CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

In spite of increasing knowledge of modern planning and number of planners, physical development and planning in many Nigerian cities and entire world, such asLagos State,Benin City in Edo State and Ogun State have remained a theatre of chaos and disorder. Thisis manifested in urban sprawl, poor access to dwellings, poor/bad drainage, housing congestion, road accident,uncontrolled and increasing density of physical development, Traffic congestion among many other problems. The situation is even worse in some other states and major ciites within the country Nigeria where major road setbacks now serve as markets and workshops like: Aba in Abia State, Owerri in Imo State, Awka in Anambra State. Sometimes they encroach into the road causing direct obstruction to traffic flow.

Older houses in traditional settlements have smaller setbacks between properties, as walking was a primary mode of transportation, setbacks was providedfor distance by which people walked to their actual destinations and whenstreetcar stops,it has to be kept short out of necessity. Distances of 1-5ft at most are common in neighborhoods built in the United States before 1890 when the electric streetcar first became popular. Most suburbs laid out before 1920 had narrow lots and setbacks of 5-15 (ft) between houses. As automobile ownership became common, setbacks increased further because zoning laws required developers to leave large spaces between the houses and street roads(Allen, 1995).

Today many jurisdictions rely on urban planning regulations, such as zoning ordinances, which use setbacks to make sure that streets and yards are provided more open space and adequate light and air. For example, in high density districts, such as Manhattan in New York, front walls of buildings at the street line may be limited to a specified height or number of stories. Above that height, the buildings are required to set back behind a theoretical inclined plane, called sky exposure plane, which cannot be penetrated by the building's exterior wall. For the same reason, setbacks may also be used in lower density districts to limit the height of perimeter walls above which a building must have a pitched roof or be set back before rising to the permitted height (Koolhaas, 1997). Another example is the Malloch Building in San Francisco that stepped back along the contour of the steep side of Telegraph Hill.

Currently trend in the built environment indicates that the need for more space to house urban residents is a global concern but more pronounced in the third world countries (United Nations, 2005). This is why cities in Africa are currently undergoing urban transition at an unprecedented scale and pace. For instance, thirty years ago, only one West African City (Lagos) had a population of more than a million. On the contrary, each of the major cities in Africa is now having populations above one milion (UN-Habitat, 2003). The resultant effects of these are global destruction of flora resources, environmental pollution, climatic change, deforestation and depletion of the ozone layer, to mention but few (Vernon, 2002). These human actions rather than natural are the sources of most contemporary changes in the state and flow of the biosphere among other various issues threatening the environment today (Ifatimehin, Ishaya and Okafor, 2008). This is an indication that the sudden increase in urban population has led to expansion of physical development and invariably encroachment on or reduction of areas meant for green spaces, (Kessides, 2005 and Oluwafemi, 2010).

In many cities of Nigeria, building setbacks add value to the interior real estate adjacent to the setback by creating usuable exterior spaces. These setback terraces are prized for the access they provide to fresh air, skyline views and recreational uses such as gardening and outdoor dinning. In addition, setbacks promote fire safety by spacing buildings and their protruding parts away from each other and allow for passage of firefighting apparatus between buildings.Transport infrastructural development remains a major toolfor achieving the aspirations of the newly introduced economic principles of the Federal Government of Nigeria, such as the National Economic Empowerment and Development Strategy (NEEDS). However, the condition of Nigerian roads has not ceased to amaze discerning observers, and in effects, the roads have been ranked among the worst in the world.A significant portion of post independence studies on transport systems have been devoted to examination of successive Nigerian government's budgetary allocations and development in the transport sector in general (Iweze, 2011). Increasing level of traffic congestion is an inescapable result of strong economic activity and life in urban areas. Realistically, large metropolitan regions in Nigeria lack the resources, citizen support, and ultimately the space to provide for uncongested automobile travel. About half of congestion delay occurs in areas where demand has reached or exceeded capacity; the other half is due to incidents including weather, accidents, stalled vehicles and roadside distractions, all these geared toward the improper planning of physical development and built environmental management.

The growth of an urban area due to influx of people in search of employment usually takes its toll on the land and the built environment. This is evident in the growth of squatter settlements, illegal occupation of government land and erection of illegal structures on any open space in the city. As a greater percentage of urban workers are unable to get white collar jobs, the informal sector of the economy grows. The informal economy contributes as much as 40% of Gross Domestic Product and employs up to 60% of the labour force in developing countries. It is characterized by lack of organized wage structure, paid work on a casual basis, irregular jobs and self-employment without earning pensions and without payingtaxes (Olomola, 2003). This sort of employment is common in the urban areas ofdeveloping countries.

Formal urban and regional planning activities in Nigeria began with the Planning Ordinance of 1902, which empowered the then Colonial Government to establish Government Reservation Areas (GRAs). As Oyesiku and Alade (2004) noted, the Ordinance, which specified how European reservation areas should be located and segregated from the native location, was the first town planning regulation that made conscious attempt to effectively plan for any segment of a Nigerian town. This was the first attempt to institutionalize colonial or formal urban development in Nigeria and thus formed the fulcrum upon which urban and regional planning projects' execution would be carried out in Nigeria. Urban and regional planning delineates the forms in which urban growth should be channeled.

The second one is 1917, when township ordinance was promulaged by Lord Lugard. This was done inorder to segregate or separate the white men from the native, so that the colonials would not be infected. Lagos was classified asa first class township while Onitsha North country council was classified as Third Class Township. Awka then, had varied its political and administrative fortunes from headquarters of Onitsha North country council to the capital of Awka South Local Govrnment Area, Anambra State and finally to being the capital of Anambra State in 1991.

The next formal urban and regiuonal planning activities is planning ordinance of 1946 which was the first unified urban and regional planning law in Nigeria, where urban renewal projects were given prominence.Another one is Land Use Act of 1978, which gave powers to the governors of states to control the allocation of land in the state and this resulted in delineation of some areas for urban renewal projects. The reason for the pattern may not be far-fetched. The areas do not only provide abodes for the poor natives, who hold tight to extended family properties, but also provide

locations of relatively high accessibility for business, cottage industries and services. Fort these, developers-individuals, corporate bodies, and even government tend to develop or re-develop properties in the area to the fullest, with the ultimate aim of maximizing the use of spce regardless of whether or not such an action is in the interest of physical planning. These infrastructural developments in urban cities like Awka Capital Territory is usually attended by a lot of challenges, the most prominent being the tendency by developers and land owners to ignore laid down rules and regulations, especially implementing road setbacks in construction works. This problem is very noticeable in areas which have witnessed huge violations of road setbacks in the siting of structures in the same area. This study therefore, helped to investigate the complainace with road setbacks in the siting of structures and the environemtal implications in Awka Capital Territory, Anambra State.The next planning ordinance is the strategic urban and regional planning laws in Nigeria as Nigerian Urban and regional planning law decree No. 88 of 1992. This was after forthy six years of the 1946 ordinance.

In land use planning, a setback is the distance which a building or other structure is meant to leave from a street or road, a river or other stream, a shore or flood plain, or any other place which is deemed to need protection. Depending on the jurisdiction, other things like fences, landscaping, septic tanks, and various potential hazards or nuisances might be regulated. Setbacks are generally set in municipal ordinances or zoning regulators. Setbacks along state, provincial, or federal highways may also be set in the Laws of the State or province, or the Federal Government (Allen, 1995).These and many other regulations have been responsible for encroachment into established road setbacks.From the residential building perspective, the poverty stricken set of the masses most times tend to be seeking to build any shelter in warner without considering whether they obeyed the established planning standards or not, thus the emergence of slums and urban sprawl. The Awka Capital Territory under study has established road setbacks for each of trunks A, B and C roads passing through the area. The trunk A are federal highway roads with 45.72meters as the established setback; trunk B being the State roads with setback of 30.0 meters and trunk C being the Local Government roads with setbacks of 25.0 meters (ACTDA, 2014). The main problem facing this stipulation is implementation, as the informal workers and developers always try to maximize utility of their plots of land, thereby encroaching into the setbacks and when they are being apprehended, they cut corners to have their way.

The actions of urban informal workers aremade more manifest in the process of conversion and re-development of properties to accommodate more businesses or less importantly more dwelling units. The rapid urbanization witnessed by Awka Capital Territory, particularly in the last three decades since its creation as the state capital, has brought along with it an array of physical and economic development problems. The inability of previous Governments to initiate programmes that will guide the growth of the various settlements and make them effective, safe and effective have made matters worse.

Thus, major settlements in Awka Capital Territory have not only had some form of urban sprawl and decay, their growth continues to be stunted basically because most structures erected in the city have not conformed with the stipulated setbacks from the roads. The implication of non-compliance is enormous and is partly the major problem which this study seeks to address, and its outcome will help to generate serenity of the environment, orderliness of the environment, reduction in traffic congestion and road accident, which will in turn bring about sustainable urban environmental and socio-economic development.

1.2 Statement of the Problem

The incidence of non-compliance with road setbacks in Nigeria has been established by many authors. Ogeah (2013) established the incidence of non-compliance withroad setbacks in erecting structures in Benin City. Folarin (2013) also cited the incidence of non- compliance to road setbacks in Ogun State which resulted in the demolition of no fewer than 100 buildings with countless persons displaced when the State Government embarked on its road expansion project.

A first time visitor to Anambra State would be forgiven if he or she quickly concludes that the State is unplanned. But a critical look at this assumption may not be far from the truth. This is on account of many structures that tend to suggest non-compliance with road setbacks in the siting of structures in the State. Almost every little space along the road in the State, especially in theState Capital(Awka Capital Territory) islittered with all sorts of structures which were sited with little or no consideration for road setbacks.

During the Babangida Administration in 1991 and following the creation of Awka as the capital of Anambra State,ACT in Anambra State assumed a cosmopolitan nature with the influx of people desiring to settle in it and establish their businesses. Land speculation and sprouting of new structures became the signposts of the new State Capital. Ugonabo and Emoh (2013), noted that in

Anambra State, especially the State Capital, Awka; accessibility to land is a huge problem. House owners, in a bid to maximize available spaces around their houses, construct unapproved structures as residential buildings.This is also evident in the construction of shops and petrol filling stations. According to them (Ugonabo and Emoh), in Awka it is not unusual to find fuel filling stations within few meters of residential buildings. In undertaking these constructions and in a bid to maximize the use of available space, developers ignore regulations on road setbacks.This resulted to grave negative impacts. Observation has shown that locations like Zik's Avenue, Aroma Junction, Kwata Junction and Eke Awka Roundabout in Awka, Enugwu Ukwu Market Junction; Oye- Agu and Afor- Igwe along the Nnamdi Azikiwe Avenue experience constant traffic congestions daily.

According to the Nigeria Bureau of Statistics (2006) the population of Anambra State grew astronomically from 12percent to 48percent within a space of 12years. Anambra, thus, became one of the most rapidly growing States east of the River Niger. This type of growth also came with its attendant consequences; the most significant being non-compliance with road setbacks, in the siting of structures in the State. Kadiri (2010), had observed that such measures of development control as the application of minimum plot-sizes, standard of windows, doors, height of buildings, road widths, among others, have been introduced to control buildings and general appearance of cities in Nigeria. However, the problem of undesirable nature and pattern of development in high-density areas like the Awka Capital Territory is still a serious one. This is more noticeable when we look at the substantial amount of money the Government spends on trying to give the State a semblance of planning in addition to the amount spent on healthcare and the attempts put into the provision of amenities.

As Omole (2000) observed, urban growth is a bi-dimensional process requiring the maintenance of already built up areas, as well as re-building and maintaining newer ones in line with stipulated regulations. The presence of tightly built communal environments, caught up in the rapid growth of the capital territory, poses a very great threat to the infrastructural development of the area. One problem of the Anambra State built environment is non-compliance with building bye-laws and regulations. The main factors of non-compliance with established road setbacks include but not limited to: rapid urbanization and population growth, corruption of the planning authority and failure of the enforcement agents, difficulty in land accessibility and poverty.The major areas of default are in the area of setbacks, building along utility lines and non-adherence to provision of

adequate space from the roads. The neglect of this important aspect of the building codes and urban planning has resulted to many environmental problems: inadequate and deteriorated road networks and walkways; unregulated building patterns, which invariably is a threat to human health, chaotic traffic congestion and transport system, poor sanitation, and uncontrolled street trading, with its attendant consequences and destruction of the beauty and aesthetics of the town.

From the literature reviewed, it is true that work had been done on road setbacks with the use of GIS software (Michael, 2014),butdid not show how ARC GIS Software (Google rule) can be used to measure, compute and analyse the measured distance between the serviced roads and sited structures in ACT. Works reviewed had also been linked to the environmental problems of non-compliance with road setbacks in the cities (Okpala, 1987; Okoko, 2006; Ogeah, 2013 and Kazeem, 2015),but not with four indicators of Social, Physical, Economic and Health inACT. Furthermore, It was only an assumption by most of the studies reviewed that the non-compliance with road setbacks is due to law enforcement agents being easily compromisedand allowing people to encroach into road setbacks (Aluko, 2000; Itam, & Archibong, 2003 and Ogaeh, 2013).This issue of corruption practices of the planning authority and law enforcement agents had not been confirmed as a major contributing factor to non-compliance with road setbacks.Among works reviewed, sanitizing of city through demolition of illegal structures had been suggested as solutions for managing non-compliance with road setbacks (Onyeose, 2011; and Ogwuda, 2013), but developed octadecagonal polygon template for controlling/solving the problems of non-compliance with road setbacks in Awka-Capital Territory had not been provided.The non-compliance with road setbacks in the siting of structures in ACTof Anambra State hadbecome a huge illegal use of appropriated portions of road setbacks which created serious environmental problems in the study area. As a result, ACT had become characterized by inadequate and deteriorated road network, walkways, unregulated building patterns, poor sanitation, uncontrolled street trading, mountains of garbage and chaotic transport system creating traffic and human congestion, noise pollution and overcrowding, among others. It is because ofthese problems that the study assessed the level of compliance to road setbacks in siting of structures and associated environmental implications in Awka Capital Territory of Anambra State.

1.3 Aim and Objectives of the Study

1.3.1: Aim of the Study

The aim of this study is to assess the level of compliance with road setbacks in the siting of structures as well as its associatedenvironmental implicationsin Awka Capital Territory with a view to providing a workable template for solving the problems of non-compliance with road setbacks so as to achieve sustainable urban environmental and socio-economic development.

1.3.2: Objectives of the Study

The aim is achieved through the following objectives;

1. to determine the levels of compliance of the sited structuresto setback standards;
2. to identify the causes of non-compliance with road setbacks in Awka Capital Territory;
3. to determine the environmental implications (social, physical, economic andhealth) of non-compliance with road setbacks in the Awka Capital Territory;
4. to examine if there is any difference between the causes of non-compliance with road setback as reported by non-professionals and professionals in ACT;
5. to examine if there is any relationship between the causes of non-compliance with road setbacks as reported by non-professionals and professionals in ACT;
6. to determinethe opinions/contributions of the professionals and non-professionals on the causes andenvironmental implications/effects of non -compliance to road setbacks in Awka Capital Territory; and
7. to develop a workabletemplate and modified framework for solving the problems of non-compliance with road setbacksas well as achieving sustainable urban environmental socio-economic development in Awka Capital Territory of Anambra State.

1.4 Research Questions

1. What are the levels of compliance of the sited structures to road setback standards?
2. What are the causes of non-compliance with road setbacks in Awka Capital Territory of Anambra State?
3. What are the environmental implications/effects of non-compliance with road setbacks in Awka Capital Territory of Anambra State?
4. What is the difference between the causes of non-compliance with road setback as reported by non-professionals and professionals in the study area?

5. What is the relationship between the causes of non-compliance with road setbacks as reported by non-professionals and professionals in the study area?
6. What are the opinions/contributions of the professionals and non-professionals on the causes and environmental implications/effects of non – compliance with road setbacks in the study area?
7. What workable template and modified framework can be developedto solvethe problems of non-compliance with road setbacks and achieving sustainable urban environmental and socio-economic development in Awka Capital Territory?

1.5 Research Hypotheses

The following hypotheses were postulated to guide thisstudy:

1. H_0: There is nosignificant difference between professionals and non-professionals in their mean perception of the causes of non-compliance with road setbacks standards in siting of structure in study area.
2. H_0:There is no signicant difference in the mean compliance with road setbacks standards in siting of structures in the three road types in the study area.

1.6 Significance of the Study

The significance of this study could be gleaned from its theoretical and empirical perspectives. Theoretically, the study is significant to the extent that the study adds to the corpus of knowledge on the non-compliance with road setbacks in the siting of structures in Awka Capital Territory.Secondly, it would add to theory building through the provision of theoretical and conceptual insights in understanding the dynamics of town planning and its impact on urban renewal. The third one is that it would also benefit development control officials in easing their work and to understand more about the boundary of their operation.

With an attempt to study comprehensively the road setback system in a city in transition like in the study area, which combines traditional urban development and modern urban development of planning, this study is justified due to the need for critical assessment of the level of compliance to road setbacks in siting of structures and their associated environmental implications for sustainable urban environmental and social-economic development in the study area for Anambra State.

Generally, with increasing rate of rapid urbanization due to increasing urban population and social-economic activities, solutions to non-compliance with road setbacks are expected to

increase significantly through the application of the octadecagonal template and this would enable practitioners and government device ways of curtailing the all pervading incidence of road setbacks in a rapidly growing city like ACT. Presently, most urban areas are like ACT, are witnessing increase in social and economic infrastructural development by informal workers which result to certain social, economic, physical and health environmental implications that pose risk to wellbeing of present and future generations of urban communities and environmental protection.

Furthermore, the rationale for this study is that every urban area needs urban renewal for the improvement of living environment, ACT does not have such improved built environment due to non-compliance with road setbacks, thereby creating illegal structure in every little available space in the area, which results to unhealthy environment.

This study would help to educate the general public on the necessity for a systematically planned orderly development of an urban community devoid of unwarranted non-sustainable urban management system.

The outcome of this research will help to generate serenity in orderliness of the environment, reduction of traffic congestion and road accident, which will in turn bring about sustainable urban environmental socio economic development.

The recommendations would also be useful to scholars and town planners in redesigning the process of urban renewal in the city.

In a nutshell, the following group(s) should benefit from the study in different ways:

1. The government woulduse it as a policy making-tool.
2. The law enforcement agencies would benefit as well, particularly when developed template is strictly adhered to.
3. Agencies charged with the management of urban centres especially Awka Capital Territory Development Authority (ACTDA) would also benefit.
4. Road users (motorists, cyclists, try cyclists and pedestrians) would gain from the result of work as it would go a long way in controlling the problem of traffic congestion.
5. NGOs may need the outcome of this work especially when it is used to enact environmental laws.
6. Researchers and other members of theacademic communities would also utilize the outcome of this study and it may serve as a spring board to further research.

1.7 Scope of the Study

The scope of this study is restricted to the assessment of the level of compliance to road setbacks in the siting of structures and associated environmental implications/effects which only included four dimensions of social, physical, economic and health in ACT of Anambra State, Nigeria. The methods used were survey and experimental designs. The area covered Awka Capital Territory. The road types measured in Awka Capital Territory were selected from Trunks A, B and C, with their respective total numbers of 2, 25 and 1772, these were added to give the total number of 1799.Also Arc GIS (Geographic Information System) 10.4 software was used to measure, compute and analyse the distances between the sited structures and serviced roads.There are other setbacks like port, landscaping, fences, stream/river among others, only road setback was considered in this study because,massive incidence of non-compliance with road setbacks were more noticeablethan other setbacks in ACT, also the roads (Trunks A, B and C) were almost used at all time in the area. Moreover, the resultant effects of non-compliance withother setbacks are not as consequential to that of non-compliance withroad setback.

Furthermore, the different land use types were not put into consideration; this is because some land use types in some LGAs did not have any measurement, while some had only single measurement; due to many activities that took place within adapted places that originally zoned for specific activity or the other, example: some houses became shops, offices became churches and some warehouses had become cinema halls, among others. This made it very difficult to start checking compliance levels for such land use types, rather every sited land use type was generally regarded as structure. As a result, the entire three levels of roads were analyzed separately (that is Trunks A, B and C) after which they were joined together.

1.8 Limitations of the Study

The study has the following limitations:

1. Measurement of distances between the sited structures and serviced roads in ACT, were supposed to be taken with two different types of measurement instruments like Arc GIS 10.4 software and Metre tape rule in order to know whether there is any deviation in each of the local Governments' Road types, but only one tool (Arc GIS 10.4 software) was used

in measuring all six local government areas, while one local government area (Awka South) alone was measured with both Arc GIS 10.4 software and metre tape rule.

2. In establishing the level of compliance in ACT, different land uses or buildings should have been investigated separately, for example, residential, commercial, recreational among others, but all of them were tagged structures and carried out against three road types Trunk - A, B, and C. in ACT.
3. There are other kinds of development control elements in the ACT, but in this study, all of them were kept silent, only road setbacks was assessed.
4. In all communities' three different types of roads in ACT (1799) were supposed to be measured, but only some selected three different types of roads (330) in Six Local Government Areas of ACT were measured.
5. Some of the hindrances that would have affected this study during the research work were mostly logistical problems: Example, most of the occupants in ACT had a very poor attitude to research, this was evidenced in the manner with which a handful of them approached the interview/responding to questionnaire sessions and even ordinary approach to the infrastructure.
6. Other manifest hindrances included gathering of information and integrating some within the space and time limit alongside with other tedious work altogether. But these hindrances were carefully and effectively handled in such a manner as not to affect the research or inflict\ distort in whatever form on the findings.

1.9 Plan of the Study

This work was arranged in six chapters namely Introduction, Literature Review, Study Area, Research Methodology, Data Presentation and analysis, Summary, recommendation and the conclusion. Each chapter reported an aspect of the whole research as stated below:

Chapter One introduced the work. That is a neral overview of what the research work is all about. It discussed background of the topic of study, described the problem at stake, the aim and objectives that were actualized by the study, stated the research hypotheses, justification for the research, (described the study area) and stated the significance of the study. It also detailed the scope of the study and the constraints limiting the study.

Chapter Two discussed the concepts upon which the work was based and reviewed previous studies done on the subject matter and other works related to the issue of road setbacks.

Chapter Three discussed the study area, detailed its geographical location with the aid of various maps like map of Nigeria showing Anambra State, map of Anambra State showing ACT, map of ACT showing its six local Government Areas, map of Road Networks in ACT, among others. Physical attributes like climate, geology, drainage and relief; and human attributes like settlement, population and economic activities.

Chapter Four highlighted the research methodology employed, the data source, design of the survey and experiment, procedure for sampling, collection and analyses of data, as well as details of statistical techniques of SPSS and PCA which were employed in the work to analyze, test hypotheses and ranking of variables.

Chapter Five presented and analyzed the data obtained from the field, using various statistical techniques, discussed the findings of the research; and

Chapter Six summarized the findings of the study, highlighted contributions to knowledge, attempted recommendations and drew conclusions, together with suggested areas for further studies.

CHAPTER TWO

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

2.1 Conceptual Framework

This chapter discussed the concepts on which this work was based. The work has its underlying principles/concepts onsustainable development, planning standard and externality, with a review of related literature review on the topic of the study.

2.1.1 Concept of Sustainable Development

Sustainable development is a fairly new formulation in development thought. The roots of its popularization may be traced to the Brundtland Commission Report. That report, titled "Our Common Future" was launched in London in April, 1987, and formally presented to a special session of the United Nations General Assembly in October of the same year. The Brundtland Report clearly established the nexus of relationships which exist between human economic activities and environmental quality, and went further to draw up a trajectory with respect to the future of these relationships as a way of exposing the fundamental challenges to human survival. The concept of sustainable development was an outgrowth of the report's projections, and is simply defined as "development which meets the needs of the present generation without compromising the ability of future generations to meet their own needs" (Brundtland Commission Report, 1987).

Literally, sustainable development refers to maintaining development over time. It was estimated thatby 1992 over 70 definitions of the concept were in circulation. There is no doubt that definitions are important as they provide the basis on which the means for achieving sustainable development in the future are built. The concept of sustainable development can be interpreted in many different ways, but at its core is an approach to development that seeks tobalance different, and often competing, needs against an awareness of the environmental, social and economic limitations we face as a society. Definitions of sustainable development are mostly oriented towards separate sectors like: environmental, economic, civilization or emphasizing managerial, technical or philosophical/ political decisions, and thus expressing rather different concepts of sustainable development (Munasinghe, 1993; Pearce, Markandya and Barbier, 1989; Pezzey, 1989; Pezzoli, 1997). Thus, we should take into consideration the fact that the concept of

sustainable development may be difficult to understand and may have different meanings depending on the analyzed literature on the concept in which it is used (Pierantoni, 2004). For this reason, we will present several definitions of sustainable development that would include multiple aspects of this concept.

In 1992, the World Bank described sustainable development with a laconic phrase "sustainable development is development that continues" (World Development Report,1992). Significantly wider descriptions of the concept exist as well. In 1992, the Rio de Janeiro Declaration on Environment and Development described sustainable development as long-term continuous development of the society aimed at satisfaction of humanity's need at present and in the future via rational usage and replenishment of natural resources, preserving the Earth for future generations (Rio Declaration on Environment and Development, 1992).
Goodland and Ledec (1987) described sustainable development as the transformation (development) of economics, optimizing the economic and social benefits obtained at present without jeopardizing the possibilities for obtaining such benefits in the future.

Pirages (1977) stated that sustainable growth means economic growth that is supported by the physical and social environment. Thus, sustainable development may be understood as the process of economic development and structural changes helping to broaden human possibilities (Petkeviciute and Svirskaite, 2001). This development is determined by the power of knowledge about development and is best seen through sustainable and balanced development of human possibilities and ability to assume social responsibility for oneself, the society, and future generations. Weitzman (1997) stated that sustainability is the measure of future consumption.

