultural land use and that the south eastern states are witnessing the critical impact as a result of rural population pressure. The study also provides an outline for ordering the regions in the country for suitable cultivation and rural development. Masahiro, Yukio, Taro, and Ryutaro (2000) investigated the effect of population growth on land use and survival pattern in two ecologically opposing Huli, Heli and Wenani, in the Tari of New Guinea highlands. In continuance, the comparable nature of population increase impacted on the land fluctuated distinctly. But in the area of Heli, a decline in land efficiency in respect of disproportionate agricultural persuaded agriculturalists to curtail the unplanted period but bring about more land degradation and difficulties in increasing food production. With regard to divergence, Wenani residents managed to survive with the

population increase that expanded districts for farming and probably stand to increase the people's contemporary invention glassy, even if gradually normal disagreements on land privileges ought to decline the residents' opportunity to fruitful zones. That in 1994 climatic worries, land and means of crops harvesting had three spells higher in Wenani than Heli were residents are under hardship and critical food scarcity. Their analysis revealed that the current impacts of population pressure on food security varies among the communities, based on native setting and survival design while deforestation, urban enlargement, farming, and other anthropogenic concentration has significantly changed the Terrain's scenery.

The study examined the nonstop effects of urban expansion on land cover/use, river flow, water quality and the unintended effects of these variables in the rate of intestinal disease in residents of Arequipa. The researchers applied satellite remote sensing and geographic information systems, demographic data changes, hydrologic data and land cover change available in the Arequipa districts 17 years ago. However, the study aimed at understanding the connexion between urbanization, water quality within Chili River and occurrence of gastrointestinal case. Using Landsat imagery for determinations, the study proved that prominent urban expansion and damages in volcanic material land and cropland from 1990 and 2007, as the zones were taking by urban developments. The findings further demonstrated that population increase on volcanically vigorous regions were predominantly worrying because of the posed possible human wellbeing risk. Modelling of a business called usual scenario in 2020, revealed further decline of land use types and aids as a threatening measure for land managers to cogitate substitute strategies. Their finally revealed that straight relation between expansion integrating the decline of water quality and the growth in the frequency of intestinal sicknesses. In India, Pakistan, and Sri Lanka, Khalid, Himayatullah, Muhammad, Zohra, and Muhammad (2011) carried out a study on the relationship between population and environmental degradation from 1985-2009. Using Im-Pesaran-Shin (IPS) test of unit root to discover order of integration, Pedroni examination of panel co addition on long-run relationship and unconnected regression equation (sure) for the assessment of the effect of demographics dials on environmental issues in the three countries under investigation, Their work result found that too much population growth rate attracts harmful changes on the environment. That increase in population brought about more demand on more production which may be motivated by escalation of arable land and rising population that gives pressure on farming land, pressurising the agriculture on land inferior and poorer eminence weakening.

In acquisition of assessment data obtained from 2,270 agrarian property-owners in Colorado and Wyoming including the analysis via multilevel regression model, Catherine, Keske, Patrick and Christopher (2017) studied Population and Land Use Changes Perceived as Threats to Sense of Place in the New West. The research precise objective was to investigate variables

forecasting the way agrarian property-owners look at threats to agrarian standard of living and sense of place. The findings posited that property-owners in farming-dependent regions and zones prone to more-amenity had highest concern than other landowners that measured almost escalations in population growth that might impend an agricultural way of human survival. The authors added that all the insights connected to know if persons exist in in New West or Old West regions. The work concluded that part of the related variables of New West and Old West economic arrangements forecasted if residents observe population growth and land use dynamics as intimidations to intelligence of an area.

Okafor (1996) researched the challenges, environment and population strategies in Nigeria. His studies focused on population growth and environmental degradation in Nigeria and recommendation of the present situation of the environment and population plans in Nigeria, as well as and global environmental and population challenges. In respect to the findings, the research called for a current measure to the preparation and presentation of environmental and population tactics in Nigeria for better-quality and forthcoming nations and the world at large.

4.0 METHOD AND PROCEDURE

The survey research design was adopted in this study through primary and secondary sources of information. The secondary data were obtained from previous and relevant work on socio-environmental implications of the physical development (built-up) of swampland and related areas from published materials alone. The published materials the research engaged are references such as books, research work, conference/seminar and working paper, government records and reports from textbooks; academic and professional journals via goggle search on the subject of research. The primary data utilized by the research was gotten from environmental observations and questionnaire designed on 4 point likert scale. The questionnaire draws response from the households residing in swampy communities of Port Harcourt. The questionnaire focused or directed questions on areas such as consequences of population growth on available swampland, physical development, socio-economic implications and as well as the respondent's personal traits. The research sample frame originated from the area delineated for examination and disbursed the total number of 632 questionnaire while an average of one (1) household was sampled in every selected individual compound of the selected communities. The larger nature of the area under research encouraged the sampling of six communities built on swampland. 632 copies of the questionnaires were disseminated to residents of the selected neighbourhoods (Rupkokwu, Eneka, Iguruta, Choba, Elekahia and Rumuokwurusi), 561 questionnaire; representing 92 percent were reverted from Port Harcourt urban space. Rupkokwu used up 122 questionnaire representing (20%), Eneka, consumed 97 questionnaires representing (15%) Iguruta had 122 questionnaire representing (20%) Choba, had 97 questionnaire representing

(15%) Elekahia consumed 72 representing (10%) and Rumuokwurusi 122 representing (20%). However, 561 survey questionnaires signifying 89 percent were reverted and used for the general analysis (See the detail in table 1).

Table 1: Distribution of questionnaire across sampled communities

S/N	Urban Community	Projected Population	Household Population	Sample Size	%
1	Rukpokwu	20,684	4,500	122	20
2	Eneka	11,593	1,954	97	15
3	Iguruta	9,903	964	122	20
4	Choba	18,473	2,743	97	15
5	Elekahia	28,878	6,813	72	10
6	Rumuokwurusi	40,534	8,453	122	20
	TOTAL	**130,065**	**25,427**	**632**	**100**

Researchers field work 2020

5.0 RESULT AND DISCUSSION

5.1 Causes of swampland vanishing in Port Harcourt City of Nigeria

The analysis of spearman's rho correlation coefficient proved that significant relationship exists between the causes (education, population, income and indigenous factor) and vanishing of swamplands.

Education: The findings revealed that strong association exist between level of technological education and high concentration of anthropogenic activities on swamp land. The analysis detailed a connexion measurement of ($r=.262$, $p<0.5$).The research submitted that there is a positive link between high level of technological education and disappearance of swampy land as well as arable lands in Port Harcourt region of Nigeria. The level of technology applied in physical development of Nigeria swampy areas are very low and sometimes environmental professional jobs are carried out by quacks. These keep on creating environmental problems unlike the western world where cities are built on the sea and marshland through technological practices and without adverse effect. This implies that the strength of the relationship is strong and the constant strength of the character is 25% which shows shared input of educational technology and sciences in practically (25%) development of swampy zones and urban sprawling in Port Harcourt city of south-south Nigeria.

Income: The analysis between income and built-up urban swampy areas in Port Harcourt donated association factor of ($r =2.58$, $p<.05$) which suggested that there is a positive connection

between individual income increase and loss of urban preserved swampy areas to other land uses in south-south Nigeria. This means that the figure of purpose is 25.18% which means that the social- economic status of the higher income group especially the political class contributed about 26. % of residential, industrial, commercial and institutional land uses that disappeared (built-up) swampy environment in southern Port Harcourt urban. The work furthered by stressing that almost all the political expansionist including some environmentalist who were opportune to loot public fund, purchase and sand fill swampy areas in the name of acquiring at least a particular property formally or informally in the guarding city of Port Harcourt geography.

Population: The breakdown for population growth and physical development (built-up) of swampy lands in Port Harcourt urban was found to be ($r = .268$ $p>.05$). Based on the analyses, there is a significant relationship between population pressure and conversion of urban swamp land to human settlement in Port Harcourt metropolis urban space. This implies that the escalated and uncontrolled human population struggled for the available tabled and non- swamplands of Port Harcourt urban trigged the application of technical know-how and financial resources for the physical development (built-up) of swamplands in order to decline housing and other land uses shortage caused by population pressure Port Harcourt. The implication is that about 27% increase in population between 199- 2020 especially the low income class motivated the development slums, shanties squatters settlement swampy areas.

Land tenure/indigenous factor: on the side of built-up swampy areas and indigenous factors / land tenure, the analysis held that strong relationship exist between indigenous factors and existing built-up areas of Port Harcourt urban at ($r =295$, $p<.05$). This means that 29% present increase of built-up swampy areas in Port Harcourt urban is cause by indigenous people of Ikwere ethnic nationality. The research suggested that the quest for money making venture by the indigenous people of Ikwerre ethnic nationality who felt that the only source for enriching themselves is by selling, reselling of already sold or leasing of swamplands favourable and naturally designated for agriculture purposes to other uses. The findings also submitted that the interest of successive government administrations that command huge financial resource to insist on siting of physical development projects such as housing estate, office complex etc through land reclamation in swampy areas of the state headquarters and neglecting the suburb and rural areas also contributed to the encroachment and built-up swamplands that caused loss of urban commercial/ subsisting agricultural practices (urban food insecurity) other environmental problems in Port Harcourt urban.

Table 2: Variables loading as explanation for Swamplands Built-up in Port Harcourt

Built-up/Development Variables	Spearman rho coefficient Statistics	Sig	Number
Education	.262 **	.000	632
Income	.2.58**	.000	632
Population	.268**	.000	632
Land Tenure/Indigenous Factor	.295**	.000	632

Source: Author's field survey, 2020.

5.2 Consequences of population pressure on swamplands

The mathematical percentage (M.P- %) analysis held and demonstrated by the research in table 2, tutored that the consequences of built-up swamplands or development include loss of fishing settlement (17%), water front dispute (11%),flooding/structural defection (15%), loss of agrarian land (23%), obstruction of water ways (17%) and pollution of natural water bodies (17%). This implies that loss of natural resources (fossil fuel, and economic trees, agricultural land uses, preserved and swampy zones) in Port Harcourt urban space are caused by population pressure that built- up swampy areas through urban sprawling. See the table 3.

Table 3: Consequences of Population Pressure (Built-up swamplands) in Port Harcourt

S/N	Built-up consequences	Mathematical percentage (%)	Metro- observation
1	loss of agrarian land	23	very common
2	obstruction of water ways	18	very common
3	Loss of fishing settlement	16	very common
4	flooding/structural defection	15	very common
5	pollution of water bodies	17	very common
6	water front dispute	11	very common

Author's Field survey 2020

6.0 CONCLUSION AND RECOMMENDATIONS

This paper has shown both the causal factors and consequential outcome of swampland built-up in Port Harcourt. Although all of education, income, population and land tenure/indigenous factors demonstrated positive but land tenure/indigenous factor and population were the most significant casual factors. Similarly, the loss of agricultural land was found to be the most significant consequential outcome of swampland built-up among an array of six (6) consequences. It is in view of the afore-mentioned that the following recommendations are put forward.

(1) It is the utmost view of the paper that since Port Harcourt is sprawling towards the swampy regions designated for agricultural and other related purposes, there is need to develop other satellite towns that will salvage Port Harcourt from serving as the only developed city in Rivers state and decline the load of population pressure on swampy areas.

(2) Advocacy visit to the Rivers state government should be embarked upon by stakeholders in the built environment. Such stakeholders like the Nigerian Institute of Ton Planners (NITP) Rivers State Chapter could pay advocacy visit to the leadership of the state government, relevant Ministries, Department and Agencies (MDAs), the state House of Assembly among others to re-echo the risk and challenges of urbanizing swampland and the need to focus on the development other small and medium sized urban centres in the state.

(3) Deliberate physical and regional planning measures should be adopted by the government of rivers state to deflect population away from Port Harcourt through deliberate physical planning measures. This can take various forms including adopting but not limited to measures such as the preparation and implementation of master plan for small and medium sized urban centres, provision of serviced plots of land at encouragingly low cost, granting tax holiday for a period and security for industries and firms that locate outside the city of Port Harcourt.

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CHAPTER 10

URBAN SECURITY PRACTICES AND ITS IMPACT ON NEIGHBORHOOD PATTERN IN PORT HARCOURT CITY, RIVERS STATE, NIGERIA

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ABSTRACT

With the rising crime rate in cities in Nigeria, households have had to provide for their security, particularly with structures in the buildings, streets and neighbourhoods. This same situation is applicable to Port Harcourt City. This study investigates the extent to which urban design elements can enhance urban security and how security consideration has impacted the urban realm in Port Harcourt City. The study utilized a survey research methodology based on data obtained from four hundred and ninety – eight (498) respondents drawn from six neighbourhoods selected purposively; three from the inner city and three from the urban periphery. The study followed a multi-stage framework. First five streets were randomly selected in each of the study neighbourhoods. This was followed by the selection of twenty houses on each street using the systematic sampling method. In each house, one household head was randomly picked for questionnaire administration. Key informant data was also obtained from Directorate of Development Control in Greater Port Harcourt City Development Authority. One hypothesis was tested using the T-test. The result revealed that the use of urban design elements to control crime differed significantly between the inner city and the urban periphery. The inner-city made greater use of natural surveillance while the peri-urban utilized gated communities which enhanced defensible space. There was an ominous change in the neighborhood pattern in the city, in response to security challenges thereby distorting the garden city urban form which is the historical identity of Port Harcourt. This study recommends an integrated development planning strategy for the entire city and the need for subdivision regulation that promotes urban security without compromising urban morphology for the sustainability of Port Harcourt city.

Key words: Crime, Security, Urban Design and Neighborhood Pattern.

1.0 INTRODUCTION

Insecurity, violence and death have heightened unimaginably in the 21st century because of the rate of recurrence and intensity of crime and global terrorism (Usip, Edem, & Etuk, 2015). Almost every day, both local and foreign media is inundated with reports of unpleasant incidence of violent actions of man's inhumanity to a fellow man - who is often referred to as the victim of either personal or property crime. The majority of violent crimes occur in cities, often rising from street, school, or social club altercation while others may be organized by an individual(s) or gangs thus making today's cities centres of crime and violence (Macionis & Parrillo, 2010). According to the UN-Habitat (2007), aggression, brutality and various forms of criminality increased drastically worldwide between 1990 and 2000 from 6 to 8.8 incidents per 100,000

persons respectively. Sixty percent of people that reside in urban areas have been victims of crime, with 70 percent in Latin America and Africa. In many countries in Sub – Saharan Africa (SSA), rapid urban spatial expansion, economic transformation and high urban growth rate are experienced and that has influenced the urban population of about 250 million (UNPF, 2007; UN, 2008; Ogboi & Eze, 2013). This statistics is overwhelming since a large percentage of this number live in abject poverty, constitute the urban poor and therefore poses serious socio-economic, security and safety challenges for urban governance.

Although several factors such as migration, income inequality and lack of or weak criminal justice system have a role to play, the results of citywide crime victimization survey conducted in some cities under the safer cities programme reveal that African cities have the highest rate of burglary and physical assaults, and the second most astounding rate of robberies (UN-Habitat, 2007). Nigeria in picture and her cities are no exemptions as urban crime in the country is assuming a dimension that is bewildering to policy analysts according to studies and reports by the Centre for Law Enforcement Education Foundation (CLEEN, 2014). Port Harcourt which arguably is the third most economic important city in Nigeria with major sea ports, oil and gas industries (oil and gas being the main foreign exchange earner for Nigeria) tremendous population and spatial spread and very active informal sector is continuously attractive to immigrants.

Today, Port Harcourt records many violent crimes such as; rape, kidnapping, armed robbery, burglary, cult-related killings, homicide and possible terrorist attacks. The observation of residents is that the city has become unsafe as many perceive that little is done to tackle insecurity and curtail the occurrence of crime. This is worrisome as the Government and Police are trying to protect lives and properties with numerous challenges considering Nigeria's decrepit security architecture where the Federal Government has total control of the police whereas the State Governors are the pseudo 'Chief Security Officers' of their respective states. The situation is complicated by poor urban planning and weak urban governance. The safety of residential, work and public places and the security of social system and economic framework are particularly crucial for people living in urban areas to attain good quality of life (Ogboi & Eze, 2013). This is an issue of concern in the city presently.

The urban security challenges in the city has made residents resort to urban security practices in terms of self-help, vigilante action and un-presentable designs which have inadvertently become part of the urban fabric. Even security operatives build sand bags to make "security bunkers" in a bid to combat crime at the expense of aesthetic value, neighbourhood quality and physical functionality. The once thriving "garden city of Nigeria", as Port Harcourt was popularly known, has eroded.

Unfortunately, these features are compromised due to crime and insecurity amongst other factors. Owei et. al. (2008) noted that the obvious change in the nature and structure of settlements and neighbourhoods in the city is alarming especially in the urban periphery, where the rural enclave has gradually become urbanized with the high density inner city.

Geographer M.R.G Conzen has suggested that the street pattern, plot pattern and building structures are the most important in preservation of neighborhood identity. The network of street is laid out first and tends to persist longest through history thus in terms of longevity, there is the hierarchy of streets, plots and buildings in that order (Chapman, 1996). In the modern urban landscape, change tends to occur faster on the larger scale based on socio-political and economic considerations but in the case of Port Harcourt, security and safety considerations seems to have been the key determinant of the changing neighborhood pattern.

Chapman (1996) noted that sustainability should be the ethic of development process and, indeed, the ethic of our age. Unfortunately, this is not the case of Port Harcourt as the spatial structure and neighbourhood pattern of the city is tremendously altered from its historical origin due to distortion of the city plan, poor management, uncontrolled and unplanned spatial expansion.

This change is challenging to urban planners and city managers as they grapple with the desire to make urban spaces more inclusive, safe, resilient and sustainable in line with the 2030 Urban Agenda and the Sustainable Development Goal 11. The quagmire therefore, is how to tackle the insecurity dilemma using elements of design at the neighborhood and building levels without compromising critical town planning considerations such as aesthetics, functionality and economy which are essential to the city's sustainability.

This study examines urban security practices and its impact on neighborhood pattern in Port Harcourt city, Rivers State, Nigeria with key objectives of investigating the extent to which urban design elements enhance urban security and how security consideration has impacted the urban realm in the city.

2.0 STUDY AREA

Historically, Port Harcourt has been a safe city (Horstfall, 2013). The search for a convenient and safe port to advance British commercial interests in colonial Nigeria was the basis for the foundation of Port Harcourt in 1912, named after Lewis Viscount Harcourt, the then British Secretary of State for the Colonies (Anyanwu, 1979).

Port Harcourt was the first purpose-built city in Nigeria, built by the English colonial masters as a port for the trans-shipment of coal from the hinterland of Eastern Nigeria (after the discovery of coal in Udi Hills in 1909) to Europe. Governor Lugard felt gratified in reporting to the colonial office that "it is hoped that the design which has been the subject of much thought and discussion will result in the creation of a model town ship and port" (Anyanwu, 1979).

The colonial administration procured roughly 25sq miles of land known as Iguocha from the Ikwerre and Okrika aborigines in light of the fact that its site met the locational prerequisites for a rail and a port terminal. The area comprising the municipal district of Port Harcourt was before 1918, principally secondary forest used as farmland (obomotu) by the Rebisi indigenes, the Diobu, a clan of Ikwerre ethnic nationality (Anyanwu, 1979; Ogionwo, 1979). Through the period of colonization to post independence, the city was characterized by beautiful lawns, well developed layouts and neighbourhoods.

Port Harcourt city has developed beyond its limit of Port Harcourt municipality to comprise two local government areas(LGAs) –Port Harcourt City and Obio/Akpor (as shown in figure 1), and six additional LGAs of Ikwerre, Oyigbo, Etche, Ogu Bolo, Eleme and Okirika to make up the Greater Port Harcourt City also known as the "New City" (RSG, 2008). The city growth is towards the northern direction considering the water barriers in the southern end.

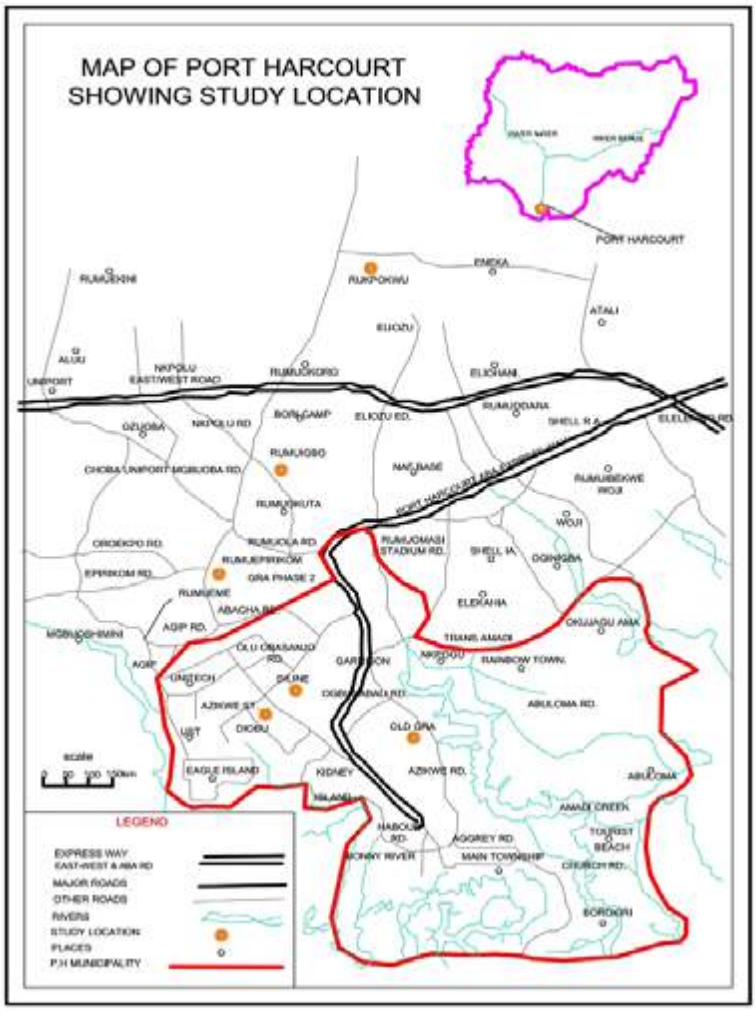

Fig. 1: Map of Port Harcourt showing study location.
Source: Nwokaeze, 2016.

As a modern city, its improvement was made conceivable by the order in 1917 of the Public Lands Acquisition Ordinance and the Township Ordinance. The Public Lands Acquisition Ordinance gave full powers to the then Governor to acquire land compulsorily for public purposes. The land so procured got to be distinctly referred to first as crown land and after political autonomy in 1960 as state land.

Under the Township Ordinance, Port Harcourt was designated as a second class township (Lagos being the only first class town) with the ensuing provision of municipal utilities and services with ample space for green vegetation and lawns, flowers and trees.

The city has a long history and spatial identity popularly known as the "Garden City" as visibly seen in the neigbourhood pattern, well-planned and maintained infrastructure, well laid out

buildings and streets, parks and gardens in the Old GRA layout, Orije layout, Orominike Layout, Coronation layout, Diobu-GRA layout etcetera which positively influenced the indigenous native settlements in annex.

This study was carried out in six neighbourhoods; three selected from the inner city (Old GRA,D-line and Mile 3 Diobu) in Port Harcourt city local government area and three from the urban periphery (Rumuepirikom, Rumuigbo and Rukpokwu) in Obio/Akpor local government area (as indicated in fig. 1).

URBAN SECURITY: THEORY, MODELS AND APPROACHES.

The subject of security and safety in the city had turned out to be predominant in numerous political, professional, institutional or structural dialogues both at local, regional or international levels. These discussions have continued until the 21st century with increasing insecurity and terrorism, with its many associated forms.

The reason for this continuous debate on personal and property security is not farfetched,Agbola and Ntamark(2017) observed that as crime and fear become increasingly endemic, so also have scholars in the field continue to explore more relevant views at greater understanding of the issues. Security experts are therefore exerting energy to create a sense of safety to justify increasing government expenditure in response to concerns raised by citizens and pressures from International institutions with laid down criteria to achieve a safe and secure environment in the form of sustainable cities, inclusive cities, smart cities and the new niche resilient cities.

Theories in criminology have established a strong relationship between securities and the built environment; environmental condition and safety, as well as variations in the neighbourhood settings and urban morphology as it affect behaviour towards outdoor activities. Laukaitou-Sideris (2003), established that diverse models clarify the setting of the environment in respect to human conduct. One of such is the ecological models, which is based on the assumption that elements of the physical and socio-economic environment interrelate to impact an individual's conduct and inclination to engage in a dynamic way of life (Ball, Bauman & Owen, 2001). Chronic exposure to violence and crime can have a negative influence on the proclivity of citizens to use the public environment for physical activity (King, Bauman & Abrams, 2002). The physical ecology of a neighbourhood is defined by the urban structure inform of its built environment, open spaces, street network and land use mix. The characteristics of urban form greatly influence physical activity (Sallis, et. al., 1997). In this manner, changes in human conduct are probably not going to happen without the alteration of the basic environmental variables (Klinenberg, 2002). A further defining characteristic of situational crime prevention in

the physical environment is the basis in criminology literature. In practice, two criminological perspectives support crime prevention; the opportunity theory and the rational choice theory.

Opportunity theory is of the view that changes in the nature and frequency of crime is directly proportional to changes in the opportunity structure for crime. A study carried out in the United States indicated that growth in ownership of light-weight electronic goods in addition to the rise in number of unattended buildings during the day because of more females engaged in employment was responsible for the corresponding rise of residential property burglary (Cohen & Felson, 1979). Such opportunistic crimes are usually induced by the absence of any restriction.

The rational choice theory according to Cornish and Clarke (1986) holds that most aberrant behaviors results from a choice made by the offender who is seeking economic, sexual or other benefits. These other benefits may include domination of others (as in wife or child abuse), indulgence in alcohol or drug abuse, or such mundane pleasures as having a bit of fun and excitement or achieving status in the peer group. This self-intrigue is not thought about as a continuing demeanour, portraying a reprobate or criminal minority, yet might be shown by any ordinary well behaved individual confronted with a mix of enticement and opportunity.

Urban planning literature situated security within a spatial context, by examining design and policy interventions that create defensible space and enhance neighbourhood security. The concept of crime prevention through environmental design (CPTED) evolved by Jeffrey (1971) and modified by Newman (1973) reinforced the concept of defensible space: a range of mechanisms; real and symbolic barriers, strongly-defined areas of influence, and improved opportunities for surveillance; that combine to bring an environment under the control of its residents. Following criticisms in the 1970s and 1980s, defensible space ideas have been refined and expanded to include the dimension of activity support. This refers to the use of urban design and signage to encourage intended patterns of usage of urban space as the proper design and effective use of the built environment can lead to a quality of life (Agbola & Ntamark, 2015)

In most cases, for a crime to occur, three components are indispensable, beginning with the offender, an opportunity for crime and a target risk. Thus the purpose of designing out crime is to knock off-balance this triangle by inhibiting the factors to prevent the crime from taking place (Cohen & Felson, 1979; Ekblom, 2013).

In the words of Gardner (2016), CPTED is a crime prevention theory focusing on tactical design and the effective use of the built environment, which when applied, reduces both crime and the fear of crime. Its main objective is to reduce and remove the opportunity for crime to occur in an environment, and promote positive interaction with the space by legitimate users in

a preventative and pro-active manner.

Cozens et. al. (2005) and Armitage (2013) elaborated seven principles that CPTED comprises; physical security and target hardening, territorial reinforcement, natural surveillance, movement control, management and maintenance, activity support and defensible space. This natural surveillance allows the neighbours to protect their immediate community rather than relying on the police or private security guards for protection.

It is obvious therefore that CPTED ought to be engaged on strategic planning strategies with the objective of producing design guides and regulations that promotes its tenets both at the local and regional level, neighbourhood to district to city level and so on. These will set the stage for local decision making for the use of design parameters to manipulate the likelihood of crime occurring and the potentials such modification through design interventions can achieve. Securing urban spaces is considered as one of the basic objectives in urban planning, thus planners are developing safety based designs for urban spaces (Ogboi, 2014) and development control regulations to enhance security in the building, street, neighbourhood and the city at large. Unfortunately, there is no such regulatory framework in the management of insecurity within the spatial context; this has left the situation open to the whims and caprices of residents, developers and designers who prepare plans.

Gated Neighbourhoods – The new normal or misnomer?

The proliferation of gated communities; fragmented residential precincts which are private initiatives with access control (as shown inplate 1and figure 2), increased surveillance through closed circuit television and target hardening with the use of high walls as a measure to create impregnable fortresses, has led to the spatial fragmentation of urban areas through polarization, privatization of public spaces and unnecessary restriction of through traffic to the destruction of the entire urban fabric (Fabiyi, 2004; Agbola & Ntamark, 2017). More alarming is the organic closure of streets within streets which were hitherto not structured to be restricted enclosures in old neighborhoods (as shown in plate 2).

Fig. 2: *Pearl garden (gated community) subdivision plan.*

Many Nigerian cities today are best described as urban jungle as evidenced in the new estates pre-planned as gated and guarded neighbourhoods creating a segregated elitist enclave which is direct affront to contemporary planning with emerging concepts such as new urbanism, inclusive cities and sustainable development. These gated communities will be inimical to building city resilience; because theydo not support urban mobility compared to open layout with multiple accesses (as indicated by figure 3) and in the event of breakdown of law and other, they become easy targets.

Plate 1: Showing Pearl gardens perimeter fence and entrance.Plate 2: Showing use of gate/ barricade across street entrance.

3.0 STUDY METHODOLOGY

This study is a survey research and adopted a passive - observational or correlational research design by Cook and Campbell in 1979 (Obinna, 2007). The study involved the collection of perceptual subjective data without experimental manipulation. Subjective data was obtained from a non - probability sample of subjects collected as a one-time survey of households selected from neighbourhoods within the inner-city and the urban periphery using a structured questionnaire.

The purposive (Non-probability) sampling strategy was used to select the sample size. In selecting the neighborhoods for sampling, the following parameters were considered; geographical location either as inner city neighborhoods or neighborhoods in the urban periphery, residential density (low, medium or high), physical structure, property value and neighborhood quality. This was done according to the judgment of the researcher to ensure heterogeneity.

The 1991 population census figure was used to project to 2016 population using the exponential method Pn = P0 (1+ r) n at 5.8% national growth rate gave a projected population of 162,407. This gave a projected total of 23,201 households using a national average of 7 persons per household.

The William formula (1978) adopted in Ogboi (2014) was used to determine the sample size of the study. This method was applied since the distribution of the sample frame was normal. The formula is given as:

$S = n / [1+n/N]$

Where:

S = sample size

n= proportion of household that will be sampled which is 2.5 percent

N = Total number of household

This gave a total of 566 respondents that were interviewed. The study adopted a multi-stage sampling framework. Six neighbourhoods (3 inner city and 3 in the urban periphery) were chosen purposively. In each neighbourhood, five streets were randomly selected. In each street the houses were listed and twenty houses were selected in a systematic sampling order. In each house, one household head was randomly picked for questionnaire administration using the one on one method.

A hypothesis was postulated for the study and it stated that there is no significant difference in the use of design elements for crime prevention between the neighbourhoods in the inner city

and the urban periphery in Port Harcourt city. The T-test statistics was used to determine the hypothesis between two sample proportions.

4.0 DATA ANALYSIS, RESULTS AND DISCUSSIONS

Table 1 below indicates five hundred and sixty-six (566) questionnaires were administered and four hundred and ninety-eight (498) were retrieved making a response rate of ninety eight percent (87.9%).

Table 1: Questionnaire distributed and returned in the study

S/N	Neighbourhood cluster	Name of neighbour -hood	No. of questionnaire administered	No. of questionnaire retrieved	Percentage (%)
1.	Inner City	Old G.R.A	94	76	80.8
		D-Line	94	80	85.1
		Mile 3 Diobu	94	78	82.9
2.	Urban	Rumuigbo	94	85	90.4
	Periphery	Rumuepirikom	94	89	94.6
		Rukpokwu	96	90	93.7
	Total		**566**	**498**	**87.9**

Source: Nwokaeze, 2016.

- **Use of design elements for crime prevention**

The design elements of the study (as shown in table 2) are the use of burglary proof, use of perimeter fencing, perimeter fencing compliant with regulation (see-through fence), the use of natural surveillance and neighbourhood planning, and the use of street barricade and gated neighbourhood as security measures.

Table 2: Use of design elements in the study.

Design elements	Inner city		Urban periphery	
	N	%	N	%
Use of burglary proof				
yes	188	80.3	232	87.9
no	46	19.7	32	12.1
Total	234	100	264	100

Use of perimeter fence				
yes	111	47.4	169	64.0
no	123	52.6	95	36.0
Total	234	100	264	100
Perimeter fence compliant with regulation (See-through fence)				
yes	111	100.0	53	31.4
no	-	-	116	68.6
Total	111	100	169	100
Use of street barricade /gated neighbourhood				
yes	19	8.1	120	45.5
no	215	91.9	144	54.5
Total	234	100	264	100
Use of neighbourhood natural surveillance				
yes	172	73.5	121	45.8
no	62	26.5	143	54.2
Total	234	100	264	100
Neighbourhood planning				
yes	155	66.2	116	43.9
no	79	33.8	148	56.1
Total	234	100	264	100

Source: Nwokaeze, 2016.

- **Use of burglary proof for target hardening**

The analysis show that 87.9% of neighborhoods in the urban periphery used burglary proof in their buildings and apartments while 80.3% in neighborhoods in the inner city. It is a clear indication that majority of the residents in Port Harcourt use burglary proof as a crime control measure in their houses, thus burglary proof in different forms and materials has become part of the urban fabric because of its ability to accomplish target hardening.

- **Use of perimeter fencing and compliant with regulation**

The analysis shows the use of fences as a major design element for crime control. In the urban periphery, 64% of the buildings had perimeter fence which was lower in the Inner city, about 47.4%. Perimeter fence is a major design element for crime control, another key component of urban fabric and perhaps the most important building element (structure) in the urban periphery. However, the analysis revealed a sharp variation in the nature of fences between the two strata. The neighborhoods in the urban periphery had only 31.4% of the fences complying

with regulation on fencing, indicating that there were more of high walled fences (68.6%) with added features such as barbs, razor wire and broken bottles in the urban periphery. This was significantly different in the inner city which had 100% compliance with development control fencing regulations of 1.2m block wall and 0.6m ornamental see-through with a fewof the fences having electrocution installation and alarm system. The reason for this high level compliance is not farfetched; between year 2007 and 2010, the Ministry of Urban Development and Physical Planning had carried out the demolition of all high wall fences and projections within the Inner-city as part of its urban renewal programme. The exercise was initially opposed by many residents especially the rich who felt that such activity will expose them, their family and property to crime and insecurity. However, the Government was resolute on its proposed action which was carried out as planned irrespective of whose horse is gourd. Many years after, its unequivocal to say that the speculation of the residents who initially resisted government action were wrong, as these neighbourhoods have proven to be safer than they were before the Government rolled in the bulldozers.

- **Use of natural surveillance**

The inner city neighborhoods showed higher tendency to natural surveillance as 73.5% of the buildings showed support for eyes on the street, with good road network and good road condition. But it was a different scenario in the urban periphery which recorded lower support to natural surveillance with only 45.8% of the buildings having the ability for eyes on the street. Many of the streetaccesses were in very bad condition.

- **Use of street barricade / gated neighbourhood**

Neighborhoods in the urban periphery had more gated communities, (45.5%) compared to the inner city (8.1%). Fabiyi (2004), study on urban security in Ibadan suggested that gated communities encouraged defensible space but with serious implication on urban morphology. Thus the desire for security; personal and property safety, privacy and control of trespassers were reasons adduced as preference for gated enclaves which has become a trade-off for other considerations such as economy, aesthetics and functionality which are key elements of urban planning. The privatization of roads, streets and access obviously is a misnomer and contemporary urban planning should seek to amend it if our cities are to be sustainable.

- **Neighbourhood Planning**

The analysis shows that the neighbourhoods in the inner city were properly planned to boost security (66.2%), while in the urban periphery the figure was 43.9%. From physical observa-

tion, the urban periphery in Port Harcourt is largely unplanned, this is in consonance with the assertion by Owei et al, (2008) that Port Harcourt has been a theatre of struggles for access to land. The largely uncontrolled and unregulated nature of almost all new developments is a result of these struggles and underlying question of access resulting into sprawl. Urban sprawl as observed in this context can be described as "scatterization" particularly as development is mostly unplanned and unregulated. The character of land use combination in the urban fringe inadvertently made it difficult to define the population density of the neighborhoods surveyed in the urban periphery, which was best described as "mixed density" unlike the inner city neighborhoods which clearly showed the different levels of low, medium and high density residential.

- **Changing neighbourhood pattern and urban form**

Data obtained from the Greater Port Harcourt City Development Authority showed that 26 representing about 84% of 31 layout plans granted planning permission as at April 2020, were planned as gated communities. Remarkably, these estates are owned and registered by private property developers and cooperative societies. The increase in gated communities will definitely have serious implication for the city. It will affect urban mobility, generate unnecessary traffic at these neighborhoods' single entrance and create poor visual quality of the urban realm. Physical planners are now faced with the hard choice of either encouraging "prison wall" settlements with high walls and boundaries (as shown in plates 1 and 2) littering the urban landscape just for the sake of security or adopting a more adaptable design that enhances security without compromising the city structure. An integrated planning approach is obviously the new paradigm for Nigerian cities of tomorrow.

This study examines the use of design elements for crime prevention in the study area. The hypothesis is that there is no significant difference in the use of design elements for crime prevention between the inner city and urban periphery neighbourhoods in Port Harcourt. The test carried out showed $t = 4.862$ significant at $P = 0.0041$. Since the t value is higher than the critical value of 2.07 at a degree of freedom of 233 and $P<0.05$ significant level, the null hypothesis was rejected, suggesting that there is a difference in the use of design elements for crime prevention and associated urban security challenges between the inner city and periphery neighbourhoods in Port Harcourt city.

Urban design elements such as natural surveillance contributed to improved crime control in the inner city which had defined residential densities (low, medium and high) better street structure and high quality neighborhoods with up-market properties. On the other hand, the urban periphery neighborhoods had more of gated communities encouraging defensible space with a higher rate of non-state actors managing security.

5.0 CONCLUSION

Insecurity is reshaping our cities.The planning system and crime prevention experts argued that safety and security is essential for the sustainability of communities.However, the inappropriate use of design elements in response to the nagging urban security challenges and poor urban spatial management is responsible for the distortion of neighbourhoods and urban morphology in Port Harcourt, thus leading to the gradual loss of its historical identity as "the Garden City of Nigeria".

There is need to curb the proliferation of unsuitable practices to tackle emerging security challenges in the urban centres especially when such design practices are inimical to salient town planning objectives of circulation, convenience, aesthetics and economy. These practices which are part of the urban fabric have made our cities more or less urban jungles, with barricades and prison wall enclaves popularly known as gated communities. This trend has become the new normal rather than a misnomer to contemporary urban planning norms and standards. The impact on neighborhood patterns and the emerging urban form is vicious thus this study argues that urban functionality should not be traded-off for security considerations.

This study recommends the need to adopt an integrated development planning strategy that involves critical stakeholders; the planners, architects, developers, community forum and the police in neighbourhood planning. This approach will put paid to inclusive planning and evolve plans that will be more acceptable to practitioners and end-users.

City managers and security agencies must come up with viable alternatives that will encourage shared facilities and swift response to incidence of crime. This will lead to the pulling down of unnecessary high walls and blockades, and restoration of distorted urban form. The principles of crime prevention through environmental design should be home grown and tailored towards building city resilience and sustainability within the local environment.

This study strongly recommends the imperative to put in place laws, regulations and scheme controls for proper development management framework within the urban security context, which is lacking in many Nigerian cities presently. Town planning authorities should be proactive to their enforcement responsibilities to control and regulate development (including street barricades prompted by insecurity) in the public interest. These measures are sure ways to envisioned Nigerian cities beyond 2020.

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CHAPTER 11

URBAN GOVERNANCE AND MANAGEMENT ISSUES IN DELIVERING ENVIRONMENTALLY SMART AND RESILIENT CITIES IN NIGERIA

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Abstract

Globalization, rapid urbanization, dramatic quantitative and qualitative population changes taking place in urban areas have all combined to make urban governance and development of smart and resilient cities imperative in the world more so in Nigeria in the 2020s. With the launch of the Nigeria Resilient City Network in 2016 and the Nigeria Smart City Initiative in 2017 several efforts are currently being taken to make Nigerian cities get smarter and more resilient in the nearest future. The aim of the paper was to determine how current resilient and smart city initiatives and new urban management processes being developed can be harnessed to deliver environmentally resilient cities in Nigeria. Using desktop research the various initiatives and their opportunities, problems and challenges were assessed and the potentials they offer for achieving set objectives underpinned. The major findings of the study are that current initiatives are at their infancy stages and that more commitments from governments and private sector operators are required in terms of resources to train needed critical manpower, provide necessary hard and soft ICT infrastructure as well as drive institutional reforms at the local government level. Based on these findings the paper argues that Nigerian urban planners and policy makers must address current urban governance and management issues using the principles of increased democracy, innovation, technical capacity, inclusiveness and legitimacy to deliver environmentally smart and resilient cities in the future.

Key words: globalization, rapid urbanization, urban governance, smart city, resilient city

1.0 INTRODUCTION

Globally cities are increasingly coming under pressure to change their management procedures and practices due to number of emerging challenges and ensuing requirements needed to resolve them. First and foremost the challenges of globalization, climate change, urbanization and industrialization, population growth, urban sprawl, and rural-urban migration put pressure on cities. Attempting to resolve such trans-boundary, transnational and trans-regional

challenges using the traditional local government management structure that emphasizes 'taking control, taking charge, directing' (Williams, 1983) may not lead to desirable outcomes nor would such hierarchical management approaches be adequately responsive to the multi-agency and multi-sector co-ordination activities required to achieve significant efficiency in urban management. Thus, in recent years we have therefore seen an interesting shift in focus from urban management (Van Dijk, 2006) towards urban governance (Edelenbos, 2005). Secondly, in this increasingly competitive world, city governments have the ambition to become entrepreneurial agents discovering the world and attracting economic flows and business investments (Edelenbos and Van Dijk, 2017). To achieve this ambition cities need to collaborate and compete with other cities across the globe leading to the emergence of city networks characterized by horizontal relationships (ties) between actors who aim to produce outputs and outcomes cooperatively, based on decentralized, non-hierarchical decision-making (Edelenbos and Van Dijk 2017; Pierre and Peters, 2000). Thirdly there is the growing complexity of urban projects arising from the growing complexity of social life or social differentiation, different lifestyles, multi-cultural backgrounds and diffusion of the traditional connection between people and places in cities (Healy, 1997; Madanipour et al., 2000; Kearns and Paddison, 2000).

Yet there is another factor driving the shift from urban management to urban governance and it relates to the need to 'change into self-organizing networks and heterarchy' (in response to increasing city complexity) whereby city governments empower themselves by activating and combining resources, skills, and objectives of other (private, societal) actors in the urban system (Jessop, 1998; Edelenbos and Van Dijk, 2017).

The need to shift from existing traditional management approaches and governmental top-down steering models towards a new urban governance structure where different stakeholders from different organizations and domains, such as government actors, private actors, non-governmental organizations (NGOs), and citizens, are engaged in the pursuit of collective action and goals within the city is more urgent in developing countries especially Nigeria. Issues of widespread leadership failure, decaying public institutions, systemic corruption, pervasive poverty, economic inequalities, insecurity, climate change and poor urban spatial planning (Heywood and Achebe in Muria and Auricombe 2019), are additional challenges confronting Nigerian cities that make urban governance more imperative in the 2020 decade. According to UN HABITAT report on good urban government assessment of Nigeria observed so many Nigerian cities do not have up-to-date city development strategies, consequent of lack of capacity and resources to plan; ineffective development control; and inadequate institutional and legal frameworks for promoting good urban governance (UN HABITAT 2012). Quite significantly a previous UN Habitat's Global Report on Human Settlements (2009) attributed the problem of mounting urban challenges in Nigeria to the adoption of traditional approaches to planning

in the country. In recent times Nigeria has made effort to address theseurban development and management challenges through the launch of the Nigerian Resilient Cities Network (NRCN) in 2016 and the Nigerian Smart City Initiative (NSCI) in 2017 with clearly defined objectives, targets and frameworks to make the nations' cities become smarter and resilient.

However while the environment component and or objectives has always featured in both smart city and city resilience concepts or initiatives (Marsal-Llacuna 2015, Cohen 2012,Wanga, Shenb, Xiangc, and Wangb2018,Woheren and Odedra-Straub, 2017) currents studies in Nigeria on these issues have focused more on the challenges of making these initiatives and framework(s) work in the country (Kabir, 2019, Kadiri,et al 2019, Oduwaye et al 2019).The aim of the paper was to determine how current resilient and smart city initiatives and new urban management processes being developed can be harnessed to deliver environmentally resilient cities in Nigeria. The rest part of the paper is structured into five sections. The conceptualization of urban governance and how it relates to smart and resilient cities is examined in section two while new urban management or administrative techniques required to achieve sustainable management of cities are discussed in section three. A case study of good urban governance principles in Singapore in comparison with urban governance and management challenges in Nigeria is taken up in section four while opportunities and urban governance imperatives required for delivering environmentally resilient cities are discussed in section five, and the paper is concluded with recommendations in section six.

2.0 CONTEXTUALIZING URBAN GOVERNANCE AND ITS RELATIONSHIP WITH RESILIENCE AND SMART CITIES

According to United Nations Development Program (UNDP) in Egunjobi and Alabi (2018), governance embraces all of the methods – good and bad – that societies use to distribute power and manage resources and problems. They further explained that good urban governance (GUG) means that government is well managed, inclusive and result in desirable outcomes. According to Henricks (2014), GUG is conditioned by constantly reassessing these outcomes in connection to a solid frame of indicators. The UNHABITAT, the United Nations Human Settlements Programme, outlined the indicators which include: subsidiarity, sustainability, equity, efficiency, transparency, accountability, civic engagement, citizenship and security (Badach and Dymnicka, 2017). Egunjobi and Alabi (2018) highlighted six broad classes suitable for selecting indicators in Nigeria: political life; Urban economy; social conditions; infrastructural development and service delivery; physical environment; and physical planning. Obeng-Odoom (2012) stated that, good urban governance transcends the boundaries of governments, making use of a cluster of ideas ranging from decentralisation, entrepreneurialism to democratisation.