IUCN, UNEP and WWF (1991) emphasized that sustainable development, sustainable growth and sustainable consumption were used as equivalent concepts. However, in reality these concepts are not identical. Besides, the very term sustainable growth bears intrinsic contradiction: no physical unit can grow endlessly. According to the representatives of these international organizations, the term sustainable consumption should be applied only to renewable resources. The term sustainable development should mean the following: the improvement in the population's quality of life, while taking into consideration the ecosystem's regenerating capacity that can be described as the maximal continuous load on the environment (Catton, 1986), and the carrying capacity – the greatest number of population that can survive in the presence of ecological balance (Sorlin,

1997). At the same time, it can be stated that in some aspects sustainable development includes the analysis of conditions under which ecosystems may preserve the regenerating ability, which means making choices in the sense of time and space.

Holdgate (1993) stated that development is understanding of the potential of resources. Sustainable development of renewable natural resources means taking into consideration the limits of the development process, even if those limits are changed by technologies. Sustainability of technology may be evaluated according to whether it increases productivity and at the same time preserves environmental and other boundaries. According to Norton (2007), sustainable development is related to society's development whose costs are not placed on future generations, or at least efforts are made to compensate for such costs. This ethical necessity not to make development a burden for future generations and to guarantee these generations' possibilities analogous to those available to previous generations should be seen as a normative basis of sustainable development. Considering the fact that sustainable development confronts economic, social and cultural restrictions, sustainability could be defined as an ethical ideal and normative ethical principle for further development of the society, that speaks not about the way it is, but the way it should be and that foresees the need for criticism of the persistent human relationship and action algorithms (Parker, 1993 and Kothari, 1994).

Thus, sustainable development encompasses a very important ethical component, a manifested right of every person to the proper and fair share of the planet's resources (Moldan and Dahl, 2007 and Ciegis, Gavenauskas, Petkeviciute and Streimikiene, 2008). In a wider sense, sustainability is associated with the equity in distribution, that is the distribution of possibilities for development between the present and the future generations. Then sustainable development may be defined as better quality of life of the present and the future generations and within people in a given jurisdiction. Considering the fact that sustainable development confronts economic, social and cultural restrictions, sustainability could be defined as an ethical ideal and normative ethical principle for further development of the society, that speaks not about the way it is but the way it should be and that foresees the need for criticism of the persistent human relationship and action algorithms as in (Parker, 1993 and Kothari, 1994).

Then sustainable development may be defined as better quality of life of the present and the future generations.Thus is line with Munasinghe (1994) who presented an even broader view of

sustainable development, defining it as the process of increasing the spectrum of alternatives allowing individuals and communities to realize their aspirations and potential in the long perspective, and at the same time maintaining the regeneration ability in economic, social, and ecological systems.

Radermacher (1999) provided probably one of the broadest concepts of the evaluation of sustainability, indicating that the definition of sustainability should include the following elements: 'a) globalization, b) a long period of time, c) environmental consequences are of long-term character), d) external effects, e) environmental policy, f) the approach "from the cradle to the grave". There is a number of other definitions of sustainable development (Pearce and Turner, 1990; Pezzey, 1992; Cesar, 1994 and Faucheux, Pearce and Proops, 1996), all insinuating that sustainable development is the society's development that creates the possibility for achieving overall wellbeing for the present and the future generations through combining environmental, economic, and social aims of the society without exceeding the allowable limits of the effect on the environment.

Considering the fact that not a single reference presented a feasible definition of sustainable development which could incorporate all aspects of the concept under investigation and provide no ideal understanding of this concept, it is thought appropriate to use the definition provided in Brundtland Commission's report "Our Common Future" (1987), which discloses the idea of sustainable development best. It postulates that sustainable development is the kind of development, which satisfies the current needs without endangering the future generations' ability to satisfy their own. This definition of sustainable development is the most frequently cited one and seems to be more exhaustive than the majority of others. The essence of Brundtland's statement is fair distribution of natural resources both among different generations and among the present generation of people from the first, the second, and the third world, and finding a positive consensus between the environmental, social, and economic dimensions of environment. A sketch of the framework for sustainable development is as follows:

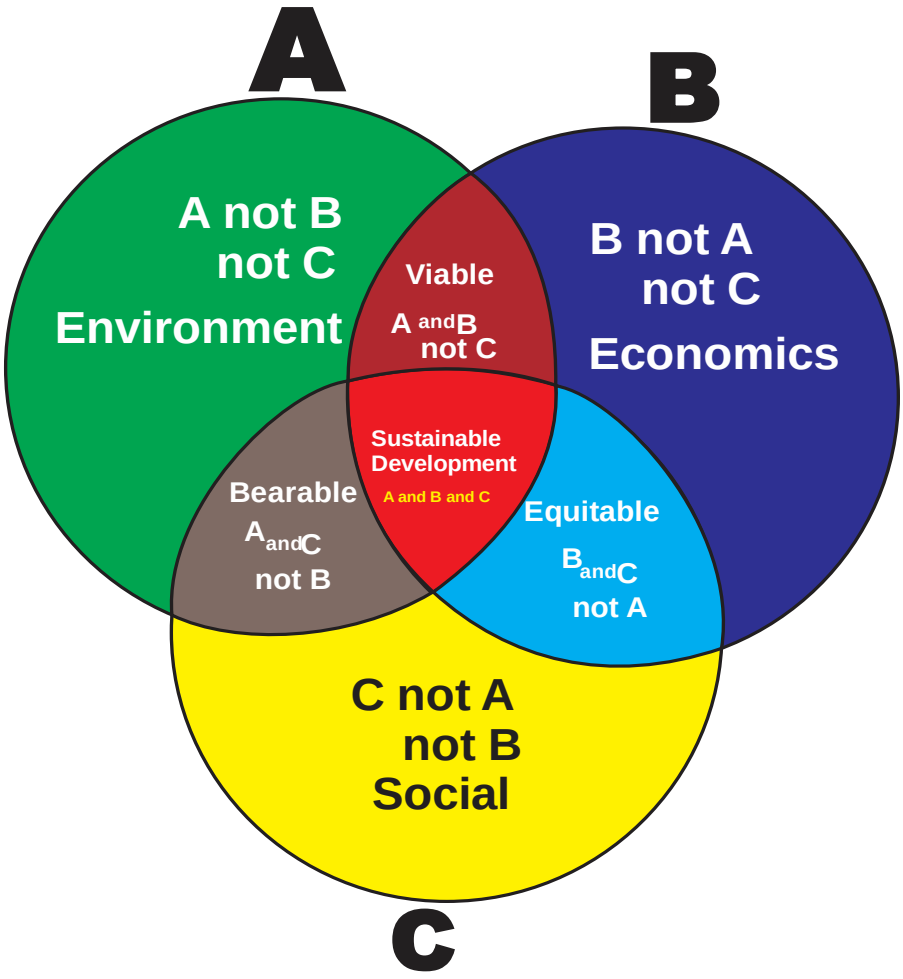

Fig.2.1: Framework of Sustainable Development (Source: Adapted from Borowy, 2014)

From figure 2.1, it is observed that when A (environment) intersects and reconciles with B (Economics) they will produce viable sustainability. When B intersects with C, the results will be Equitable while C reconciles with A to give Bearable. Then A and B and C give sustainable development which balances on tripod stand of environmental, economic and social sustanabilities.

According to Okoro (2013), the aim of sustainable development is that, which seeks to meet the needs and aspiration of the present without compromising the ability to meet those of the future (Brundtland World Commission on Environment and Development, 1987). It is a process in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional changes are all in harmony and enhance both current and future potentials to meet human needs and aspirations. Sustainable development embodies the nations

ideas of a development process that is equitable and socially responsive, recognizing the extensive nature of poverty, depreciation and inequality between and within nations, classes and communities. It also seriously advocates that the world be seen as one ecosystem and advocates that economic development process should include ecological and environmental issues as an essential component. This is where and why the physical planning components become very relevant for improvement of the environment for the welfare of mankind and maintenance of the ecosystem. The definition underscores the fact that physical planning or land use planning, in addition to physical, economic considerations, also addresses the issues of health, safety and general well being of people, often referred to as public interest determinants of land use.

2.1.1b Sustainable Development and Physical Development

Basically the concept of sustainable development is an attempt to articulate and incorporate environmental and human needs in the pursuit of economic growth and physical development. It is a process of change in which the exploitation of resources, investments, application of technology and institutional change are in harmony and enhances both current and future potential to meet human needs and aspirations (Adeyinka, 2005). The World Commission on Environment and Development's report (WCED, 1987) known as "Our Common Future" defines sustainable development as one that meets the need of the present without compromising the ability of the future generations to meet their own needs. More prominence was given to the concept of sustainable development due to its emergence as one of the key resolutions of the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992 and followed by the Habitat Conference at Istanbul, 1996, whose emphasis was on the need for sound environmental management in order to achieve the objectives of sustainable development.

At the global level Agenda 21 of the Earth Summit's concern for sustainability of cities is at two levels, first at the global level it involves a range of issues concerning long term sustainability of the earth. Secondly, at the local level it involves the possibility that urban life may be undermined from within because of congestion, pollution, waste generation and their accompanying social and economic consequences. Therefore sustainability in the broad area of physical development, particularly human settlements, goes beyond conventional concerns as better social conditions, equity and better environmental standards, to issues such as concern for the impact of city-based production and consumption activities within and outside of the city (Adeniji, 1998).

In the area of physical development, basic yardsticks of sustainability as established by the United Nations Centre for Human Settlements (UNCHS, 1996) are quality of life of inhabitants, scale of non-renewable resource use, extent of recycling and re-use, the scale and nature of renewable resource use, waste emanating from production and consumption activities, as well as the impact of these wastes on environmental health and ecological systems. It adopts equity, socially responsive policies at both local and regional levels.

Specifically to achieve sustainable physical development in the less developed world the United Nations Conference on Environment and Development (The Earth Summit) Agenda 21 outlined eight programmes (Johnson, 1993) as shown below:

1. Promotion of adequate shelter for all;
2. Improvement of human settlement management;
3. Promotion of sustainable land use planning and management;
4. Promotion of integrated provision of environmental infrastructure;
5. Promotion of settlement planning and management in disaster-prone areas;
6. Promotion of sustainable construction industry activities and
7. Promotion of human resource development and capacity-building for human development.

This study concentrates basically on the promotion of integrated provision of environmental infrastructure.

2.1.2 Concept of Externalities

An externality arises when a party directly conveys a benefit or cost to others. A network externality arises when a benefit or cost directly conveyed to others depends on the total number of other users. An item is a public good if one person's increase in consumption does not reduce the quantity available to others. Equivalently, a public good provides non-rival consumption. The benchmark for externalities and public goods is economic efficiency. At that point, all parties maximize their net benefits. Externalities can be resolved through unilateral or joint action, but resolution may be hampered by differences in information and free riding. Similarly, the commercial provision of a public good depends on its being able to exclude free riders. Excludability depends on law and technology (Cheng and Png, 2001).

According to Godwin (2008), in defining externalities we focus on effects that impinge on third parties through non-market channels. More specifically:

1. A negative externality (sometimes referred to as an "external cost") exists when an economic actor produces an economic cost, but does not fully pay for that cost. A well-known example is a developer who refuses to observe road setbacks, thereby causing road congestion, accidents, etc. for other road users.
2. A positive externality (sometimes referred to as an "external benefit") exists when an economic actor produces an economic benefit, but does not reap the full reward from that benefit consumed by others. Positive externalities are less well-known, but can be vitally important to individual and societal well-being. A landowner, for example, by choosing not to develop her land might cause loss of aesthetic built environment recharge source to the entire local community. Another example is Government who, out of love for her people of the state, uses revenue of the state and awards construction of road networks to developers for the betterment of her citizenry, but developers will not do the right thing, thinking that they are cheating on government, not knowing that they are cheating on the entire state. In so doing they also create an external cost for the society at large.

In the Words of Godwin and Institute (2011), the costs or benefits affecting the particular actors differ from the costs or benefits to society as a whole. For example:

1. If the cost of structures is not borne by the developers, they will not feel an economic motivation to destroy their already built structures, which will be the waste of huge amount of money to the landowners.
2. If developers do not benefit in full from the cost of road network construction awarded to them by government, they are likely to provide less quality of that work, than is socially desirable.

Externalities can also be either technological or pecuniary. Pecuniary externalities involve external effects that are transmitted through higher prices. For example, the value of residential land may increase because surrounding employers expand their operations, and the new labor force creates a scarcity of residential land in the area. Unlike technological externalities, pecuniary externalities do not generally result in inefficient allocations.

Technological externalities occur when a person's well-being or a firm's costs are directly affected (as opposed to being indirectly affected through the price system). For example, a developer who experiences economic setbacks or loss in his construction company due to poor building materials used, in constructing the structures, would eventually be affecting the rent, worth and value of those structures in terms of sale capital.

For the purpose of this study, we shall be concerned more with negative externality which simply is a cost that is suffered by a third partyas a result of an economic transaction. In a transaction, the producer and consumer are the first and second parties, and third parties include any individual, organization, property owner, or resource that is indirectly affected. Externalities are spillover effects, and a negative externality is also referred to as an external cost. The action of the individual builders, contractors, construction engineers who build on road setbacks and even law enforcement agents who encourage non-compliance of the existing laws on the altar of extortion, exert/impose tremendous social, economic, environmental and health costs on some third party, who are neither the clients/owners nor the contractors/executors. These costs or effects come in the forms of accidents, traffic congestion, loss of properties to demolition exercises, pollution, poor environmental sanitation, amongst others.

2.1.3 Conceptof Planning Standard

Social and economic urban infrastructural development and management borders on planning standard, everybody plans to achieve objective. Panning standards are used in urban and regional planning as a recognized model for imitation. They are legislated standards which in most cases are mandatory and inflexible. In this course of study, planning standard means physical development control or development management. Physical development control is all about physical planning. Planning is the heartbeat of environmental standards. It sets complaint free and exposes non-complaint to danger. Compliance with development control standards/specifications applies to both buildings, urban infrastructure including roads, electricity, health issues, and mechanical contrivances. This has led to planning authorities developing development control manuals which regulate urban development planning. Example. Development Control Manual for ACT developed by Awka Capital Territory Development Authority (ACTDA) the year 2014. This authority is charged with urban development control. Urban development control which embedded in planning standard has been established for orderliness of any physical development in a given

urban environment. It is difficult to achieve orderliness and sustainable development for external benefit without planning.

Planning standard is highly rationale, goal oriented, future oriented and action oriented. Planning is therefore a veritable policy instruments like, regulations, edicts, codes, rules, status and byelaws prepared to guide physical development and improved infrastructure base of the country towards building sustainable human settlements in Nigeria. Thishas been captured in National Physical Development Planning (NPDP) objectives, viz;

a. To give tangible expression of aspiration of the nation's socio-economic development plans;
b. To optimize the utilization of land and natural resources for sustainable development;
c. To promote regional and national development;
d. To secure spatial and environmental quality and diversity of high quality of life; and
e. To achieve national development objectives by 2020 and create a competitive economy among nations.
f. It will control rapid urbanization/rural urban migration.

Inline with this concept of planning standard,adequacy of road infrastructure is measured by the degree of road setbacks. Example, when development is taking place in a given urban environment, road setback is guided towards attaining proper physical development by observance of building plans, layout (land divisions) schemes, and zoning ordinance. It is very important to ensure strict compliance with these statutory provisions in all ramifications. Compliance with road setbacks is the attitude of observing the laid down rules and regulations of the sited structures to the roads. Adequacy of road infrastructure is measured by the degree of road setback. Example roads in Awka Capital Territory are measured by 3 types of roads; trunks A, B, and C setback. Trunk A is Federal roadsTrunk B is state roads and trunk C is local roads, their respective standards are A is 45.72m, B is 30m and C is 25m. Standard derive from a people's cultural level of attainment (UN, 1969). It shows that standards represent bench marks for environmental physical operations. Different standards lead to different permutations of resources and goals, while different resources lead to different permutations of goals and standards. In the same manner with different goals, different permutations of resources and standards emerge.If experts set standards and decision makers and politicians determine whether funds are available, the sequential approach is standard setting – need estimation – policy and programme response.

Where resource availability is primary and standards setting secondary the logical steps would be resource estimation – budget estimates – standard setting (Fisher, 1959). As settlements expand unto open spaces, they necessitate statutory control to ensure orderly development and mutual existence of various land uses (Ojo Fajuru and Adebayo, 2018). Baer (1977)characterized housing standard as an established level or criterion of excellence, measured by an indicator which is used as a determinant of achievement. For example, overcrowding is a standard showing a socially unacceptable level of crowding.

2.2 Literature Review

This sectionreviewed related literature on the topic of study.

The review is done according to the following sub-topics:

- Level of Compliance to Road Setb+acks,
- Essence of Setbacks in Developmental Projects,
- Factors of non-compliance with Road Setbacks,
- Environmental Imp types of roads trunks A,B,C setback. lications/Effects (social, physical, economic and health) of Non-compliance with Road Setbacks, and
- Management (Solutions) of non-compliance with Road Setbacks.

2.2.1 Level of Compliance to Road Setbacks

Aluko (2011) assessed the level of public compliance to space standards for urban development in Lagos State using field survey, questionnaire survey and interview methods. He found that from evidence on grounds many parts of the State are besieged with the issue of non-compliance of set environmental development policies and laws. Some of the common contraventions identified include: encroachment on public rights of way and open spaces; buildings springing up under high-tension lines with their roofs a few metres below the lines; illegal use of appropriated portions of road setbacks and a variety of unsightly development and the construction of properties on public utility setback.

Also, Ogeah (2013) applied questionnaire survey method to study the creation and demolition of illegal structures in Nigerian cities using Benin City as a case study. The study also established the incidence of non-observance of setbacks in erecting structures in Benin. He went further to conclude that it is a very pressing issue as there are many dangers resulting from these cases of

non-compliance with established setbacks.Hence the need to substantiate the rate of this non-compliance and marshal out mitigation measures.

As noted earlier in this paper, Folarin (2013), stated that Over 100 buildings demolished in Ogun State road project, alsocited the incidence of non- compliance of road setbacks in the state which resulted in the demolition of no fewer than 100 buildings with countless persons displaced when the Ogun State Government embarked on its road expansion project. The demolition, affected structures on both sides of the Ojodu/Alagbole Road at Yakoyo and the Sango/Ijoko road all the way down to Ogba-Ayo. Shops, residential buildings and shanties were lost to the demolition which was carried out to clear structures within 22.7 metres from the road.

Sesan Olufowobi (2013), reported the incidence of road setbacks in the following areas of Lagos: Maryland, Apapa-Oshodi Expressway, Ikorodu Road, Agege Motor Road, Lagos-Badagry Expressway, Victoria Island, Ikoyi, Ojuelegba/Stadium, Surulere and other major highways in the metropolis. According to his report, “hard times await owners of shops or companies close to major highways in Lagos State as the State government was set to commence massive clamp down on offenders in order to maintain the mandatory Right of Way (RoW) on major roads in the state. Hence, all properties located within 75 metres from the roads, should be cleared by the State government.

Ajayi, Ojo, Olukolajo, and Oyetunji (2013) worked on the Impact of road expansion projects on the informal sector in Akure, Ondo State, Nigeria. In their findings they stated that the road expansion impacted on, many because of their non-compliance with the setback distances from the main road.

The Citizens News Online (2015) confirmed the incidence of non- compliance of road setbacks in Aba, Abia State. They reported that the Abia State government has issued warning to Aba residents in a press release signed by the Chief Press Secretary to the Governor,Godwin Adindu; that the government will in seven days, commence demolition of illegal structures in the city to reclaim encroached road setbacks.

Many other cases of incidence of non- compliance of established road setbacks within the country have been reported in the following publications among many others: Onyeose (2011), reported that Abuja Environmental Protection Board (AFPB) had carried out demolition and evacuation

exercise in Nyanya and its environs. The News (2013), reported demolition of illegal structures, by the state government in Sokoto due to non-compliance with set standards. Odogwu (2013), reported that there was tension in Onitsha (Anambra State) when the state government ordered the recovery of roads and streets encroached upon by illegal structures in Nkpor. Also Ogwuda (2013), reported that the Delta State Governor ordered the demolition of illegal structures in Asaba especially those structures blocking natural waterways and drainage. Each of these reports kept hammering on the associated economic losses and other life threatening effects.

2.2.2 Essence of Setbacks in Developmental Projects

Spear (2006) studied bluff erosion of Lake Superior at Madison-Wisconsin using both experimental and field survey methods. Considering the reasons for setback requirements, he stated that Lake Superior bluff shorelines have been eroding for thousands of years and will continue to do so. Because the erosion is often episodic, land owners may not observe bluff recession over periods of a few years. There may be periods of ten or more years with little or no erosion followed by several years of rapid erosion. To protect a structure from this erosion and resulting bluff retreat, it is necessary to have sufficient building setbacks to account for this continuing process. This will minimize the future chances of a building having to be moved or even destroyed because of an unsafe location at the top of the bluff.

Akhuewu (2010) assessed the impacts of on-street parking on commercial activities in Auchi and identified the characteristic of on-street parking which are noted to be the nature of parking which affects the street based on the nature of the environment. He observes that in developed countries like Europe and America, majority of the vehicle owners in a commercial area parked their cars in accordance with the parking principles and guideline. This is because there are provisions of parking space that are enough for both the users of the spaces and those residing within the area. This was as a result of planning with the inclusion of parking facilities to discourage any obstruction on the streets. The various characteristics that are linked with street parking are advantageous due to monitoring and control of street parking in the developed nations of the world. In the African context, the nature of street parking is different from the way it is in developed nations as non-compliance with the parking lots provisions abounds. In some areas within the continent, roads are being constructed without provision of or adherence to any setback, walkways, and other necessary components of the road.

In the work of Rye (2010) on Parking Management for policy makers in developing cities, he noted that the construction of new roads, the expansion of existing roads, the building of parking lot require the acquisition of part of the exchange space. The more space allocated to transport, the greater the requirement for more traffic space. According to him automobile has an insatiable appetite for space, it uses space at home, at work, shopping and even when some spaces are empty, they are tied up or reserved for the automobile. Automobiles do not only have exclusive space for moving, they also have a" zone of influence" which expands as the speed and quantity of traffic increases, thus reducing the effectiveness of exchange space and the level of interaction. Gruan(1972) studied cost of getting to work in New York City noted that private Meanwhile, on-street parking in most cases results into chaotic traffic due to parked cars along the road and this has led to large amount of traffic circulating looking for a parking space, thus contributing to congestion and pollution.

Aluko (2011) assessed the level of public compliance to space standards for urban development in Lagos State using field survey(questionnaire survey and interview methods). He found that from evidence on ground many parts of the state is besieged with the issue of none observance of set environmental development policies and laws, some of the common contraventions identified include:

Encroachment on public rights of way and open spaces,Buildings spring up under high-tension lines with their roofs a few metres below the lines,General violation of urban and regional planning laws in most states of the federation andconstruction of properties on public utility setback. He stated that this occurrence has caused the purpose of establishing these laws and policies which is sustainable development to be partially defeated or relegated to the background.

Asiyanbola and Akinpelu, (2012), studied the challenges of on-street parking in Nigerian cities' transportation routes using questionnaire survey method. They observed categories of space in urban centres to include exchange space and movement space, which related to motor park, interchange point, etc. As city transportation system expands, it takes up more spaces. They also noted that one of the major goals of transportation planning, especially in the provision of adequate road infrastructures, walkways, setbacks, etc; is to ease the movement of passengers and goods on urban roads. There is therefore need for extensive walkways and setbacks in the design of any road network as there may be need for expansion with time.

Olorunfemi (2013) assessed on-street parking in Lokoja Nigeria, using questionnaire survey and field observation methods. In his findings he stated that in most of the cities in developing countries the planning of road networks lacks the provision of the entire basic infrastructure to be provided for the safe and orderly movement of vehicles. An ideal road network should have exclusive lanes to segregate fast moving and slow moving vehicles, cycle lanes, exclusive bus bay, service lanes and extensive walkways and setbacks. When all these are not strictly adhered to, there is bound to be problems with time like road failure, traffic congestion, accidents and subsequent loss of lives and property through demolition processes in the bid to expand the existing roads.

2.2.3 Causes of Non-compliance with Road Setbacks

1. Rapid Urbanization and Population Growth

Okpala (1987), in his review on regional planning in Nigeria and other developing countries stated that rapid urbanization, rural-urban migration and decades of steady economic downturn, decay of urban infrastructure and negligent urban housekeeping have contributed to non-compliance with building regulations in many Nigerian cities. One problem of the Nigerian urban built environment is non-compliance with building bye-laws and regulations. The major areas of default are setbacks, building along utility lines and non-adherence to the provision of adequate ventilation.

Rodeny and Brian, (1995) in their book titled "Transportation systems, policy and planning: A Geographical Approach", noted that unmanaged growth of motorization is the root cause of many of today's urban transport problems. Due to imperfect systems of transport pricing, prices do not reflect the true cost of the provision of the transport services and facilities. Consequently, this has led to a waste of resources, insufficient funds to develop and maintain infrastructure, distortions in modal choice and the generation of externalities (pollution and congestion). Ideally, an efficient pricing system should be in place to realize the full cost of travel from the motorists to rectify the current situation. In addition rapid rise in motorization has led to major problems with congestion in most growing cities.