Urban governance means that the capacity to get things done no longer lies with government power and management authority, in one place and institution rather it is a multilevel activity in which higher levels of authority (regional and national governments) are related to and combined with lower levels of governance at the local and neighbourhood levels (Healey et al., 1995; Edelenbos and Teisman, 2013; Edelenbos and Van Dijk, 2017). In this view there is a recognition of the formal authority vested in elective office and institutions, but also an understanding that this alone does not suffice to govern the city; therefore, city authorities team up with different partners depending on the issue, sector, or aspect of public service delivery concerned (Ansell and Gash, 2007). Different actors control different types of resources (authority, knowledge, financial resources, networks, etc.) that can be brought in to support the pursuit of collective action and goals (Edelenbos and Van Dijk, 2017) which in urban governance literature is responsible for the diversity of urban governance modes like clientelistic, corporatist, managerial, pluralist, and populist.

Edelenbos and Van Dijk (2017) described the essential characteristics of the urban governance models as follows: 'in the clientelistic model, particular clients get attention in return for political support, whereas in the corporatist model they answer to the private sector elites. In the managerial mode of governance, the focus is on formal/contractual relationships between government officials and private-sector interests. In the pluralist mode, the high degree of complexity among contending interests is emphasized. Governments then serve as brokers or provide an arena for negotiation between rival private interests. In the populist model, politicians focus on grassroots mobilization as a way of setting and implementing policy agendas. The governing logic is democratic inclusion, expanding the participation of individuals and groups; nowadays, the last two categories of urban governance get the most attention'.

With respect to urban management Davey (1993) postulates that urban management is concerned with the policies, plans programs and practices that seek to ensure that population growth is matched by access to basic infrastructure, shelter, employment and management of resources. The author opined that the effectiveness is clearly dependent on the range of contextual factors: political, social cohesion, economic buoyancy, skill and motivation of its policy makers as well as the ability of policymakers to advantageously manage these factors to absorb unforeseen shock and still function creates resilience (Davey 1993). Urban governance is an appealing concept because local governments—which can be briefly described as public bureaucracies and their political masters—do not exist in a vacuum (Da Cruz, Philipp Rode and McQuarrie, 2019). City administrations negotiate their way through the policy process while being subject to the influence of other levels of government, the need to steer or coordinate with other authorities, lobbying pressures, and democratic concerns (Mossberger& Stoker, 2001; Stone, 1989, 1993), just to name a few. Governance is also useful as an analytical lens because it does not

require a priori assumptions about the roles of the various actors regarding goal setting, steering, and implementation (Pierre, 2014). Rather, it emphasizes the relationships and interactions between these actors as well as the conditions and rules that frame those relationships and interactions (Da Cruz, Philipp Rode and McQuarrie, 2019).

According to Sjöstedt (2015), urban resilience is a multidimensional concept that focuses on a city's ability to strategically and spatially adjust to meet the challenges of the future. Hence, it is important to absorb future shocks and stresses to their social, economic and technical systems and infrastructures, so as to still be able to maintain essentially the same functions, structures, systems, and identity after major disaster (Wilbanks,2007; Tyler and Moench, 2012; Van der Waldt, 2019) As part of its mission to promote the wellbeing of humanity around the world, the Rockefeller Foundation in collaboration with ARUP and UK Engineers Without Boarders in 2013 adopted the 100 Resilient Cities programme focusing on urban resilience. The 100 Resilient Cities (100RC) programme is dedicated to helping cities around the world become more resilient to the physical, social, and economic challenges that increasingly affect the 21st century and beyond. In the view of 100RC, resilience includes not only the shocks (such as floods) but also the stresses that weaken the fabric of a city on a day-to-day or cyclical basis (Oduwaye et al 2018). The programme listed the four core dimensions of urban resilience to include leadership and strategy (effective leadership, empowered stakeholders, transparency in governance and integrated development planning);health and well-being (minimal vulnerability, diverse livelihoods and employment and safeguard to human health and life);economy and society (sustainable economy. security and rule of law, community identity and support) and, infrastructure and support (reduced exposure and fragility, provision of critical services, reliable mobility and communication, adequate and reliable infrastructure).

Resilience finds its roots in applied sciences, where the term is used to describe the stability of materials and their resistance to external shocks (Davoudi, 2012; Lu & Stead, 2013). In the 1960s it entered the field of ecology, where resilience is defined as "the magnitude of the disturbance that can be absorbed before the system changes its structure" (Holling, 1996). Davoudi (2012) explains that in this view "resilience is defined not just according to how long it takes for the system to bounce back after a shock, but also how much disturbance it can take and remain within critical thresholds. What underpins both perspectives is the belief in the existence of equilibrium in systems, be it a pre-existing one to which a resilient system bounces back (engineering) or a new one to which it bounces forth (ecological)." Resilience as a notion in relation to cities and planning engaged in the 1990s in response to the environmental threats of adjusting social and institutional frameworks (Mileti, 1999; Lu & Stead, 2013). The resilient city concept is on the capability of the city to prepare for, respond to and recover from significant multi-hazard threats, with minimum damage to public safety, health, the economy and security of the area

concerned (Oduwaye and Abdul-Rahman, 2018).

From the above literatures, urban governance, management and resilience is depicted by the attainment of good urban governance. The International Federation of the Red Cross and Crescent Societies (IFRC) (2011) stated six features of resilient communities based on their research findings in a community based disaster risk reduction study. From their study, they affirmed that resilient city/community are: i) knowledgeable, healthy and has the ability to assess, manage and monitor its risks; thus, learning new skills and building on past experiences; ii) They are organized and have the capacity to identify problems, establish priorities and act; iii) they are connected or have a relationship with external actors who provide a wider supportive environment, and supply goods and services when needed; iv) they have strong infrastructure and services (housing, transport, power, water and sanitation systems) and have the ability to maintain, repair and renovate them; v) they have diverse range of economic opportunities (employment, income and financial services) and are flexible, resourceful and has the capacity to accept uncertainty and respond (proactively) to change: vi) they can manage their natural assets, recognize their value and have the ability to protect, enhance and maintain them.

In planning practice and strategies in management of risk in cities, Wardekker, Jong, Knoop, and Sluijs (2010) considered 'foresight and preparedness/planning', 'compartmentalization' and 'flexible planning/design' as practical principles for urban resilience. Ahern, Qin, and Liu (2011) argued that five urban planning and design strategies are imperative to achieve urban resilience. These include multi-functionality, redundancy and modularization, biological and social diversity, multi-scale networks and connectivity, and adaptive planning and design. They also identified eight major features of resilient cities which include - diversity, allowing for variability, modularity, innovation, tight feedbacks, overlap in governance, social capital and ecosystem services (Ahern et al., 2011). Also other similar or relevant terms of describing urban resilience' characteristics are the ability to 'self-(re)organizing (Carpenter, Walker, Anderies, and Abel, 2001), interdependence' (Brody, Godschalk, and Burby, 2003), autonomous, re-flexible and connective (Davoudi and Strange, 2009), robustness' (Wardekker et al., 2010), ability to recover (Meerow, Newell, and Stults, 2016) and capacity to mitigate, prepare for, respond to and recover from impacts (Gasu, 2018). Furthermore, Wanga, Shenb, Xiangc, and Wangb, (2018) conceptualized the realization of city resilience on three fundamental bases of the physical, the public service and the management system and, four dimensions which comprises spatial pattern, environmental component, decision and regulation and, support and safeguard. However the NRCN's 2016 framework for Nigerian Cities Resilience is based on nine pillars and four core dimensions of leadership and strategy, health and well-being, economy and society and infrastructure and support. Oduwaye et al (2018) described the nine pillars of Nigerian cities resilience as city advocacy, local government autonomy with accountability, integrating

informal areas, city resilience strategies and urban planning, peer learning, stakeholder engagement, local land markets and tenure system, development control and local revenue generation.

In respect of smart cities the Centre of Regional Science at the Vienna University of Technology, identified six key indicators which are consistent with the holistic strategy for attaining Smart Cities (Mosannenzadeh and Vettorato, 2014). These indicators were popularized in the widely adopted Smart City Wheel developed by Boyd Cohen which he described as smart economy, smart environment, smart government, smart mobility, smart living and smart people (Cohen, 2012). Schipper and Silvius (2018) defined the five indicators of smart cities as economy (the city must be able to thrive: jobs, growth, finance, employment, global market and related features), governance (the city must be robust in its ability for administrating policies and pulling together the different elements like regulatory compliance, transparency, communication, dialogue, policies, e.tc), environment (the city must be sustainable in its functioning for future generations), society (the city is for its inhabitants or the citizens) and technology and infrastructure (through the convergence of physical facilities with digital (ICT) infrastructures the city provides smart energy, smart buildings, smart transportation, smart water, smart waste, smart physical safety and security, smart health care including smart education.

Some cities in the world like Copenhagen, Sydney, Jiangwan, Los Angeles and Amsterdam have strategically and spatially schemed measures which qualify them as resilient and smart cities. According to Schipper and Silvius (2018) and Wang et al (2018), pragmatic representativeness of these schemed measures can also be useable and effective for other cities to achieve sustainability. To clarify the essence and representativeness of city resilience, Wang et al (2018) conducted a study on four resilient communities: St. Kjeld Community in Copenhagen Denmark (World first Climate resilient community); Rosenthal Avenue Carpark Sydney, Australia (redeveloped into an active town center); Jiangwan Community in Shanghai, China (meteorological intelligent community); and Northridge community, Los Angeles in the United States (post-earthquake reconstruction). The authors deduced four key characteristic as **multi-functionality and flexibility, interactive and diverse components, intelligence and humanity, and predication and collaboration.** They further clarified and stated eight essence of the four characteristics as multi-functionality of space, flexibility of spatial processes, interactivity of facilities diversity of components, intelligence of public service, humanity of public services, management concept based prediction and collaboration of management institutions (Wang et al, 2018).

The well-documented transitions "from managerialism to entrepreneurialism" and "from government to governance" brought about deregulation, increased flexibility of planning, and the greater involvement of the private sector but also decreasing interest in developing the public

sector and ensuring socioeconomic equality (Blumenthal &Bröchler, 2006; Greiving& Kemper, 1999; Harvey, 1989; Heere, 2004; Imbroscio, 2003; Rhodes, 1997; Stoker, 1998). All along these processes, which took many shapes and forms around the globe, there were also calls for a move from an "active" to an "enabling" state (Organisation for Economic Co-operation and Development, 1996) with the aim of removing barriers to the market, increasing plurality and citizen involvement in governance (Evans, Joas, Sundback, & Theobald, 2006; Röber&Schröter, 2002). Taken together, these shifts have led to more networked forms of governance (Klijn&Koppenjan, 2016; Powell, 1990), expanding the number and diversity of actors involved in an increasingly nonlinear policymaking process that challenges hierarchical integration (Greiving& Kemper, 1999; Hajer&Versteeg, 2005) make new public management approaches imperative to realize the goal of resilient and smart cities. These changes have arisen in response to the growing dominance of the managerial dimension of local government administration in which local government is seen as a public organization resolving collective needs and interests through service production and delivery, compared with the democratic-participatory objective that portrays local government as an instrument for the management of political conflict (see Daltan, 1996 & Pierre, 1999). In another vein these changes have been driven by the increased reliance by many countries on application of ICT and smart technologies in the administration, development and management of their cities with the view to achieve better connectivity in transport, improved security, environment, decent affordable housing, efficient sanitary and waste disposal system, better adaptation to climate change effects and environmental shocks-the drive to make cities smart and resilient.This issue is taken up in the next section.

3.0 EMERGING NEW PUBLIC MANAGEMENT APPROACHES AND DIGITAL-ERA GOVERNANCE

The increasing shift to urban governance from hierarchical top-down local government modes by cities and the imperatives of attaining resilient and smart cities have led to the growing use of new public management approaches and, information and communication technologies and infrastructure. Similarly the growing dependence by national, sub-national and local or municipal administrations on public private partnerships for the delivery of urban services and the transition from public private partnerships (3 PPPs) to public private people partnerships (4 PPPPs) demand that new public management approaches are devised. The transition from the 3PPPs to 4 PPPPs has been rationalized on fact that the 3 PPPs initiative 'can face various challenges that cause unwanted project failure' (Goldstein and Mele, 2016). Moreover, the 4 PPPPs service model operation framework embraces a bottom-up approach with participatory strategies bringing the public engagement visibly for the infrastructure policy-making and planning. With such approach and community engagement strategies, decision-making process by policy creators, who are usually holding the definitive decision authority, will be concerned

with the citizen active participation and engagement (Thomas Ng et.al, 2012). Furthermore, 'the social, and technological drivers generated by Web 2.0 applications and social media have already lead to dramatic socio/cultural tech developments' (Dunleavy and Margetts, 2010). The most commonly discussed social developments include peer production (Benkler, 2008), the 'democratization of innovation (von Hippel, 2005), 'crowd-sourcing' (Howe, 2006), 'wikinomics' (Tapscott and Williams, 2006), 'cognitive surplus' (Shirkey, 2010) and a range of network effects (Christaki and Fowler, 2009). These developments put pressure on government organizations to innovate in their dealings with citizens, introducing new competition for 'nodality' in social and informational networks (Escher et al, 2006; Hood and Margetts, 2007) and offering the potential for 'co-production' and even 'co-creation of government services (Dunleavy and Margetts, 2010). Such potential should be welcome to policy-makers looking for public service cuts and could lead to new interest in DEG type models (Dunleavy and Margetts, 2010).

Furthermore, these social developments have brought with them new organizational forms, through the capacity of the Internet and its users to 'organize without organizations' (Shirkey, 2008). Beginning in the mid-1990s and reaching full effect from around 2002 onwards, the movement of government services online has had major consequences for the previously dominant approach government sector administration which scholars now agree in terming New Public Management (NPM) (Dunleavy and Margetts, 2010).The Second United Nations Conference on Human Settlements (Habitat II) asserted that, "citizens are demanding to be seen and heard and to be given power to take part in decisions affecting their living environment". To this end, modern urban managers and elected officials are relying less on top-down approaches based on blue-prints and master plans and have adopted more participatory and inclusive approaches to urban governance (UN-Habitat, 2003). Many local authorities accept the idea that by adopting more open, accountable and transparent systems of governance they will become more efficient. Some of the emerging new public management approaches and digital era governance models are decentralization, competition, incentivization, re-integration, holism and digitalization.

According to Escher et al (2006), Hood and Margetts (2007) and Dunleavy and Margetts, (2010), competition is characterized by movement away from bureaucratic monopoly providers and introduces alternative suppliers via mandatory competition, outsourcing, strategic review, quasi-markets,de-institutionalization, asset sales, consumer-tagged financing, deregulation, intra-government contracting, public/private sector polarization and product market liberalization. The third strand of the NPM models is incentivization which is concerned with the institutionalization of economic or pecuniary motivations for actors or organizations to make 'the best' use of resources via privatization, public financing initiatives and public private partnerships.

There are the NPM models with autonomous influences tending to increase user control and consumer tagged financing are actually distinctive to digital-era governance (DEG) changes (Dunleavy and Margetts, 2010). To this category are re- integration, holism and digitalization. The essential components of these three DEG models are: rollback of agencification/ fragmentation, Joined-Up Governance (JUG), re-governmentalization, reinstating/re-strengthening central processes, procurement concentration and specialization, network simplification and 'small worlds' as well as re-engineering back of office functions and service delivery chains characterize the essential features of the re-integration urban governance model ; holism as a DEG model, revolves around interactive and 'ask once' information-seeking, data warehousing, pre-emptive needs analysis, agile government processes (e.g. exceptions-handling, real-time forecasting and preparedness, responses to the unexpected), client-based or needs-based reorganization, one-stop provisions, ask-once processes, end-to-end service re-engineering towards sustainability, co-production of services especially in behavioural public policy ('nudge') fields, client-managed social/health care budgets, comprehensive online reputational evaluations in public services and government (citizens testimonials as substitutes for central regulation) including pen book government and citizen surveillance as substitutes for central audit as well as development of 'social web' processes within online government, and field services; finally, issues of radical disintermediation (cut out the middle-man), active channel streaming, customer segmentation, mandated channel reductions, electronic service delivery and e-government, web-based utility computing, new forms of automated processes (e.g using zero touch technologies), co-production of services, quasi-voluntary compliance, do-it-yourself forms and tax-paying, moving towards open-book government (now also full OPG policies), creation of government super-sites (and pruning web-estate), 100% online' channel strategies (covering all contracts and transactions) and related modernizations, government cloud', free storage, comprehensive data retention including pervasive computing and capital substitution for labour are some of the characteristic features of digitalization (Escher et al 2006, Hood and Margetts, 2007; and Dunleavy and Margetts, 2010).

It is argued the potentials in these approaches if properly harnessed would go a long way in restructuring and transforming urban governance processes in Nigerian cities to the vantage dynamism of resilience and smartness. Before the launch of NRCN and NSCI the country has made significant efforts to realize some their objectives.Prior to the debut of NSCI there existed array of interventions that rely on ICT and smart technologies for improved governance, economic and physical development plans and management of resources in the country (Kabir, 2019) These interventions, many of which are replicated in the secondary and tertiary levels of government amongst others include: e - governance it is mandatory for all MDAs in the country to embrace e-governance in the conduct of their statutory functions; the government e-learning platform for public servants Public Service Learning Management System (PSLMS) aims to

build smart public servants for the country; the Government Integrated Financial Management Information System, (GIFMIS) TreasurySingle Accounts, Integrated Payroll and Personnel Information System (IPPIS) e-payment system and the drive towards cashless economy in the financial sector of the country means that most of the business of government are now conducted online and this enhances the economic capacity and growth potentialities of the cities and the urban centres; network of many active CORS strategically located across the country and which continue to stream data to providers and users of spatial information in the country with data from the 2.5 meter resolution EOS Nigeria Sat – 2 sufficient for supervision and monitoring of many physical development sectors. In 2013 Google Maps introduced turn – by- turn navigation for subscribers of Google Map for Mobile. Real traffic updates was introduced in 2015 to aid commuters navigate busy traffic conditions and in July 2017 Google Map debut Street View in Nigeria for over 10,000 kilometres of road networks particularly in Lagos (Kabir, 2019) The project is being extended to many urban centres in the country.

Launched in November of 2016, the NCRN was established to work with state authorities to increase their capacity to manage and deliver services in their urban areas and to advance resilience thinking across the country, promote reflection and innovation in applying resilience to the political-economic context of Nigeria. Cities in Nigeria have no dedicated administration of their own; the governance of cities falls to the state-wide authorities who often have to cater for the whole state and thus have limited focus on the specific needs of the city itself or group of cities within the state (Oduwaye et al 2018). Since its launch the network has developed the Nigerian Resilience Cities framework and in international collaboration with the 100RC Network, UN-Habitat Urban Resilience Programme, NIAF-DFID, USAID, Max Lock Centre University of Westminster and Commonwealth Association of Surveyors and Land Economists (CASLE) is in the process of experimenting with new city administrative structure proposed for the Kaduna Capital City Development Authority in collaboration with the USAID (SACE ISWF program). While a lot is being done by government through these initiative and network there are little or no corresponding development of new local government institutions and structures with new management approaches based on sound legal frame works and multi-scalar institutional relationships necessary to make urban governance in Nigeria more democratic-participatory, legitimate- people oriented, inclusive and innovative. The above discussions on new urban management models offer insights and strategies to guide Nigeria's urban planning administrators and policy makers to reform its traditional local government system into a more effective and responsive managerial mode. In the next section we shall briefly describe the current urban governance structure in Nigeria and highlight how successful smart and resilient cities were able to transit from static local government structures to smart and resilient systems.

4.0 URBAN GOVERNANCE IN SINGAPORE IN COMPARISON WITH URBAN GOVERNANCE AND MANAGEMENT IN NIGERIA

After the Colonialist gave the Country independence in 1960, the 1946 Town and country planning ordinance was retained. Also retained were the chapter 123 of the Town and Country planning Law of Western Nigeria of 1959, chapter 130 of the law of Northern Nigeria and Chapter155 of the Law of Eastern Nigeria. As the law was retained so was the problem of discriminatory legislations. Inappropriate Standard amidst of poor and ineffective administrative framework is exemplified during the post-colonial eras as Planning was not given adequate attention during the first three development plan era of the country. The first attempt at organizing the administration and development of Land at the grassroots was the enactment of the Local Government Law of 1976. Prior to the 1976 local government reform, Nigeria local government system was engulfed in multiple problems, which included among others, structural and operational (Ozohu-Suleiman and Chima, 2015) which was described as a "vicious circle of local government poverty". According to them, elements of "vicious circle" of poverty include defective and cumbersome structure, inadequate functions and powers, inadequate finance, low caliber and poorly paid staff, low administrative efficiency and corruption, poor performance or even total neglect of functions and the transfer of functions to State / Federal Governments.

The advent of the 1976 Local Government Reform was therefore a welcome development as scholars' referred to it as "watershed" in the history of Nigeria Local government in the country. Apart from being a bold attempt to break the "vicious circle of local government poverty", it is a monumental inroad to correct the multidimensional problems of the local government system and make it a veritable instrument of grassroots development (Ekpe, 2008).The main features/ objectives of the 1976 Local Government reforms revolved around the recognition of the local government as the third tier of government which was later entrenched in the 1979 and 1989 constitutions, uniformity of structure across the country irrespective of differences in physical, social, economic and demographic conditions; a fixed size- in terms of size, the reformed local government provided that no local government should have a population of not less than 150,000 except with special permission granted by the Federal Government, besides an upper limit of 800,000 persons was stipulated; but this, however, could vary in exceptional geographical circumstances, and provided further that there should be no upper limits to the size of local governments covering major towns within single units; fixed tenure of years;common institutions such as Local Government Service Boards or Commissions established and; the establishment of one percent (1%) training fund for the training and retraining of local government staff to be administered by the local government service Commission (Nwosu 1989).

From the above objectives of the 1976 reforms the administrative, economic, and political assumptions or imperatives which are the basic kernel of the 1976 local government reforms were outlined as follows - the administrative assumption, was that local government should be

responsive to the local needs, yearnings, and aspirations by virtue of their proximity, generate knowledge of local conditions and, therefore, greater capacity to react quickly to these needs; the economic assumption is that local government should become more efficient in resource allocation by virtue of their superior ability to identify and rank priorities in terms of different services the community needs while the political assumption was to develop potential leadership capable of mobilizing the community, articulating and aggregating its interest.The land use Actchapter 202 of the laws of Nigeria 1978 stated that "It is in the public interest that the rights of all Nigerians to the land of Nigeria be asserted and preserved by Law .... the rights of all Nigerians to use and enjoy land in Nigeria and the natural fruits thereof in sufficient quantity to enable them provide for the sustenance of themselves and their families should be assured, protected and Preserved (Cap 202, 1978). It is contained in the Act to vest all Land compromised in the territory of each State (except land vested in the Federal government or its agencies) solely in the Governor of the State, who would hold such Land in trust for the people and would henceforth be responsible for allocation of land in all urban areas to individuals resident in the State and to organizations for residential, agriculture, commercial and other purposes while similar powers will with respect to non-urban areas are conferred on Local Governments.

The Nigeria Urban and Regional Planning (Decree No. 88, 1992) was the long awaited Planning law expected to guide orderly physical development in modern Nigeria. The birth of the Decree was preceded by forty – six year of outdated Town and Country Planning Law of 1946. The new law is thus expected to reinvigorate the dull and static planning activities pervading the post independent physical development in Nigeria. Most, if not all sections are therefore expected to be contemporary, new or least fit closely well with exiting planning issues in the country. According to Omole and Akinbamijo (2012), the Urban and Regional Planning (Amendment) Decree No. 18 of 1999 took care of some flaws in the parent decree – decree 88 of 1992. This decree is the most current planning law being used in conjunction with the parent decree – decree 88 of 1992 as of today. From the historical evolution as presented above, it is clear that the country has surely passed through successive administrations which have contributed directly and indirectly to urban governance through the development of planning laws and physical development in general. Notwithstanding, non-enactment of the Law by States in Nigeria and several grey areas in the law including the neglect of public participation and innovation has posed a big challenge in achieving the objective of the law to improve efficiency of urban and local service towards achieving environmentally smart and resilient cities in the country.

According to Toh (2015), Singapore became independent from their British Colonial Masters in 1965 with a young unskilled population, 14 per cent unemployment rate, 4.4 per cent birth rate and wide spread poverty. One-quarter of a million people lived in badly degenerated slums in the city centre and another one-third of a million lived in squatter areas on the city fringe in

1960 (Teh, 1975). From the inception of Singapore's climb to self-governance, the Colonial masters had bequeathed a civil service that was reasonably efficient but was fragmented by corruption (Toh, 2015). Yet, over the last 4 decades, Singapore's development trajectory catapulted it into one of the world's most competitive economies (World Bank Group, 2015), ranked 7th out of 174 countries with Transparency International (2014) describing it as one of the least corrupt countries; and one of the most livable (Mercer, 2015) and smartest cities (World Economic Forum, 2019) and resilient city in the world.In 2016 Singapore was ranked the smartest city in the world (Juniper Research, 2016; Buntz, 2016).

There are several factors that led to this ranking including, for example, the adoption of smart grid technologies, intelligent lighting, and use of technology to improve traffic, Wi-Fi access points, smartphone penetrations and the use of applications and sensors to achieve the interconnectedness of things (Woheren et al, 2018). The Singaporean Prime Minister, Lee Hsien Loong, launched the Smart Nation Program in late 2014. Virtual Singapore, a software that enabled city planners to run virtual tests in emergency evacuation scenarios at that time, helped to provide for informed decisions on what aspects of the city are best to digitize and how to go about them efficiently. The program has seen unspecified numbers of sensors and cameras being deployed across the island to monitor everything in the city, from its cleanliness to the traffic control system [17]. For instance smoking in unauthorized zones and unwanted littering out of high-rise buildings are some of the things that can be easily detected. The penetration of smartphones and broadband availability also helped in scoring the city-state high. A company named Singtel has launched a 10Gbps fiber broadband service4, to enable residents' access to fast broadband services at a high download rate. In the same vein, the government of Singapore makes public much of the data it collects and acknowledges privacy and security as the key concerns. It also assures that it works to ensure the anonymity of data where possible. Toh (2015) attributed the dramatic transformation of Singapore to five operating principles of urban governance which he identified as pragmatism, integrity, sound institution, and market function, and community involvement.

For example in Singapore client-based or needs-based re-organization, one-stop provisions, ask-once processes, end-to-end service re-engineering towards sustainability, co-production of services especially in behavioral public policy ('nudge') fields, client-managed social/health care budgets, comprehensive online reputational evaluations in public services and government (citizens testimonials as substitutes for central regulation) including pen book government and citizen surveillance as substitutes for central audit as well as development of 'social web' processes within online government were introduced and fast tracked to make economic roles of government more efficient and create the necessary environment for the business community to thrive. Similarly issues of radical disintermediation (cut out the middle-man), co-produc-

tion of services, quasi-voluntary compliance, do-it-yourself forms and tax-paying including the creation of government super-sites (and pruning web-estate), 100% online' channel strategies (covering all contracts and transactions) and related modernizations, government cloud', free storage, comprehensive data retention including pervasive computing and capital substitution for labour are common features of the Singaporean economy.In Singapore, economic progress and socio – political harmony are translated into policies, programmes and processes anchored by talented and capable technocrats recruited based on merit (Bar, 2006; Toh, 2015). The country judiciously balanced competing demands of a diverse stakeholder community to ensure that externalities are not unfairly borne by society, consumers' interests are protected and public interest is upheld. This is achieved through wide dissemination of plans and guidelines to developers, professionals and the public via media, government gazette, dialogue sessions and public exhibitions; to allow the public register objections or approval of development plans (Toh, 2015).

In contrast though Nigeria and Singapore share common historical circumstances Nigerian cities are yet to come to terms with the global trends of developing smart city, knowledgeable city, livable city or resilient city. In the new knowledge-based economy which is predicated on the fulcrum of knowledgeable city, knowledge and learning are key determinants of economic success. To attract businesses, cities have to ensure access to skilled labour, quality urban services and transportation /communications infrastructure. They also have to provide those services that attract and retain highly trained human capital. Although Nigeria cities presently lag behind Singapore in the adoption of smart grid technologies, intelligent lighting, and use of technology to improve traffic, Wi-Fi access points, smartphone penetrations and the use of applications and sensors to achieve the interconnectedness of things, needed human capitaland democratic structures to modernize its outdated local government administration, vast opportunities exist that can be quickly leverage upon to transform our cities into environmentally smart and resilient systems.

5.0 OPPORTUNITIES AND URBAN GOVERNANCE IMPERATIVES FOR ACHIEVING SMART AND RESILIENT CITIES.

As in all previous industrial revolutions cities tend to be engines of economic growth so the opportunities offered by rapid urbanization in Nigeria should be harnessed to make our cities engines of economic growth, innovation, technology and social progress.With 56 number of cities with population of 20,000 and abovein 1952, the number has increased to over 300 in 2019 Nigeria today has the largest number of cities with a population of over 20,000 in Africa. Furthermore as at today, there are as many as 74 cities with a total population of over 100,000 and above, compared with Egypt (the next largest) with just 15 of such cities (Adeboyejo,

2015). According to Adeboyejo the seventy four largest Nigerian cities have a total population of 36.6 million (24% of the country's total population) which is higher than the total population of Ghana (25.3million) or 71 percent of South Africa's population. About 14% (or 21.3 million) of Nigeria's total population are concentrated in ten largest Nigerian cities (Adeboyejo 2013). Urbanization has been an essential part of most nations' development towards a stronger and more stable economy (UN-HABITAT, 2011).

A number of African cities are already making progress towards becoming smart and resilient so Nigeria can leverage similar measures for faster results with her large young population, strong entrepreneurial spirit, vast telecommunication infrastructure and current efforts of NRCN and NSCI in that direction. A few examples will suffice. Twendeand Ushahidi12 havebeen developed as solution for solving traffic congestion problems and mapping violence in Kenya (Woheren et al, 2017). Twende, a Swahili word for "let's go", utilizes captured images from low cost-cameras and applies network-flow algorithms to estimate traffic flow (Austin, 2015; Wild, 2013). This means of decongestion does not require expensive road construction but the use of already present cameras coupled with deep analytics and specialized algorithms to interpret data received. Another example from Kenya is the Ushahidi12 Project is an open-source software for information collection was initially developed to map and report violence following elections in Kenya in 2008 but has nowwidely spread across the world and is now one of the most used platforms of its kind (Knowledge Wharton, 2013; Simone, 2015). Ebene Cybercity in Mauritius, was built over 15 years ago to create a modern working environment for workers, providing a hi-tech hub for Mauritius and has facilities like intelligent buildings, smart air conditioning, backup electricity generators to bridge frequent power cuts, networking systems to guarantee availability for businesses and high speed internet (Schuetze, 2016).

There is an increasing awareness that the positive economic functions cities fulfil can be made more effective through effective institutional framework (Adeboyejo, 2015). Urban management institutions provide superstructure that enables, or otherwise, underlying factors to operate and deliver a maximum of benefits to the largest possible majority of the population (UN-HABITAT, 2012).Regrettably Nigeria's urban planning and management is characterised by weak legal and institutional framework.Local institutions in Nigeria like local governments, area planning offices, utility agencies, public housing corporations, transport organisations, education and health institutions are constrained by weak and unviable revenue base, incessant domineering and influence of state government, lack of accountability and transparency, limited technical capacities, including both staff (fewer in number and less qualified) as well as equipment (hardware and software), poor management of financial resources and lack of political will (see Alabi and Akinbode, 2010; Aluko, 2010; Aribigbola, 2008). When urban governance institutions and management processes which provide the necessary infra or superstructure

system that enables underlying factors to operate and deliver maximum benefits to the largest possible majority of the population are weak cities fail to effectively serve as engines of socio-economic growth and development.Poor or ineffective urban governance accounts for the poor state and inability of most African cities to significantly contribute to national economy (UN-HABITAT, 2001; Falade 2010).

What urban governance and or new public management approaches would be needed to deliver smart and resilient cities in Nigeria in the 2020s considering the litany of current urban problems and management issues?In other words how can Nigerian cities be made to effectively deliver the benefits of smart cities which among others include carbon reduction, improved energy efficiency, high quality living environment, green urban areas, state-of-art infrastructure and city evolution as living and innovative laboratory to compete at global standards in terms of urban governance? Which urban governance measures would be necessary to enable Nigeria cities deliver core resilience functions- effective organization and coordination in place to manage and reduce disaster risk, building local alliance for risk reduction and preparedness, preparation of risk assessment as basis of urban planning and decision making, investments and maintenance of critical risk reduction infrastructure such as flood, drainage, traffic sensors, protection of the ecosystems and natural buffers to mitigate floods, storm surges including installation of early warning systems and putting in place emergency management practices? These are briefly discussed under on five principles of increased democracy, technical capacity, innovation, legitimacy and inclusiveness adapted from Singapore five operating principles.

- **Increased Democracy**

Local government administrations in urban areas need to create supra local government structures or institutions like the city central planning board or commission to take full responsibility for land use, infrastructure, social, economic and environmental management planning functions of municipal areas as well as serve as the data bank for the city. The head and members should be technocrats appointed based on merit for a period of 5 years and drawn from the business community, professional groups, civil society organizations, NGOs/CBOs and the local leadership groups. Such a body should serve as the technical department of the local government(s) in the city, with technical support from state and federal governments including external organizations and institutions. For effective administration of the city data capturing and streaming sensors and hardware should be spatially distributed in such a number and location that they cover the whole city in their network by the commission or board whilst providing opportunity for every citizen to air their in any area of interest. Collaboration tools, modern and intuitive websites, mobile applications, self-service portals, and convenient online accounts makes, government websites and portals, performance dashboards and platforms, social media and live- streaming which enables faster, easier and usually reliable two ways communication

between government and citizens thus improve governance and service delivery to the citizens (Kabir, 2019).

- **Innovation**

Sustained investment in smart technology innovations is the oil that drives the engine of economic growth and environmental and social progress. Innovative cities are smart and resilient cities that have the ability to absorb, recover and prepare for future shocks (economic, environmental, social and institutional. Smart transportation technologies such as traffic navigation, goods and vehicles tracking systems, intelligent traffic management and smart parking generate wealth, increase government revenue, save man hours and improved the quality of lives of citizens. Big data analytics which enables urban planning agencies and citizens to access, analyse and utilise massive amount of information relevant to particular issues of interestand also useful in predictive analytics to identify areas of weaknesses and leaks in pipelines, roads, bridge, dams and other urban infrastructure and fix the weak or damaged sections in short time thus eliminating or reducing expensive cost of repairs should be deployed. Smart technologies such as licence plate recognition, RFID, gunshot detectors, body and vehicular cameras which give law enforcement edge while on duty and enables quick response to emergency situations needs to be provided and used to improve security.

- **Technical Capacity**

Capacity building is necessary for the efficient utilization and allocation of human resources among competing demand(s) and drive innovations in governance and technology. For city managers to efficiently discharge smart city and city resilience functions outlined in this paper both them and citizens need to be educated on the services available from city geospatial information and how to access such services.Many computer literate populace do not know the utility value of digital maps for say physical planning purposes, revenue generation, valuation, navigation, route analysis, location sharing, smart parking and other options like Google map search (Kabir, 2019). Similarly urban planners and managers in Nigeria know little to nothing about smart services like radical disintermediation (how to cut out the middle-man), co-production of services, information data transference, comprehensive data retention including pervasive computing and capital substitution for labour. The foregoing underscore the necessity for technical capacity training and development for urban managers in particular to discharge their statutory functions.

- **Inclusiveness**

Building inclusive cities requires that everybody has equitable access to nutrition, education, employment and livelihood, health care, shelter, safe drinking water, sanitation and other basic

services, this process starts with the wholesale participation in urban governance which could be through direct, through legitimate, intermediate institutions, or through government representatives (Adeboyejo, 2015).The concept of social inclusion is the key to the campaign's approach to urban poverty reduction (UN-Habitat, 2016) and a basic ingredient for making cities resilient to climate change effects. Local governments and urban planners and managers should conduct regular stakeholder engagements on urban governance issues like city resilience strategies and urban planning, local land markets and tenure system, development control and increased local revenue generation to make its administrative processes more participatory and inclusive. There is also the need to involve more private partnership participation in the provision of physical and social infrastructure through greater transparency in local government operations like revenue generation, revenue expenditure, budgeting processes and periodic publication of local government assets and liabilities while laws and public policies should be applied in atransparent and predictable manner.

- **Legitimacy**

Urban governance agencies such as governmental institutions, the private sector and civil society organisations must also be accountable to the public and to institutional stakeholders for them to be legitimate. In Nigeria, local government system is constitutionally provided for as a third tier and autonomous of the other two: the Federal and State Governments. Therefore, the sustainability of local government autonomy should anchor on improved revenue based on adherence to constitutional provisions, political stability, accountability and transparency in governance. In recent times, the federal government changed its posture and championed the course of local government autonomy. In the 1976 local government reforms, it was remarked that "the state government have continued to encroach upon what would have been the exclusive preserve of local government". With this reform, the federal government granted the local government the power of grassroots governance, thus became the third tiers of government in the Country. To strengthen the philosophy of the government, it went further to guarantee the statutory nature of local government by embodying it in the 1979 constitution and section 7(1) of the said constitution stated: "the system of democratically elected local government councils is under this constitution guaranteed" (Adeyemo, 2005).

6.0 CONCLUSIONS

The primary purpose of the paper was to explore issues and initiatives that will provoke and galvanize action by urban local government administrations to transit from urban management mode of government to urban governance. In so doing the paper identified the forces driving cities in both advanced industrialized and economically developing countries towards urban

governance and highlighted additional issues in Nigeria that make such a transition more imperative. Also the paper thereafter conceptualized the dimensions of urban governance and good urban governance in a manner that relates these dimensions to the key components or characteristics of resilient and smart cities so as to promote the interest among urban planners and managers towards the attainment of such cities in the 2020 decade. Against this background the paper explored the new public management approaches (NPM) and digital-era governance models (DEG) used by global cities to deliver best practices in good urban governance (GUG) before highlighting the case of Singapore city that transformed itself from a poorly managed city to a world class resilient and smartest city while identifying the key governance principles that urban local governments must embrace to fast track their transition to urban governance. In view of imperatives of building environmentally and socially resilient and smart cities in Nigeria we argue that to overcome the key urban governance challenges of democracy, legitimacy, inclusion, technical capacity and innovation, Nigerian urban planners and policy makers must address urban governance and management issues like sound legal frame works, multi-scalar institutional relationships, innovative policies, municipal amalgamation and the organizational models available to local governments to deliver infrastructure services. The paper concludes that Nigeria city administrators would need to build supra city-wide institutions to harness information from various government agencies that render similar planning tasks as well as deploy information and communication technologies to improve efficiency of urban services delivery as starting points in the journey towards achieving environmentally smart and resilient cities in the next decade.

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SECTION 4

INFORMAL SECTOR PLANNING, REGIONAL DEVELOPMENT AND RESILIENCE BUILDING OF NIGERIAN CITIES BEYOND 2020

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CHAPTER 12

LANDUSE DIMENSIONAND SOCIO - ENVIRONMENTAL IMPACTS OF ROADSIDE TRADING IN BIRNIN-KEBBI METROPOLIS

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Abstract

This study evaluates the landuse dimensions and socio-environmental impacts of roadside trading in Birnin-Kebbi Metropolis.This is with the aim of proffering recommendations that will aid its sustainable management in the study area, and similar cities. To achieve this, a multistage sampling technique was used, such that the metropolis was stratified into low, medium and high densities, while 20% of the major roads in each density were randomly selected. Thereafter, sixty (60) metres was delineated on both sides of the roads for both landuse and roadside trade inventory. Aset of questionnaire was administered toone hundred and thirty five (135) randomly selected residents in the delineated areas while another set was administered to one hundred and twenty (120) identified roadside traders using the same sampling technique.Information obtained with the questionnaires includes type of street trade, setback to road networks, and socio-environmental impacts of street trade.Obtained data were summarized using frequency distribution tables, while Socio- Environmental Impact Index (SEII) was developed to appraise the impacts of roadside trading in the metropolis.The predominant type of street trade in the metropolis is edibles. These takes place at an average of about 0.9 metres from the roadsides. With SEII=0.656, the highest impact of street trade in the metropolis is access to cheap goods. This is however associated with overcrowding (SEII= 0.57) in trading spots. The study therefore recommends awareness through mass media, construction of corner shops, and development control among others. It concludes by advocating for informal landuse planning.

Keywords: Informality; Street trading; Urban Planning

1.0 INTRODUCTION

Street trading entails the displaying of wares by the road side, inclusive of hawking or raising sample of wares to commuters while vehicles are moving (Amoo et.al, 2012). It offers goods and services for sale on primary streets and pavements (Cross, 2000). Street trades are usually carried out in illegal structures (Ouwamanam et.al, 2000), and outside confined premises or secluded working environment (Mittullah, 2004). It is the sales of goods and services in public services (Bromley, 2000; Brown et.al, 2012), and one of the oldest as well as widespread occupations around the world (Bromley, 2000). Yet, it is one of the most controversial and highly debatable aspects of urban economy.

The controversies on street trading in the literature are centered on thematic relevance, socio-political skepticism, and legal considerations (Broomley, 2000; Brown et.al, 2009; Mitullah, 2004; Pratt, 2006).Hence research and practice interests on the subject matter are defined by specific contextual considerations (Ademola, 2015). This paper considers street trading as the transaction of legitimate businesses, involving sales of goods and provision of services as well as their related enterprises in, either or both of, non-complimentary or unapproved public spaces. Street trading is a landuse type in the informal category (Ogunkan and Adeboyejo, 2015) and its definition is a function of its site (Ademola, 2015).

The importance of street trading to economic development, especially in developing counties, has been stressed by different researchers (Shrestha, 2006; Kettles, 2007). It plays a great role in resource distribution (Bogoro, 2016), especially within communities (Broomley, 2000) that are poor and considered vulnerable. In addition to these are the social, psychological, and landuse impact of the activity. Street trading points or clusters, offers social integration, and are nodes of liveliness in an urban fabric. The bubbling nature of these places is central to defining the nocturnal liveliness of urban centres. This affects city image and experience of urban users, a situation that distinctly contrast the boring and simple life of rural areas.

Street trading is part of the complexities of urban fabrics. The joy, livelihood and liveliness of street trading bring psychological relief to street traders, who are considered to have been alienated from the city's formal prospect, and benefits. It is an inclusive avenue for the urban poor (Ademola, 2015). Like a balance of two opposite sides, street trading has its negative impacts on all sectors of the economy. This has been reported to include hindrance to national development (Goertz, 1963), as it promotes production of inferior products and smuggling. Also their evasion of tax, due to non-registration with government, is a challenge to economic development. Street trading causes traffic congestion, poses problems with hygiene and sanitation, and disease transmission (Abegunde, 2011). Points of street trading are hubs for the transfer of criminal proceedings, because of their lack of control. Street trading reduces user's satisfaction of public facilities such as road. Public space has an entirely different meaning to street traders (Abegunde, 2011), which is in sharp contrast to the original intent of the provision of such space. Meanwhile, street trading is more associated with urban areas as itleverages on the strategic vantages of their business prospect.

Birnin- Kebbi Metropolisis the hub of Birnin-Kebbi, and the provincial head of the emirates in Kebbi State. With these characteristics, it serves as the commercial and administrative centre of the state. This role influenced its economic prosperity and immigration especially from nearby cities, towns and villages. This has also manifested in the high incidence of street traders along road networks, and other public spaces, in the metropolis. It is hard to pass through a traffic

corridor within the metropolis without having a sight of roadside trading. This alarming situation requires scientific investigation; it is against this background that this study evaluates the landuse dimension of street trading in Birnin-Kebbi metropolis, and its associated socio-environmental impacts. This is with a view to proffering recommendations that will aid in the achievement of sustainable planning and management of such category of landuse in the study area, and other cities with similar characteristics.

2.0. METHODOLOGY AND STUDY AREA

Birnin-Kebbi Metropolis (Figure 1) is the primate city of Kebbi State. Alongside other major cities like Jega, Yauri, Zuru, Argungu and Aliero, it serves as the economic nerve of the state. Meanwhile, as the administrative headquarter of the state, Birnin Kebbi is peculiar with its diverse and relatively urban landuse system. The study area is served with well-connected road networks that link all part of the city. These road networks are used for various street trading activities, and such has attracted investigations.

For the purpose of this study, both secondary and primary data were utilized. The secondary data utilized are literature materials on street trading and other related concepts, which were obtained from online published journals. Also Google earth pro was used in the determination of lengths of roads. The primary data utilized include information on the incidence and dimension of street trading, land use characteristics of delineated areas around selected roads, and impacts of street trading in the metropolis. These were obtained with the aid of questionnaire and land use inventory form. To obtain this, a multistage sampling approach was used. First, the study area was stratified into densities. This is based on the result of a reconnaissance survey which reveals that there exists a clear distinction in the spatial characteristics of the density areas in the metropolis.Thereafter an inventory of the major roads in the stratified areas was done, while 20% of the roads were randomly selected using simple balloting system (Table 1). The lengths of the selected roads were determined, while 60 meters were delineated on both sides of the roads, for a landuse inventory of the delineated area.

Using an accidental sampling technique, because of the characteristics of street trading, a set of questionnaire was administered to one hundred and twenty (120) randomly selected street traders identified on the sampled roads. Another set of questionnaire was administered to a representative resident from each of the one hundred and thirty five (135) identified buildings within the delineated areas around selected corridors. Information obtained from the traders, among others, include year of establishment of street trading activities, and average daily income. Obtained data were subjected to descriptive statistics. The descriptive statistics utilized

include frequency counts and percentages; while these were summarized in tables. Socio-EnvironmentalImpact Index (SEII) was developed to assess the impacts of the activities.