Weiner (2003) studied the global epidemic of illegal building and demolition and their implication for Jerusalem, using field survey method and critical review of works of earlier researchers. He opined that due to rapid global urbanization, millions of people in third world cities lived in slum. It has also been predicted that by 2030, the number of slums will double if the current situation persists.

Ogunbodede, (2006) evaluated the management of traffic congestion in Akure Ondo State using GIS applications and field survey methods. According to him, many urban centers in Nigeria lack adequate transport facilities that ensure smooth intra urban movement. This is because its rapid growth of cities anywhere in the world has not impacted only on the land use, but also on the spatial expansion. With this need for spatial expansion over time, which is not properly accommodated in some early provisions in the urban physical plan or may have exceeded the size of provisions made over time, people tend to encroach into established setbacks. For example, the commuting distance of Lagos increased from 20km in 1970 to 35km in 1995; that of Kaduna increased from 6km to 10km during the same period, while in Akure, the commuting distance increased from 5.2km in 1966 to 6.4km in 1976, 10.5km in 1986 and, 13km in 1996 and 1996. The increase in commuting distance has impact on trip attraction, fares paid by commuters and traffic build-up in some land use areas. He also recommended the need for different modes of transportation as a vital tool to combat this problem in the land transportation system.

Attenkah, (2011) in his review report titled "Demolition of all unauthorized structures in Tema: Ghana urban issues" stated that due to the increasing rate of urbanization in developing countries illegal structures as a form of shelter are common place. This has resulted to the development of slums in these countries and extensions in already existing buildings that are not in tandem with the existing plans of some of the affected areas.

In a research conducted by Ajayi, (2011) on "Traffic Management in A Rapidly Growing City: A Case Study of Ado-Ekiti, Ekiti State, Nigeria" he applied field survey and questionnaire survey methods and observed that the change in the status of Ado-Ekiti as the State Capital in 1996 has further strengthened its role as the economic nerve center and administrative headquarters of Ekiti State. This led to mass movement of people to the state, and increased inter and intra city travels. This has resulted to continuous change in the land use mix in Ado-Ekiti with consequent implications on the transport network, stock and services. These haveled to increased contacts,

interaction and physical movement on the road in the urban center, resulting to increased accidents, mixed land use activities, erectence of some illegal structures along the roads, spillover effects where vehicles now use the setbacks established for pedestrians as their own passage way, delay and the platoons of vehicles on major roads in the state capital. Hence the rate of increase in population and traffic volume is putting more and more pressure on infrastructure and traffic in Ado-Ekiti.

Michael (2014) worked on,"traffic management in a rapidly growing city: the case study of Ado-Ekiti, Nigeria" using Geo information techniques and field survey method. In his findings the issue of inadequate transport facilities has been a long standing one in Nigerian cities.This includes bad roads, pedestrian walkways, street furniture and parking facilities etc. Illegal parking is also a major problem that causes traffic congestion in urban environment. This is because on-street parking is a common phenomenon in the absence of parking facilities. Therefore, the traffic corridors meant for efficient movement of automobiles is reduced. Thus, it becomes a major problem in cities and especially in the Central Business District (CBD), where multi-storey buildings are common and the land use is devoted mostly to commercial purposes.

2. Corruption of the Planning Authority

Aluko (2000) studied development control and Nigeria's civil rule programme using interview method of opinion pool and review of works on the policy of the programme. He noted that exposure and open confrontation reveals that those who know the planning law best and are supposed to be planning the environment are now the culprits.

Itam and Archibong (2003) opined that the consequences of neglect or non observance of established land use laws are numerous and were rooted in poor management, inadequate and absence of urban development policy or absence of mechanism for enforcement. "In other words, development control measures have not been effective as a tool for land management due to poor implementation and technical know-how and corruption of officials".

Aluko (2011) in his assessment of the level of public compliance to space standards for urban development in Lagos State using field survey, questionnaire survey and interview methods, also found that the contraventions identified within Lagos are the products of corruption by enforcement officers as there are sound policies of development control on the ground but they are only partially being implemented or not implemented at all.

Ogeah (2013) applied questionnaire survey method to study the creation and demolition of illegal structures in Nigerian cities using Benin City as a case study. He found that it is true that occasionally the planning authority did surveillance tour in the city to check illegal construction taking place in the city.This exercise did not achieve the desired effect, because of the corruption that had eaten deep in the Nigerian society. The planning authority did not ensure that there was no illegal construction taking place in the city.

3. Difficulty in Land Accessibility

Ikejiofor (2005), in his review of land issues in the new national housing policy for Nigeria, remarked that one factor that poses great difficulty in infrastructural development in any city is actually accessibility to land. This is buttressed in the paper of Umeh (1996) on "Appraisal of Development Control System in Awka Capital Territory", presented at the 27th Annual Conference of the Nigeria Institute of Town planners and the work of Ugonabo and Emoh (2013): "The Major Challenges to Housing Development and Delivery in Anambra State of Nigeria. According to them, in Anambra State, especially the state capital, Awka, accessibility to land is a huge problem. Thus, house owners, in a bid to maximize available spaces around their houses, construct unapproved structures as residential buildings. Desperate tenants are always willing to park into those houses whether completed or not. This is also true in the construction of shops and filling stations. In Awka, it is not unusual to find filling stations within meters of residential building. In undertaking these constructions and in a bid to maximize available space, developers ignore regulations on road setbacks.

Ajayi, Ojo, Olukolajo, and Oyetunji (2013) worked on the Impact of road expansion projects on the informal sector in Akure, Ondo State, Nigeria. In their findings they stated that sustainable development requires governments to provide public facilities and infrastructure that ensure safety and security, health and welfare, social and economic enhancement, and protection and restoration of the natural environment. An early step in the process of providing such facilities and infrastructure is the acquisition of appropriate land. In some cases, several locations could be suitable for a facility and the government may be able to purchase land at one of the locations through the land market. In other cases, specific land parcels are required,for example, in order to accommodate the route of a new road, the protection of certain areas from flooding, or the fulfillment of requirements of redistributive land reform legislation. On individual bases one may have the money to expand a business, but unable to access land for such expansion. He, therefore,

resorts to expanding his old site by reconstruction, building extension and other ways as the needed land may not be available or on sale at the time it is required. They recommended that in order to obtain land when and where it is needed, governments have the power of eminent domain or compulsory acquisition of land in overriding interest public.They can compel owners to sell their land in order for it to be used for specific purposes. According to them, these projects are both necessary and mandatory in a state and they can have both negative and positive impacts on the residents of that state especially the informal sector of the state.

4. High cost of land acquisition and Poverty

The International Labour Organization (ILO, 2000) in their resolution concerning statistics of employment in the informal sector, adopted by the Fifteenth International Conference of Labour Statisticians (January 1993) titled: Current International Recommendations on Labour Statistics, 2000 Edition; noted that the increase in the population of the urban poor no doubt led to the emergence of the informal sector. The informal sector consists of those activities characterized by ease of entry into the activity concerned, reliance on indigenous resources, family ownership of enterprises, small scale of operations, labor intensive and adaptive technology, and skills acquired outside the formal school system and unregulated and competitive markets, which most times manifest in lawlessness, non-observance of established setbacks in urban areas and urban sprawl.

The Food and Agricultural Organization (FAO, 2008) in their report on "Land tenure studies: compulsory acquisition of land and compensation in Rome", stated that the compulsory acquisition of land for development purposes may ultimately bring benefits to society, but it is disruptive to people whose land is acquired. It displaces families from their homes, farmers from their fields, and businesses from their neighborhoods". It may separate families, interfere with livelihoods, deprive communities of important religious or cultural sites, and destroy networks of social relations. If compulsory acquisition is done poorly, it may leave people homeless and landless, with no way of earning a livelihood, without access to necessary resources or community support, and with the feeling that they have suffered a grave injustice. If on the other hand, governments carry out compulsory acquisition satisfactorily, they leave communities and people in equivalent situations, while at the same time providing the intended benefits to society. The informal sector is crucial in creating sustainable livelihoods because it is a major means through which economic development filters through to the poorer sections of the population. In their

report where land acquisition is left in the hands of the poor individuals, considering the land tenure system and acts instituted by nations and the rigorous processes involved, the find it hard to afford the lands and tend to be building and expanding on a fixed piece of land with a high tendency of breaking the land use laws and plans.

2.2.4 Effects of Non-compliance with Road Setbacks

1. Inadequate and Deteriorated Road Networks and Walkways

In the findings of Michael (2014) who worked on traffic management in a rapidly growing city of Ado-Ekiti, Nigeria using Geo information techniques and field survey method, the bastardization of road infrastructures and established road setbacks is caused by poor road conditions and network evident in the predominance of cross junctions. From the GIS outputs, (results and generated maps) it is glaring that many structures fall within the distances of road setbacks in the study area. The map reveals that those buildings that fall within buffer zones of all existing roads in the study area of up to 100m should be demolished and relocated and this has substantial economic implications. This will give adequate consideration for aesthetics and safety. The study uses its findings to suggest effective traffic management strategies to address identified problems.

2. Loss of Lives and Properties

Weiner (2003) in his study of the global epidemic of illegal building and demolitionand its implication for Jerusalem, using field survey method and critical review of works of earlier researchers, stated that the global situation of non-observance of established setbacks in erecting of structures gave room to the outburst of the exercise of demolition of illegal structures all over the world, which has great economic implications.

The Citizens News Online (2015) on 18th June 2015, reported that the Abia State government has issued warning to Aba residents in a press release signed by the Chief Press Secretary to the Governor, Godwin Adindu, that the government will in seven days, commence demolition of illegal structures in the city to reclaim encroached road setbacks. The Government of Abia State was by this notice informing all property owners in the Aba metropolis and the general public that, in line with the government's commitment towards the rebuilding of the city of Aba, which necessitated the establishment of the Aba Urban Renewal Office, the agencies of Government will commence a demolition exercise of all structures, property, stalls and shops which encroach into the road, seven days from this announcement. The properties to be demolished include but not

limited to buildings on service lanes, illegal shops, illegal fences and such other structures that constitute a blockade to the free flow of traffic and drainage. In the words of Adindu, "you cannot make omelet without breaking eggs. If we must have the Aba city of our dream, we must be ready to make the utmost sacrifice. Government therefore calls on all concerned to take appropriate measures before the arrival of the bulldozers". The announcement greeted the ears of the owners and occupants of these illegal structures with great shock as their responses online shows the pains in their hearts, while on the side of the government there is huge financial implication of the demolition exercise.

3. Economic Effects

Will (1991) explained that a city had to pay a company thousands of dollars to tear down and haul away an illegally built second-story addition to a residence in United States of America.

Olomola, (2003) Stated that inadequate provision of decent transport infrastructure and services provide a basis for explaining the incidence of poverty across various Nigerian communities in both urban and rural areas. It is clearly established that inadequate transport facilities and services, as well as the constraints imposed on the mobility and accessibility of people to facilities such as markets, hospitals and water sources have grave implications on deepening poverty levels. Thus, he recommended that there is need for urgent policy measures to address the prevailing travel and transport problems. According to him, the importance of transport infrastructure to a nation cannot be overemphasized as efficient transport infrastructure facilities act as catalysts for development. There is therefore cause for concern while considering the transport infrastructure base in Nigeria today which compares unfavorably with those of several African nations both in terms of quality and service coverage. In particular, the rural areas, where the bulk of the population resides, are largely deprived of basic pieces of transport infrastructure.

In the same vein, Onyeose (2011) in the Daily Times of 15th November 2011 reported that Abuja Environmental Protection Board (AFPB) had carried out demolition and evacuation exercise in Nyanya and its environs. The News (2013) reported that demolition of illegal structures by the state government in Sokoto would continue until the city is sanitized. Also Ogwuda (2013) in the Vanguard of 13th February 2013, reported that the Delta State governor ordered the demolition of illegal structures in Asaba especially those structures blocking natural waterways and drainage.

Each of these reports kept hammering on the associated economic losses and other life threatening effects.

In Nigeria, many publications have also taken place on demolition of illegal structures.For instance, Odogwu (2013) in his article published in the Nations News Online of February 13, 2013 titled "Obi to Demolish Illegal Structures to Save Roads" reported that there was tension in Onitsha (Anambra State) when the state Governor ordered the recovery of roads and streets encroached upon by illegal structures in Nkpor. According to him properties worth millions were marked to be demolished, while affected people were moving from one government office to another looking for ways to avert the sledge hammer. Personal interviews with some of the victims of the demolition process showed that they were emotionally and mentally traumatized, while some had their businesses on the line. Others were faced with the problem of emergency relocation all of which are part of the dangers of not complying with established building construction setbacks.

Ajayi, Ojo, Olukolajo and Oyetunji (2013) wrote on the impact of road expansion projects on the informal sector in Akure, Ondo State, Nigeria. In their report, they stated that economic impacts of road expansion and demolition of structures encroaching into road setbacks could include loss of businesses and customers, induced need for capital investment, and high opportunity cost losses. While by-pass roads can overcome some problems of conflict between road use and community welfare, they may create other problems. On the positive side, by-pass roads reduce the immediate impacts of traffic on the community, and local commercial activities sometimes flourish as a result. On the negative side, communities may fear a loss of business from the diversion of traffic, and some community activities may "migrate" to the new route, potentially changing existing land use patterns and possibly undermining the objective of greater control of access on the new route.

4. Unregulated Building Patterns:

Kadiri (2010) observed that such measures of development control as the application of minimum plot-sizes, standard of windows, doors, height of buildings, road widths, among others, have been introduced to control buildings and general appearance of cities in Nigeria.The problem of undesirable nature and pattern of development in high-density areas of our cities is still a serious one. According to him, the reason for the pattern may not be far-fetched as these areas not only provide abodes for the poor natives who hold tight to extended family properties, but also provide

locations of relatively high accessibility for businesses, cottage industries and services. For these individual developers, corporate bodies, and even some government agencies tend to develop or re-develop properties in the area to the fullest, with the ultimate aim of maximizing the use of space regardless of whether or not such an action is in the interest of physical planning. These actions are made more manifest in the process of conversion and re-development of properties to accommodate more businesses or less importantly more dwelling units. The rapid urbanization witnessed by most urban areas in Nigeria, particularly the state capitals, has brought along with it an array of physical and economic development problems. The inability of previous governments to fully implement initiated programmes that will guide the growth of the various settlements and make them efficient, safe and effective have made matters worse.

5. Poor Sanitation and Environmental Degradation:

Simon (2007) studied urbanization and global environmental change and challenges. He found that urbanization has increased the level of lawlessness and environmental degradation. According to him, the urban heat island has become a growing concern and has been increasing over the years. The urban heat island is formed when industrial and urban areas are developed and heat becomes more abundant. In rural areas, a large part of the incoming solar energy is used to evaporate water from vegetation and soil. In cities, where less vegetation and exposed soil exists, a larger proportion of the sun's energy is absorbed by urban structures and asphalt. Hence, during warm daylight hours, less evaporative cooling in cities allows surface temperature to rise higher than in rural areas. Additional city heat is given off by vehicles and factories, as well as by industrial and domestic heating and cooling units. This effect causes the city to become $2^{o}C$ to $10^{o}F$ ($1^{o}C$ to $6^{o}C$) warmer than surrounding landscapes.Impacts also include reducing soil moisture and intensification of carbon dioxide emissions.

Ogeah (2013) in his study of the creation and demolition of illegal structures in Nigerian cities with Benin City as a case study and using the questionnaire survey method argued that due to the existence of illegal structures in Benin city, the environmental condition of most of the neighbourhoods became very poor. This is due to the heaps of solid waste which emanate from the various commercial activities taking place in the neighbourhood. The streets were littered with waste from these activities and not much was being done by various landlords or government to properly dispose them. Benin City became an ugly city because of the half hazard distribution of these facilities. In buildings where some restructuring had taken place, set backs of buildings were

tampered with and this has lowered the quality of these buildings in addition to encroachment of some of these structures unto government right of way. The city was fast becoming a stretch of shanty environment with only buildings with no open space to give life to the city, all as a result of non-observance of established setbacks for erecting structures in the city.

6. Uncontrolled Street Trading and Hawking

Raji and Wasiri (2008), found that increase in the numbers of vehicles without adequate infrastructure, has accentuated the problems of traffic congestion, traffic delay, parking problems, accident, and urban land use severance. This has led to the encroachment of commercial activities on the footpath and ultimately on the carriageway. According to them, the carriage way is most often encroached on by hawking activities and parking of vehicle.

Kazeem (2015) reported that the Lagos State Government has vowed to combat the menace of Illegal Street trading and hawking in the state. In an interview with the Permanent Secretary, Ministry of the Environment, Mr. Oluwatoyin Onisarotu, he (Permanent Secretary) stated that

> *"It is disheartening to see how our major roads and highways like Apapa-Oshodi Expressway, Ikorodu road, Agege motor road, Victoria Island, Ikoyi-Obalende, Ojuelegba–Stadium, Surulere, Oyingbo, Carter Bridge, Idumota, Oshodi, Ketu, Mile 12, Third Mainland Bridge, Cele, Iyana-Ipaja, Agbado Oke-Odo, Airport Road, Ikeja amongst others have been converted to illegal markets with numerous illegal structures".*

Leading to the conversion of the road median , setbacks and walkways to avenues for trading activities and non-compliance with the provisions of the State Sanitation Laws and land use plan . Mr Onisarotu therefore warned traders engaging in this illegal act to desist as the state government would not compromise any act that may derail the effort of the government in achieving a cleaner environment in the state.

7. Chaotic and congested transport system:

Okpala (1987), in his review of regional planning and plans in Nigeria and other developing countries also stated that neglect of building codes has resulted to environmental degradation;

which invariably is a threat to human health, creates traffic congestion with its attendant consequences and undermines the beauty and aesthetics of the town.

Wan, Lo, and Young (1994), stated that in China, the government's planning department announced a policy to clear all illegal squatters from hill sides and rooftops, which made demonstrators block rush-hour traffic for an hour in protest of the government decision.

Okoko (2006), noted that a number of factors have been responsible for precarious situation of traffic congestion. They range from failure to provide adequate transport facilities, gross inadequacies of public transport, overcrowded buses, poor road infrastructure, non-observance of the provisions for road setbacks, environmental pollution and absence of integrated traffic management measures to combat congestion.

Ogeah (2013) in his study of the creation and demolition of illegal structures in Benin City using the questionnaire survey method, noted that the scenario in the city was so bad until the Osomole civilian government came into power in Edo State and decided to tackle the poor environmental conditions and traffic congestion of the urban centres in the state. Benin City as the state capital received the highest attention of this treatment. The first step taken by the state government was the demolition of the illegal structures, on the major roads in Benin City. Among the roads affected are Airport Road, Akpakpava, Ugbowo/New Lagos Road and Sapele Road. With the demolition of the illegal structures, the government was able to expand the roads; this has reduced the traffic conjection that was a common feature on these roads as well as opened up the roads which were previously congested with illegal structure. Though the government gave enough notice to the public before embarking on the demolition exercise, the public complained that the government was depriving them of their means of livelihood.

2.2.5 Management of Non-compliance with Road Setbacks

The implications of the foregoing is that people do not comply to planning laws, particularly the ones (laws) concerning/bothering on road setbacks. In addition, when these laws are enacted (where they do not exist) or enforced (when they exist), various environmental problems plaguing the area will be greatly minimized or managed. It is against this background that this study assessed the level of compliance to road setbacks. Management of non-compliance with road setbacks can be achieved through the following:

2.2.5a The Compliance of the Nigeria Urban and Regional Planning Law (Decree 88) of 1992 with some levels of Physical Development Plans:

This is the physical planning law instrument that guides the legal and administrative procedure in the operation of physical planning and implementation with development documents. It is the only post-colonial physical planning legislation in the country and it operates based on the facilitation and use of land for physical planning purposes hinged on the provision of the Land Use Act of 1978. The law provided for the establishment of three agencies at the National, state and local government levels for the administration of physical planning activities in Nigeria. With this arrangement we have the National Urban and Regional Planning Commission at Federal level, the State Urban and Regional Planning Board in each state of the Federation and the Federal Capital Territory (FCT); and Local Planning Authorities in the Local Government Areas (LGAS) (Adindu, 2005).

From the report of Ademola (2001), the responsibilities of Federal Government include formulation of National policies for Urban & Regional Planning and development, the preparation and implementation of the NATIONAL PHYSICAL PLANS including the National physical development plan, regional and sub-regional plan, urban Master plans and subject plans. It also includes the preparation and implementation of Urban & Regional Planning standards for Nigeria, the promotion and fostering of education and training for Town Planners and Support Staff. It also includes the conduct of research into Urban & Regional Planning, the coordination of states and Local Governments in the preparation and implementation of their physical development plan; provision of technical assistance to states; recommendation and dissemination of research results to user organizations and development control over federal land.

The Commission at the Federal level, Board at the state level, as well as local planning Authorities in each local government area are each headed by a Chairman, who must be a registered Town Planner and Estate Manager/Estate Surveyor and Valuer for proper development and management of urban environment. Other members are made up of representatives from each of the relevant multidisciplinary built environment-professions (namely, Town Planning, Architecture, Civil Engineering, Lands and Estate Surveyors and Law). At least in the Federal Commission, there should be one representative of each of the following:

Nigerian Chambers of Commerce, Industries, Mines and Agriculture; representatives of the States of the Federation and the FCT in rotation, a representative from each of the Federal Ministries of Works, Land & Housing; Finance, Agriculture; Environment, Power Holding Company of Nigeria, the NNPC, the Nigerian Telecommunications plc. The States and local governments have similar outfit and functions as those of the Federal. The Local Government plans are subject to those of the States which in turn are dictated or superimposed by the National physical development plan of the Federal Government. The composition of the membership are not far from that at the Federal level but fewer in number. The States prepare regional plans, sub-regional plans, urban plans, local plans and subject plans, whereas, at the local level, they prepare town plans, rural area plans, local plans and subject plans and also control development within its area of jurisdiction other than over Federal or State land.

The Nigerian Urban & Regional Planning law decree 88 of 1992 is made up of six parts comprising 92 sections. Part I deals with plan preparation and administration. Part II and III respectively deal with Development Control and additional control measures in special cases. Part IV deals with acquisition of land and compensation. Part V deals with Improvement Areas – Rehabilitation, Renewal & Upgrading and Part VI finally deals with Appeals.

The physical planning law document spelt out broadly the major components of physical planning that contribute as veritable tools or instruments to achieving orderliness and sustainable development for the welfare of the citizenry in Nigeria. Some of the components includes: National physical development plan, Development Control, Environmental impact assessment, Urban Renewal and Slum Upgrading for improvement, rehabilitation & resettlement. Others which are implied include National Urban Development policy, National Housing Policy & Housing Data Bank in support of population census sites & Services Scheme with adequate infrastructure design including Urban Traffic &Transportation Management. The aforementioned components shall be discussed in brief one after the other.

2.2.5b National Physical Development Plan (NPDP), The Stem to all Physical and Sustainable Development:

The National physical Development Plan (NPDP) has been identified to be at the apex or top of the hierarchy of physical plans in the Nigerian Urban and Regional Law (Decree 88 of 1992). It is the topmost spatial policy framework for the development of the country and also the reference

point for the other lower level regional and settlement plans. It is a veritable development tool that will address all sectors of national social and economic activities with a spatial expression on the ground of the Nigerian national entity as a region. In other words, this physical plan will nationally clarify the objectives and targets of social and economic development and identify/direct where the programmes and projects are to be located democratically with equity and economic base resource justification.

From the colonial era and since political independence, over fifty two (52) years ago, Nigeria has operated various development approaches and plans under two categories, viz: economic and spatial plans but much more dominated by economic plans that were detrimental to spatial expression of physical development on the ground. The Nigerian Economic Plans notable as sectoral plans with fiscal allocation, most times placed within the context of National Development Plans (NDPs) are as follows:-

a) Plans for Development and Welfare,	1945 – 1955
b) Nigerian Plan for Development,	1955 – 1960
c) First National Development Plan,	1962 – 1970
d) Second National Development Plan,	1970-1974
e) Third national Development Plan,	1975 – 1980
f) Fourth National Development Plan,	1981 – 1985
g) Structural Adjustment Programme (SAP) with Rolling Plan,	1986 – 1997
h) Nigerian Perspective Development Plan (with vision 2010),	1997 – 1999
i) National Economic Empowerment & Development Strategy (NEEDS),	2003 – 2007
j) Financial System Strategy (FSS) with Vision 20:2020,	2007- date

Looking at the list of the above National Development Plans, you will agree with the consensus opinion that the development plans were dominated by national economic planning mixed with few piecemeal physical planning. The National Physical Development Plan from 2010 – 2030,

although coming late under the design and coordination of Federal Ministry of Lands, Housing and Urban Development is highly welcome as the veritable instruments for orderly growth and sustainable development as summarily discussed below;

The Strategic Regional Development Plan (SRDP) to guide the development of each geopolitical zones, which must complement or be incorporated as a forerunner to the National Physical Development Plan, has been prepared by the Housing Ministry already. In addition, the formulation of vision 20: 2020 now on course imperatively provides the sociopolitical and economic policy platform for the National Physical Development Plan, which will go beyond the economic sector, regional and political spheres demonstrated by the old development plans adopted from post-independence time to date.

It shall be the Federal Government spatial development instrument which will guide actions to produce the desired changes in the national space economy. It is also to promote rational land allocation to competitive uses in Nigeria for the best pattern of land utilization in physical, social, economic and health terms with the strengthening of linkages of settlements to ensure optimal distribution of productive activities and products. It is worthy of note that vision 20:2020 is all about how to place the Nigerian economy on a global competitive and sustainable stand by targeting the GDP of not less than 900 Billion US Dollars and National Per Capital Income of not less than 4000 US Dollars per year by 2020.

It embraces reform areas of electoral, and use/property and public service as well as social areas of national security, human capacity development and infrastructure. It is to be realized through three medium terms (4 years) implementation plans in Nigeria. The principal issue of the National Physical Development Plan is to bring to the front burner the provision of the basic necessities both for the rural and urban dwellers across the country with improved social, environmental, physical and economic opportunities to curb poverty for better wellbeing of the citizenry. It is important to note that Nigeria is a signatory to many international pacts like UN-Habitat, UNICEF, MDGs, AMCHUD, Shelter Afrique, etc, and the internal policy of vision 20:2020.

For these policies and agreements to manifest laudably in Nigeria, there is an absolute need for guidelines to groom physical development actions to the right, acceptable, affordable and sustainable direction. This function will be covered by the National Physical Development Plan.

It is therefore crystal clear that the National Physical Development Plan is a veritable policy instrument prepared to guide physical development and improved infrastructure base of the country towards building sustainable human settlements in Nigeria. This truth has been captured in (NPDP) objectives, viz;

- To give tangible expression of aspiration of the nation's socio-economic development plans;
- To optimize the utilization of land and natural resources for sustainable development;
- To promote regional and national development;
- To secure spatial and environmental quality and diversity of high quality of life; and
- To achieve national development objectives by 2020 and create a competitive economy among nations. It will control rapid urbanization/rural-urban migration.

2.2.5c Development Control and National Building Code as the Anchor for Management of Physical Development for orderly Growth and Sustainable Development

Development control is the regulation of the detailed aspect of physical planning about which precise guidance cannot be given in the master plan and sector plan (Okoro, 2009). It is development as well as that of regulating the orderly planning and growth of a city by stipulating adequate standards, for all aspects of planning. Okoro (2014) defined it as the process of implementing building and land sub-division regulations. It is a process of monitoring and enforcing set down rules and measures of standards in the development of land to achieve the goals of frictionless circulation, balanced and harmonious development or growth to ensure protection of individual's right with others, for a sustainable development. It is simply a tool to regulate land-sub-division, using planning standards as benchmark in all physical plans. For every development, guidelines and standards are set up for implementation to avoid creating chaos in the environment and other users.

This is why every developer has to follow the process of application, submission of relevant documents and arrange site inspections. The process is required for any land use, residential, commercial, industrial, recreational, public or institutional buildings, parks and gardens, as well as traffic/transportation routes, etc. Development control Departments will check new developments, fencing, demolitions, repairs and renovation, change of design, change of land use or purpose

clause, contraventions, illegal occupation and revalidation of development permit, as well as certificate of fitness and habitation.

The monitoring and routine check on the site is to see that the development is not illegal, and the developer is not wrongly building on the wrong plot or to ensure that the developer has development permit and is building according to the zoning and approved standards. Zoning is another consideration if not checked, people could build under electric tension wire or close to oil pipeline which are dangerous. That is also why houses are not built contiguously close to the pollutingindustries or near the noisy airport that can affect their health. Filling station is equally not allowed in the midst of residential areas because of fire outbreak.

To ensure sanity, building plans must agree in land use location as charted in the layout plan and title documents should ensure that owners of plots cannot be changed or compromised in the layout plan. Hence allottees intending to apply for development to commence will submit the following documents.

i) Letter of allocation, right of occupancy or certificate of occupancy

ii) Evidence of payment and

iii) Prepared plans on standard sheet by respective registered professional details which include:

- *5 sets of detailed site and location plan 5 sets of Architectural drawings*
- *5 set of electrical drawings*
- *5 sets of mechanical drawings*
- *5 sets of structural drawings*
- *5 sets of septic and soakaway pits if buildings are to be located where the central sewage is not available*
- *5 sets of fencing details and all finishing, and*
- *5 copies of survey plan (1 original copy)*

Environmental impact statement report is also required for the following before approval could be granted:

i) A residential land in Excess of 2 hectares

ii) Permission to build or expand any type of land uses in excess of four floors or 5000 squares meters of a let table space

iii) Construction of public building, filling station, gas refilling plants

iv) Erection of Telecommunication Mast

Advertisement bill boards are also developments that attract some fees and approval before embarkation to advertise. It is also imperative to consider the following for building plan/sites

a. Land use/Residential densities to avoid overcrowding in low, medium and high density areas.
b. Accessibility to site to achieve hierarchy of circulation plot should not have the access blocked.
c. Physical condition of site e.g. drainage and terrain determine foundation type.
d. Site coverage to avoid overbuilding the plot.
e. Right of way – i.e. building line from centre line of access road.
f. Set-backs of buildings from site or plot boundaries and open spaces/light area.
g. Whether any trees on the site should be conserved.
h. Adequate space for loading and off loading (for commercial/industrial buildings)
i. Adequate parking lots
j. Design, building height, materials and stability of the building
k. The size, height and lighting of rooms and floors & life.
l. Provision of health facilities e.g. ventilation, lighting, water supply & sanitary facilities.

The National Building Code is a document prepared to strengthen the efforts of all relevant professions in the building industry to support development control measures (Onibokun, 2007). For example the Engineer would ensure that the right rod is utilized in terms of tensile strength and quantity at different heights and levels. The builder will ensure that the right mix of sand, cement and gravel are produced for concretes. The Architect is to supervise the building designs and aesthetics for the different kinds of public buildings and housing estates. They will check the cross ventilation, lighting circulation within the building and the site plan within the plot. The mechanical engineer and fire fighters will ensure that the plumbing work, water reticulation and the right type of fire hydrants are installed at the required gradients and levels. The electrical engineer will ensure that electrical connection is effectively done without unnecessary fear of likely fire outbreak. The quantity surveyor is of course to cost the materials. The town planner is to ensure that everything is well coordinated and supervised by the relevant professionals before the developer could be granted certificate of fitness and habitation. It is only then that developers or tenants could be permitted to live in the house.

2.2.5d Development Control Practices and Machineries in Nigeria

Many nations of the world have set up agencies with stipulated policy mandates for the effective control of developments in the built environment. In Nigeria, the 1946 Town Planning Ordinance instituted by the colonial masters specifically spelt out development control functions as borrowed from Britain.

Sections 27-63 of the 1992 Urban and Regional Planning Law of the federation also concurred to this, and made room for public participation and further strengthened planning practices and development control activities in Nigeria by the establishment of Town Planning Authorities with functions at the three tiers of government i.e. the National, States and Local government areas of the country.

The stipulated development control functions include:

1) *Development Plan Approval:* The development control department is empowered to approve or reject applications for a development permit by land developers. This depends on the compatibility and suitability of the development as well as its impact on the designated area and whether it is backed up with the required documents via site plan, building plans, structural plans and certificates of occupancy. Approved plans are then monitored to ensure strict compliance. This includes private and public developments. Developers without permit are dealt with in accordance with the law.
2) *Conservation and Preservation Functions:* This is to preserve trees and monuments so that they are not tampered with in the course of any development activities by a developer.
3) *Control of Outdoor Advertisements:* This curtails the indiscriminate mounting of bill boards as they obstruct visibility to both drivers and pedestrians. The bill boards also reduce the aesthetic quality of an area hence, should be checked.
4) *Enforcement of Environmental Impact Assessment (EIA):* Development control agencies are empowered by law to reject or stop the development of projects which by law requires an environmental impact assessment until it is carried out and the report forwarded with other documents. On this basis, the impact of such projects on the built environment would be identified and mitigations determined before developments are allowed to commence.

In the various States there are also development control machineries in place. Take for instance Anambra State since the creation of the state in 19991, the following development control machineries have been in operation:

- Anambra State Capital Development Authority Scheme 1991.
- The 1992 Urban and Regional Planning Law.
- Anambra State Physical Planning Board(Anambra State Urban Physical Development Board (ASUPDEB) Edict No. 6 of 1998
- Anambra State Urban Development Board (ASUDEB) Building Regulation, 2000.

These policies have been in use for development control functions in the State and they all have provisions for public participation in development control functions. However, their implementation has not been strict, hence the non-compliance with road setbacks in the siting of structures in Awka Capital Territory.

2.3 Synthesis of Literature and Conceptual Framework

From the above review, the establishment of road setbacks would minimize the future chances of a building having to be moved or even destroyed because of unsafe location, make provisions for parking space that are enough for both the users of the spaces and those residing within the area, discourage any obstruction on the streets and ease the movement of passengers and goods on urban roads (Spear 2006; Akhuewu 2010; and Rye 2010). It will also go a long way with time to avert problems like road failure, traffic congestion, accidents and subsequent loss of lives and properties through demolition processes in the bid to expand the existing roads (Aluko 2011; Asiyanbola and Akinpelu 2012; and Olorunfemi 2013)

- Rapid Urbanization and Population Growth which is a global phenomenon as was supported by the works of Okpala (1987), Rodney and Brian (1995), Ogunbodede (2006), Attenkah (2011), Ajayi, (2011) and Michael (2014).
- Corruption of the Planning Authority and failure of the enforcement agents is another factor raised from the review as in the works of Aluko (2000), Itam & Archibong (2003), Aluko (2011) and Ogeah (2013).
- Difficulty in Land Accessibility is the factorthat promotes the resistance of people to leave their old sites of business, residence or others only to keep expanding this fixed piece of land to a point of encroaching into the setback areas. This was buttressed in the works of Ikejiofor (2005), Ugonabo and Emoh (2013), and Ajayi *et al*(2013). Though the study did not consider it as the major factor.
- High cost of land acquisition and poverty were another issues raised in the reports of ILO (2000) and FAO (2008)

The reviewed literature also disclosed the following effects of non-compliance with road setbacks;

- Inadequate and deteriorated road networks and walkways as in the research report of Michael (2014).
- Loss of life and properties through demolitions, accidents, etc. (Weiner 2003 and The Citizens News Online 2015)
- Economic Effects; mainly in the forms of loss of revenue, business setbacks, and demolition of properties / business premises (Will, 1991 and Olomola, 2003).
- It is clearly established that inadequate transport facilities and services as well as the constraints imposed on the mobility and accessibility of people to facilities such as markets, hospitals and water sources have grave implications on deepening poverty levels (Onyeose 2011 and Ogwuda 2013). Properties worth millions were demolished, while affected people spend profusely to relocate and may end up losing business contacts and customers, thus leading to great economic loss (Ajayi *et al*2013).
- Unregulated building patterns (Kadiri 2010).
- Poor sanitation and environmental degradation (Simon, 2007 and Ogeah, 2013).
- Uncontrolled street trading and hawking (Raji and Wasiri 2008), this has accentuated the problems of traffic congestion, traffic delay, parking problems, accident, and urban land use severance.
- Encroachment of commercial activities on footpaths and ultimately on the carriageway, as the carriage way is most often encroached on by with hawking activities and parking of vehicle (Kazeem 2015)
- Chaotic and congested transport system, also poor environmental condition and traffic congestion of the urban centres (Okpala, 1987;Okoko, 2006 and Ogeah, 2013).

From the foreging therefore, the understanding of sustainable development will be an edge in understanding this study.This is because sustainable development advocates a kind of development that puts present and future generations into consideration.In other words, it is a kind of development that will be acceptable in Awka Capital Territory (in siting of structures) will be the type that bears in mind that all the aspects of the environment together with future generations are borne in mind when erecting structures along the different types of roads in the area.It is only when this is done that the erection/siting of structures along these roads will be said to tally with the concept and there will be environmental sustainable development.

Again, a proper understanding of this concept shows that the developers of these structures along these roads are actually imposing costs on other road users directly and indirectly.For instance, non-compliance with laws guiding the road setbacks sometimes road users encounter economic loss, accidents, and other environmental problems like flooding, loss of aesthetic beauty, traffic congestion and wastage of time.

Therefore, the issue ofnon-compliance with road setback laws negates sustainable development as well as imposes cost (externalities) on road users in Awka, the capital territory of Anambra State. To this effect, this work studied the environmental effects of non-compliance with road setbacks in the siting of structures in Awka Capital Territory. In the situation where there is little or no orderliness in the environment, it means that there is little or noenvironmental planning in the area. The implication of the foregoing is that people do not comply to planning laws, particularly the ones concerning/bothering on road setbacks. When these laws are enacted (where they do not exist) or enforced (where they exist), various environmental problems plaguing the area will be greatly minimized or managed. It is against this background that this study will tried to analyze the environmental effect of non-compliance with road setback.

2.4 Gaps in Literature

Critically considering the literature review above, the following gaps in knowledge were spotted out:

(1) Several works had been done on the issue of non-compliance in various locations in different states of Nigeria as well as Anambra State like Ogeah (2013) in Benin City, Aluko (2011) in Lagos, Odogwu (2013) in Onitsha, Anambra State. None had been carried out in Awka Capital Territory (ACT), Anambra State even though there are evidences of non-compliance with road setbacks in this area. But this study addressed the issue of non-compliance in ACT, Anambra State.

(2) Few of the works done in Anambra State and Nigeria confirmed the major causes of non-compliance with road setbacks as corruption of planning authorities as in Aluko (2011) in Lagos state and Odogwu(2013) in Onitsha, Anambra StatS by general interview (open

interview) without usingnon-professionals and professionals opinions through well structured questionnaire distributed to them as done in this study. See Tables 5.13 and 5.14.

(3) Among the works reviewed, no work identified and determined the causes and environmental effects of non-compliance with road setbacks by professionals and non-professionals opinions.See Tables 5.13 to 5.22.

(4) Several works reviewed determined the causes of non-compliance road setbacks without determination of their percentage levels, such as in Aluko (2000) in Lagos and Folarin (2013) in Ogun State. See Tables 5.9 to 5.12.

(5) Few of the works done had shown how Arc GIS software can be used in traffic management strategies, as in Ifetimehin (2008) and Michael (2014) Ado-ekiti but not with measured distance between the sited structures and serviced roads (in ACT of Anambra State).See Table 3.1 and Plates 3.1 to 3.9.

(6) It was only an assumption by most of the studies reviewed that the non-compliance of the sited structures to road setbacks is due to law enforcement agents as done by Aluko (2011) in Lagos and Ogeah (2013) in Benin-City, but this issue had not been confirmed by professionals and non-professionals using PCA (Factor Score Coefficient Analysis) as a statistical too for ranking. See figures Figures 5.5 and 5.6.

(7) In most of the studies reviewed, each of their reports kept hampering on demolition of properties of economic losses and other life threatening effects like in Werner (2003) in Jerusalem, Onyeose 2011, Oguwda 2013without linking non-compliance with other associated environmental effects like physical and social by non-professionals and professionals opinions. See Tables 5.15, 4.16, 5.19 and 5.20.

(8) Among the works reviewed only road setbacks example Michael (2014) in Ado-ekiti and Odogwu (2013) in Onitsha Anambra State were treated without categorically treated 3 different types of roads (Trunks A, B and C) with their respective different planning agencies.See Tables 5.9 to 5.12 and Figure 5.16.

(9) Like in Kadiri (2010), several works came up with suggestions rather than development of a template for controlling/solving the problem of non-compliance with road setbacks in Awka Capital Territory. See Table 5.46 and Figure 5.

From the synthesis of the literature, the work on the assessment of the level of compliance to road setbacks in the siting of structures and associated environmental implications in ACT, Anambra State would be of great importance considering that it has helped in establishing the level of compliance in six LG.A(s) within the ACT.Critically considering the literature review above, the following gaps were spotted out:

- Helped identifying the main causes of non-compliance with road setbacks in ACT.
- Helped in determining the environmental implications in ACT

Helped to rank the causes and associated environmental implications of non-compliance with road setbacks in ACT. From the synthesis of the literature, the work on the assessment of the level of compliance to road setbacks in the siting of structures and associated environmental implications in ACT, Anambra State would be of great importance considering that it has helped in establishing the level of compliance in six LG.A(s) within the ACT.Critically considering the literature review above, the following gaps were spotted out:

a. Helped identifying the main causes of non-compliance with road setbacks in ACT.
b. Helped in determining the environmental implications in ACT
c. Helped to rank the causes and associated environmental implications of non-compliance with road setbacks in ACT.

d. Helped to develop a workable template for management of non-compliance with road setbacks in ACT.
e. Would also help environmental institutions, professionals, managers among others to come up with sound policies and develop control measures that should be employed in achieving compliance to road setbacks in the siting of structures.
f. Also it helped in bridging gaps in existing literature on the causes and environmental effects together with the solutions of non-compliance with road setbacks.
g. Above all, this study was justified due to the need for critical assessment of the level of compliance to road setbacks in siting of structures and associated environmental implications for sustainable urban environmental and social-economic development in ACT for Anambra State.
h. Helped to develop a workable template for management of non-compliance with road setbacks in ACT.
i. Would also help environmental institutions, professionals, managers among others to come up with sound policies and develop control measures that should be employed in achieving compliance to road setbacks in the siting of structures.
j. Also it helped in bridging gaps in existing literature on the causes and environmental effects together with the solutions of non-compliance with road setbacks.
k. Above all, this study was justified due to the need for critical assessment of the level of compliance to road setbacks in siting of structures and associated environmental implications for sustainable urban environmental and social-economic development in ACT for Anambra State.

CHAPTER THREE

STUDY AREA

This chapter described the study area. The study area covered Awka Capital Territory with particular reference to twenty-five communities located in Six Local Government Areas of the ACT. The study area is discussed according to the following sub-headings:

- Location of the Study Area
- Physical Characteristics of the Study Area
- Human Characteristics of the Study Area

3.1 Location of the Study Area

The ACT is located between latitudes 6^{o} 8'0"N and 6^{o}16'0"N and longitudes7^{o}'0"E and7^{o} 6'0"E. The ACT is located in Anambra State, which is one of the 36 states of Nigeria (Figures. 3.1 and 3.2), and it covers a total land area of 4,416km^{2} · The ACT covers the entire Awka South local Government Area and parts of Anaocha, Awka North, Dunukofia,Njikoka, and Orumba North Local Government Areas (Figures 3.2, and 3.5-3.10). Awka South LGAaccounts for more than half of the land area of the capital Territory (UN HABITAT 2009: 19-20). It has a total land area of 314.28km^{2}. Both Arc GIS 10.4 software and meter rule tape measurements were carried out in Awka South alone for ground troothing (figure 3.11 and 3.12). The study included 3 road types, Trunk A(2) is the Federal roads, trunk B(25) is the state roads, while Trunk C(1772) is the local roads with the total number of 1779 (figure 3.3). The three types of selected roads used for this study were service roads and they were not predated the road setbacks regulations in the study area (Figure 3.4).

Figure 3.1: Map of Nigeria Showing Anambra State (Source: Adapted from Excel GIS Centre, Awka)

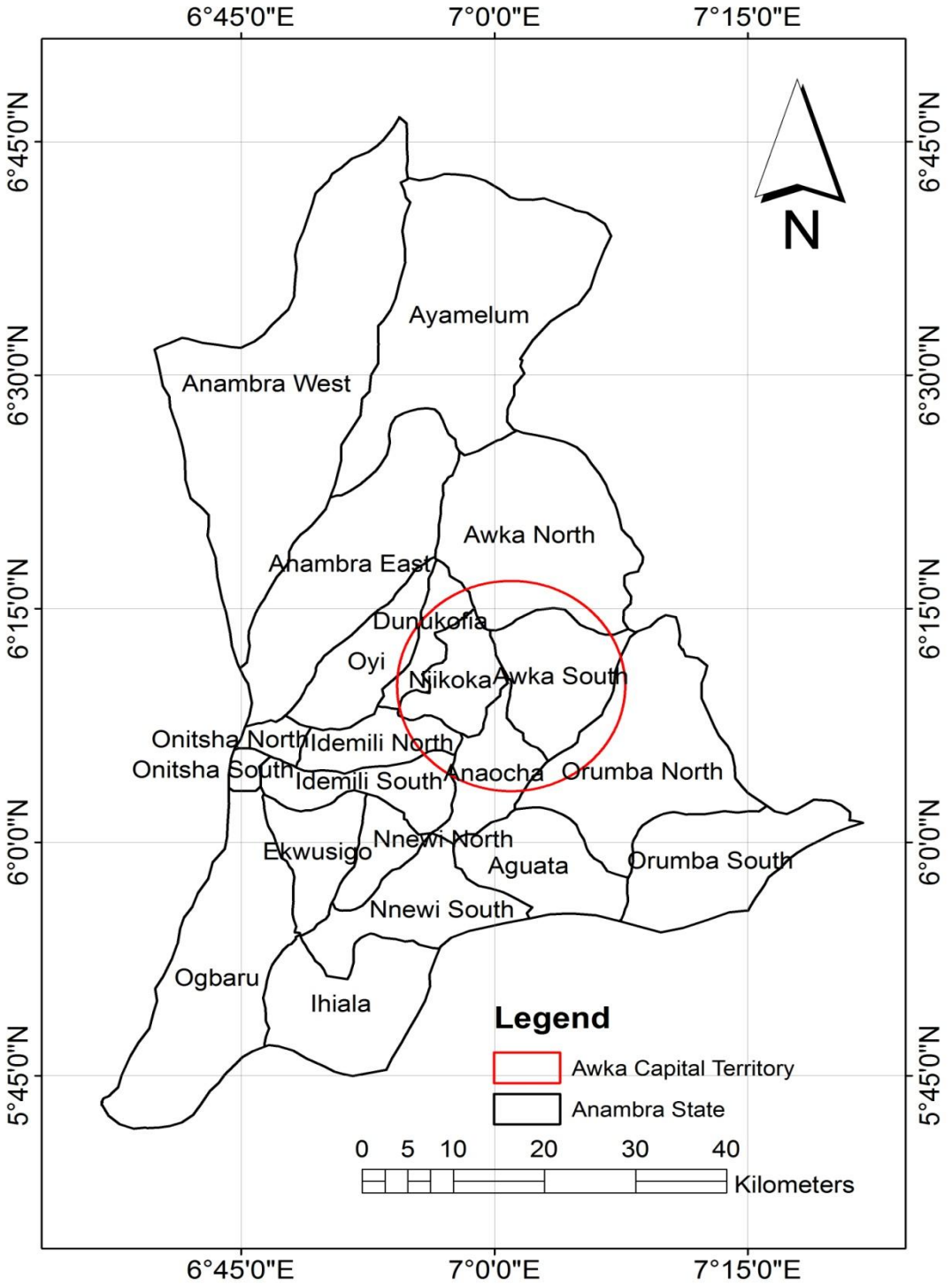

Figure 3.2: Map of Anambra State showing ACT (Source: Department of Surveying and Geo-informatics, Faculty of Environmental Sciences, Unizik)

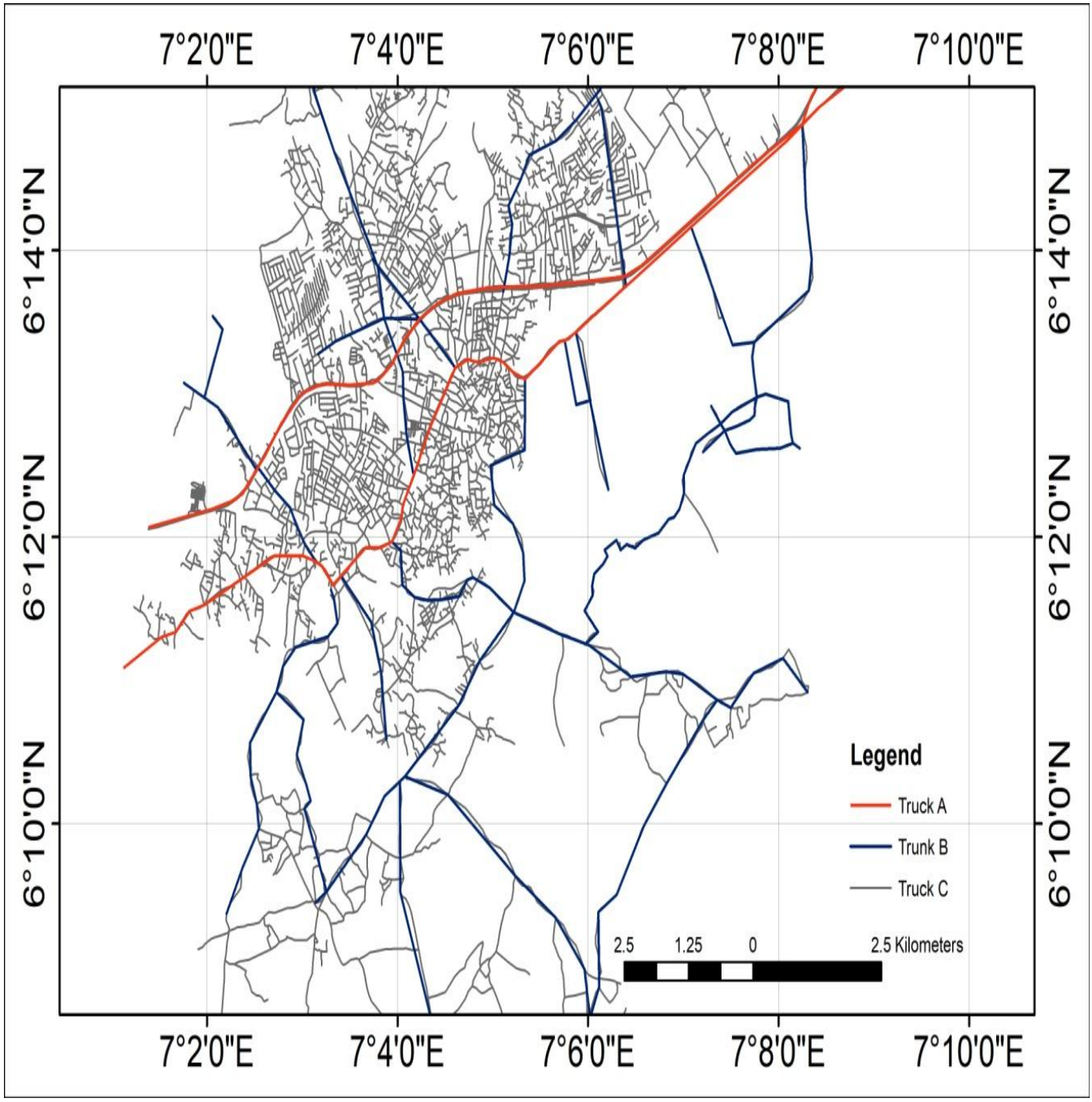

Figure 3.3: Map of Three Types of Road Networks (Trunks A, B and C) in ACT.