Table 1: Selected Roads for Data Collection

S/N	Selected Road	Length (Kilometers)	Density Category
1	Bello Way	1.24	Low Density
2.	Abubakar Gari Road	3.10	
3	Haliru Abdu Road	2.58	Medium Density
4.	Sani Abacha Byepass	4.14	
5.	B. Kebbi – Argungu Road	4.23	Low Density
6.	Col. Patrick Aziza Road	1.92	
Total		17.21	

Source: Authors Field Survey, 2020

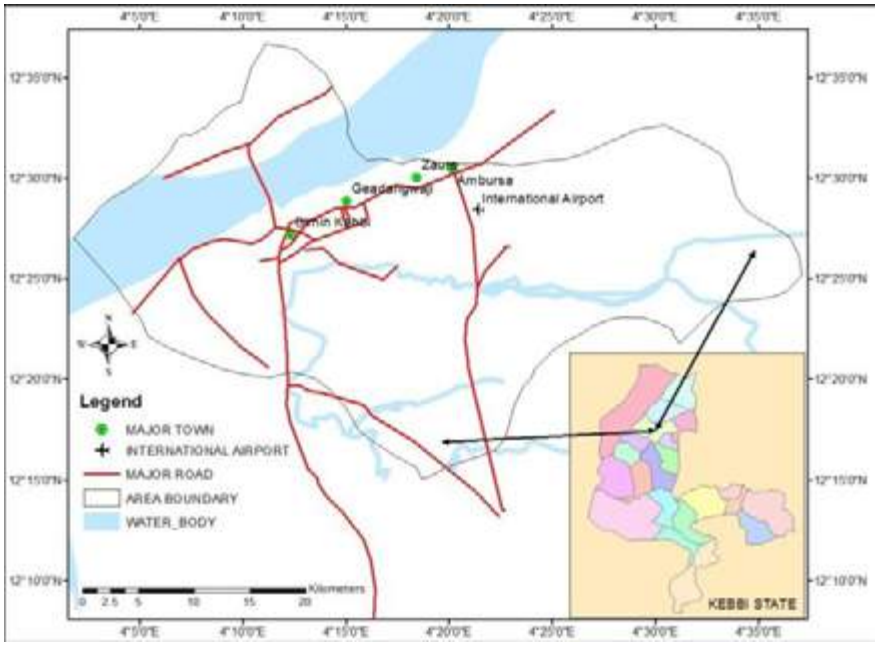

Figure 1: Location Map of Birnin-Kebbi Metropolis

Source: Adopted from Ismailet. al., (2016)

3.0 DISCUSSION OF FINDINGS

This section discusses the findings that were made during the course of the study. It is broadly divided into three subsections viz: incidence and dimensions of roadside trading in Birnin-Kebbi metropolis, characteristics of the roadside traders, and the impacts of roadside trading in the metropolis.

i. Incidence and Dimension of Roadside Trading in Birnin-Kebbi Metropolis

As stated earlier, data were obtained with reference to major roads in the study area. These major roads are central to street trading activities in their zone, and such can be used to explain the overall characteristics of street trade within their catchment.Inquisition into the incidence of street trading has been attempted by different researches(Ademola, 2015; Ogunkan and Adeboyejo, 2015; Bogoro, 2016). Broadly, street trading can be classified into sedentary and itinerant trading, with the former usually carried out in a fixed place while the latter is mobile. Meanwhile, because of a wide range of activities that make up street trade, there exists variation in the classification of these activities for appraisal. Hence researchers adopt the most convenient yet simple classification method premised on the purpose of the research. This study only considered sedentary street trades, and these are classified into edibles, clothes and cosmetics, electronic and household, furniture and building materials, drugs, cooking fuel, services and uncategorized.

The relevance of food as an important need of man is evident in this study. This is as edibles (44.6%) account for the highest street trading activities in the metropolis (Appendix 1). Activities in this category include sales of fruits, raw and processed foods, and beverages. The predominant activities in this category are those engaged in the sale of small chops, and fast food. Examples of these include those selling of prepared noodles, locally called mai-shai (Plate.1), and those engaged in the sale of roasted meats (Mai Suya) (Plate 2). From physical observation, these categories of street trades are sited within 100 meters on the same corridor. Another category of street trade with relatively high incidence is services and categorized (17%). Activities in this category include laundry services, selling of recharge cards, newspapers, mechanic, and vulcanisers.

Sale of fuel (13.5%) is another major trade along streets in Birnin- Kebbi Metropolis. Fuel within the context of this paper is limited to cooking gas, petrol and diesel. Although road side sales of petroleum products, especially diesel and petrol, are Illegal, it is usually flagrantly placed along the corridors in portable receptacles. This practice is hazardous, as the products are highly flammable, and can cause environmental disaster such as fire outbreak. This situation is a pointer to a likely defect in both law enforcement and development control in the metropolis. Meanwhile, it can be concluded that the major street trades in the metropolis are edibles (44.6%), services (17.0%), and sales of fuel (13.5%).

An assessment of the incidence of street trading in the metropolis was made using an index, Total Incidence of Activities (TIOA). This incidence is calculated as the sum of all the street trading activities along a corridor. As summarized in Appendix 1, there is a pattern of street trading in the metropolis.The TIOA values of 57.57 and 58.74 respectively for Col. Aziza Road, and B/Kebbi - Argungu Road; which are the selected roads in the low-density area, against the

respectiveTIOA values of 110.46 and 126.61 for Haliru Abdul road and Sanni Abacha Byepass, in the medium density areas. These compared to the TIOA values of 282.36 and 324.04 for Bello way and Abubakar Gari way, in the high density areas, indicates that the incidence of street trading differs across densities in the metropolis (Appendix 1). The observed pattern of street trading in Birnin Kebbi Metropolis is 1:2:3 for low-density, medium-density, and high-density areas respectively.

Similarly, an appraisal of the spatial implication of this incidence was made by assessing the percentage of space occupied by street trading along the selected routes (PLST). This was calculated by summing the total length of street trade on either side of the selected road. From Appendix 1, about 50% of the road setbacks of these routes are overtaken by street trading activities. This scenario further stress that street trading is a major issue in the metropolis. The coverage of about 73% of the setback of Abubakar Gari Way with street trading, against 58.3% recorded for Haliru Abdul Road, and 15.4% observed for Bello way, indicates that street trading on road side varies across densities in the metropolis. It also suggests that routes in high density areas have a relatively higher incidence of street trade. Also, routes in this density are more occupied with street trading activities, thus may be associated with a relatively high environmental challenge.A high incidence of street trading in low density areas may be traced to the likely interest of street traders, that are considered to be poor and live in high-density areas (Ademola, 2015), to carry out their trade at proximity to their homes. This also point to the likelihood of a variation in public space administration across the metropolis. The low and medium density areas, apart from exhibiting planning, could have been well managed by relevant agencies because of the caliber of those living there.

ii. Landuse Characteristics of Street Trading in Birnin Kebbi Metropolis

Across the selected corridors, a setback of 60 meters was delineated while landuse inventory of the delineated area was done. From the inventory, the predominant landuse types around street trading activities are residential, commercial and institutional.Other identified landuse types in the metropolis were classified as 'others'. Those categorized as others include recreational land use, and open space. As summarized in Appendix 2, the highest landuse type around street trading activities in the metropolis is the residential (49.1%). This is distantly followed by commercial (27.01%) and institutional (22.7%). A high percentage of residential landuse indicates that this category of landuses do not only support street trading, but are direct recipients of its numerous impacts.Although, adjoining residential areas may be lively because of the activity of street traders, crime and social disorder may not be distanced from them (Broomley, 2000; Bogoro 2016). Meanwhile, the residential developments around the trading spots may be residences of the street traders. It is also not impossible that some of the trading activities are either annex or complimentary to the activities carried out in the various adjoining commercial

landuses.

Table 2: Landuse Characteristics of Street Trading in Birnin-Kebbi Metropoli

	Residential		Commercial		Institutional		Others	
	% of Landuse	Area in meters	% of Landuse	Area in meters	% of Landuse	Area in meters	% of Landuse	Area in meters
Birnin-Kebbi Road	54.9	680.76	27.2	337.28	13.7	169.88	4.2	52.08
Col. Azizi Road	72.3	2241.3	20.2	626.2	5.4	167.4	2.1	65.1
Haliru Abdul Road	53.7	1385.46	16.4	423.12	29.9	771.42	1.9	49.02
Sani Abacha Byepass	42.9	1758.9	17.4	713.4	39.7	1627.7	2.7	110.7
Bello way	38.4	1624.32	37.6	1590.48	24	1015.2	1.6	67.68
Abubakar Gari way	32.9	631.68	43.3	831.36	23.8	456.96	1	19.2
Average`	49.18	1664.48	27.01	753.64	22.7	532.22	2.25	60.63

Source: Author's Field Survey, 2020

iii. Characteristics of Street Tradersin Birnin Kebbi Metropolis

The purdah culture associated with Islam is reflected in the female gender participation in street trading in the metropolis. This is as 87.5% of the street traders in the metropolis are male, while 12.5% are females (Table 3). A high male-to-female ratio in street trading in the metropolis could have been influenced by cultural and religious factors to protect females from stress and uncertain environment, which is associated with street trading. This is however different from what is obtainable in the southern part of the country, where roadside trading activitiesare female-dominated (Amoo et.al, 2012; Bagoro, 2016).Culture and religion are vital in the determination of economic practice and engagements, and such can be harnessed as a tool for managing the incidence of street trading.

Street traders in Birnin-Kebbi metropolis are predominantly within the age range of 28-37 years (35%), and 38-47 years (29.17%). These indicate that those engaged in street trading are largely adults, possibly with commitments and dependants. This is further justified as about 95% of the respondents are married, while 10% are single. Married individuals have also been reported to engage in street trading in India (Sharia et.al, 2015). Engagement of traders in street trading were predominately factored by migration (45.6%), as bulk of these individuals revealed that they are from villages and towns in both the state and neighbouring ones, such as Zamfara and Sokoto States. About 90% of the street traders engage in other businesses such asfarming, thereby indicatinga likelihood of reduced street trading during farming season.

A larger percentage of the street traders sampled in Birnin-Kebbi metropolis are new in the business, as about 51% of them indicate that they have only participated in the business for less than 5 years. This implies that some of the street traders, upon success in business, either rent a shop, return to their previous business, or switch to other business type that is considered to be more dignifying. An inquisition into the willingness of street traders to rent a shop reveals that 73.8% of the traders will prefer to carry out their activities in a shop, especially along the road side or other central places. However reasons for operating street trade in the metropolis include lack of fund (43.1%), need for mobile customers (30.5%), and nature of business (10.2%).

About 35% of the trades are carried out inwheel barrows, which are moved from place to place, while about 27% are carried out in kiosks. Also used are display tables and canteen (21.0%), while about 5.3% of the street traders do not utilize any structure.One may therefore surmise that the major structures utilized for street trading in the metropolis are wheel barrows, kiosks and display tables. Operating of businesses in wheel barrows enhances mobility of street traders, while the use of kiosks encourage residing in such kiosk. Meanwhile the kiosks utilized for street trades in the metropolis are either constructed with metal scraps or wood. Some of the street traders resides in these kiosks while others, especially those with wheel barrows, sleeps on the floor or at nearby open space at night. There appear to be a relationship between street traders and operators of nearby shops. This is as some of the street traders either obtain their goods, for retail, from these shops, or serves as sales boy to shop owners. Some of the street traders also put their goods in nearby shops, and sleep there in exchange for securing the shops at night.

The average setback of kiosks and other street trading platforms to road setback is 0.9 meters, hence street trading has a tendency of causing road obstruction and reduction of road width. An Inquiry into the mode of space allocation reveals that about 65% of the street traders obtained their current trading space from the owners of such plot, while about 22% got theirs from nearby property owners.Also, about 10% indicates that their current spot were allocated to them by management of nearby parks, while only 2.9% of the traders claimed to have obtained their trading space from other sources. Meanwhile 95% of the street traders reveal that they do not pay rent for their current location, rather they gift out their products or goods to their benefactors.

Unfortunately, the entire sampled street traders indicate that they have neither been sensitized on the ills of street trading, nor confronted by any government agency. The absence of legal instrument for the administration and control of such category of landuse, like other informal activities, in the state has given room for its unabated thriving.

Table 3: Characteristics of Street Traders in Birnin- Kebbi Metropolis

S/N	Characteristics	Variable	Percentage
1	Sex	Male	87.5
		Female	12.5
		Total	100
2	Age Group	Less than 18	4.17
		18-27 years	19.16
		28-37 years	35
		48-57 years	29.17
		Above 57 years	0
		Total	100
3	Marital Status	Single	10%
		Married	90%
		Total	100%
4	Reason for engagement	Unemployment	14.3
		Migration	45.6
		Low level of education	15.1
		Lack of capital	23.5
		Retiring and Civil Service	2.5
		Total	100
6	Year of Establishment	Less than 5 years	50.8
		6-10 years	26.6
		11-15 years	12.5
		15 – 20 years	9.3
		Above 20 years	0.8
		Total	100
7.	Preference to Relocate to Shop	Yes	73.8
		No	26.2
		Total	100
8.	Reason for not Owning a Shop	Lack of fund	43.1
		Need for mobile customer	30.5
		Nature of business	10.2
		Total	100
9	Structure for display of goods	Wheel barrow	55
		Kiosks	27
		Display tables/ Canteens	21
		No Structure	5.3
		Total	100
10.	Mode of Space allocation	Landlords	65.3
		Nearby property owners	21.8
		Management of nearby parks	10
		Others	2.9
		Total	100

11.	Payment of Rent	Yes	95
		No	5
		Total	100
12.	Displacement or removal of activities by Government agencies	Yes	0
		No	100
		Total	100

Source: Author's Field Survey, 2020

Plate 1: A display of clothes along Bello Way, Birnin-Kebbi

Source: Author's Field Survey, 2020

Plate 2: Roasted Meat Seller along Abubakar Gari Way, Birnin-Kebbi

Source: Author's Field Survey, 2020

iv. Impacts of Street Trading in the Metropolis

To appraise the impact of street trading in the metropolis, an index, Socio-Environmental Impact Index (SEII) was developed. This index was developed as a measure of variation in the weighted average of responses of traders which were ranked using 5-point Likhert scale. The scale was ranked and weighed in the manner that 1 was allotted to strongly disagree, 2 to disagree, 3 to indifferent, 4 to agree, and 5 to strongly agree.

In the metropolis, the highest impact of street trading is easy access to cheap goods (SEII=0.656) (Appendix II).The interplay of range for low order goods offered by street traders and market forces could have influenced this result. Some of the respondents further buttressed their points by maintaining that goods sold by street traders are relatively cheaper than those offered in the shops and supermarkets. Reasons for this may include intentional lessening of price by traders to attract customers, non-payment of rents by street traders, such which is factored into the price of goods offered by superstores. Meanwhile street trading has negative implication on residents.

This is as overcrowding (SEII=0.57) is reportedly high. Overcrowding in trading spots has other social implications, such as incidence of crime (SEII=0.27) which is also considered to be high around the trading spots. Experience of crime by the residents has resulted to fear (SEII=0.27), while overcrowding coupled with road encroachment by street traders (SEII=0.40) causes obstruction of traffic flow (SEII=0.15) in the metropolis. It has also reduced the atheistic quality (SEII=0.15) of theroads, as these roads are littered with patches of street traders (Plate 3). These evident ills of street trading in the metropolis require an urban planning intervention.

Plate 3*: A Cross Section of Street Traders along Haliru Abdul Road, Birnin-Kebbi*
Source: Author's Field Survey, 2020

4.0 RECOMMENDATION AND CONCLUSION

This study has established the incidence of street trading and its variation across densities in the metropolis. It has also pointed out the various socio-environmental impacts of these activities and its spatial underpins. To address these impacts from urban planning point of view, the following are recommended:

1. Inter-ministerial Collaboration by Relevant Government Agencies: This study strongly advocates for the efficient management of public spaces in the metropolis by relevant government agencies. However this cannot be possible without a legal instrument for the administration of such category of landuse. The Kebbi State Urban Development Authority (KUDA), Kebbi State Ministry of Works, and Kebbi State Environmental Protection Agency are therefore encouraged to collaborate for the engagement of the state government for the formulation of legal instruments, and the establishment of a joint task force for the management of the public spaces in the metropolis. This task force will deal with all issues relating to public space management and incidence of street traders.
2. Advocacy, Awareness and Consultation: Government should advocate for the

efficient management of public spaces, this can be done through consultation with traditional leaders, community based organizations, civil society groups, religious leaders, and other stakeholders associated with the use of public spaces in the state. Also awareness on the need for efficient public space management should be carried out with the aid of mass media.

3. *Construction of Corners Shops:* Both Local and State Governments are encouraged to construct corners shops at designated places by KUDA, in different neighbourhoods, and in areas that can sustainably maintain such goods and services. Rents of corner shops should not only be subsidized, but made flexible such that shops owners can afford its payment. Residents should also be discouraged to patronize road side traders, but visit corner shops in their various neighbourhoods.

4. *Development Control:* Kebbi State Government through its planning agency should engage in development control for the relocation of street traders to the nearest corner shops while existing structures utilized for street trading be demolished.

5. *Integration of Informality into Landuse Planning:* No doubt, the collapse of formal systems in developing countries have aided the survival of informality. This at the sight of failing economic policies has further strengthened this sector. It is more than truism to note that street trading, like other forms of informality has come to stay, but can be managed through flexible landuse planning. To achieve flexibility, planning for cities should be directed towards making provision for reservations for future use, mixed uses though subject to compatibility, and activity buffer zones to accommodate emerging informal landuse needs.

In conclusion, street trading has unending benefits, yet with alarming implications. Hence there is a need for planning of this type of activity. It is therefore expected that the recommendations proffered in this study be implemented to achieve sustainability.

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Appendix 1: Incidence of Informal Activities in Birnin- Kebbi Metropolis

LOCATION		Birnin-Keb-bi Road	Col. Azizi Road	Haliru Abdul Road	Sani Abacha Byepass	Bello way	Abuba-kar Gari way	TOTAL
Edibles	% of A	42.9	55.5	39.9	43.5	45.8	40.5	44.6
	IOA	20.59	30.52	41.89	50.02	117.24	115.02	62.55
	AO (m)	558.91	681.98	1200.30	1979.68	743.97	1835.54	1166.7
Clothes	% of A	15.1	3.5	10.1	15.2	16.5	10.4	11.8
	IOA	7.248	1.92	10.60	17.48	42.24	29.53	18.17
	AO (m)	196.72	43.00	303.83	691.75	268.02	471.34	329.11
Electronic and Household Materials	% of A	20.4	6.8	5.2	10.1	10.3	14.1	11.1
	IOA	9.79	3.74	5.46	11.61	26.36	40.04	16.16
	AO (m)	265.77	83.55	156.43	459.65	167.31	639.04	295.29
Furniture and Building Materials	% of A	0.5	0.8	0	0.6	0.5	5.4	1.3
	IOA	0.24	0.44	0	0.69	1.28	15.33	2.99
	AO (m)	6.51	9.83	0	27.30	8.122	244.73	49.41
Drugs and Cosmetics	% of A	0.7	0.5	0.3	0	0.4	1	0.48
	IOA	0.33	0.27	0.31	0	1.02	2.84	0.79
	AO (m)	9.11	6.14	9.02	0	6.49	45.32	12.68
Fuel	% of A	7.3	12.2	15.4	20.1	16.1	10.4	13.58
	IOA	3.50	6.71	16.17	23.11	41.21	29.53	20.04
	AO (m)	95.10	149.91	463.27	914.75	261.52	471.34	392.65
Services & Uncategorised	% of A	13.1	20.7	29.1	10.5	10.4	18.2	17
	IOA	6.28	11.38	30.55	12.07	26.62	51.68	23.10
	AO (m)	170.67	254.36	875.40	477.85	168.93	824.86	462.01
Total	TIOA	57.79	58.74	110.46	126.61	282.36	324.04	160.00
	TAO(km)	1.30	1.22	3.01	4.55	1.62	4.53	2.70
RL		4.23	1.92	2.58	4.1	1.24	3.1	2.86
RLBS		8.46	3.84	5.16	8.2	2.48	6.2	5.72
PLST		15.4	32.0	58.3	55.5	65.5	73.1	49.9

%of A = percentage of Trading Activities IOA = Incidence/Numbers of Road Side Trades AO (m) = Length of Road Side Trade

along the road (expressed in meters)

RL = Length of Sampled Road (expressed in Kilometers) *RLBS = 2 x RL = Length of both Sides of the sampled road (expressed in Kilometers)*

TIAO = Total Incidence of Road Side Trade *TAO = Total Length of Road Side Trade along selected road (expressed in Kilometers)*

Source: Authors work, 2020 *PLST = Percentage of Land utilized for Street Trade across selected corridor = (TAO/RLBS)*100*

Appendix II: Socio-environmental Impacts of Street Trading in Birnin-Kebbi Metropolis

	SA		A		I		D		SD		Total		Mean	SEII
	F	W_5	F	W_4	F	W_3	F	W_2	F	W_1	Frequency	Weight		
Easy access to cheap goods	100	500	10	40	16	48	4	8	5	5	135	601	4.451852	0.656913
Overcrowding at trading spots	105	525	5	20	0	0	20	40	5	5	135	590	4.37037	0.575431
City liveliness	95	475	5	20	15	45	10	20	10	10	135	570	4.222222	0.427283
Reduction of Traffic flow	96	480	10	40	3	9	12	24	14	14	135	567	4.2	0.405061
Crime	73	365	41	164	15	45	0	0	16	16	145	590	4.068966	0.274026
Fear	65	325	32	128	15	45	18	36	5	5	135	539	3.992593	0.197653
Obstruction of traffic flow	53	265	42	168	25	75	10	20	5	5	135	533	3.948148	0.153209
Reduction of aesthetic quality	72	360	15	60	10	30	13	26	15	15	125	491	3.928	0.133061
Blockage of Drainage	92	460	23	92	21	63	21	42	22	22	179	679	3.793296	-0.00164
Traffic Congestion	57	285	26	104	4	12	24	48	24	24	135	473	3.503704	-0.29124
Improved Sales	51	255	32	128	0	0	35	70	17	17	135	470	3.481481	-0.31346
Waste generation	45	225	29	116	20	60	20	40	21	21	135	462	3.422222	-0.37272
Accident	35	175	12	48	29	87	20	40	24	24	120	374	3.116667	-0.67827
Increase in price of Shops	30	150	15	60	2	6	51	102	37	37	135	355	2.62963	-1.16531

SD = Strongly Disagree *D = Disagree* *I= Indifferent* *A=Agree* *S.A= Strongly Agree*

F= Frequency *W = Weight* *X = mean = 3.79* *SEII = Socio-environmental Impact Index*

Source: Authors work, 2020

CHAPTER 13

MEASURING WELL-BEING PERCEPTION OF HOME-BASED ENTREPRENEURS IN LOKOJA PLANNED NEIGHBOURHOODS

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ABSTRACT

The basis for entrepreneurial start-ups at home has many times been linked to the desire to enjoy improved quality of life or well-being. Increasingly, home-based enterprises (HBEs) has become a prevalent means of metropolitan urbanisation with varied components manifesting in new guises and in unexpected places. The limited assumptions that they are activities of poor households blur the understanding of their occurrences in planned neighbourhoods whose inhabitants in most cases have guaranteed livelihood and strive to enhance their well-being through such engagements. The paper measured the well-being perception of entrepreneurs on four variables that reflects economic, social, environment and safety in ten neighbourhoods of Lokoja. A total of 353 copies of questionnaires structured on 5-point Likert's scale were administered to the entire population of HBE operators in the neighbourhoods. Confirmatory Factor Analysis (CFA) through structural equation modelling of measured well-being variables indicated satisfactory goodness of fit among accepted determinants of the model.The result revealed that well-being of households is not only predicated on economic gains as reflected in the p-value of the well-being construct in the structural model, rather social, environment and safety factors have also been found to be significant in the model. The findings of this study have shown that businesses carried out are compatible with domestic activities offering entrepreneurs psychological satisfaction, happiness, and life fulfilment. Policy direction is to embrace the current UN-habitat's strategy of sustainable neighbourhood planning with mixed land use allocating at least 40 per cent of neighbourhoods' floor spaces for economic activities.

Key words: Home-based Enterprises, Neighbourhood, Sustainability, Well-being.

1.0 INTRODUCTION

Home-based entrepreneurs engage in a lot of activities in the context of the urban informal economy. This has attracted researches to understand their occurrences and peculiarities within the economic framework. Home based enterprises, sometimes referred to as household enterprises differ from firms by their legal standing and the bookkeeping processes. They are usually not established as detached legal engagements from household activities or their owner, and no complete set of accounts are found. There is no difference or demarcation between the production undertakings of the businesses and the operators (Charmes, 1995). Operators of informal enterprises hardly separate economic life from their social life such as culture, religion, kinship and lineage. Efforts have been made in the areas of their relationships to housing sector even

though the interrelationship between housing and income-generating activities has been a subject without much attention (Kellett and Tipple, 2000). In most informal sector literature, desire to earn or augment primary income featured prominently as a significant factor for HBE occurrences in low income housing. This factor being a consensus among researchers is already established, but what may require further investigation aside income derivatives, are other latent benefits. Along the line of the entrepreneurial framework put forward by Lee and Venkataraman (2006) and the Home-based Business (HBB) versus non-Home-based Business choice model of Pratt (2008), aspiration vector (AV) of "priority personal goal" is identified as a major factor for choice of home to start enterprise. The all-inclusive economic, social and psychological desires of individual that form the components of the models are the AV that require measurement in HBE decision. These desires are equally important predictor variables of well-being that can be measured to determine the need for enterprise sustainability or otherwise in households.

Several studies conducted on the informal sector economy viewed entrepreneurs in residences as the low-income group who could not secure formal employment (Onodugo, Ezeadichie, Onwuneme & Anosike, 2016; Onyebueke, 2001; Tipple, Kellett, Masters, & Krishnamurty, 1996). Such groups of persons are believed to dwell in neighbourhoods that evolved organically, portraying squalid environment and high population density (informal housing) (Chen, Roever & Skinner, 2016; Gough, Tipple & Napier 2003; Kellett and Tipple, 2002; Onyebueke, 2001; Tipple, Kellett, Masters & Krishnamurty, 1996; Narumi, 1984). Their positions have often linked HBE occurrence factors towards operators' livelihood pursuit or survival strategy (Igudia, Ackrill,, Coleman & Dobson, 2014, 2015;Gondwe & Ayenagbo, 2013; Lawanson& Olanrewaju, 2012; Verrest, 2007; Meagher & Yunusa, 1996; Rogerson, 1996;). However, economic realities reveals that informal businesses transcends survival activities to include stable and dynamic engagements ofhouseholds (David, Ulrich, Zelezeck & Majoe 2013; Onwe, 2013). Increasingly it has become a widespread mode of metropolitan urbanisation with diverse components (Roy, 2005), occurring in new guises and in unexpected places (Chen et al., 2016). In recent times, efforts have been made to understand the latent determinants of enterprise occurrences in planned residential areas (Baba, Yusoff, Khan, Enegbuma & Achoba, 2016) and strategies towards coping with their occurrences have also been explored (Baba, Yusoff & Ojoko, 2016). It has also been observed that most researchers narrow their scope on the informal settlements accommodating the poor households (Watson, 2011; Tipple et al., 1996; Laquian, 1983). Attempt to understand HBE operator's satisfaction using some satisfaction indices by Abolade, Adigun, & Akande (2013) in some part of Ibadan, Nigeria was also tailored along same direction. Recent study by Rigon et al. (2015) on Well-Being and Citizenship in Urban Nigeria suggested that Well-being has become an important criterion for measuring development outcomes against income as a satisfactory measure which may have informed the goal of the development policy document in Nigeria, Nigerian Vision 20:2020 whose aim is to improve the well-being

of Nigerians. Their study focused on the material and the relational dimensions of well-being without addressing the subjective dimension. In line with the United Nations and International Labour Organisation (ILO) call for more researches into the linkages between home and work (UNCHS, 1995), this study focus on filling the extant knowledge vacuum regarding the subjective well-being of operators in organised (planned) residential neighbourhoods. The approach is to consider the link between work and well-being in relation with the concerns of the decent work and the informal economy report of ILO (ILO, 2002) which views the informal workers as much more likely than formal workers to be exposed to poor working environments, low safety and health standards and environmental hazards. The report further stated that such exposure impairs the health and productivity as well as the general well-being and quality of life of informal workers and their families but most times not aware of such risks.

This study focus is on determining the extent to which various well-being indicators impact on entrepreneurs. The objective of the study is to ascertain the awareness level of relationship between business activities and households' well-being among entrepreneurs. In the process, it seeks to know whether entrepreneurs consider their operations as compromising their quality of lives or enhancing it.Lokoja has been selected for this study considering its status as the capital of Kogi state in Nigeria with a large number of planned residential quarters for civil servants. These neighbourhoods lack modern shopping areas in their domain and residents rely on the informal businesses in homes for their shopping need. The preponderance and haphazard nature of these business premises in the neighbourhoods motivated this study, especially that the recent strategy of the United Nations Conference on Housing and Sustainable Urban Development HABITAT III strives to "....integrate work and residence, reduce transport costs and share the benefits of urbanization more equitably" as contained in the issue paper on jobs and livelihoods (UN-Habitat, 2015).

2.0 LITERATURE REVIEW

2.1 Neighbourhood, Enterprise and Well-being Linkages

The rationale for working at home has most times been linked to the desire to enjoy "improved quality of life" or well-being. Among the foremost benefits for an entrepreneur is perhaps the degree of autonomy as against working for someone else. Career satisfaction has been identified as one of the five essential elements of well-being and this is tied to liking what you do every day (Rath, Harter, & Harter, 2010). HBE operation brings about increased motivation, inspired sense of personal growth with self-fulfilment and beyond these, there are convenience and cost-saving advantages (Romaya and Rakodi, 2002). Schedule flexibility, time saved not commuting and daily contact with family members while working together in business are attri-

butes that enhance well-being. HBE could also translate to economic benefits with guaranteed unlimited income growth and lower labour costs. In addition, it minimises local economic leakages through savings in workspace rental costs, reduced commuting cost and costs of care for family (Muscat, 2007). Studies have shown that time control and the need for flexibility rather than income earning has been the most significant motivation for home-based enterprise start-ups (Bailyn, 1989; Karen, Serra, & Garcia, 2010).Other benefits includes bringing life to day time activities, increase neighbourhood safety, and security (Lake, Dwelly, & Lake2008; Nguluma & Kachenje, 2015).Neighbours of operators feel safer knowing that someone is always around the home during the day (Mason and Reuschke, 2015). HBEs advantages also includes providing a means of achieving work-life balance (Pratt, 2006) and people who are confined to the home for social or physical reasons and having no access to the labour market(e.g. people with family caring responsibilities, aged and disabled) are empowered economically (Loscocco & Smith-Hunter, 2004; Mason, Carter &Tagg,2011; Pratt, 2006).

Urban planners are increasingly contending with the issues of urban informality (Anderson, 2011) and the challenges of incorporating livelihood systems into formal and informal planning processes (Beall and Kanji, 1999). The perspective of livelihood is generally understood only in terms of earning income of which responses has been tailored to promote creation of employment opportunities and local economic development. In many developing countries like Nigeria, households are involved in multiple income generating (including households members engaged in stable income jobs) activities as against being limited to one in order to translate livelihood strategies to their well-being (UNDP, 1997). Even though such survival systems may involve wage employment, it is usually neither the only, nor in many scenario the most significant strategy (Chambers, 1995; Meikle, Ramasut, & Walker, 2001; Potter and Lloyd-Evans, 2014; Wratten, 1995).In recognition of the fact that most of these jobs are in the informal sector essentially as household enterprises, the International Labour Conference 2002 affirmed that all those who work have rights at work, irrespective of where they work and that ILO goal is to promote decent work along the entire continuum from the informal to the formal end of the economy, and in development-oriented, poverty reduction-focused and gender-equitable ways (ILO, 2002).

Neighbourhoods can provide assets whereby through productive use, household well-being is enhanced. However, literature is silent on the ways households can mobilise this asset and its value for their well-being (Verrest, 2007). Household strategies can help in their goals to survive (livelihood), increase security or expand their wealth (Beall, 2002). Housing and neighbourhood resources offers opportunities for advancing through the business cycle, and buffers to shocks and resilience to periods of hardship (Reuschke and Houston, 2016). Households' well-being is closely related but transcends the notion of livelihood which implies the mix of individual and household survival strategies, developed over a given period of time that seeks

to mobilise available resources and opportunities (Grown and Sebstad, 1989).

2.1 Measuring Households Well-Being

There are different ways in which well-being concept is understood in different contexts and by different people. However, rather than being driven by a definition, researchers have focused on dimensions and descriptions (Dodge, Daly, Huyton, & Sanders, 2012). It is a phenomenon that does not have a one way definition, because it is a subject that entails meeting several human needs.Such needs can be ability to live a good life, pursue one's goal and a feeling of satisfaction with life. Durand (2015) stated that, understanding and measuring people's well-being will entail studying the following:

• Material living conditions: income and wealth; jobs and earnings; and housing.

• Quality of life: health status; work and life balance; education and skills; civic engagement and governance; social connections; environmental quality; personal security; and subjective well-being.

According to Durand (2015), carrying out these measurements will require focusing on households and individuals, as against the overall situations for the economy. This is to avoid differences between the general economic condition and households' well-being. It is also important to consider both objective and subjective aspects of well-being. Objective constituents of well-being enables the assessment of people's living conditions and quality of life, but it is equally important for people to give evaluations and feelings about their own lives in order to capture the psychological features of people's "beings and doings" (e.g. perception of insecurity) and to understand the link between objective and subjective constituents of well-being. Research conducted byRigon et al., (2015), revealed that a way of classifying the different dimensions of well-being is through the person-centred framework developed by Sarah White and the Well-being in Developing Countries Research Programme at the University of Bath. This includes: doing well, a material dimension referring to standards of living; feeling good, the subjective perception; as well as a dimension of doing good and feeling well, incorporating the idea of living a good life which emphasises the importance of people's relationships with others (White, 2010). Their study however did not consider the subjective dimension.

There is no "one size fits all" method in the measurement of well-being (Michaelson, Mahony & Schifferes, 2012). This view which supports Durand (2015) approach implies that individuals, rather than groups, are the "unit of measurement", even when study on well-being is aimed at a particular group of people. However they suggest subjective, rather than objective indicators to provide the data. This means that responses to questions about feelings, experiences and judgements about life should be provided by the people. Michaelson et al. (2012) recommended

that collection of data for the measurement of well-being is most suitable through quantitative approach with the use of questionnaire instrument. Such information are provided in the form of numbers on scale format. This has advantage over other forms of qualitative techniques as it allows for repetition at different times to show trends and patterns in outcomes. The author suggested that other forms of qualitative approach such as interviews, focus group discussion, community discussion events and use of research logs can help explore findings in more detail.

Several indicators have been developed to measure well-being, for instance the magazine, American Demographics in 1997 came up with an Index of wellbeing built on five components (Sharpe, 1999). These indicators includes income and employment opportunities (personal income, employment); productivity and technology; leisure (non-work hours and recreation spending); consumer attitudes (consumer confidence); and social and physical environment (crime rate, divorce rate, number on endangered species). Ken Land, a sociologist at Duke University identified three types of social indicators that can be used to measure well-being to include; normative welfare indicators, life satisfaction and/or happiness indicators, and descriptive indicators (Sharpe, Michalos, and Sirgy, 2011). Normative welfare indicators dwell on social policy-making considerations, otherwise called criterion indicators. It implies an all-inclusive and balanced decisions about the main aspects of societal condition. The other social index is the life satisfaction, subjective well-being, or happiness indicators measures psychological satisfaction, happiness, and life fulfilment using survey research instruments that determine the subjective reality in which people live. It is argued that the link between objective conditions and subjective wellbeing can be paradoxical and, therefore, subjective as well as objective states of well-being should be examined. This assertion is also applicable to the issues of occurrences of HBEs and neighbourhood planning with a paradoxical benefits and negative impacts. The last aspect of Land et al. (2011) social indicators is the descriptive indicator which dwells on social measurement and analyses aimed at improving societal understanding. It is related to public policy objectives that encompasses a varied set of statistical social indicators to a combined index of the state of society.

This study adopts the life satisfaction/happiness or "feeling good" (subjective well-being) approach for the measurement of social, economic, environment safety and convenience of home-based entrepreneurs in determining their state of well-being. This is built upon the assumption that direct monitoring of key social-psychological states is essential for comprehending social change and the quality of life (Durand, 2015; Sharpe, 1999). An inclusive definition of subjective well-being by the OECD (2013) opined that it is the good mental states, including all of the various evaluations, positive and negative, that people make of their lives, and the affective reactions of people to their experiences.The concept of neighbourhood planning devoid of basic ancillary facilities such as shopping outlets in the study area has limited access opportunity for basic items needed daily for household functionality. This has by extension limited household's

well-being. The informal HBEs therefore fill the gap of providing needed services. It becomes imperative to evaluate the mental state of the entrepreneurs in this direction.

3.0 RESEARCH METHODOLOGY

Data Collection and Analysis Method

The study adopted a quantitative approach which is anchored on subjective statistics of entrepreneurs in the informal home-based economy framework for measuring well-being of personal on experiences and assessments of life circumstances. The study population covers the entire small scale entrepreneurs located in and adjacent to residential buildings, on streets and open spaces with multiple trade, service and production in ten planned residential neighbourhoods accommodating mainly civil servants in Lokoja metropolis. The neighbourhoods are, Lokongoma Phase 1 and 2, Adankolo Housing Estate, Salau Attimah and Workers Village. Others are, Aniebo Quarters, Oba Michael Olobayo Housing Estate 1 and 2, Otokiti Housing Estate, and Ganaja Housing Estate. Copies of questionnaires designed on 5 point Likert scale were administered to obtain data on components of well-being to the entire 353 entrepreneurs.Questionnaires were structured to elicit information on the extent of agreement to economic,social, environment and safety factors as perceived by entrepreneur. The analysis of the data was done through Exploratory Factor Analysis (EFA) that assess the content validity. It reduced large sets of variables into smaller set of factors or components, It also identified the structure of the measurement model and combines different items to form variables. In order to assess construct validity through confirmatory factor analysis (CFA), Structural Equation Modelling (SEM) has been used to develop the best fit indices and construct validity (Tabachnick and Fidell, 2007). SEM is used in this study to show structurally, the linear relationship and effects between variables as independent (predictor) variable and well-being indicators as dependent variables. This is done with the aid of Analysis of a Moment Structures AMOS – analytical software used for structural Equation modelling, path analysis and CFA.

4.0 RESULTS AND DISCUSSIONS

4.1 Socio-economic and Housing Characteristics of the Respondents

The result of the gender statistic reveals that out of the 353 households' engagedin HBEs, females account for 53% while men are 47%. This corroborate previous studies that informal employment especially HBEs has greatly increased employment opportunity for low income groups especially women (Chant 2011; Herrera, Kuépié, Nordman, Oudin & Roubaud 2012). It also supports the findings that HBE improves one of the indicators of sufficient work as "the male-female gap in labour-force participation" (Bescond,Chataignier, & Mehran, 2003). Statistics indicates that, the highest percentage of operators are within the age bracket of 36-

50 years of age which represents 42.4% of the population. This is followed by age brackets of 21-35, accounting for 39.1%; 17% within 51-60 years of age; 1.1% are in the age bracket ofabove 60 years and those that are less than 21 years are 0.3% of the entire population.There is a very high level of educational attainment among the population as result indicates that 8.8% of the respondents had primary education, 32% have attained secondary education and a high percentage of 57.5% have acquired tertiary education.Those without formal education represent 1.1% while less than 1 % have acquired other forms of education.The high literacy level of the respondents especially in the area of tertiary educational attainment can be explained from the perspective of the nature of the study area which are formal public housing.The neighbourhoods' housing type is made up of mainly single flats and blocks of flats. Survey shows that 45% of the houses are single flats, while 21% are blocks of flats. Other housing types in the study area are duplexes;15.5%, roomy/Brazilian house; 1.7%, semi-detached; 1.1% and traditional/compound houses which is less than 1%.The housing tenure shows a remarkable statistics in favour of owner occupier which is 67.7%, the tenants are 21% and others who may be squatters or living on rentfree basis constitute less than 1%. However, some respondents within the neighbourhoods have HBE establishments but not attached to any households are recorded as"not applicable (N/A)" and they constitute 15.1% of the entire population operators. Data on types of economic activities carried out in neighbourhoods has been categorised into 3 broad groups. Retail activities form the largest group at 59%, followed by service production with 27% operators and the least activity is manufacturing accounting for 14%.Survey findings revealed that average monthly income from enterprise expressed in Naira (Nigerian currency unit) is highest among those who earn from 30,000-50,000. Those whose income are in that category represent 36.8%, this is followed by operators who earn below the national minimum wage of 30,000 Naira which is 28.9%. A total of 18.4% of the respondents earn from 51,000-70,000 Naira. Other income brackets are 71,000-100,000 Naira accounting for 6.8%; 101, 000-150,000 Naira is 5.7%. Those who earn between 151,000-200,000 Naira and above 200,000 Naira represent less than 1% and 2.8% respectively.HBEs are economic activities that require space for operation. The study elicited data on enterprise location in the neighbourhood. Location captures the definition and description of home encompassing dwelling unit and/or structure attached to a dwelling unit and/or an open area adjacent to a dwelling unit (Ezeadichie, 2012; Ghafur, 2001; Strassmann, 1987). Out of the entire 353 population of HBE operators, 46.6% activities are within the dwelling unit, 29.7% operate in structures attached to a dwelling unit, 14.7% in open space adjacent to a dwelling unit and 9.4% on road side/road junction. Other operators whose activities are carried out on public open spaces account for 3.4% and 1.1% operate in purpose-built commercial outlets in the neighbourhoods. Thiese findings shows that in most of the homes HBEs are operated in the dwelling units, this perhaps is due to the fact that most activities carried out arein the retail category. However, more than half of the occurrences are either instructures attached to dwelling units or on public open spaces. Depending

on location, HBE occurrences could have some implications on households and land use. These implications could both be positive and negative in the area of convenience, socioeconomic, environment and safety. Business registration among enterprise is quite low, as study reveals that 72.8% of HBEs are unregistered. Out of the 353 operators, 16% claimed that their enterprises are still undergoing registration process, 4.8% have been registered with the state government, 4% with Corporate Affairs Commission (CAC) and 2.3% with local government.The high rate of non-business registration among HBE operators is a confirmation of one key characteristic of informal enterprises

4.2 Assessing Construct Validity through Confirmatory Factor Analysis

4.2.1 Measurement Model for Well-Being Perception

Based on theoritical incinations, well-being has been derived from the aforementioned four variables that reflects; economic, social, environment and safety. These items are coded as ECHBE, SOHBE, EVHBE, and SAHBE respectively in the measurement model for well-being perception construct. The components of each of the items are shown as labels in appendix. A one factor congeneric model earlier developed produced excellent fit indices and admissible model for each variabe. A combination of these factors is further subjected to measurement to determine their fitness as well-being predictor (see Figure 4.1)

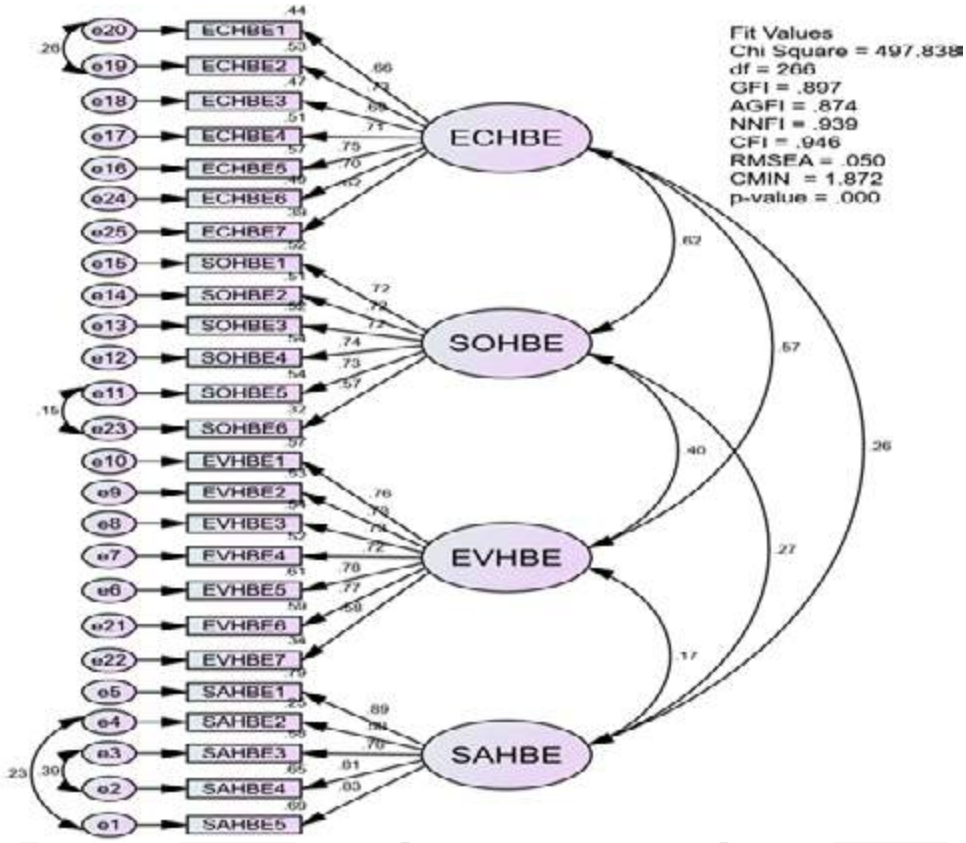

Figure 4.1: Measurement Model for Well-Being Perception

Table 4.1: Statistics of Measurement Model for Well-Being Perception

Model Identification				**Model Fit Statistics**					
Observed variables	=	25		X^2	=	497.84	**CFI**	=	0.95
Estimated parameters	=	89		**CMIN**	=	1.87	**RMSEA**	=	0.05
df	=	266		**P**	=	0.00	**GFI**	=	0.90
Model is identified				**NNFI**	=	0.94	**AGFI**	=	0.87
Factor Loadings									
Item		**Variable**	**S.E**	**C.R**	**p**		**SMC**	**Comment**	
SAHBE5	<---	SAHBE	.832	9.542	***		0.69	Convergence Holds	
SAHBE4	<---	SAHBE	.808	10.047	***		0.65	Convergence Holds	
SAHBE3	<---	SAHBE	.759	10.693	***		0.58	Convergence Holds	
SAHBE2	<---	SAHBE	.499	12.573	***		0.25	Convergence Holds	
SAHBE1	<---	SAHBE	.887	6.852	***		0.79	Convergence Holds	
EVHBE5	<---	EVHBE	.783	10.811	***		0.61	Convergence Holds	
EVHBE4	<---	EVHBE	.722	11.583	***		0.52	Convergence Holds	
EVHBE3	<---	EVHBE	.734	11.453	***		0.54	Convergence Holds	
EVHBE2	<---	EVHBE	.731	11.491	***		0.53	Convergence Holds	
EVHBE1	<---	EVHBE	.757	11.180	***		0.57	Convergence Holds	
SOHBE5	<---	SOHBE	.733	10.699	***		0.54	Convergence Holds	
SOHBE4	<---	SOHBE	.737	10.755	***		0.54	Convergence Holds	
SOHBE3	<---	SOHBE	.720	10.995	***		0.52	Convergence Holds	
SOHBE2	<---	SOHBE	.716	11.046	***		0.51	Convergence Holds	
SOHBE1	<---	SOHBE	.721	10.973	***		0.52	Convergence Holds	

ECHBE5	<---	ECH-BE	.752	10.834	***	0.57	Convergence Holds
ECHBE4	<---	ECH-BE	.714	11.330	***	0.51	Convergence Holds
ECHBE3	<---	ECH-BE	.688	11.593	***	0.47	Convergence Holds
ECHBE2	<---	ECH-BE	.725	11.081	***	0.53	Convergence Holds
ECHBE1	<---	ECH-BE	.661	11.665	***	0.44	Convergence Holds
EVHBE6	<---	EVH-BE	.766	11.057	***	0.59	Convergence Holds
EVHBE7	<---	EVH-BE	.580	12.486	***	0.34	Convergence Holds
SOHBE6	<---	SOH-BE	.566	12.101	***	0.32	Convergence Holds
ECHBE6	<---	ECH-BE	.701	11.467	***	0.49	Convergence Holds
ECHBE7	<---	ECH-BE	.625	12.080	***	0.39	Convergence Holds
Model Fit Admissible							

The results of the measurement model of variables to predict entrepreneurs households well-being shown in Table 4.1 is made up of four variables; economic, social, environment and asafety including their respective covariances. The fit statistics in Figure 4.1 and Table 4.1 are all within the acceptable threshoolds. Factor loadings are sufficiently high to establish convergent validity of the congeneric measurement model for well-being perception. Sequel to model fit and convergent validity establishment, discriminant validity was calculated to investigate if the variables measure different things. The result is presented in Table 4.2. Sufficient discriminant validity holds from the results as the correlations of variables were below 0.85 and average variance of constructs extracted did not exceed the square of the correlations between the constructs. Construct reliability (CR) is achieved with all constructs above the > 0.6 acceptable threshold, an indication of internal consistency of latent constructs. Furthermore the average variance extracted (AVE) which measures the latent construct to determine the average percentage variation explained are all above the value of > 0.5 threshold.