Source: Dept. of Surveying and Geo-Informatics, Faculty of Environmental Sciences, NAU, Awka.

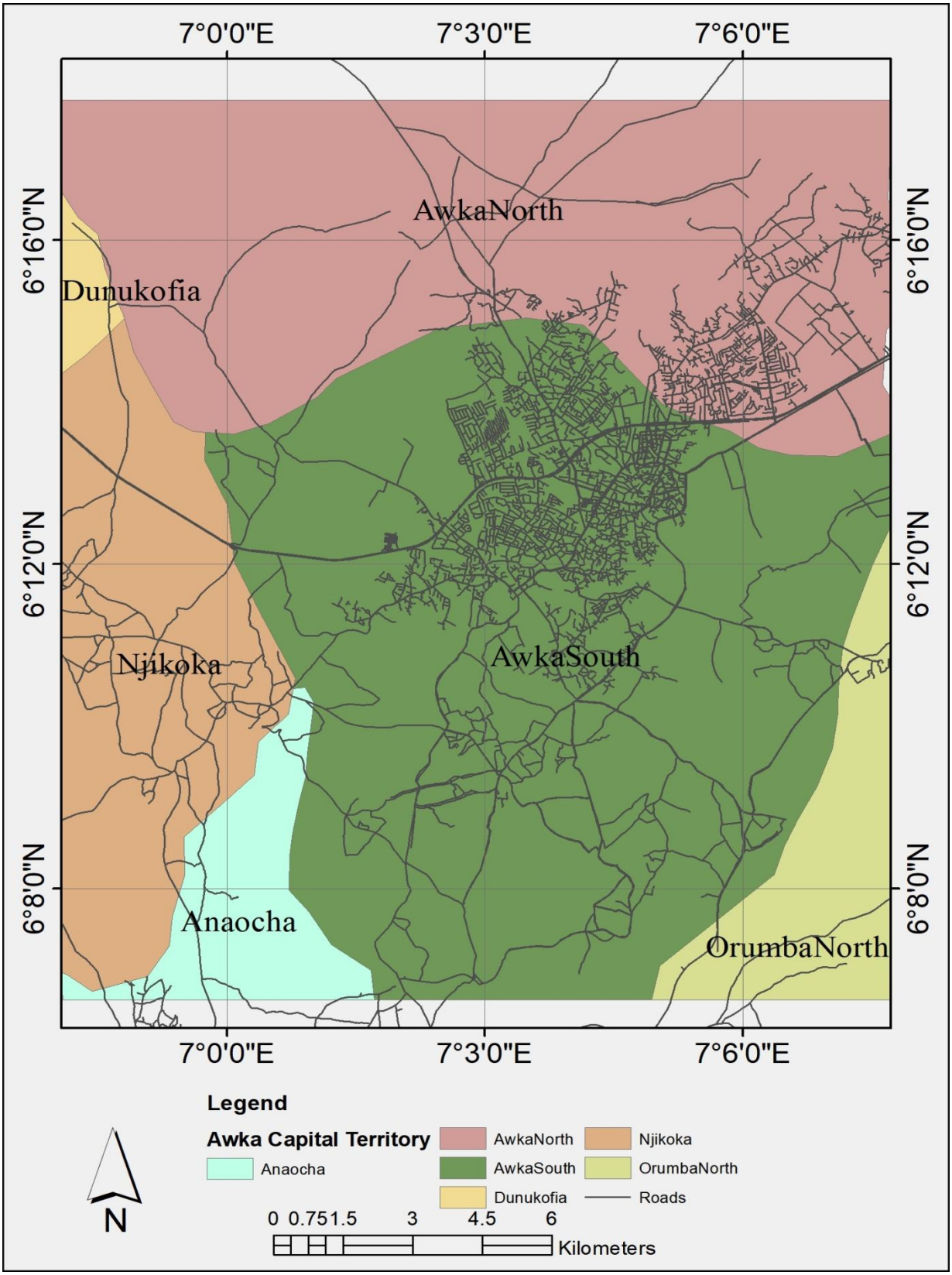

Figure 3.4: Awka Capital Teritory Roads Measured

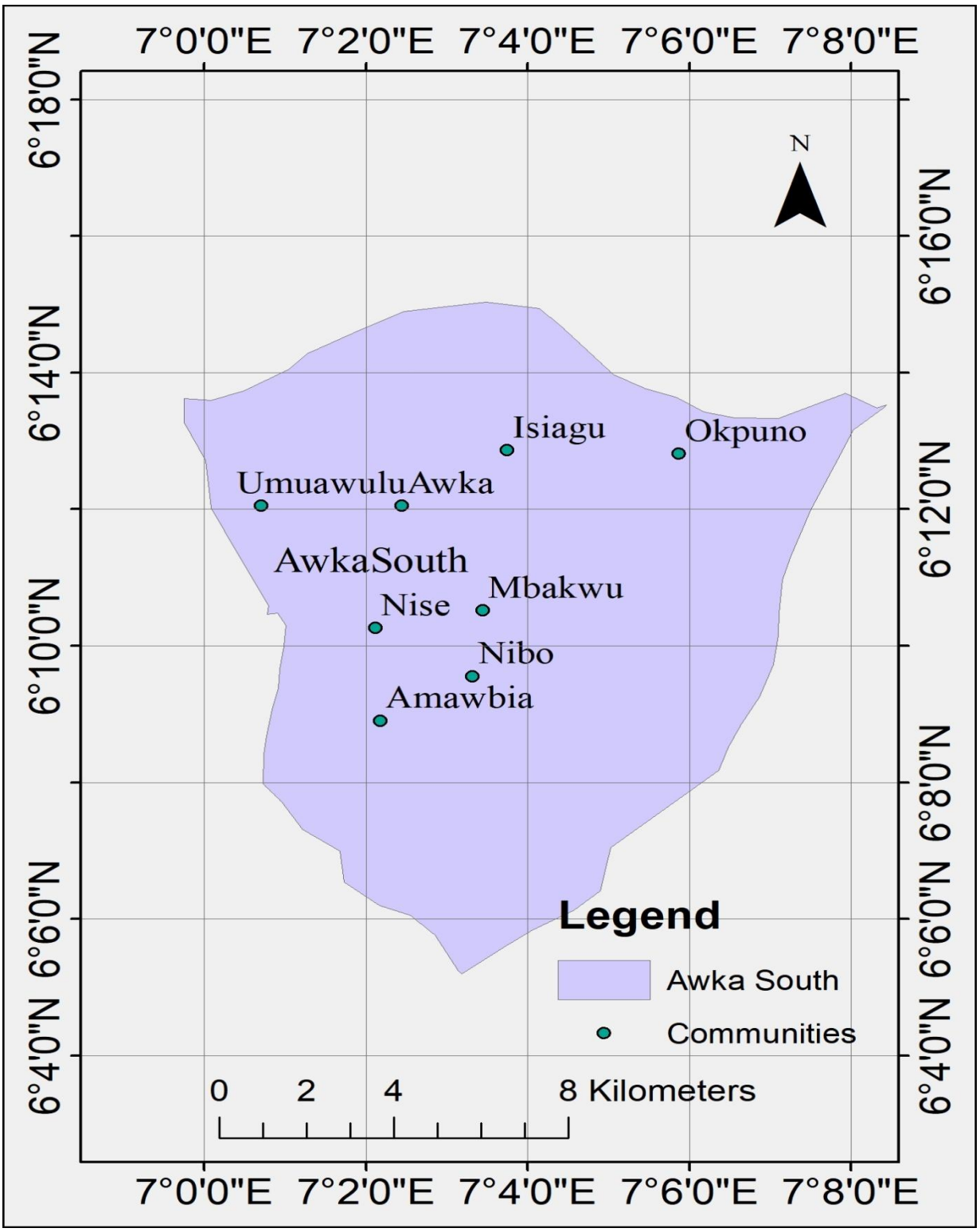

Figure 3.5: Map of Awka South LGA in ACT (Source: Department of Surveying and Geo-informatics, Faculty of Environmental Sciences, Unizik)

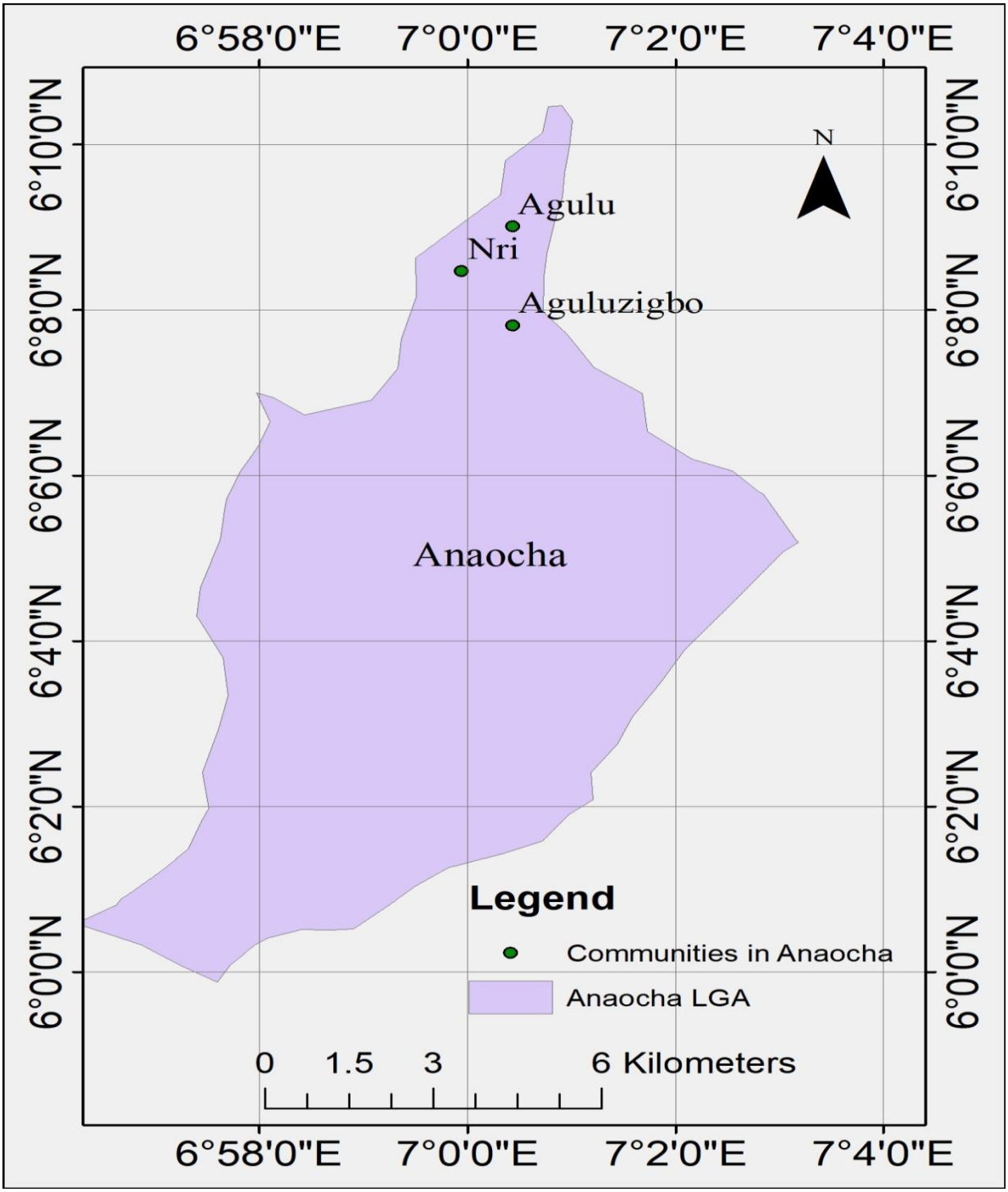

Figure 3.6: Map of Anaocha LGA in ACT (Source: Department of Surveying and Geo-informatics, Faculty of Environmental Sciences, Unizik)

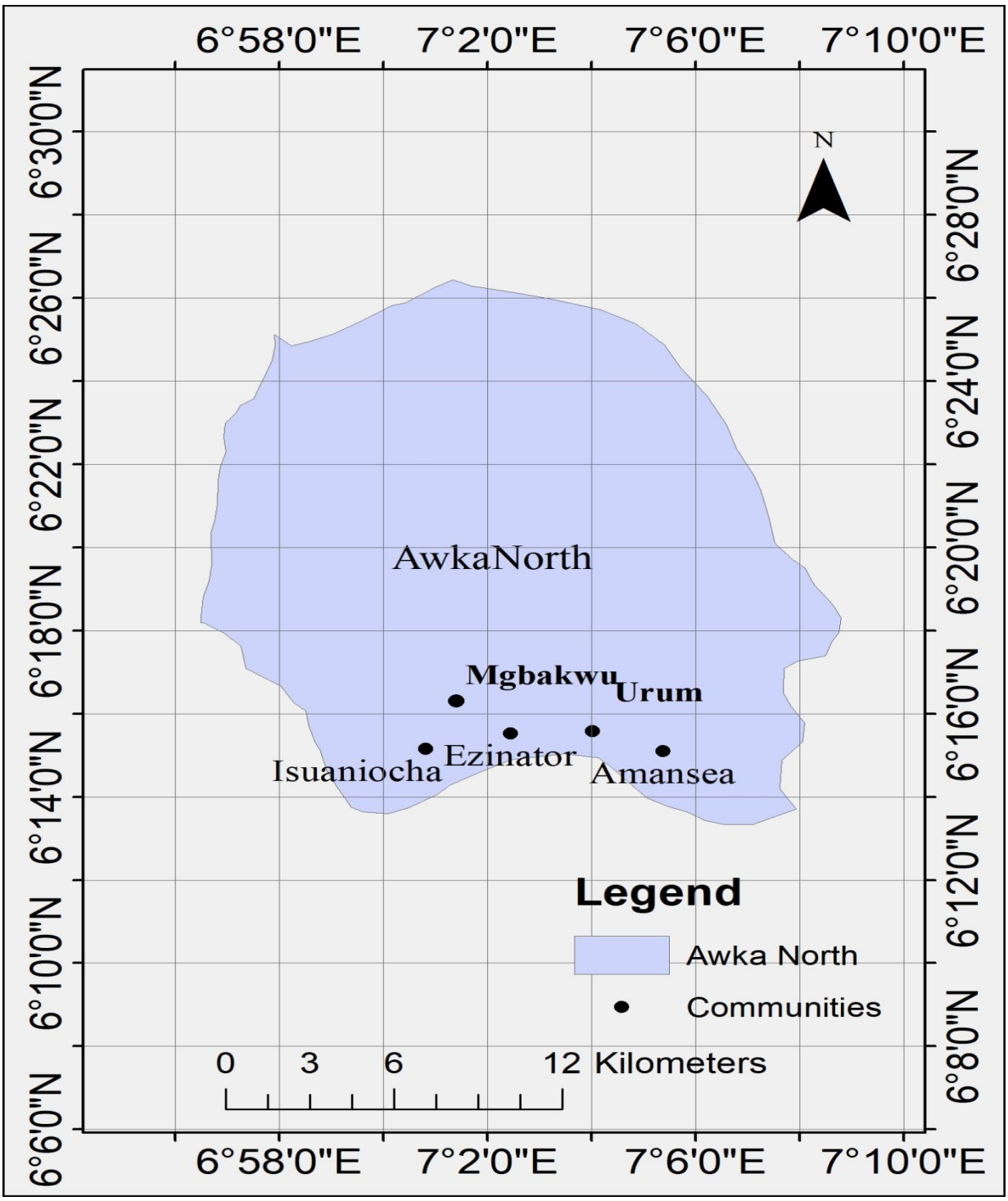

Figure 3.7: Map of Awka North LGA in ACT (Source: Department of Surveying and Geo-informatics, Faculty of Environmental Sciences, Unizik)

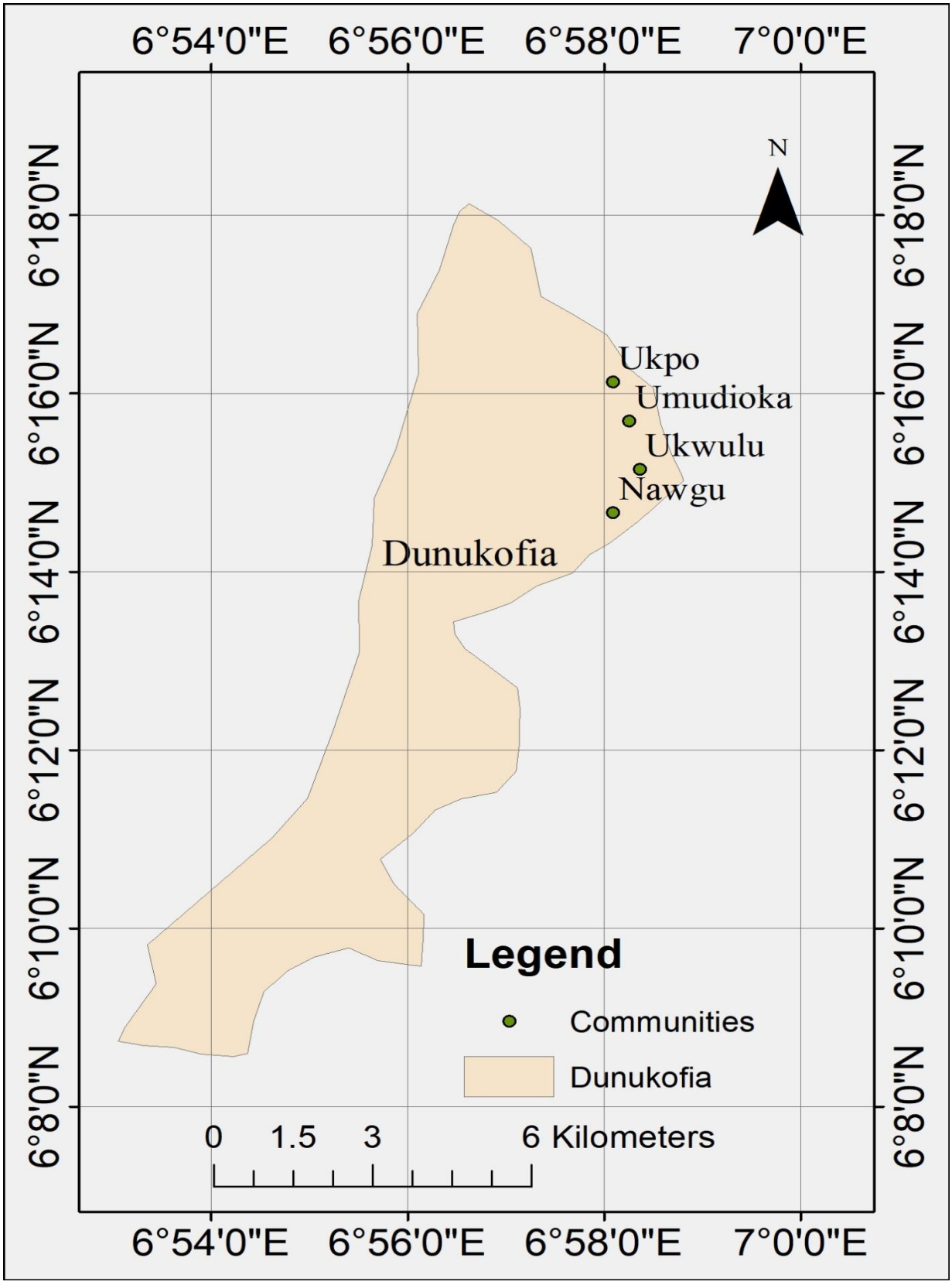

Figure 3.8 Map of Dunukofia LGA in ACT (Source: Department of Surveying and Geo-informatics, Faculty of Environmental Sciences, Unizik)

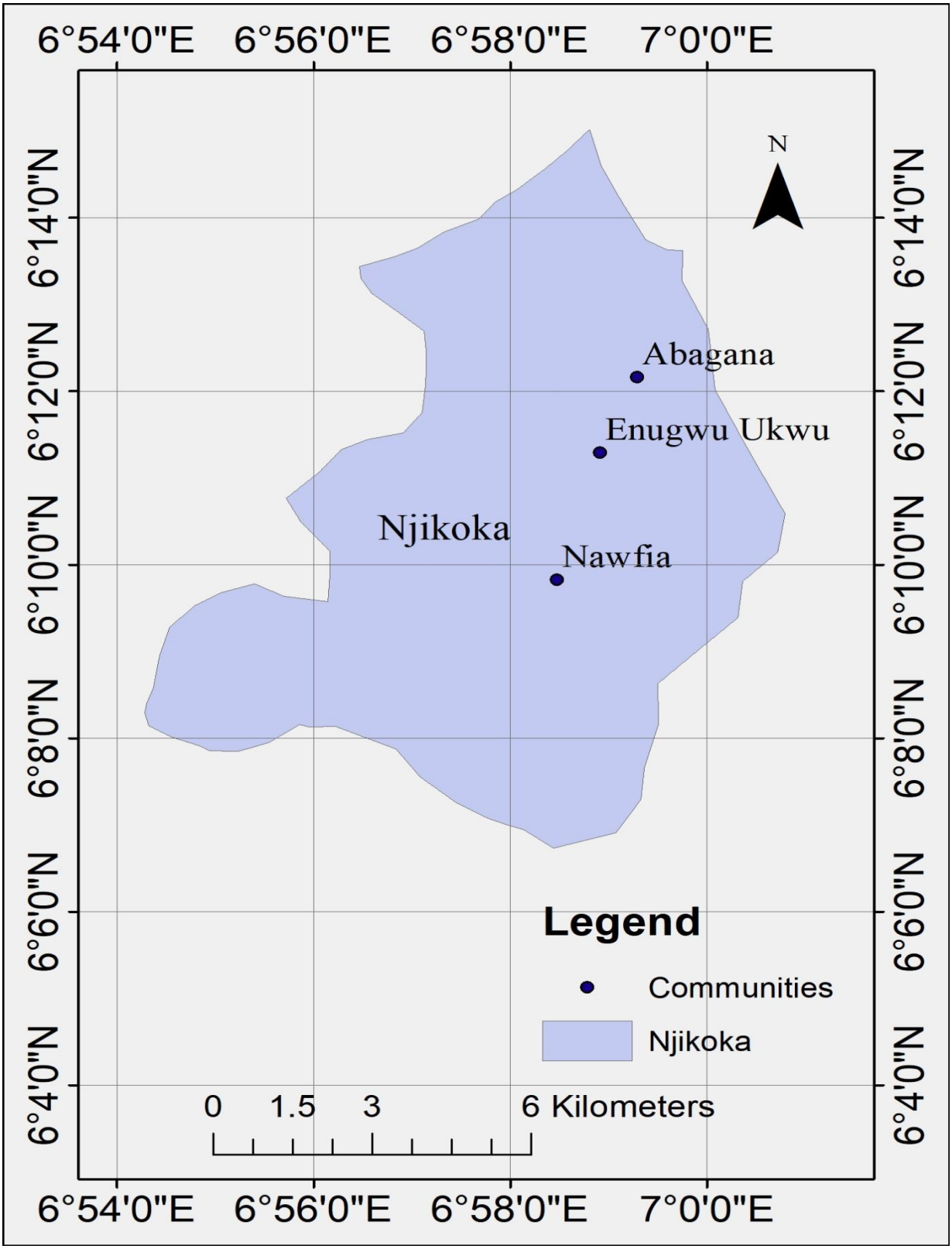

Figure 3.9 Map of Njikoka LGA in ACT (Source: Department of Surveying and Geo-informatics, Faculty of Environmental Sciences, Unizik)