Table 4.2: Discriminant Validity of Well-Being Perception

	CR	AVE	SOHBE	SAHBE	EVHBE	ECHBE
SOHBE	0.852	0.500	**0.701**			
SAHBE	0.875	0.591	0.269	**0.769**		
EVHBE	0.886	0.529	0.398	0.166	**0.727**	

ECHBE	0.868	0.500	0.622	0.264	0.566	**0.696**

4.2.2 Well-Being Second Order Structural Model

The first order confirmatory factor analysis carried out earlier produced an acceptable measurement model for well-being perception. However, since well-being represents a higher order construct, a second order confirmatory factor analysis was carried out. In the second order confirmatory factor analysis, the first order variables (economic, social, environment and safety) are considered as items. The consolidated values from their items are used to estimate the higher order construct of households' well-being in the structural model. The graphical presentation of the model is presented in Figure 4.2.

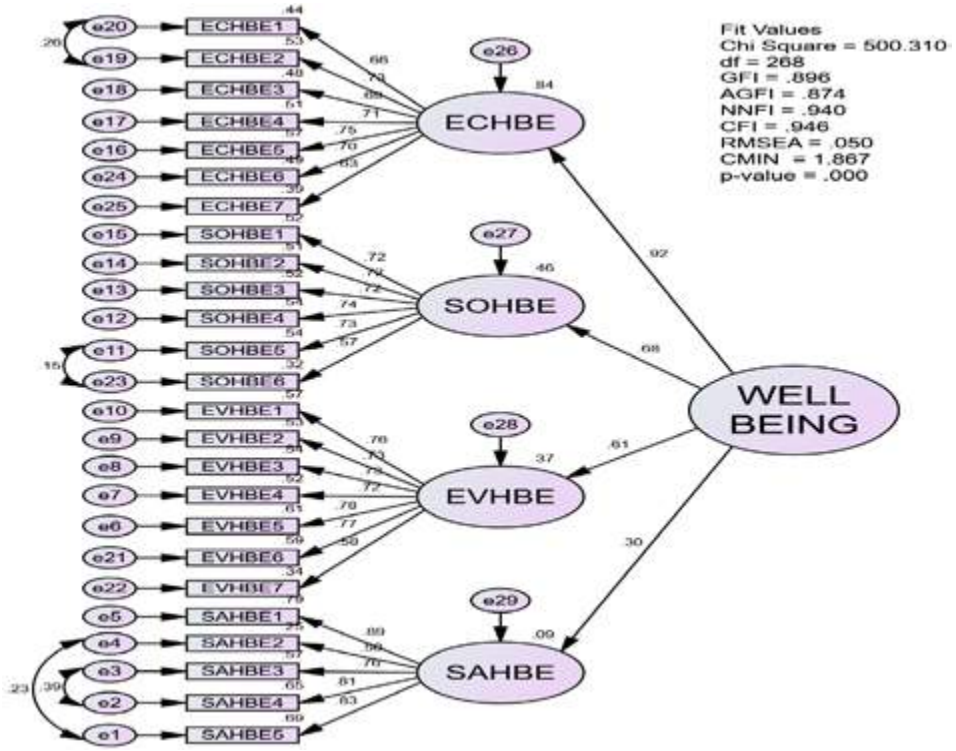

Figure 4.2: Second Order Structural Model of Well-Being Satisfaction Perception

Table 4.1: *Stattistics of Second Order Confirmatory Factor Analysis for Well-Being Satisfaction Perception*

Model Identification			**Model Fit Statistics**					
Observed variables	=	25	X^2	=	500.31	**CFI**	=	0.95

Estimated parameters		=	92	**CMIN**	=	1.87	**R M - SEA**	=	0.05
df		=	268	**P**	=	0.00	**GFI**	=	0.90
Model is identified				**NNFI**	=	0.94	**AGFI**	=	0.87
Factor Loadings									
Item		**Variable**	**S.E**	**C.R**	**p**		**SMC**	**Comment**	
ECHBE	<---	WELL_BEING	.916	1.768	.007		0.84	Convergence Holds	
SOHBE	<---	WELL_BEING	.681	4.709	***		0.46	Convergence Holds	
EVHBE	<---	WELL_BEING	.609	5.297	***		0.37	Convergence Holds	
SAHBE	<---	WELL_BEING	.304	10.250	***		0.09	Convergence Holds	
Model Fit Admissible									

The second order structural model of well-being perception indicates a model fit as shown in Figure 4.2 The theorised varriables (economic, social, environment and saafety) representing items and their factor loadings were examined. The four items exhibits impressive statistics. The Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI} and Chi Square/Degree of Freedom {CMIN} were all within the acceptable threshold and a significant p-value for a structural model fit. The coefficient of determination (overall R-Square) as seen in the high square multiple correlation (SMC) for all variables is an indication that there is high item reliability leading to acceptance of the model. The resulting path test in Table 4.3 shows that all measurement items are significant with economic factor having the highest factor loadng of 0.92. Social and environmental factors are second and third predictors of households' well-being with 0.68 and 0.61 factor loading. The least is safety factor with 0.30 loading. The implications of the factor loadings signify that cognitive well-being of entrepreneurs are majorly predicted on income satisfaction from sales which determine their expenditure for basic household needs. This is followed by the feeling of poverty reduction and having a lively environment due to enterprise occurrence, the third ranking perspective of respondents is the feeling of compatibility of their activities with other neighbourhood activities without producing environmental nuisance. Safety is considered the least satisfaction indicator, perhaps due to the stress involved as a result of irregular operation hours and crime attraction to the neighbourhoods.

5.0 CONCLUSION

Effort has been made in this research to make novel inquest via conceptual and empirical anal-

ysis as contributions to the understanding of perceptions of home-based entrepreneurs on their subjective well-being which enhances our knowledge in the appreciation of well-being determinants. Conceptually, it has combined both social and physical environment at the neighbourhood level into the analytical framework of well-being satisfaction indices. The empirical examination of entrepreneural households well-being satisfaction measured the cognition magnitude and the emotion component structurally and via path exploration for the first time. Even though the empirical results of this research lent credence to the proponent of economic inclination as the paramount fulfilment, it also supports Lee and Venkataraman (2006) view that the all-inclusive economic, social and psychological desires of individual are essential latent derivatives of enterprise engagements in households as typified in the path analysis. The result has shown that the link between work and well-being, particularly the concerns of the ILO decent work and the informal economy report which views the informal workers as much more likely than formal workers to be exposed to poor working environments, low safety and health standards and environmental hazards suggests a contrary perspective from the subjective view of the entrepreneurs. This may partly be due to the fact that activities are in planned neighbourhoods with some measures of control and are being operated by elites with alternative income sources. It is a fact that there is significant measure of satisfactions derived from HBEs portraying their occurrences as environment friendly, small-scale, producing insignificant but preventable pollution that do not threaten neighbourhood environment and human habitat. It is noteworthy that subjective assessment of phenomenon presents some limitations essentially when it has to do with influences on physical characteristics whose activities affects others. It will be imperative that future research should dwell on exploring the feelings and perceptions of households who are not into HBEs to elicit their reactions on influences of the activities on the neighbourhoods.

The findings of this research implies that HBEs have become and indispensable components of neighbourhoods providing livelihood and opportunity for upward economic mobility and enhancing operators well-being.Neighbourhood planning effort and policy direction is to embrace the current UN-habitat's strategy of sustainable neighbourhood planning with mixed land use allocating at least 40 per cent of neighbourhoods' floor spaces for economic activities. Rehabilitation of the neighbourhoods to provide for mixed land use that will boost a lively street life, generates sufficient light industrial and commercial service spaces.This will significantly ensure the sustainability of neighbourhoods as economic well-being satisfaction will translate to achieving a key objective of the draft of the Nigerian National Housing Policy (2012) which equally encouraged the integration of micro enterprises in public housing schemes to boost employment and income generation for ease of paying rents.To further consolidate on the gains of the Vision 2020 and envisioning Nigerian cities, beyond 2020 for households' well-being and sustainable neighbourhoods, policy direction of government must consider the ILO goal on

decent work by eliminating the legal and institutional complications that make it difficult, if not impossible, for either enterprises or workers to become or to stay formal. This will include measures that will improve labour rights, enhance social protection, invest in knowledge and skills of workers or provide micro-entrepreneurs with access to credit and other support services.

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APPENDIX

Reliability of Data Instrument

Reliability test was conducted to measure internal consistency of scales, i.e. the degree to which the items constituting the scale (economic, social, environment and safety factors) 'hang' together. Reliability test will ensure consistency of result across similar studies (Adams and Lawrence, 2014). The Cronbach Alpha test indicates good internal consistency reliability for items. Cronbach alpha coefficient of a scale is expected to be above 0.7 (DeVellis, 2003). The constructs are all above 0.7 as shown in Table 1 in appendix. To further evaluate the construct validity, the Mahalanobis distance was tested to sieve the outliers within the case response. This technique developed by a mathematician was set at 2.0 – 4.0. Due care was taken to prevent excesses loss of cases response and the cut-off point was set at -3.0 - +3.0. No cases were found to have been an outlier. To check the adequacy of the instruments and determine the appropriateness of the data to be utilised for further analysis, the Kaiser-Meyer-Olkin (KMO) test of sample adequacy (Leech, Barrett & Morgan; Lewis-Beck, Bryman & Liao, 2003; Morgan, Leech, Gloeckner & Barrett, 2004; Paschke, 2009) and Bartlett's test was carried out. The results showed a sample adequacy of 0.93, this is above the standard of 0.70 with a complementing significance value of p_0.001.

Table 1. Test of Reliability

Items	Labels	Inter-Item Correlation	Cronbach'sAlpha
ECHBE1	Income is satisfactory	0.64	0.87
ECHBE2	Income pays children's fees	0.71	
ECHBE3	Income pay for rent	0.64	
ECHBE4	Enhance spending capability	0.65	
ECHBE5	Meeting family needs	0.70	
ECHBE6	Employment provision	0.62	
ECHBE7	Job security	0.56	
SOHBE1	Fulfilled with HBE operation	0.66	0.85
SOHBE2	Reduce poverty	0.65	
SOHBE3	Enhance social status	0.64	
SOHBE4	Buy major household durables	0.67	
SOHBE5	Enhance social interaction	0.68	
SOHBE6	Enhance liveliness of area	0.53	
EVHBE1	Outdoor space use is convenient	0.71	0.88
EVHBE2	Enterprise type is non-pollutant	0.69	
EVHBE3	Does not produce smell	0.68	
EVHBE4	Does not generate noise	0.67	
EVHBE5	Does not generate waste	0.74	
EVHBE6	Location not affecting traffic flow	0.71	
EVHBE7	Neighbourhood beauty is maintained	0.52	
SAHBE1	Safe with pedestrian movement	0.78	0.88
SAHBE2	Does not attract crime	0.52	
SAHBE3	Does not lead to stress	0.75	
SAHBE4	Does not promote domestic accident	0.76	
SAHBE5	Safe with indoor space use	0.79	

CHAPTER 14

RURAL AND REGIONAL DEVELOPMENT PLANNING AND NIGERIAN CITIES BEYOND 2020: THE OGUN STATE EXAMPLE.

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ABSTRACT

Physical Planning can be described as a purposeful action, taking decision and making arrangements and putting order in space or environment beforehand so as to influence the cause of action on a particular need. In this regards, the anticipatory steps taken are based on facts and reality. This represents the pillar upon which regional and urban planning stands. The goal of rural and regional planning is to provide enabling spatial order in the environment. This study observed the consequences arising from rural and regional planning in ogun state, has not taken adequate consideration for the changes therein. The study observed from the emerging demographic and population attributes such as increasing number of female gender, rural - urban migration which is on the increase and inter - state political boundary encroachment which as effects when not incorporated into the rural and regional development agenda. These observed factors affect the regional development plan of the state. This study attempts to examine the various changes taking place in the state and how such changes affect the future of physical environment. The study relied on secondary data sources and conceptual explanations relating to the study, especially the procedural and normative concept. As rural and regional development planning relied on detailed baseline information, it is important to note that the changes in the information available are to be incorporated in the implementation of any rural and regional planning goal. Recommendations include a backup ICT deployment for various intelligence system and information technology. This is to be incorporated into the regional development so as to complement the efforts at reducing the problems of rural and regional development in the state. Further to seek for the currency of data, figures, social information and demographic attributes for which in their absence compromise rural and regional development planning.

Keywords: Rural, Regional, Development, Ogun State and Nigerian Cities.

1.0 INTRODUCTION

The focus of this paper is on rural and regional development planning and Nigerian cities beyond 2020 using Ogun State as example. This is premised on how the future of rural and regional development planning in Ogun state can be realized and pursued by applying contemporary measures, strategies and tools to sustain the growth of cities beyond 2020. Efforts are being

made to mitigate rural and urban inequalities in order to discourage especially rural – urban migration. Whereas in Nigeria, it is unfortunate many of the regional development efforts have not succeeded in addressing this trend. There is paucity of amenities and other infrastructure necessary for the support of quality life in the rural areas. Whereas, the urban environment is equally faced with paucity of infrastructure and amenities such as water, electricity, employment opportunity, housing. As urban and regional planners, it is important to provide narratives for the proper understanding and appreciation of common characteristics associated with rural and urban relationship and to project way forward into the future for our cities.

2.0 PROBLEM DESCRIPTION

The rural – urban relationship in the last five decades in Ogun State have remained the same. The principal factors often alluded for the relationship established include; lack of infrastructure, social amenities such as health, education, electricity, water, transportation and absence of governance as well as unemployment in the rural communities. The consequential outcome is for the rural dwellers to relocate to urban environment believing that better opportunities absent in the rural environment are available in the urban destination. Whereas, in the Nigerian urban environment social amenities and infrastructure are as deficient as in the rural settings. Either Rural or Urban Nigeria, it has remained a paradox of negativity attempt to resolve, the problems, have led to successive government interventions. It is therefore a challenge as town planning professionals and practitioners to break the jinx about how to redress the paradox of negativity, which is the major focus of the paper. The questions that arouse are with the observation, can we continue to witness and sustain these decades of having being unable to alter the trend in rural – urban dichotomy? the dependence on obsolete information and data about Ogun State what regional development planning success that can be achieved. Is it not right to update these outdated data, capable of interpreting our regional development agenda successfully? With the level of digital technology deployment in spatial planning, to what extent have these been applied to the understanding of our rural and regional development efforts? These are ingredients to guide the future of urban and regional development planning in Ogun State and Nigeria.

3.0 AIMS AND OBJECTIVES

The aim of this is to discuss rural and regional development planning in Ogun State. Its major focus is to examine the various changes taking place in the study area and how these changes affect rural and regional development planning as planned in the State. The objectives therefore are to identify, highlight and justify how emerging rural and regional development planning changes affect cities in Ogun State beyond 2020 and to proffer probable solutions for their sus-

tainability.

4.0 STUDY AREA

Ogun State is one of the thirty-six (36) Federated States of Nigeria, it is located in the Southern Western part of Nigeria. Ogun State is made up of 20 Local Government Areas for ease of political administration. Ogun State was created in 1976 as it was carved out of the then Western State. Geographically, Ogun State is bounded in the North by Oyo State in the East by Ondo State and Osun State while in the West by the Republic of Benin thereby giving the State an international boundary status. Finally, to its south is Lagos State and the Atlantic Ocean. The strategic location and other geographical features, no doubt, have serious implications for rural and regional development planning in the State. The State by virtue of its strategic location has abundant natural resources which include forest, water bodies, large quantity of mineral deposits and robust human resource development / capacity base. Such mineral deposits found in the State include limestone, granite, bitumen, tar sand, crude oil, bauxite and clay are all available in commercial quantities. Ogun State is the largest producer of cement in the country which are located along Sagamu, Ewekoro and Ibese. The state educationally is often referred to as the cradle of education in Nigeria and by implication, it has very high literacy rate.

Ogun State that has proximity to Lagos and Ibadan is a major economic hub and extensive industrial zone of the country. It has one of the largest concentration of industries in the country and serves as a major corridor for the transportation of goods, people and services. It is obvious that Ogun State is well endowed for promoting and ensuring rural regional balance and equity in its sustainable development agenda. Ogun State further constitutes one of the major coastal states in Nigeria capable of promoting and enhancing development of water transportation and deep sea maritime services. The major occupation of the people in Ogun State is predominantly agriculture, fishing, mining and manufacturing and commerce / trading. It is also of civil service dominance, coupled with skilled workforce, with huge concentration of educational institutions which provide various opportunities for gainful employment and jobs, there are over 21 Institutions of higher learning both public and private in the State making it the highest with the presence of higher Institutions in Nigeria. The population of Ogun State as projected in 2016 was 5,217700 with an area of 16,762km2 given an average density of 311.3 people per km2

Fig. 1: Map of Nigeria *Fig. 2: Map of Ogun State*

With a growth rate of 3% per annum, the current official population estimate of Ogun State is about 7million by the year 2020. Ogun State shared a very porous physical boundary with Lagos State. Porous in the sense that it is difficult to delineate Ogun State from Lagos State or vice versa, along Ado-odo-Ota, Ifo and Sagamu local government areas of the State. Ogun State is highly urbanized with its own share of rural presence. A major outcome of its population is the increasing dominance of female among its people. This observed dominance of more females in its demographic characteristics also creates a fundamental issue for rural and regional development planning. This characteristics population / demographic changes has planning consequence that requires some urgent remedies and interventions.

5.0 LITERATURE REVIEW

The literature review for this study is premised on narrative point of view. Meaning that the literature review is presented in the word and expression of the authors. This is because a review on rural and development planning discuss as numerous aspects of literature which may be difficult to be identified and discuss discretely for a study of this nature. It is against this premise that the literature review is presented. Nigeria particularly Ogun State have made frantic efforts at rural and regional development and therefore reviewing literatures on public sector attempt at regional and rural development cannot be fully elucidated in this study. Suffice to state that Ogun State established its Regional Development Plan in 2006. This implies that the development plan require an update so as to incorporated changes that have taken place within the last fourteen (14) years in other to evolve a responsive rural and regional development agenda beyond 2020

Nonetheless, the history of man is associated with migration and this is essentially bothering on search for safety, improved quality of life, and food. This movement is either forced or willingly.

Rural – urban migration in Nigeria and particularly Ogun State may be ascribed to any of the rationale. It may be induced by force or wills as a result of paucity of amenities and infrastructure capable of promoting quality living. The absence of government presence, job opportunities and access to land, etc. may in addition lead to migration. Understanding rural – urban relationship through various studies have shown extensively the factors responsible and as justification for the consequences therein. In Ogun State, in the last 60years, the causes for rural – urban migration remained the same recurring factors and parameters. Furthermore, the dilemma of urban cities in terms of homelessness, excessive pressure on infrastructure and amenities, over stretched social facilities and consequential slum development are not strange to contemporary urban and regional planning professionals and practitioners. However, rather than experiencing improvement through deliberate intervention upturning or reversing these quagmires and problems they are escalating. Hence, it is therefore safe to conclude that there is no distinction between rural and urban life and by implication regional life in Nigeria. This statement is as a result of the overriding absence of amenities both in the rural and urban environment (Paul Salisu et al 2014, Simon Odey et al 2014, Aaron Mijnyawa et al 2018, Owolabi Babatunde 2019 and Uche Emmanuel 2019).

As observed by Agbola (2004), urban and regional development planning has undergone manychanges overtime. It is unfortunate that these observed changes and the emerging tools foreffecting the changes have not been adequately incorporated into the planning of cities and rural environment in Nigeria. Agbola, further identified these changing concepts from disjointed incrementation associated with Camhis, (1979) to mixed scanning as well as transactive scanning and finally to public participation in planning, unfortunately none of the planning process applied have responded positively to the regional development planning in Nigeria. Authorsreviewed agreed that the delay and unnecessary plunged period of implementation are responsible for the failures and other shortcomings identified. In addition, Miller, (1974) observed that many countries are looking to regional planning as a means of getting these problems (bridging the dichotomy in the economy and quality of life between rural and urban environments) solved. Just to state that the observations and expectations made by Miller, (1974) are still valid in contemporary Nigeria as regional inequalities persist as a serious problem to development. Many countries apply regional development strategies so as to integrate lagging regions into the mainstream of national development. However, in achieving the objectives, further calls forgeneral understanding and appreciation of the contemporary situation especially these associated regional changes which are to be assembled together in order to establish an appropriate

information system, quantitative and qualitative explanatory data base for planning do exist, but have not been adequately updated (Glasson 1978), Williamson Jeffrey 1971, Ratcliffe 1981, Odufuwa et al 2018, Ojolowo. S. 2018) As rightly expressed by Marcus Mayr, (2013) "When the music changes – so the dance: A new paradigm for planning, sustainable and resilient cities".

This statement by Marcus Mayr is very apt and relevant as a recipe to the future of Nigerianci-ties especially in Ogun State suggesting that when rural and regional development situation changes, it is expected that the tools for better sustainable rural and regional development must also change in an attempt to achieve positive regional development goals.