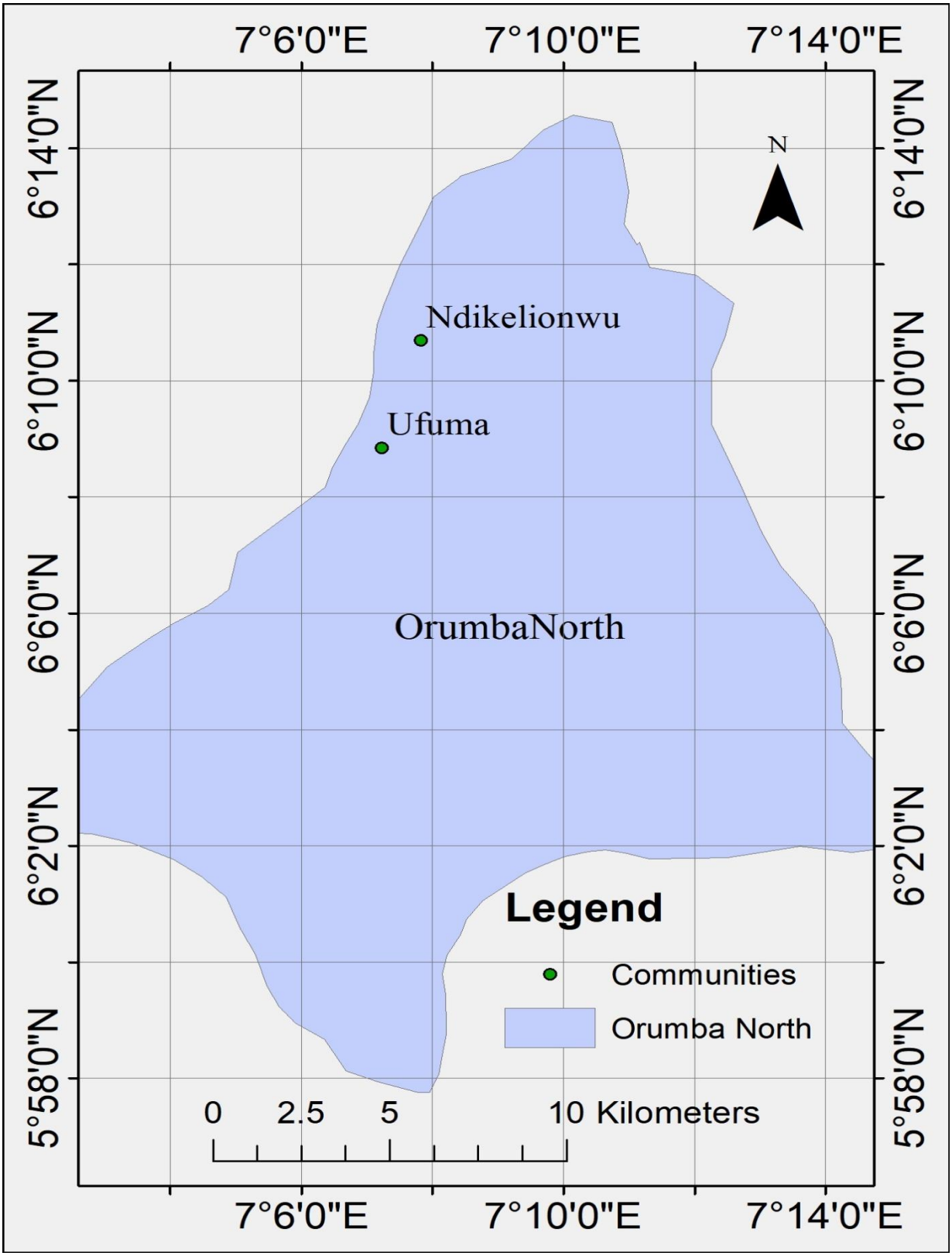

Figure 3.10 Map of Orumba North LGA in ACT (Source: Department of Surveying and Geo-informatics, Faculty of Environmental Sciences, Unizik)

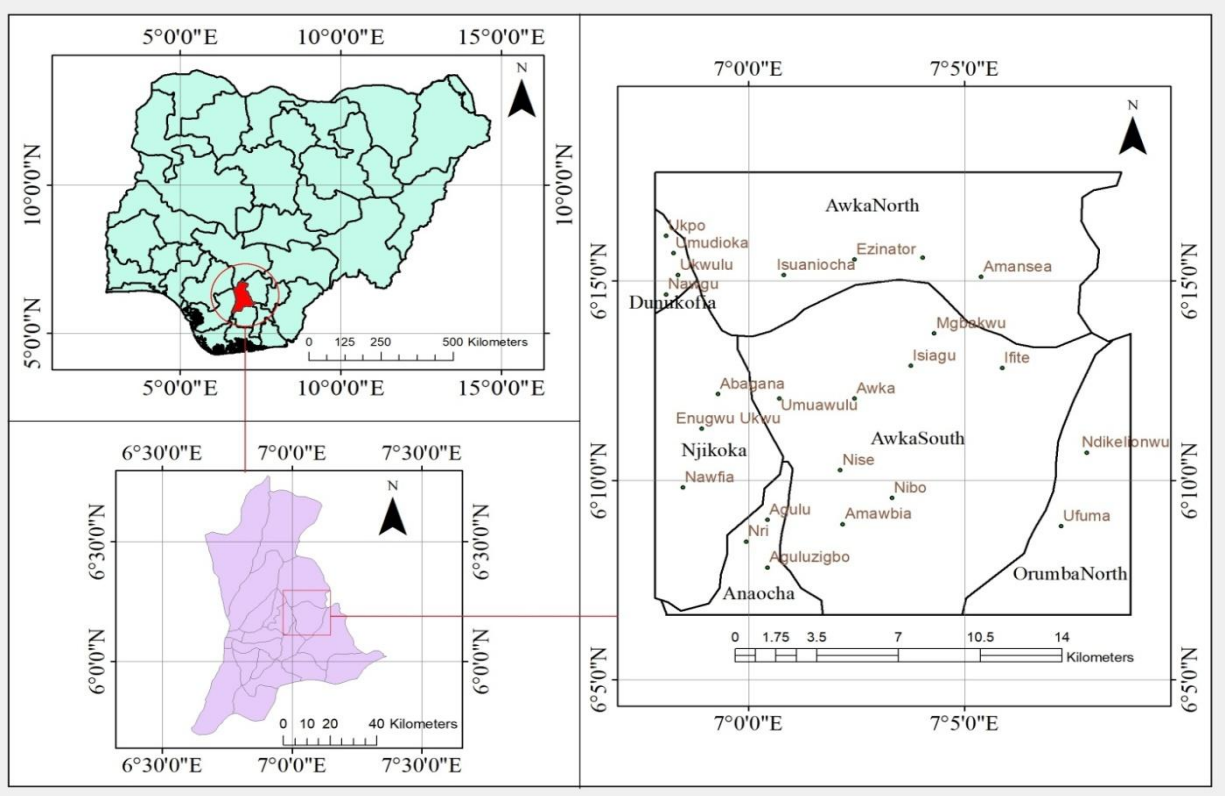

Figure 3.11: Map of Nigeria showing Anambra, Statethe six Local Government Areas and Awka South L.G.A Territory (Source: Excel GIS Awka).

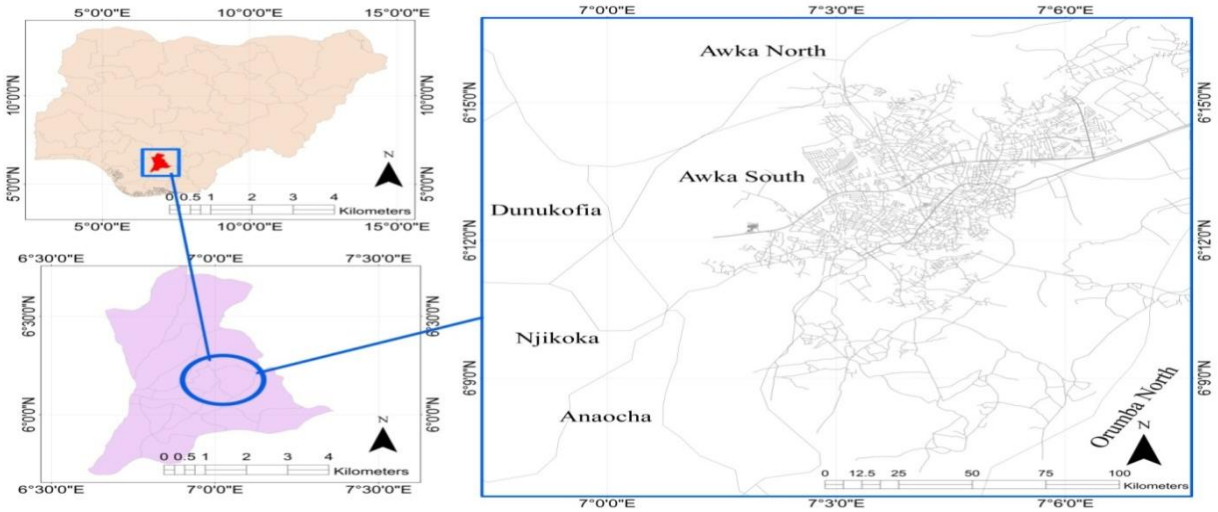

Figure 3.12: Map of Nigeria showing Anambra State, ACT and Six Local Government
Source: Department of Survey & Geo-Informatics FES, NAU Awka.

Table 3.1 Some Measurements of Non-compliance Structures in ACT

Structures	Measurement
ANSIPPA	4.5METERS
ACTDA	4.5METERS
SKYE BANK	10.6METERS
DIAMOND BANK	2METERS
EKE AWKA MARKET	5METERS
ENUGU UKWU Afo MARKET	5meters
OPEN UNIVERSITY	3Meters
PEEZ PHARMACY	15meters
ENUGU UKWU Nkwo MARKET	5meters
Eastern Mass Park	8meters

Plate 3.1: ANSIPPA and ACTDA Road Measurements

Plate 3.2: Skye Bank along Zik's Avenue

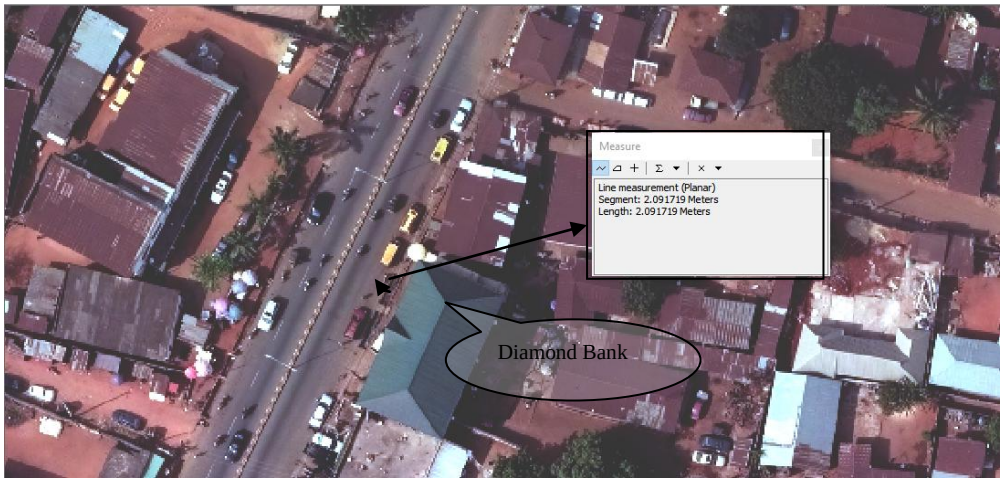

Plate 3.3: Diamond Bank along Zik's Avenue

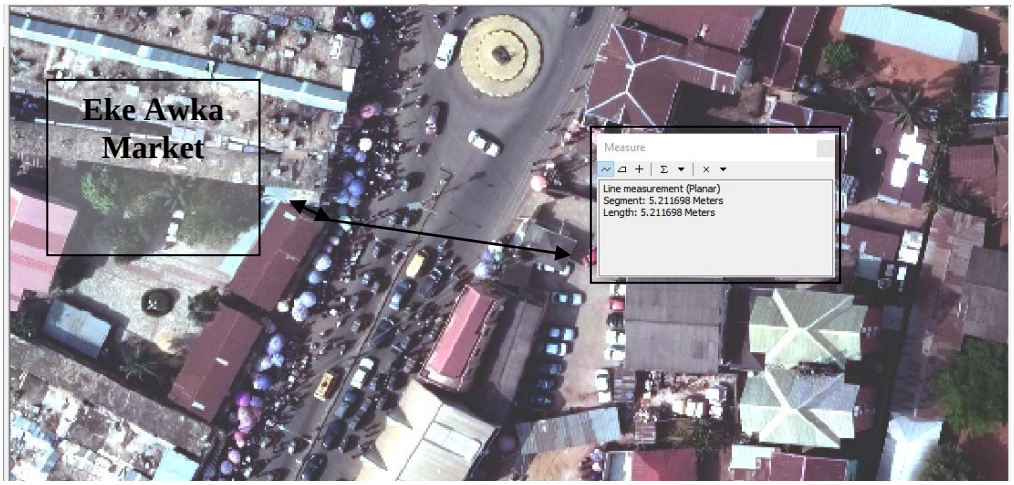

Plate 3.4: Eke Awka Market

Plate 3.5: Enugu-Ukwu Afo market measurement

Plate 3.6: Enugu-Ukwu Nkwo Market.

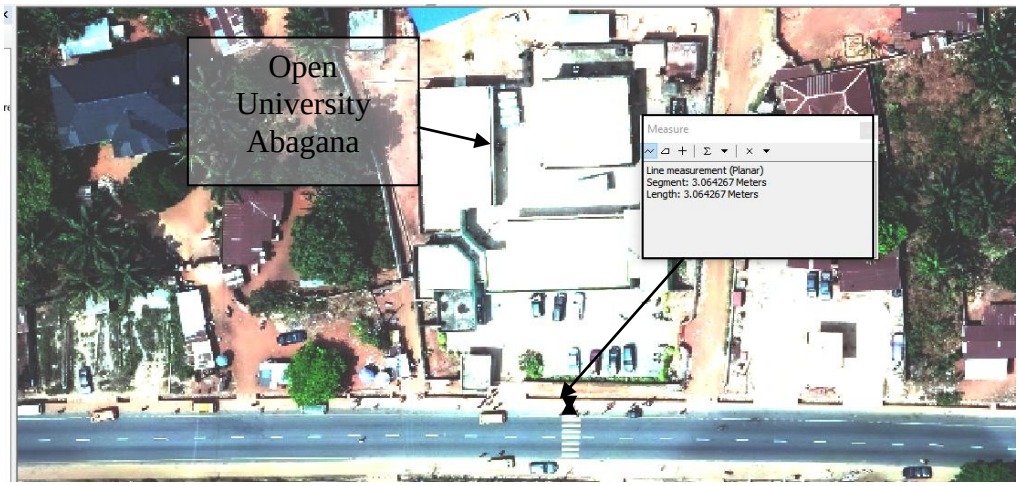

Plate 3.7: Open University Abagana

Plate 3.8: Eastern Mass Park Tempsite.

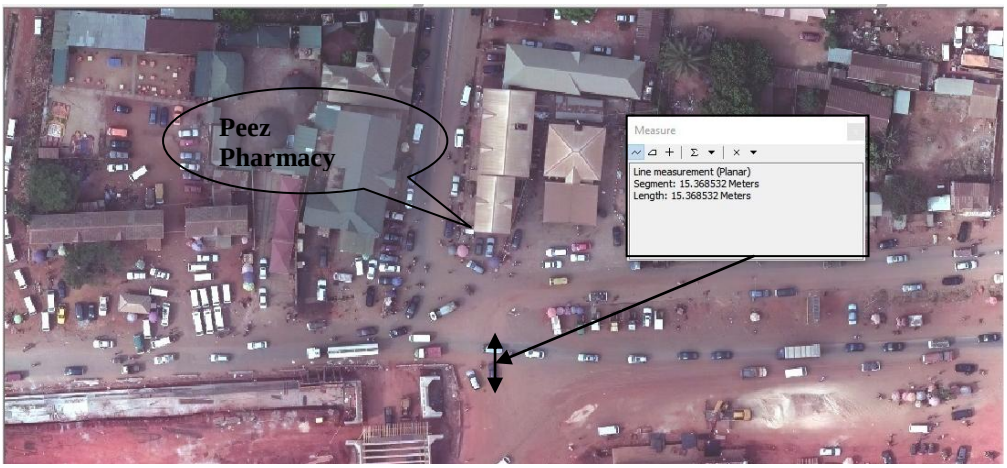

Plate 3.9: Peez Pharmacy

Plate 3.9 view of conjested and unattractive street in ACT

Pictures Showing the incidence of some associated environmental implications/effects of non-compliance with Road Setback in Awka Capital Territory.

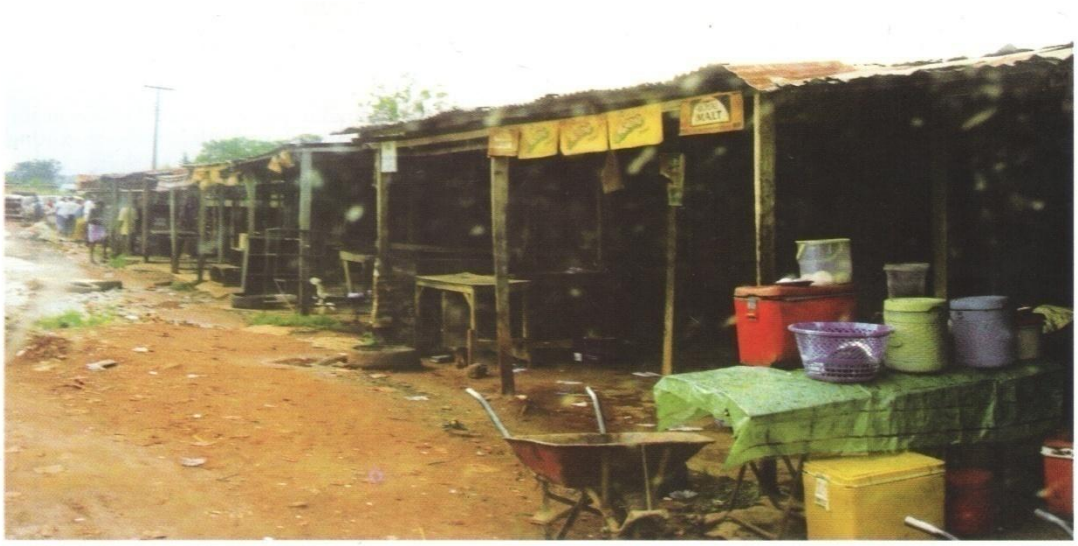

Plate: 3.10 of the shop

Plate 3.12 View of a busy high untidy environment in ACT

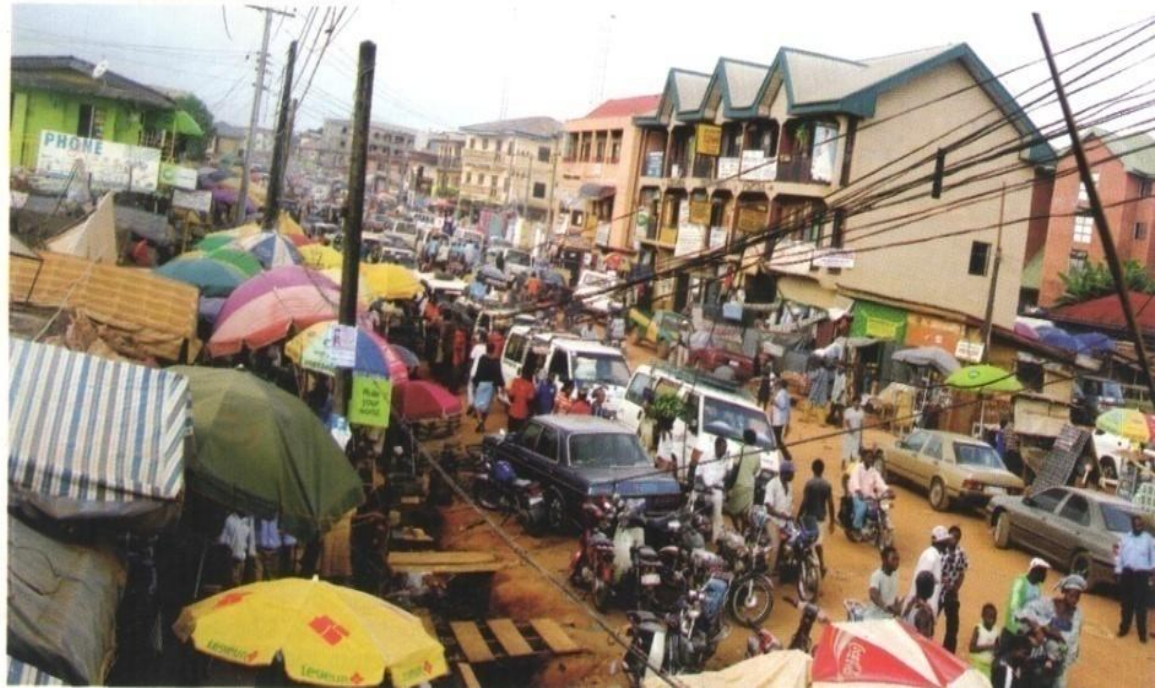

Plate 3.13 View of conjested and unattractive street in ACT.

3.2 Physical Characteristics of the Study Area

This section discusses the physical characteristics and features of the study area as follows:

3.2.1 Topography

The study area is predominantly a low lying region on the western plain of the Manu River with almost all parts at 333 meters above sea level. The major topographic features in the region are the two ceuestas (asymmetric ridges) with east facing escarpments each trending southward outside Awka urban to form part of Awka-Orlu upland. The higher one is the Abagana-Agulu ceuesta. In a section of Agulu the land rises above 333 meters or (1000ft) above mean sea level outside Awka urban (UN-HABITAT, 2009), but within the study area.

3.2.2 Drainage

Drainage is one of the social infrastructures that helps to facilitate socio-economic growth in agiven society. Okafor, (2013) stated that without the significant development of economic and social infrastructures in a country particularly developing countries like Nigeria, the pace ofeconomic development could become extremely slow and its productivity would be retarded. This simply means that infrastructure is the basic essential service that should be put in place to enable development to occur.

Generally, there is inadequate and poor/bad drainage both in the urban core of ACT and other areas within the area. For the past twenty-two years ACT had been suffering seriously from the poor/bad drainage facilities.Even with the little existing in the area has been blocked due to poor maintenance and improper management of storm water channels in subject to non-compliance with road setbacks in thearea. Yet the dwellers/residents are still blocking these available gutters with their day to day garbage. When the river channels are blocked with debris, sediments and sand dunes, it means that there is no maintenance and proper management.When the river channel is too narrow, it will be unable/incapacitated to carry excess water than it was originally meant for. Development of infrastructure and development control practice are like a proverbial case of egg and chick to sustainable urban environment and socio-economic development.However, in recent yearsthe story of non-existence of drainage in ACT has changed positively doe to constructed road networks and ones under construction with their provisions for water channelization on either side of the roads.

3.2.3 Climate

Awka has rainforest vegetation with two seasonal climatic conditions. They are the rainy season and the dry season which is characterized often by harmattan. The dryness of the climate tends to be discomforting during the hot period of February to May, while the wet period between April and September is very cold. The harmattan which falls from December to February is a period of very cold weather when the atmosphere is generally dry with dust haze (UN-HABITAT, 2009).

3.2.4 Geology and Soil Type

The two geologic formations underlying Awka Capital Territory are the Imo Shale and Ameki Formation. In the riverine and low-lying area particularly in the plain west of Mamu River as far as to the land beyond the permanent site of Nnamdi Azikiwe University, the underlying impervious clay shales cause water logging of the soil during rainy season. The soil sustaining forest vegetation on the low plains farther away from the river maintains a good vegetation cover. The soil is rich and good for root tuber crops like yam, cassava and maize. The two main types of soil found in the area are ferruginous and hydromorphic soil. Ferruginous soil is rich in iron and is derived from marine complexes of sandstone, clay and shales. They therefore vary from the deep red and brown porous soil derived from sandstones and shales to deep porous brown soil derived from sandstone and clay (UN-HABITAT, 2009).

Awka Capital Territory is characterized by the annual double maxima of rainfall with a slight drop in either July or August known as dry spell or August break. The annual total rainfall is above 1.450mm concentrated mainly in eight months of the year with few months of relative drought. Climatological records since 1978, show that ACT has a mean annual rainfall of about 1,524mm (UN-HABITAT, 2009). ACT has mean daily temperature of 27^0C, with daily minimum temperature of 18^0C. Annual minimum and maximum temperature ranges are about 22^0C and 34^0C respectively. It has a relative humidity of 80% at dawn (UN-HABITAT, 2009).

3.2.5 Vegetation

Awka Capital Territory falls under the low-land rainforest vegetation zone. It comprises tall trees with thick undergrowth and numerous climbers. This has been reduced by human activities to a secondary plant cover so much so that large parts of the rain forest zone may be termed an oil palm bush' from accumulation of oil palms. The soil sustains forest vegetation but on the low plain further away from the rivers they maintain good grass cover also. The typical trees are

deciduous in nature, such trees are palm trees, raffia palm, iroko trees, oil bean trees and gravelina trees. Oil palm and raffia palmtrees are the most common and they are not deciduous in nature.

3.3 Human Characteristics

The following human characteristics were considered in the study area:

3.3.1 People and Settlement Patterns in Awka South of the ACT

3.3.1.1 People

Awka Town as core ACT area comprises seven Igbo groups sharing common blood lineage divided into two sections: Ifite Section, the senior section, comprises four groups, Ayom-na-Okpala, Nkwelle, Amachalla, and Ifite-Oka followed by Ezinator section, which consists of three groups, Amikwo, Ezi-Oka and Agulu. Each of these groups has a number of villages. All together, Awkacomprises 33 villages.

Awkapeople today as in traditional times, are well known travelers. In ancient times demand for their skills as blacksmiths madeAwkapeople travel throughout Nigeria producing farming implements, household tools and guns. Each village had clearly defined trade routes. For example, people from Umuogbu village plied their trade in Benin and in Urhobo and Itsekiri areas, Umubele traveled to Igala areas in modern-day Kogi state, Umuike and Umuonaga traveled to present-day Abia and Rivers States, Umuenechi traveled to Kwale and Isoko area of Delta state, and Umudiana, Okperi, Ugwuogige found Calabar area of today's Cross Rivers state convenient.

The people of Umudioka and Ezioka wards specialized in carving of wood, and ivory and art designs including elegantly carved tools, door shutters and door panels, chairs, vessels for presentation of kola nuts, and idols. The ivory carvers produced elegant designs on "odu okike" (ivory trumpet) for ozo titled men and other items as part of the paraphernalia for titled men. Today, Awkapeople can be found across the globe many working as skilled professionals in a wide range of fields. As a result, there is a large Awkadiaspora located primarily in the UK and in the USA. There, they have formed social clubs like AwkaUnion, USA and Canada, AwkaTown Social Community, UK and Ireland and other community associations. These associations have been a way for people to enjoy their culture as well as to engage in community self-help projects.

Groups and Villages in Awka (Core Awka Capital Territory)

Ayom-na-Okpala: Umuayom, Umunnoke, Umuoramma and Umuokpu.

Nkwella: Achallaoji, Umunamoke, Agbana, Umudiaba

Amachalla: Amachalla, Amudo, Umuzocha

Ifite-Oka: Enu-Ifite, Ezinato-Ifite, Agbana-Ifite

Amikwo: Umudiana, Okperi, Igweogige, Isiagu, Obunagu

Ezi-Oka: Omuko, Umueri, Umuogwali, Umuogbunu 1, Umuogbunu 2, Umudioka, Umukwa.

Agulu: Umuogbu, Umubele, Umuanaga, Umuike, Umujagwo, Umuenechi, Umuoruka. Over the years AwkaTown has attracted people from other states in Nigeria and has a significant number of immigrants from northern Nigeria, Delta, Imo, Ebonyi and Enugu states, Cameroon and Ghana now comprising more than 60% of the residents in the town.

Awkais one of the oldest settlements in Igbo land established at the subsob of the Nri civilization which produced the earliest documented bronze works in sub-Saharan Africa around 800 AD and was the cradle of Igbo civilization. The earliest settlers of Awkawere the Ifiteana people which translates into people who sprouted from the earth. They were farmers, hunters, and skilled iron workers who lived on the banks of the Ogwugwu stream in what is now known as Nkwelle ward of Awka.

3.3.2 Demographic Characteristics and Population Explosion of Awka

The use of census population figures in Nigeria has its problems shrouded with inconsistencies and controversies over the figures. For years, many states and people have contested the accuracy of the census data for different parts of Eastern Nigeria. Nevertheless, this study relied on the official population figures declared for 1991census and projected to 2017 with a growth rate of 2.80% to determine the population of the study area, as well as other variables taking into account in some of the reservations about the use of these data.

Awka Capital Territory has witnessed one of the fastest population growth in the country. The annual growth rates witnessed in the area for the past twenty-six years vary from 2.20% to 2.80% per annum. All local government areas within ACT were projected to 2017 with the growth rate 2.80.1991 population census was used for projection rather than 2006 population census, because ACT 1991 population census had squares for the while 2006 did not have.

This gave the population of the six Local Government Areas that make up the Awka Capital Territory as 370,503 (1991) and778,061 (2017) respectively with an average annual growth of 2.80% per annum recorded during the past twenty-six years (see the Table 3.1 below):
This population was projected using the equation

$P1 = P0\ (1+r)^n$

Where

P1 = Projected Population

P0 = Initial Population

r = Growth Rate (2.8%)

n = Number of year

1 = Constant

Example

Anaocha LGA 1991 population comprises three communities namely:

	1991 Population	Projected 2017 Population
Agulu=	49,310	103,551
Agulu-uzoigbo=	10,107	21,225
Nri=	15,425	32,393
Total-	**74,842**	**157,169**

Therefore projected one = $P1 = P0\ (1+r)^n$

Where

P1 = projected 2017 population

P0 = 1991 population (74,842)

r = 2.80%

n = Number of years projected (26 years)

1 = Fixed/constant

$\Rightarrow P1 = (1+2.80)^{26} = (1.028)^{26} = (2.050316851 \simeq 2.1)$

Then 49,310x 2.1 = (103,551) + 10,107x2.1=(21,225) +15,425x2.1(32,393)=157,169

:.P1=157,169

Table3.2: Population Growth of Awka Territory (1991to projected 2017)

S/N	LGA	1991	Projected 2017	Growth Rate (%)
1	Anaocha	74,842	157,169	2.80
2	Awka North	19,168	40,254	2.80
3	Awka South	130,664	274,396	2.80
4	Dunukofia	38,066	79,939	2.80
5	Njikoka	78,664	165,195	2.80
6	Orumba North	29,099	61,108	2.80
Total		**370,503**	**778,061**	**2.80**

Source: National Population Commission (1991) and researcher's computation 2017

3.3.3 Land use Activity Patterns and Trends in Awka

Awka Territory covers 10 km radius, which is rapidly developing into a mass of urban areas growing to merge with each other.

Some areas have not been built up due to certain natural barriers such as several water/flood courses, erosion sites, ravines, deep valleys, shrines, religious forests and traditional sites.

Land uses and urban forms of Awka are slightly different, exhibiting a dual character deriving from its two major components: The first is a new town grafted unto the old city and separated by the Enugu-Onitsha expressway. The older part reflects the urban elements peculiar to traditional Igbo settlement, with a palace and market square at the centre, providing ample open spaces for recreation, religious, economic and socio-cultural activities.

The residential areas are made up of individual family residential compounds, which are walled and linked with pathways and un-tarred roads providing access to the people. Housing is very dominant, but uses here are very mixed as residential are commercial activities.Informal activities are carried out within the curtillages of buildings, with every inch of space for air circulation and ventilation almost built up.

3.3.4 Development Control and the Nature of Compliance to Road Setbacks in Siting of Structures.

Many nations of the world have set up agencies with stipulated policy mandates for the effective control of developments in the built environment. In Nigeria, the 1946 Town Planning Ordinance instituted by the colonial masters specifically spelt out development control functions as borrowed from Britain.

Sections 27-63 of the 1992 Urban and Regional Planning Law of the federation also adopted this but made room for public participation. If further strengthened planning practices and development control activities in Nigeria by the establishment of Town Planning Authorities with functions at the three tiers of government i.e. the National, State and Local government areas of the country.

The stipulated development control functions include:

1. *Development Plan Approval*
2. *Conservation and Preservation Functions*
3. *Control of Outdoor Advertisements*
4. *Enforcement of Environmental Impact Assessment (EIA)*

Today many jurisdictions rely on urban planning regulations, such as zoning ordinances, which use setbacks to make sure that streets and yards are provided more space as in Manhattan in New York.Front walls of buildings at the street line may be limited to a specified height or number of storeys.

In land use of every developing country like Nigeria, a setback is the distance which a building or any other structure is meant to leave off the road, a river or stream, a shore or flood plain, or any other place which is deemed to need protection. Depending on the jurisdiction, other things like fences, landscaping, septic tanks, and various potential hazards or nuisances might be regulated. Setbacks are generally set in municipal ordinances or zoning. Setbacks along state, provincial, or federal highways may also be set in the laws of the state, or the federal government (Allen, 1995).

These policies have been in use for development control functions in the State and they all have provisions for public participation in development control functions. However, their

implementation has not been strict, hence the non-compliance of road setbacks in the erection of structures in Awka.

Setbacks were used by ancient builders to increase the height of masonry structures by distributing gravity loads produced by the building material such as clay, stone, or brick. This was achieved by regularly reducing the footprint of each level located successively farther from the ground. Setbacks also allowed natural erosion to occur without compromising the structural integrity of the building. The most graphic example of a setback technique is the step pyramids of Mesopotamia and Ancient Egypt, such as the Teppe Sialk Ziggurat or the Pyramid of Djoser (Alexander, 1977).

3.3.5 Economic Activities in Awka

The economy of Awka Capital Territory revolves primarily around government since many state and federal institutions are located there including; academic institutions and local markets. Awka South for instance hosts the State Governor's Lodge, State House of Assembly and State Secretariat where all State Ministrieis are located for example Health, Education, Lands, WaterBoard. The Anambra Broadcasting Service (ABS), a TV and radio station are located in the urban centre. A number of federal institutions including the Central Bank of Nigeria (which has a currency centre in Awka), the NTA Awka media station, and branches of the Federal Inland Revenue Service, Federal Road Safety Commission, Nigerian Immigration Service, and Corporate Affairs Commission are also present within the Awka urban. The presence of Nnamdi Azikiwe University with its high rate of students enrollment is a great economic pull in the study area. Also the presence of big industries like Millenium, Juhel Pharmaceuticals and others, improve the economy of the area. Other local governments have their economy revolving around their Local Government Headquarters where they have high number of civil servants, their local markets, academic institutions, small and medium scale industries, commercial banks and micro-finance banks and other government establishments.

CHAPTER FOUR

RESEARCH DESIGN AND METHODOLOGY

This chapter described the techniques that were adopted in data acquisition, presentation and analysis in this study.

The procedure applied for this study is discussed according to the following sub-headings:

a. Research Design
b. Data needs
c. Target Population
d. Sources of Data
e. Sampling frame, Sample Size and Sampling Techniques
f. Instrument for Data Collection
g. Methods of Data Collection
h. Strategy for Analysis of Data

4.1 Research Design

The study adoptedfield measurement and ssurvey design methods.Qualitative and quantitative designs were usedto analyze the level of compliance, causes, effects and management of non-compliance to road setbacks in Awka Capital Territory. The field messurement and survey design methodshelped the study to generate first hand information on the compliance with road setbacks from structured questionnaire and actual measurement of distances between the sited structures and serviced roadsfor trunks A, B, and C roads in the study area.

4.2 Data Needs

In carrying out a study of this nature, the data regarding the subject of the study (Compliance with Road Setback Standards in Sitting of Structures in Awka capital Territory: Implications for Enviromental Management) were collected using relevant techniques (survey design, field measurements, with ARC GIS 10.4 software, andMaps).

Objective I: To determine the levels of compliance of the sited structures to setbacks standards in the ACT.

The data needs are:

a. Distance between the service roads and existing structures (residential, commercial, and recreation among others)
b. ACTDA standards on road setbacks

Objective II: To identify the causes of non-compliance with road setbacks in ACT.

The Data Needs are: Theresponses on the causes of non-compliance from professionalsselected on the following issues:

a. Rapid Urbanization in this area
b. Population Growth in this area
c. Corruption of planning Officers
d. Difficulty in land Accessibility
e. High Cost of land Acquisition
f. Poverty
g. Failure of the law Enforcement Agents
h. High Cost of Living
i. Non-challant attitudes of the Govt.
j. Greedy attitudes of the developers
k. Competition for business space among businessmen
l. Siting of structures before road construction
m. Improper city planning

Responses on the causes of non-compliance from non-professionals.

a. Rapid Urbanization in this area
b. Population Growth in this area
c. Corruption of planning Officers
d. Difficulty in land Accessibility
e. High Cost of land Acquisition
f. Poverty
g. Failure of the law Enforcement Agents

h. High Cost of Living

i. Non-challant attitudes of the Govt.

j. Greedy attitudes of the developers

k. Competition for business space among businessmen

l. Siting of structures before road construction

m. Improper city planning

Objective III: To determine the Environmental Implications/Effects (social, physical, economic and health) of non-compliance with road setbacksin ACT.

Data Needs are: the responses on the environmental implications/effects from professionals on the following indicators.

Social Indicators:

a. Increase in Crime rate

b. Uncontrolled and increase density of physical development.

c. Disorderliness of physical development

d. Human Congestion

e. Manifestation of Urban sprawl

f. Unregulated Building Patterns/Relocation

g. Slump formation increases

h. Loss of Cultural Heritage

i. Bad drainage

j. Time Wastage

k. Housing congestion

Economic Indicators:

a. Loss of goods and properties (theft)

b. Over competition for business space

c. Loss of Revenue

d. Business setbacks

e. Demolition of Properties

f. Losing of business contacts and customers

Physical Indicators:

a. Pollution (Water, Air, Soil & Plants)
b. Destruction of aesthetic beauty
c. Traffic congestion
d. Flooding
e. Soil erosion/gullying
f. Uncontrolled street trading & Hawking
g. Vehicle parking problems
h. Increase in noise pollution
i. Increase in solid waste generation
j. Increase in synthetic Surface construction
k. Felling of trees/destruction of vegetation
l. Environmental disorderliness

Health Indicators:

a. Road accident
b. Loss of life
c. Psychological Trauma
d. Suffocation

Responses on the environmental implications/effects from non-professionals on the following indicators.

Social Indicators:

a. Increase in Crime rate
b. Uncontrolled and increase density of physical development.
c. Disorderliness of physical development
d. Human Congestion
e. Manifestation of Urban sprawl
f. Unregulated Building Patterns/Relocation
g. Slump formation increases
h. Loss of Cultural Heritage
i. Bad drainage
j. Time Wastage

k. Housing congestion

Economic Indicators:

a. Loss of goods and properties (theft)
b. Over competition for business space
c. Loss of Revenue
d. Business setbacks
e. Demolition of Properties
f. Losing of business contacts and customers

Physical Indicators:

a. Pollution (Water, Air, Soil & Plants)
b. Destruction of aesthetic beauty
c. Traffic congestion
d. Flooding
e. Soil erosion/gullying
f. Uncontrolled street trading & Hawking
g. Vehicle parking problems
h. Increase in noise pollution
i. Increase in solid waste generation
j. Increase in synthetic Surface construction
k. Felling of trees/destruction of vegetation
l. Environmental disorderliness

Health Indicators:

a. Road accident
b. Loss of life
c. Psychological Trauma
d. Suffocation

Objective IV: To examine if there is any difference between the causes of non-compliance with road setbacks as reported by non-professionals and professionals.

Data Needs are: From respondent professionalson the following issues:

a. Rapid Urbanization in this area
b. Population Growth in this area
c. Corruption of planning Officers
d. Difficulty of Access to land
e. High Cost of land Acquisition
f. Poverty
g. Failure of the law Enforcement Agents
h. High Cost of Living
i. Nonchalant attitudes of the Govt.
j. Greedy attitudes of the developers
k. Competition for business space among businessmen
l. Siting of structures before road construction
m. Improper city planning

From non-professionalrespondentson the following issues:

a. Rapid Urbanization in this area
b. Population Growth in this area
b. Corruption of planning Officers
c. Difficulty in land Accessibility
d. High Cost of land Acquisition
e. Poverty
f. Failure of the law Enforcement Agents
g. High Cost of Living
h. Nonchallant attitudes of the Govt.
i. Greedy attitudes of the developers
j. Competition for business space among businessmen
k. Siting of structures before road construction
n. Improper city planning

Objective V: To examine if there is any relationship between the opinions/contributions of Professionals and Non-professionals on the causes and environmental implications/effects of non-compliance with road setbacks in ACT.

Data Needs are: From responses professionals on the following issues:

a. Rapid Urbanization in this area
b. Population Growth in this area
c. Corruption of planning Officers
d. Difficulty in land Accessibility
e. High Cost of land Acquisition
f. Poverty
g. Failure of the law Enforcement Agents
h. High Cost of Living
i. Nonchallant attitudes of the Govt.
j. Greedy attitudes of the developers
k. Competition for business space among businessmen
l. Siting of structures before road construction
m. Improper city planning

Also, the responses on the environmental implications/effects, with the number of respondents (professionals) selected on the following issues of indicators.

Social Issues:

a. Increase in Crime rate
b. Uncontrolled and increase density of physical development.
c. Disorderliness of physical development
d. Human Congestion
e. Manifestation of Urban sprawl
f. Unregulated Building Patterns/Relocation
g. Slump formation increases
h. Loss of Cultural Heritage
i. Bad draining
j. Time Wastage

k. Housing congestion

Economic Issues:

a. Loss of goods and properties (theft)
b. Over competition for business space
c. Loss of Revenue
d. Business setbacks
e. Demolition of Properties
f. Losing of business contacts and customers

Physical Issues:

a. Pollution (Water, Air, Soil & Plants)
b. Destruction of aesthetic beauty
c. Traffic congestion
d. Flooding
e. Soil erosion/gulling
f. Uncontrolled street trading & Hawking
g. Vehicle parking problems
h. Increase in noise pollution
i. Increase in solid waste generation
j. Increase in synthetic Surface construction
k. Felling of trees/destruction of vegetation
l. Environmental disorderliness

Health Issues:

a. Road accident
b. Loss of life
c. Psychological Trauma
d. Suffocation

And the number of responses on the causes with the number of respondents (non-professional) selected on the following issues:

a. Rapid Urbanization in this area
b. Population Growth in this area
c. Corruption of planning Officers
d. Difficulty in land Accessibility
e. High Cost of land Acquisition
f. Poverty
g. Failure of the law Enforcement Agents
h. High Cost of Living
i. Nonchalant attitudes of the Govt.
j. Greedy attitudes of the developers
k. Competition for business space among businessmen
l. Siting of structures before road construction
m. Improper city planning

Also, the responses on the environmental implications/effectswith the number of respondents (non-professionals) selected on the following issues of indicators.

Social Issues:

a. Increase in Crime rate
b. Uncontrolled and increase density of physical development.
c. Disorderliness of physical development
d. Human Congestion
e. Manifestation of Urban sprawl
f. Unregulated Building Patterns/Relocation
g. Slump formation increases
h. Loss of Cultural Heritage
i. Bad draining
j. Time Wastage
k. Housing congestion

Economic Issues:

a. Loss of goods and properties (theft)
b. Over competition for business space
c. Loss of Revenue
d. Business setbacks
e. Demolition of Properties
f. Losing of business contacts and customers

Physical Issues: Pollution (Water, Air, Soil & Plants)

a. Destruction of aesthetic beauty
b. Traffic congestion
c. Flooding
d. Soil erosion/gullying
e. Uncontrolled street trading & Hawking
f. Vehicle parking problems
g. Increase in noise pollution
h. Increase in solid waste generation
i. Increase in synthetic Surface construction
j. Felling of trees/destruction of vegetation
k. Environmental disorderliness

Health Issues:

a. Road accident
b. Loss of life
c. Psychological Trauma
d. Suffocation

Objective VI: To determine the opinions/contributions of professionals and non-professionals on the causes and environmental implications of non-compliance with roads setbacks in ACT

Data Needs are: The responses on the causes with the number of respondents (professionals) selected on the following issues:

a. Rapid Urbanization in this area
b. Population Growth in this area
c. Corruption of planning Officers

d. Difficulty in land Accessibility
e. High Cost of land Acquisition
f. Poverty
g. Failure of the law Enforcement Agents
h. High Cost of Living
i. Nonchallant attitudes of the Govt.
j. Greedy attitudes of the developers
k. Competition for business space among businessmen
l. Siting of structures before road construction
m. Improper city planning

Also, the responses on the environmental implications/effects, with the number of respondents (professionals) selected on the following issues of indicators.

Social Issues:

a. Increase in Crime rate
b. Uncontrolled and increase density of physical development.
c. Disorderliness of physical development
d. Human Congestion
e. Manifestation of Urban sprawl
f. Unregulated Building Patterns/Relocation
g. Slump formation increases
h. Loss of Cultural Heritage
i. Bad draining
j. Time Wastage
k. Housing congestion

Economic Issues:

a. Loss of goods and properties (theft)
b. Over competition for business space
c. Loss of Revenue
d. Business setbacks
e. Demolition of Properties
f. Losing of business contacts and customers

Physical Issues:

a. Pollution (Water, Air, Soil & Plants)
b. Destruction of aesthetic beauty
c. Traffic congestion
d. Flooding
e. Soil erosion/gulling
f. Uncontrolled street trading & Hawking
g. Vehicle parking problems
h. Increase in noise pollution
i. Increase in solid waste generation
j. Increase in synthetic Surface construction
k. Felling of trees/destruction of vegetation
l. Environmental disorderliness

Health Issues:

a. Road accident
b. Loss of life
c. Psychological Trauma
d. Suffocation

And the number of responses on the causes with the number of respondents (non-professional) selected on the following issues:

a. Rapid Urbanization in this area
b. Population Growth in this area
c. Corruption of planning Officers
d. Difficulty in land Accessibility
e. High Cost of land Acquisition
f. Poverty
g. Failure of the law Enforcement Agents
h. High Cost of Living
i. Nonchalant attitudes of the Govt.
j. Greedy attitudes of the developers

k. Competition for business space among businessmen

l. Siting of structures before road construction

m. Improper city planning

Also, the responses on the environmental implications/effectswith the number of respondents (non-professionals) selected on the following issues of indicators.

Social Issues:

a. Increase in Crime rate

b. Uncontrolled and increase density of physical development.

c. Disorderliness of physical development

d. Human Congestion

e. Manifestation of Urban sprawl

f. Unregulated Building Patterns/Relocation

g. Slump formation increases

h. Loss of Cultural Heritage

i. Bad draining

j. Time Wastage

k. Housing congestion

Economic Issues:

a. Loss of goods and properties (theft)

b. Over competition for business space

c. Loss of Revenue

d. Business setbacks

e. Demolition of Properties

f. Losing of business contacts and customers

Physical Issues:

a. Pollution (Water, Air, Soil & Plants)

b. Destruction of aesthetic beauty

c. Traffic congestion

d. Flooding

e. Soil erosion/gullying

f. Uncontrolled street trading & Hawking

g. Vehicle parking problems

h. Increase in noise pollution

i. Increase in solid waste generation

j. Increase in synthetic Surface construction

k. Felling of trees/destruction of vegetation

l. Environmental disorderliness

Health Issues:

a. Road accident

b. Loss of life

c. Psychological Trauma

d. Suffocation

Objective VII: To develop a workable template for solving the problems of non-compliance withroad setbacks in ACT:

Data Needs Are: Responsesfrom Professionals on the following issues:

a. If the structure is on a Federal road

b. If the structure is on a State road

c. If the structure is on local road

d. If the structure was erected before the construction of the road

e. If the road and location of the structure are a busy area

f. If the distance of the structure and the road is less than 4.5m (ie 75% of 6m)

g. If the structure was approved by relevant authority before construction

h. If the structure was not approved by relevant authority before construction

i. If the approval terms were strictly followed

j. If the approval terms were violated

k. If the Government is willing to compensate the owner

l. If there was in EIA for the project before erection

m. If there was EIA for the project before erection

n. If the property is on a road bend

o. If the property has the potentials of causingMotor accidents,

p. If the property has the potentials of causingTraffic congestion,

q. If the property has the potentials of causingNoise pollution,

r. If the property has the potentials of causingFlooding,

4.2.1 Survey design

This was applied through the use of well structured questionnaire and octadecagonal Template. The questionnaire was divided into three sections that included the following (a) Personal information of the respondents (bio-data of the respondents), (b) Causes of non-compliance with road setbacks and (c) Environmental Effects/Implications of non-compliance. The environmental effects had four broad indicators which are Social, Physical, Economic and Health Effects. The questionnaires were separately administered to non-professionals and Professionals. The questionnaire is contained in Appendix One.

The Templatequestionnaire was administered to the Professionals only. It had two sections which included their opinions on (a) shelving and (b) demolition of sited structures when the structures do not complywiththeir minimum standards.

4.2.2 Field Measurements

Field measurements involve measurement of distances between the sited structures and serviced roads of the three different road types (Trunks A, B and C) in Awka Capital Territory. This was done using Arc-GIS 10.4 software.

4.2.3 Maps

These were used to get the locations of Nigeria showing Anambra State, Map of Anambra State showing theACT with its six Local Government Areas, map of each of the LGAs showing their respective communities that make up Awka Capital Territory (Study Area) , map of three different road types in ACT, map of selected measured road networks (Trunks A, B and C) in ACT and other road networks in ACT.

4.3 Target Population

The study area covered 25 communities that fall within the six Local Government Areas in the ACT with their respective 1991 population and 2017 projected population, the growth rate used for projection is 2.80%. It was also used to determine study population and sample size for the study.

Table4.1: 1991 and Projected 2017 population of Awka Capital Territory (ACT),(Communities and LGAs)

S/N	Six L.G.As	25 Communities in ACT	1991 Population of L.G.A & Communities in ACT		Projected 2017 population of L.G.A & Communities in ACT	
			LGA	**COM**	**LGA**	**COM**
1	Anaocha	Agulu		49,310		103,551
		Agulu-uzoigbo		10,107		21,225
		Nri	74,842	15,425	157,169	32,393
2	Awka North	Amansea		2,965		6,227
		Ezinator		358		752
		Mgbakwu		6,999		14,698
		Isuaniocha		4,347		9,129
		Urum	19,168	4,499	40,254	9,448
3	Awka South	Amawbia		14,389		30,217
		Awka		58,225		122,273
		Isiagu		4,263		8,952
		Mbaukwu		14,617		30,696
		Nibo		17,620		37,002
		Nise		10,955		23,006
		Okpuno		3,498		7,346
		Umuawulu	130,664	7,097	274,396	14,904
4	Dunukofia	Nawgu		7,704		16,178
		Ukpo		14,337		30,108
		Ukwulu		6,927		14,547
		Umudioka	38,066	9,098	79,939	19,106
5	Njikoka	Abagana		29,659		62,284
		Enugwu-ukwu		42,925		90,143
		Nawfia	78,664	6,080	165,195	12,768
6	Orumba North	Ndikelionwu		4,897		10,284
		Ufuma	29,099	24,202	61,108	50,824
	Total	**25**	**370,530**	**370,503**	**778,061**	**778,061**

Keys: com-communities, LGA-Local Government Area.

Source: Researcher's Computation 2017

The research also covered the 3 different road types (TrunksA–Federal roads, B–State roads and C–LGA and Street roads) in the six local government areas(L.G.As) of ACT.The total number of Trunks A, B and C Roads withinthe study Area is 1,799 and their individual distributions are as follows: Trunk A(2), B(25) and C(1,772).

4.4 Sources of Data

In view of the aim and objectives advanced for the study, data were derived from both primary and secondary sources.

4.4.1 Primary Data

These are data originally sourced by the researcher. This study focused mainly on field investigation, field measurement, direct observation, interviews, inspection/walkthrough, questionnaire, focus group discussion, and photographs using a minimum of 50 field assistants.