6.0 CONCEPTUAL FRAMEWORK / METHODOLOGY

6.1 Conceptual / Theoretical Consideration

A theory consists of explanations of several casual relationship which have withstood considerable attempts at refutation and which are therefore generally accepted as tools. Planning theories are the planners' attempts to evolve a neutral description of planning phenomenon in terms of substance and methodology. For the purpose of this study, there are several theories or concepts that helps to explain the rural and regional development planning of this study. These include the

procedural theory which is a step by step methodology for solving rural, urban and regional planning problems. The procedural theory emphasises the organisation of the planning process without reference to any societal context. Hence, procedural theory sees all planning projects as goal oriented and therefore organises the planning process within the administrative setup to achieve these goals. Again, the substantive theory explains the principles of urban and regional planning. There are other many diverse theories within this substantive theory categories which include the social theories for planning. All these three planning concepts, for the purpose of this study can be classified into two categories namely; explanatory and normative theory i.e the explanatory category described the past and present situation whereas the normative / prescriptive category is a creative concept which is used for making plans, proposals or strategies to remedy the problems identified by the explanatory theory. For the purpose of this study, the explanatory and the normative concepts provide the foundation for advancing this study on rural and regional developments planning changes in Nigeria.

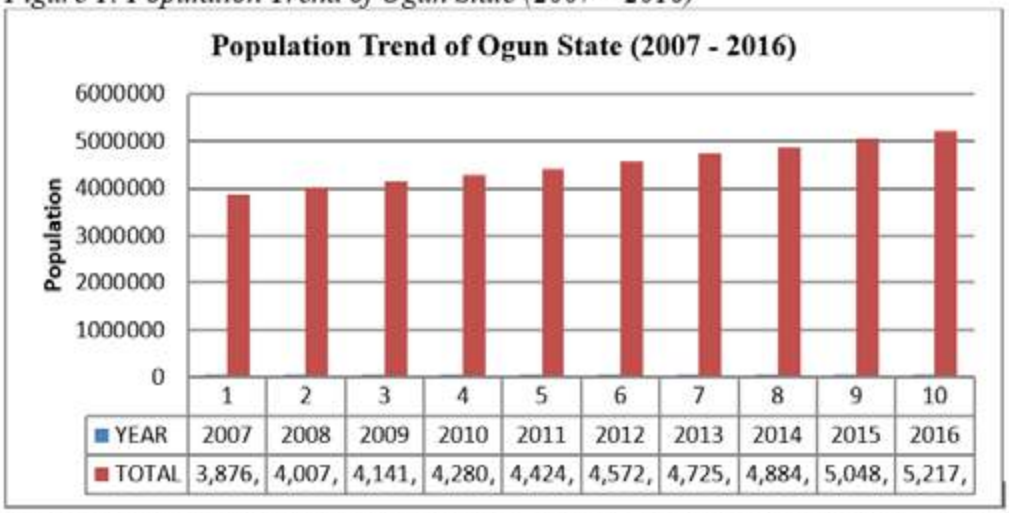
6.2 Methodology

This study relied essentially on data from secondary source. The secondary data sources comprising review of journal articles, literature, publication from government agencies and other informal sources were used as foundation drawn from past studies. The literature review focused essentially on conceptual explanation relating to better understanding of the study. The discussion further examined relevant theories and concepts that threw more light on how to perceive and explain the current rural and regional development changes that persist in Ogun State. The procedural and normative concepts provide the most relevant approach to the understanding and interpretation as well as explaining the rural and regional development planning situation. These concepts further provide through systemic relationship the strategy towards establishing any correction or reform towards improving rural and regional development planning quagmire. Again, secondary data sources information which are descriptive in nature were applied. Especially population and demographic characteristics, geographical size and rural-regional dichotomy, suffice to note that rural regional development planning problem is a quagmire that is familiar to the well informed especially town planning professionals and practitioners. Hence, issues raised in this discussion may not be far from the empirical realities associated with the observed problems.

7.0 RESULTS / OBSERVATION

As earlier discussed in the preceding section, this paper is to present the secondary data that constitute the major issues and parameters for subsequent discussion on rural and regional development planning of Ogun State. Rural and regional development planning efforts depend on detailed availability of its demographic / population characteristics and attributes. Also, information about its spatial dimension through the consideration of its local governments and settlements in the local governments were considered. In addition to the spatial dimension of the state is also other geographical and socio-economic baseline information which are used to provide some information about the rural and regional development situation of the State.

Figure 1: Population Trend of Ogun State (2007 – 2016)



Source: National Population Commission, National Bureau of Statistics Estimates 2018 and Ogun State Ministry of Information and Strategy

Figure 1 above shows there is clear evidence that the population increased from 3,876,993 in 2007 to 4,572,499 in 2012 and by 2016, it has risen to 5,217,716, the implication for this is that the population of the state is growing rapidly.

Table 1: Population Trend of Ogun State by Local Government (1991 – 2016)

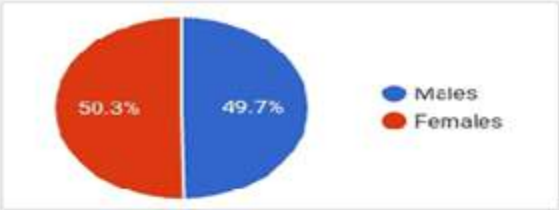
NAME	LOCAL GOVT. CAPITAL	SELECTED SETTLEMENTS	POPULATION		
Ogun			CENSUS 1991-11-26	CENSUS 2006-03-21	PROJECTION 2016-03-21
			2,333,726	3,751,140	5,217,700
Abeokuta North	Akomoje	Ikereku, Ikija, Elega, Ilugun, Iberekodo, Ago-Oko, Gbagura, Sabo, Lafenwa, Ago-Ika, Totoro/Sokori, Oke-Ago-Owu, Olomore Ita-Oshin, Idi-Ori	93,966	198,793	276,500
Abeokuta South	Ake	Imala, Olorunda-Ijale, Ishaga-Ilewo, Ibara-Orile, Ake I, Ake II, Ake III, Saje/Arinlese, Itoko, Ijemo, Ijaiye/Idi-Aba, Oke-Ijeun/Ilogbo Isale-Ijeun, Sodeke/Ijeun, Imo/Igbein, Ibara I, Ibara II, Igbore/Oba, Kemta/Itoku	-	250,295	348,200
Ado-Odo/Ota	Ota	Ota I, Ota II, Ota III, Ado-Odo I, Ado-Odo II, Alapoti, Ere, Aghara,Igbesa, Ketu-Adie-Owe, Elija-Awori, Iju, Ilogbo, Atan, Sango, Ijoko, Araromi, Ketere, Irepodun	234,647	527,242	733,400
Ewekoro	Ewekoro	Abalabi, Asa-Yoho, Papa, Arighajo, Itori, Elere/Onighedu, Mosan, Wasinmi, Owowo, Obada Oko	-	55,093	76,600
Ifo	Ifo	Ifo I, Ifo II, Ifo III, Suren, Ososun, Agbado, Oke-Aro/Ibaragun, Coker, Ibogun, Abule-Oke, Onihale, Ilepa, Ogungbade, Aiyepe, Pakoto, Isheri/Ojodu, Akute/Ajuwon	215,055	539,170	750,000
Ijebu East	Ogbere	Ajebandele, Imobi I, Imobi II, Ogbere, Itele, Imusin I, Imusin II, Ife I, Ife II, Owu, Ikija.	61,120	109,321	152,100
Ijebu North	Ijebu Igbo	Oke-Sopin, Oke-Agbo, Oru/Awa/Ilaoru, Osun Mamu/Ehin Etiri, Atikori, Japara/Ojowu, Ome, Igan/Ibipe/Idode,Akogelete, Imososi/Isamuro, Okudu	148,342	280,520	390,200
Ijebu North East	Atan	Ata, Senbora, Imomo, Odosenlu, Igede, Iworo, Isonyin, Ilese, Isiwo, Oke-Eri/Ogbogbo, Eruwon, Itamapako.	-	68,800	95,700

Ijebu Ode	Ijebu Ode	Porogun I, Porogun II, Itantebo, Ita Ogun, Ijasi/Idepo, Oniworo/Odo Egbo, Isoku/Ososa, Odo-Esa, Ijada/Imepe I, Ijasa/Imepe II.	-	157,161	218,600
Ikenne	Ikenne	Ikenne I, Ikenne II, Ilishan I, Ilishan II, Irolu I, Iperu I, Iperu II, Iperu III, Ogere I, Ogere II.	-	119,117	165,700
Imeko Afon	Imeko	Imeko, Oke-Agbede/Moriwi/Matele, Idofa, Iwoye/Jabata, Ilara/Alagbe,Kajola/Agberiodo,Atapete,Olorunda/Agborogbomo, Idi-Ayin/Owode/Obada, Afon.	-	82,952	115,400
Ipokia	Ipokia	Ipokia I, Ipokia II, Maun I, Maun II, Agada, Agoasa, Tube, Ijofin/Idosa, Ido-Iroko, Ajegunle, Ilase/Ihunbo, Ifoyintedo.	-	150,387	209,200
Obafemi-Owode	Owode	Owode, Ajura, Onidundun, Moloko Asipa, Egbeda, Oba, Obafemi, Kajola, Ajebo, Alapako Oni, Ofada, Mokoloki.	135,774	235,071	327,000
Odeda	Odeda	Itesi, Osiele, Odeda, Obantoko, Opeji, Obete, Alabata, Ilugun, Olodo, alagbagba	86,950	109,522	152,300
Odogbolu	Odogbolu	Odogbolu I, Odogbolu II, Aiyepe/Eyinwa, Okun-Owa, Ijesa-Ijebu, Araromi Ake, Ososa, Idowa, Ilado/Akio, Ibefun, Ala/Igbile, Jobore/Ibodo Omu, Moraika/Ita-Epo II, Ogbo, Imosan, Imodi, Odo Yanta, Iperin, Agoro, idotun, Okeyemi, Ikanga, Erinlu, Igan	88,384	125,657	174,800
Ogun Waterside	Abigi	Abigi, Ibiade, Ilushin, Iwopin, Oni, Bolorunduro/Efiro, Ibu, Ayede/Lomiro, Ayila/Itebu, Ode-Omi, Makun-Omi/Irokun	61,919	74,222	103,200
Remo North	Ishara	Isara I, Isara II, Isara III, Isara Rural, Orile-Oko, Ode I, Ode II, Ilara, Akaka, Ipara	-	59,752	83,100
Sagamu	Sagamu	Sonyindo, Aiyepe Road, Ayegbami, Sabo I, Sabo II, Itun-Sokun, Ijagba, Lafawa, Ojumele, Isote, Simawa, Ajaka, Ibido, Odelemo, Igode, Fakale, Ogijo, Emuren, Sotubo	155,726	255,885	355,900
Yewa North (EgbadoNorth)	Ayetoro	Idofo, Ayetoro I, Ayetoro II, Iboro/Joga, Imasai, Sunwa, Ibese, Ebute-Igboro, Ohunbe, Egua, Ijoun	-	183,844	255,700
Yewa South (EgbadoSouth)	Ilaro	Ilaro I, Ilaro II, Ilaro III, Idogo, Iwoye, Ajilete, Oke-Odan, Owode I, Owode II, Ilobi/Erinja	-	168,336	234,200
Nigeria			**88,992,220**	**140,431,790**	**193,392,500**

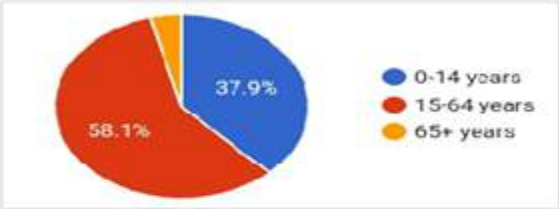
Source: National Population Commission, National Bureau of Statistics Estimates 2018 and Ogun State Ministry of Information and Strategy

Table 1 further focused on the population trend of the state by local government between 1991, 2006 and 2016. As earlier discussed, Ogun State is made up of twenty (20) local government area which are identified in Table 1 along with their corresponding population size. As further shown in table 2 are selected settlements of these twenty (20) local government in the state. One important observation is that the local governments do not enjoy equal proportional growth in their population and demographic. Unfortunately the use of same percentage ratio of 3: 4% as a general benchmark for population projection can be seen as faulty, since it is impossible and unacceptable that the population growth rate is constant in and across the state.

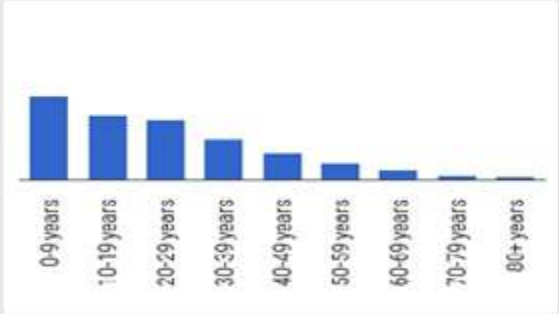
Table 2: Further Information about the Population Structure of Ogun State 2006



Gender (C 2006)	
Males	1,864,907
Females	1,886,233



Age Groups (C 2006)	
0-14 years	1,421,735
15-64 years	2,180,338
65+ years	149,067



Age Distribution (C 2006)	
0-9 years	1,008,682
10-19 years	783,595
20-29 years	718,662
30-39 years	500,477
40-49 years	331,859
50-59 years	188,747
60-69 years	113,563
70-79 years	61,968
80+ years	43,587

Table 2 provides further information about the population structure and demographic attributes of the state. The only available information was provided in the 2006 national census. For data efforts to upgrade and update, this population structure information remain non-existence. The 2006 population structure by gender shows that male constitute 1,864,907 (49.72%) and female 1,886,233 (50.28%) revealing that there are more female than male in Ogun State. However, analysis on local government basis does not exist. Table 2 also revealed the age groups and age distribution. The traditional age group classification shows that 37.9% of the state's population is between the age of 0 – 14years whereas 58.1% are within the ages of 15 – 64 years while the remaining percentage represent 65years and above. Furthermore, Table 2 further reveals the age distribution which is a mor e detailed presentation of the age distribution of the population of Ogun State. The highest under the age distribution category is between 0 – 9 years of age closely followed by 10 – 19 years, 20 – 29 years, and 30 – 39 years. The implication is that Ogun State is a youthful dominant population.

Table 3: Population Trend of Ogun State by Gender (2007 - 2016)

YEAR	MALE	FEMALE	TOTAL
2007	1,977,266	1,899,726	3,876,993
2008	2,043,605	1,963,463	4,007,068
2009	2,112,169	2,029,339	4,141,507
2010	2,183,033	2,097,424	4,280,457
2011	2,256,275	2,167,794	4,424,069
2012	2,331,974	2,240,524	4,572,499
2013	2,410,213	2,315,695	4,725,908
2014	2,491,077	2,393,388	4,884,465
2015	2,574,654	2,473,687	5,048,342
2016	2,661,035	2,556,681	5,217,716

Source: National Population Commission, National Bureau of Statistics Estimates 2018 and Ogun State Ministry of Information and Strategy

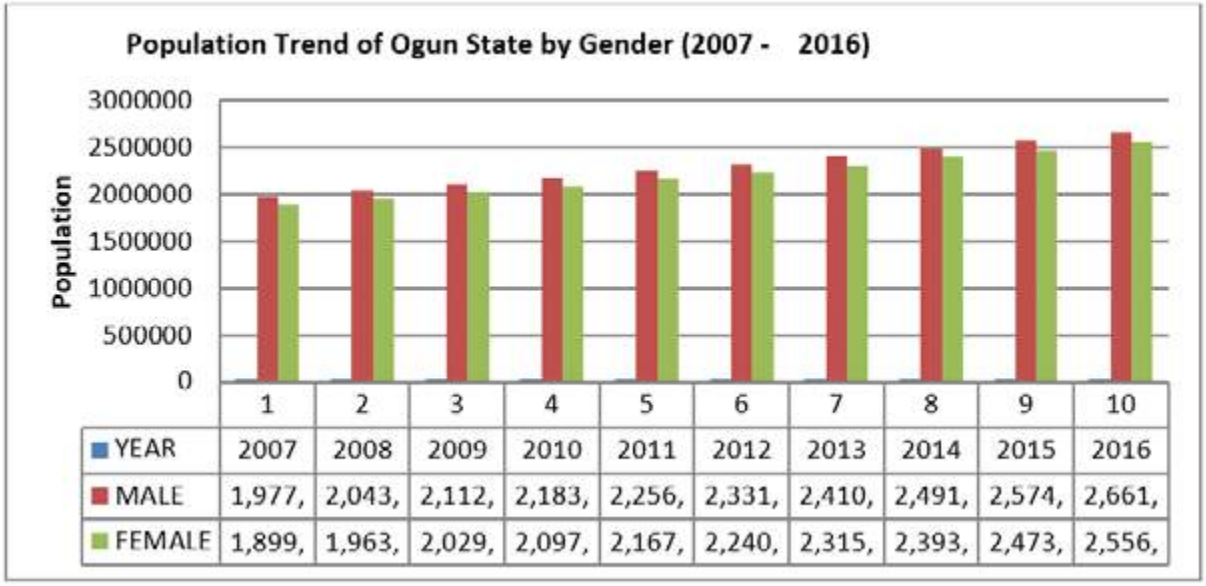


Table 3 focus on population trend of Ogun State by genders. In 2006, it revealed that there are more female than male, however, by the year 2016, it is observed that there were more male than female. The gender difference can be seen to be very minimal and negligible.

7.1 Ogun State in its Spatial Dimension

As urban and regional planning professional / practitioners whose major preoccupation is to ensure that rural and regional development planning are conducted within the context of equitable distribution of resources across geographical space, judicious use of land resources and land management as well as ensuring that incompatible landuse are guided against is expected to have full knowledge about the totality of the state's spatial dimension which commences with

the understanding of the local government, settlements by types, characteristics and attributes of this local government as well as in their population.

Table 2 is an attempt to showcase the spatial dimension by local government and selected settlements in the state. The only available information of spatial dimension in the state is land size of the entire state which is put at 16762km2. Though this represents the aggregate spatial size of all the settlements and local government of the state, without the disaggregation of the local government and settlements according to their specific spatial sizes and attributes obviously the assignment and expectation from urban and regional professionals and practitioners would be difficult and problematic to discharge.

7.2 Geophysical and socio-economic baseline information

Rural and regional development planning goals and objectives cannot be achieved or realized in isolation. It depend heavily on available information consisting of the physical environments, drainage, relief, topography and soil texture. These are fundamental information towards proper land management and administration. Furthermore is the availability of socio economic baseline information as well as their spatial distribution presence and location throughout the state. Such socio economic information include health facilities, educational facilities and institutions (in all their categories and by classification), transportation facilities and infrastructure, agriculture / farm lands, manufacturing / industries, security, law and order, trade and commerce, electricity energy e.t.c. the socio economic benchmark of which include population and its demographic are vital parameters for sustainable rural and regional development planning agenda. These information are available in the Master Plan of the State (2005 – 2025) though in generalized form, but will surely be outdated and obsolete.

8.0 IMPLICATION / CONSEQUENCES

Observations from the preceding section have implication and consequences on the future of rural and regional development in the state. The population and demographic data available about the state are essentially information projected from 2006. This implies that rural and regional development planning agenda of the state are based on probability parameters, how the parameters have been projected are often unreliable. Again, such probability parameters without updating it along with present day situation will no longer be applicable to modern rural and regional development efforts and as a result of delay in its implementation of set actions. For example, the socio economic baseline information and parameters for rural and regional development can evolve its own data and information capable of being computerized and easy to retrieve. Relying on 14 year old base data for rural and regional development can be misleading.

The issue of land management and administration has developed information technology tools for guiding overall land management administration use and various associated geophysical attributes. Unfortunately, land administration and management within the context of Information

Technology (I.T.) application in the state is at its elementary level and as such not capable to evolve a feasible and attractive rural and regional development. The general absence of reliable mapping, monitoring and updating use of land the state is obvious. Hence, land management and administration is limited to development control purpose and land acquisition by government for public use.

The overall observation suggest that available information need to be updated, upgraded and monitored by incorporating additional baseline parameters that are often not considered when rural and regional development are initiated. The procedural idea that suggest for inventory, data collection, collation and gathering must be intensified by ensuring currency of data for proper development planning. On the other hand, the normative idea that suggests the projection into the future depend heavily on the reliability and efficiency in the data provided and gathered through the procedural concept or approach it is the combination of these duo ideas that guarantee effective rural and regional development of the future of the state. The traditional normative approach which depends solely on estimates and projection especially projections provided by foreign consultants can no longer achieve the cities of tomorrow in Ogun State. The consequences for not altering the current methodological approach through which rural and regional development planning of Ogun State is pursued can lead to lopsidedness in its effort at achieving rural and regional development.

9.0 POLICY AND PLANNING

Additionally and deduceable from this discussion is the observed presence of policy and planning implication, Ogun State government is expected to respond through the introduction, application and implementation of policy and physical planning measures capable of enhancing the good intentions and attributes associated with rural and regional development planning in the State. Especially within the context of physical, social, economic and environmental dynamics vis-à-vis its population / demographic attributes. The policy implication is for government to come out bold to address the consequences of rural and regional development planning dynamics. While the planning implications is to support the policy objectives through the development of programs and plans in concrete terms capable of mitigating and containing problems associated with why rural and regional development planning remained elusive in the State.

10.0 RECOMMENDATION AND CONCLUSION

It is recommended that there is urgent need for the review of rural and regional development strategy of the State by incorporating associated baseline information that have changed. It is also observed that problems associated to the weak response of rural and regional development planning of Ogun State is as a result of paucity and inaccurate baseline information and data that are generated to compliment the original document prepared for the purpose of development. There is also the need to improve on its human resource capacity and development expertise. Arising from the above the following recommendation are made.

i. There is need to establish robust Planning Research and Statistics (PRS) department equipped with supporting facilities and equipment based in physical planning and urban development ministry whose responsibilities is to focus on the various parameters required and necessary for achieving rural and regional development planning dynamics.

ii. There is need to evolve holistically human resource development and capacity building of urban and regional planning professionals and practitioners involved in rural and regional development planning agenda of the State. By implication, there is need to expose staff to urban and regional planning technology development capacity.

iii. For staff to develop information technology competence and expertise thereby ensuring that urban and regional planning professionals understand key information technology tools such as mapping, monitoring, planning and locational analysis as well as land management and administration within the context of international best practices and ethics of the profession.

iv. Network intelligence system (NIS):- Network analysis is paramount to landuse especially in its attempt to ensure adequate connectivity to all forms of landuse. By implication, it is recommended that the GPS and GIS deployment should form a foundation of the professional competence of town planning professionals in the service of the State.

v. Arising from i – iv above, it is imperative that information technology infrastructure acquisition should form a focus of government, as it enhances effective monitoring, mapping, tracking and locational analysis.

vi. Efforts should be made to improve on the current website status of the state to make information about the state to be more visible.

vii. Finally, given the enormity of information required for achieving rural and regional de-

velopment planning within the context of spatial changes is suggested that all the MDA's of the State should be made to have the presence of urban and regional planning professionals in their MDA's by guiding some of their activities and also to make available some of these activities to the PRS department of the physical planning and urban development ministry for use.

In Conclusion, this discussion on rural and regional development planning have shown that with conscious commitment and use of appropriate relevant parameters, rural and regional development in the State is achievable and when properly conceptualised.

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