4.4.2 Secondary Data

Secondary data included books, maps, population, figures,published and unpublished materials/documents relating to effects of non- compliance to road setbacks analysis especially in Awka Capital Territory.

4.5 Sample Frame, Sample Size and Sampling Techniques

4.5.1Sample Frame

The sample frame for population sample includedthe six LGAs (Anaocha,Awka North, Awka South, Dunukofia,Njikoka and Orumba North) in Awka Capital Territory and their respective sample sizes together with their percentage sample size for each LGA. See Tables 4.1 and 4.8. Sample of road measured was also part of this study sample frame.

The Professionals comprise ofstaff of Awka Capital Territory Development Authority (ACTDA), staff of Anambra State Physical Planning Board (ASPPB), private/individual Estate Surveyors and Valuers, Architects andBuilders. See Tables 4.6thenon-professionals involved in this study were the general public (18 years and above) in the study area. The summary of the sample frames are shown in Tables 4.2 and 4.3. The service roads applied for this study is shown in Table 4.2. The measurement of the distances between the sited structures and the service roads were grouped using purposive sampling technique for the six Local Government Areas as stated in Table 4.2

Table: 4.2 TheRoad Measured(Sample Frame).

Six L.G.A(s). in ACT	Total population Sampled (sample size) for Each LGA	Percentage (%) of Road Sampled

		for each LGA.
Anaocha	39	11.81
Awka North	53	16.06
Awka South	119	36.06
Dunukofia	53	16.06
Njikoka	41	12.42
Orumba North	25	7.58
Total	**330**	**100**

Source:Researcher's computation, 2017

From Table 4.2, it is observed that 11.18% of the total road sampled(sample size) is from anaocha LGA, 16.06% is from Awka- North, 36.06% is from Awka-South, 16.06% is from Dunkofia, 12.42% is from Njikoka, and 7.58% is from Orumba-Nqrth. Also, 100% rate of measurement was observed.

Table: 4.3ThePopulationSample Frame

Six L.G.A(s). in ACT	Total population Sampled (sample size) for Each LGA	Percentage (%) of Population Sampled for each LGA.
Anaocha	60	12
Awka North	80	16
Awka South	180	36
Dunukofia	80	16
Njikoka	60	12
Orumba North	40	8
Total	**500**	**100**

Source: Researcher's computation, 2017

The percentage of the sampled population for each LGA as shown in Table 4.3 reveals that 12% of the sample is from Anaocha LGA, 16% is from Awka-North, 36% is from Awka-South, 16% is from Dunukofia, 12% is Njikoka, and 8% is from Oromba-North LGAs.

4.5.2 Sample Size: The sample size wascomputed using Taro Yamaine formulae, that is 180

$$s = \frac{N}{1 + N(e)^2}$$

Where:

S =Sample

N =Number of Population
1 = Constant
(e)$^{2=}$ Level of significance

Therefore $\frac{778{,}061}{1+778{,}061\ (0.05)^2}$ = 399.784708663 ≃ 400

The level of significance is 5%, (that is, *e=0.05*). From Table 4.3, five hundred (500) is the total number of study population or (ACT) from which 12% (60) was used as sample size for Anaocha LGA, 16% (80) for Awka North, 36% (180) for Awka South, 16% (80) for Dunukofia, 12% (60) for Njikoka, while 8% (40) was used for Orumba North LGA.Taro Yamane formulae was applied to sample the number of roads that were involved in the study. The value obtained from the sampling was 327.24, by approximation, 330 roads were sampled for study. Taro Yamaine formulaewas also applied to obtain the sample size of the respondents.The respondents were divided into professionals and non-professionals.Four hundred (400) questionnaire were administered to the non-professionals (public). Theprojected population size of the non-professionals was 778.067 from which 400 was obtained. On the other hand the total number of the Professionalswere 133 from which sample of 99.81 was obtained.This value was approximated to 100. Thus 100 questionnaire were administered to the professionals.obtained. The professionals that were used with their numbers are Estate Managers/Surveyors and Valuers [30], Builders [24], Architects [23], ACTDA [27] and Anambra State Physical Planning Board [ASPPB] [29] giving a total of 133 participants. Distributed questionnaire to professionals in the six LGAs with their returned percentage was shown in table4.6..

4.5.3 Sampling Techniques: Stratified random sampling was used to group population into strata in such a way that each block (stratum) is as homogeneous as possible and each (stratum) was sampled at random, using the same or different proportions. This method of random sampling helped to reduce possibility of one sidedness, as each of the subgroups or substrata was

represented. Purposive sampling techniques was also used. Purposive sampling technique is the technique that justifies the purpose for the study. The distribution of questionnaire to different local governments with respective field assistants was done as follows:

Table 4.4: Distributed Questionnaire to Non-professionals in the Six LGAs with Percentage Returned

S/No	LGA	No. Distributed	No. Returned	Percentage Returned(%)
1	Anaocha	48	39	12
2	Awka North	64	54	17
3	Awka South	144	117	36
4	Dunukofia	64	50	15
5	Njikoka	48	40	12
6	Orumba North	32	26	8
Total	**Six (6)**	**400**	**326**	**100**

Source: Researcher's computation, 2017.

Table 4.4 revealed that 12% of the total questionnaire administered to non-professionals is from Anaocha LGA, 17% is from Awka North, 36% is from Awka South, 15% is from Dunkofia, 12% is from Njikoka, and 8% is from Qrumba-North.

Table 4.5 Distributed Questionnaire to Professionals in the Six L.G.A(s) with their Returned Percentages

S/N	L.G.A	Number Distributed	Number Returned	Percentage (%) Returned
1	Aniocha	12	12	12
2	Awka North	16	16	16
3	Awka South	36	36	36
4	Dunukofia	16	16	16
5	Njikoka	12	12	12
6	Orumba North	8	8	8
Total	Six (6)	100	100	100

Source: Researcher's computation, 2017

From Table 4,5, it is observed that 100% rate of return of questionnaire for professionals from each of the LGA in ACT was observed.

Table 4.6: Number of Service Roads Measured in Six Local Rovernment Areas of the ACT with their Percentages (Road Sample Frame).

S/No	LGA	No. of Roads Measured	Percentage Measured(%)
1	Anaocha	39	11.81
2	Awka North	53	16.06
3	Awka South	119	36.06
4	Dunukofia	53	16.06
5	Njikoka	41	12.42
6	Orumba North	25	7.58
Total	**Six (6)**	**330**	**100**

Source: Researcher's computation, 2017.

The service roads applied for this study is shown in Table 4.6. The measurement of the distance between the sited structures and the service roads were also grouped through the purposive sampling technique in the six local government areas as stated in table 4.6.From Table 4.6, it is observed that 100% rate of measurement was measured from each of the selected roads in six LGAs.

Table 4.7Distributed Questionnaire to the Five Selected Different Professionals in the Six L.G.A(s) with their Returned Percentages.

S/N	L.G.A	Number Distributed	Number Returned	Percentage (%) NO. Returned
1	ACTDA Staff	25	25	25
2	ASPPB Staff	22	22	22
3	Estate Managers/Suveyors &Valuer	20	20	20
4	Builders	15	15	15
5	Architects	18	18	18
Total		100	100	100

Source: Researcher's computation, 2017.

From Table 4-7, it is observed that the total number of questionnaire distributed to the selected professionals according to their different professions involved in the study were all observed 100% rate of return.

Table4.8:**Awka Capital Territory (ACT) of Anambra State with its Six Local Government areas and their respective communities together with their Respondents and1991and projected 2017 Populations.**

S/N	Six L.G.As	No. of Respondents in each of the six LGAs		25 Communities in ACT	No. of Respondents in each of the Communities		1991 Population of LGA and Communities in ACT		Projected 2017 Population of LGA and Communities	
		NP	PR		NP	PR	LGA	COM	LGA	COM
1	Anaocha	48	12	Agulu	23	6		49,310		103,551
				Agulu-uzoigbo	10	2		10,107		21,225
				Nri	15	4	74,842	15,425	157,169	32,393
2	Awka North	64	16	Amansea	11	3		2,965		6,227
				Ezinator	8	2		358		752
				Mgbakwu	20	5		6,999		14,698
				Isuaniocha	13	3		4,347		9,129
				Urum	12	3	19,168	4,499	40,254	9,448
3	Awka South	144	36	Amawbia	14	3		14,389		30,217
				Awka	63	17		58,225		122,273
				Isiagu	8	2		4,263		8,952
				Mbaukwu	15	3		14,617		30,696
				Nibo	18	5		17,620		37,002
				Nise	12	3		10,955		23,006
				Okpuno	4	1		3,498		7,346
				Umuawulu	10	2	130,664	7,097	274,396	14,904
4	Dunukofia	64	16	Nawgu	11	3		7,704		16,178
				Ukpo	28	7		14,337		30,108
				Ukwulu	10	2		6,927		14,547
				Umudioka	15	4	38,066	9,098	79,939	19,106
5	Njikoka	48	12	Abagana	16	4		29,659		62,284
				Enugwu-ukwu	24	6		42,925		90,143
				Nawfia	8	2	78,664	6,080	165,195	12,768
6	Orumba North	32	8	Ndikelionwu	8	2		4,897		10,284
				Ufuma	24	6	29,099	24,202	61,108	50,824
	Total	400	100	25 Communities	400	100	370,503	**370,503**	**778,061**	**778,061**

Source: Researcher's Computation 2017

Keys:

Com = Communities

PR = Professionals

NP = Non-professional

LGA = Local Government Area

4.6 Instruments for Data Collection

The instruments used for collection of data in this study include GIS tools, Metre tape for ground trotting, Questionnaire, Observation, In-depth Interview, Walkthrough Inspection

and Telephone with the aid of fifty-eight field assistants, two of whom are specialists, while fifty-six were trained by researcher for two weeks.

4.6.1 Arc GIS(Geographic Information System)

GIS means geographic information system. It is a tool for data collection and a remote sensing that gets or captures information about a picture or object on the surface of the earth without getting or coming in contact with that particular object or picture, such as measurement of distance between serviced road and sited structure (road setbacks) from imagery without getting into contact with those objects (roads and structures)

GIS is also a problem solving tool, which can locate and measure any object on the surface of the earth. GIS also acquires, stores, processes, manipulates and analyzes data, without getting close to the object with the aid of its coordinates of X and Y axis which the object has equally.

Arc GIS 10.4 software was used to measure the distances between the serviced roads and sited structures.This was done with the help of two computer system specialists (field assistants). Also after the digital measurements which utilized imageries from remote sensing, there were proper field measurements with meter tapes by six assistants that were trained by researcher for ground-trotting,[to confirm what is obtained from the computer and find out whether there is deviation.. Also, Arc GIS was used to compute the distance between the serviced roads and sited structures.The steps for using Arc GIS 10.4 to measure the distance between sited structures and serviced roads are as follows:

Step 1 – Open Arc-GIS software and click on New

Step 2 – Import or add Data (imagery/satellite image) you want to work within, that is Awka Capital Territory Satellite Image (Map), then zoom it in order to see it very well (clear view)

Step 3 – Project the Pester for the Image to be projected.

Step 4 – Create shape files for the Roads you want to work on, that is Trunk A, B and C

Trunk A – Expressway (Federal Roads)

Trunk B – Major Roads (State Roads)

Trunk C – Minor/Street Roads (Local Roads)

Then add developments (Structures) like Residential, Commercial, Employment Area, Recreational, Educational, Religious, Utilities, Conservation, Health Institution, Industrial, Agriculture, Police Station and Barracks, among others.

Step 5 – Create folder (Benedicta's) for the work in catalog, right click on it, then go to new and click on shapefile for development and roads, then identify the feature type.

Step 6 – To Digitize the Roads, go to editor and click on start editing that contains save editing and stop editing, after that, go to create feature and click on the shape file you want to edit. Assuming you want to start with Express way, just check on Trunk A and click on the Starting point. If you click on Trunk A, the Cursor will automatically change to a tool for digitizing, then zoom it to starting point, when you get to starting point, you stop and double click on that point to digitize the roads for measurement.

Step 7 – To digitize the Development Feature, such as Residential, already, the shapefile is polygon feature and it is used to digitize buildings or shaped objects for measurement.

Step 8 – After digitizing, you go back to Editor and check save edits and stop editing.

Step 9 – Create Attribute table for the Development, just right click on the shapefile, then go to open Attribute table, click on it and check on table, then click on Add field then put the necessary information needed and click OK, the start editing and put the information, e.g. Title of building i.e. Bank, Hospital etc.

4.6.2 Use of Metre Tape Rule for Ground Trotting

This was done with the help of six field assistants who measured some selected roads in Awka South. Purposive sampling technique was used to select the number of roads in Awka South and inference was drawn from it to other parts of ACT. Awka South was chosen, because all communities therein are partof Awka Capital Territory. The measurement was done for ground trotting so as to know if deviation is significant or not.

Six field assistants were trained by the researcher for measured distancesof the sited structures in Awka South, though the inference was drawn from Awka South for other LGAs in the ACT. The six field assistants went to the field twice weekly and they did it within four months.

4.6.3 Questionnaire

A well structured questionnaire was used to obtain information on the causes and effects of non-compliance from the public and professionals. The questions in this research instrument (questionnaire) were structured into four sections. Section Acentered on demographic characteristics. Five questions were listed for this section.

The second section (section B) centered on causes of non-compliance to road setbacks in the siting of structures in the study area. The questions that were designed centered on issues of rapid urbanization, population growth, corruption of planning officers, poverty, high cost of land acquisition, difficulty in land accessibility high cost of living, nonchalant attitudes of the government and other causes of non-compliance with road setbacks.

Section C assessed the implications/effects of non-compliance with road setbacks in the siting of structures in the area. The questions in this section concentrated on physical, social, economic and health effects, while section D centered on the development of an octadecagonal polygon template for professionals alone for proper management of non-compliance with road setbacks in ACT.

Fifty(50) field assistants were used to distribute and collect the questionnaire from the field. Six(6) of thefield assistants distributed forty-eight(48) questionnaire and were able to collect thirty-nine(39) in Anaocha L.G.A, eight(8) of the field assistants distributed and collected, sixty-four(64) and fifty-four(54) of the questionnaire respectively in Awka North L.G.A. Eighteen(18) field assistants distributed the instrument one hundred and forty-four(144) questionnaire and collected one hundred and seventeen(117) questionnaires in Awka South L.G.A. Eight(8) field assistants distributed sixty-four(64) and were able to collect fifty(50) from Dunukofia L.G.A. In Njikoka L.G.A, six(6) field assistants distributed number of forty-eight(48)questionnaire and were able to collect forty(40) while four(4) field assistants went to Orumba North L.G.A and distributed thirty-two(32) number of questionnaire and collected twenty-six(26) in number.

The distribution and collection of questionnaire took six months to finish the job. The researcher distributed to and collected the questionnaire from the professionals. The duration for both pilot

survey for authentication and field survey together with their analysiswas thirteen months, that is from September 2016 to October 2017.

4.6.4 Walkthrough, Physical Inspection and Direct Observation

The study area was investigated by going to the field/site for field observations and reconnaissance survey.The results from these observations were recorded by the researcher and used to checkmate/confirm certain information that were received from the questionnaire and even remote sensing. It is through this observation that the researcher collected data for the drainage and the stage of drainage in ACT.

4.6.5 Interview

Personal interviews were scheduled. The use of this instrument helped to get responses from those who could not respond to the questionnaire items. This also acted as a check on the authenticity of the responses from the questionnaire. Telephone Surveys were also used to supplement the above instruments.

4.7 Validaton of Data Collection Techniques

This study adopted content, context and construct validation to ensure that the questionnaire was appropriate for the study. Step by step method in the design and administration of the survey questionnaire was used. A pilot survey was carried out to ensure that the questionnaire focused on the study interest and was suitable to the aim and objectives of the study. After due confirmation of the suitability of the questionnaire, then the main survey was conducted. The SPSS statistical tools were used to determine the levels of significance in hypothesis stated. Questionnaire as a research instrument of this study was tested for reliability and validity using Analysis of Variance and SPSS test to determine the level of significance in hypothesis stated.

4.8Reliability of Research Instrument (Questionnaire)

Prior to the adoption of the questionnaire as an instrument for data collection, a reliability test was statistically conducted and it was confirmed that the instrument was very reliable. Details of the reliability test were presented in appendix 3(a, b, c and d).

4.9 Methods of Data Analysis

The data collected with the questionnaire were presented using tables, percentage frequencies. The data collected were analyzed using the appropriate statistical tools listed below.

Descriptive and Deductive Statistical Analysis were used to determine the respondents' Age, Sex, Marital status, Level of education, length of time the respondents have lived or stayed in the area, and the rate of highway usage by the respondents. Frequency and percentage frequency of the responses by the respondents were used to analyze the data generated in respect of the respondents characteristics mentioned above.

Also, weighted mean values of the responses of the respondents (both non – professionals and professionals) were used to find which of the responses is positive (agree) or negative (disagree). The formula for the weighted mean is given by:

$$\bar{x} = \frac{\sum_{i=1}^{n}(x_i * w_i)}{\sum_{i=1}^{n} w_i}$$

Then if the weighted mean is greater than or equal to 3.0, that issue raised is positive (agree), but if the weighted mean is less than 3.0, the issue raised is negative (disagree). This is so because there are five likert scales and the likert scales are arranged thus:

$$\frac{1+2+3+4+5}{5} = \frac{15}{5} = 3.0,$$

Where 1 stands for SD, 2 stands for D, 3 stands for NO, 4 stands for A and 5 stands for SA.

4.9.1. One – Way Analysis of Variance (ANOVA)

The One-Way Analysis of Variance (ANOVA) is a statistical tool used to determine whether there are differences between the means of three or more independent (unrelated) groups. It also compares the means of two or more independent groups in order to determine whether there is statistical evidence that the associated population means are significantly different.

The statistical tool was used to run some preliminary tests on the responses of the professionals and non-professionals.

ANOVA and all other statistical tools in this studywere analyzed using Statistical Package for Social Sciences (*SPSS version 16.0*) software.

4.9.2. Post HOC Tests

Post Hoc test is post ANOVA test. It is run when the result of an ANOVA is significant, that is, when there is significant difference among the groups under study. It is run to identify or detect where the differences occurred between groups, that is, which groups differed from others and which were the same. Post hoc tests are termed a posteriori test, that is, performed after the event (the event in this case being a study).

It was applied in preliminary tests in the responses of the professionals.

4.9.3 Principal Components Analysis (PCA)

Principal Component Analysis (PCA) is a statistical tool that uses an orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables called principal components (or sometimes, principal modes of variation). The number of principal components is less than or equal to the minimum number of original variables or the number of observations. This transformation is defined in such a way that the first principal component has the largest possible variance and each succeeding component in turn has the higher variance possible under the constraint that it is orthogonal to the preceding components. The resulting vectors are an uncorrelated orthogonal basis set. The PCA was therefore, used to ascertain the variables that formed the principal component which are referred to as the major factors, while others are minor factors.

Principal Components Analysis was used in hypotheses two and hypotheses three.

4.9.4 One Sample T – Test

One Sample T-Test was used in hypotheses one, two and three.

4.9.5 Paired Samples T – Test

The paired sample *t*-test, sometimes called the dependent sample *t*-test, is a statistical tool used to determine whether the mean difference between two sets of observations is zero, that is, compares the means between two related groups on the same continuous but dependent variable. In a paired sample *t*-test, each subject or entity is measured twice, resulting in *pairs* of observations. This statistical tool was used in hypothesis four.

CHAPTER FIVE

DATA PRESENTATION, ANALYSES AND INTERPRETATION OF FINDINGS

This chapter presentes, analysis, of data interpretation and discussed the various data generated. The data derived from field measurements and questionnaires were presented accordingly.

5.1 Descriptive Discussions of the Bio-Data Responses from Questionnaire

5.1.1 Discussion on the Bio – Data ofNon–Professionals

This section discussed the bio-data of the non-professionals, that is, their age distribution, gender, occupation, and highest levels of qualifications.

Table 5.1 presented the age distribution of the non professional respondents.

Table 5.1: Age Distribution of the Respondents (non-professionals)

Age	Frequency	Percent(%)
18-30years	58	17.8
31-40years	124	38.0
41-50years	85	26.1
Above 50 years	59	18.1
Total	326	100.0

Source: Author's computation from field work (2017)

From Table 5.1,it is observed that greatest percentage of the respondents fell within the age bracket of 31-40 years: (38%). It was followed by the age bracket of 41-50 years. The least percentage of respondents fell within the age bracket of 18-30 years.

This showed that majority of the respondents are youths, who are in their most active stage of life. The respondents by their ages were mature enough to reason and answer the questions/issues raised in the questionnaire.

Table 5.2 presented the gender distribution of the non-professionals.

Table 5.2: Sex Distribution of the Respondents (non-professionals)

Gender	**Frequency**	**Percent**
Female	105	32.2
Male	221	67.8
Total	326	100.0

Source:Author's computation from field work (2017).

From table5.2, the percentage of male respondents outnumbered than the females.The percentage frequency of male was 67.8% while that of female was 32.2%

Table 5.3 presented the distribution of occupation of the respondents (non-professionals). The number of respondents (freq.) and the percentage response (freq %) of each occupation is clearly presented in the table.

Table 5.3: Occupation of Respondent (non-professionals)

Occupation	Frequency	Percent (%)
Civil Service	54	16.6
Trading	137	42.0
Building (engineer)	61	18.7
Contractor, Student, Clergy man, Driving Teaching	74	22.7
Total	**326**	**100.0**

Source:Author's computation from field work (2017).

Table 5.3 revealed that a good number of the respondents were traders,followed by contractors, engineers and civil servants,with their frequency percentages were 42.0%, 22.7%, 18.7 and 16.6 respectively.

Table 5.4 presented the highest level of educational qualificationof the respondents with their frequencies and percentage frequencies.

Table 5.4: Highest Qualification of the Respondents (Non-professionals)

Highest qualification	Frequency	Percent(%)
FSLC	28	8.6
WAEC, GCE, NECO	102	31.3
B.Sc	116	35.6
M.Sc	74	22.7
PhD	6	1.8
Total	326	100.0

Source:Author's computation from field work (2017).

The highest qualification of the respondents was one of the factors that determined the rationality of the answers given by the respondents. From Table 5.4 it is observed that a high percentage of the respondents in the five groups had B.Sc followed by WAEC and M.Sc, and as such their level of literacy is considered high enough.

However, the percentages of the respondents that had FSLC i.e.those that attended primary schools was only 8.6%

The implication of this outcome is that the data collected with the questionnaire was highly reliable considering the level of education of the respondents. That is to say that the respondents had what it took to read and understand the questions contained in the questionnaire and provided rational answers to them. This also gave a dependable result, conclusion and correct decisions on the issues raised.

5.1.2 Discussion on the Bio – Data of the Professionals

This section discussed the bio-data of the professionals. That is their age distribution, sex, occupation, and highest levels of qualifications.

Table 5.5 presented the age distribution of the professionals with their various age groups, and the number of respondents in each age group together with their percentages.

Table 5.5: Age Distribution of the Professionals

Age (years)	**Frequency**	**Percent** (%)
18-30	4	4.0
31-40	32	32.0
41-50	50	50.0
50 and above	14	14.0
Total	100	100

Source:**Author's computation from field work (2017).**

From table 5.5, it is observed that half of the respondents were within the age group of 41-50 years (50%), while the second highest age group was 31-40 years which had 32% of the respondents. 50 years and above had 14%, while respondents between 18-30 years were just 4%. This implied that the professionals are mature enough and their responses can be relied upon.

Table 5.6 presented the sex distribution of the professionals with the frequencies and percentages.

Table 5.6: Sex Distribution of the Professionals

Gender	**Frequency**	**Percent**(%)
Female	47	47.0
Male	53	53.0
Total	100	100

Source:Author's computation from field work (2017).

From Table 5.6, it is observed that 53% of the professionals were male, while 47% were female.

Table 5.7: Occupation of Professionals

Occupation	**Frequency**	**Percent**(%)
Civil Service	27	27.0
Trading	1	1.0
Building (engineer)	55	55.0
Contractor, Student, Clergy man, Driving Teaching	17	17.0
Total	100	100

Source:Author's computation from field work (2017).

From Table 5.7, it is shown that majority of the professionals are builders, (55% of them), followed by 27%,who are Civil Servants. This means that what they gave as responses can be used reliably since they understood the profession very well.

Table 5.8 presented the highest educational levels of education of the professionals with the frequencies and percentage frequencies.

Table 5.8: Highest Qualification of the Professionals

Highest qualification	Frequency	Percent(%)
WAEC, GCE, NECO	1	1.0
B.Sc	21	21.0
M.Sc	55	55.0
PhD	23	23.0
Total	100	100.0

Source:Author's computation from field work (2017).

From Table 5.8, we observed clearly that the professionals were well educated with the highest number of them being Masters Degree holders (55%), while 23% of them held PhDs and 21% hold First Degree. Only one of them holds GCE O'Level. This too implied that the professionals were literate enough to read, understand and gave valid information as regards the issue of non-compliance with road setbacks in Awka Capital Territory of Anambre State.

5.2 Responses to the Objectives and Research Questions of the Study

This section discussedanswers to the objectives and research questions of the study. The objectives were turned to research questions; only the objectives that were written in this section had equally served for the research questions.

5.2.1 Objective 1: To determine the levels of non-compliance of the sited structures and find out if the sited structures complied to set standards.

In achieving this objective, the levels of compliance and non-compliance of the sited structures in the three types of roads A, B and C in the six LGAs were computed separately, and then the overall level of non-compliance wascomputed.

One Sample T-Test was used to check all the field measurements and compare them with set standards. The levels of deviations (non-professionals and professionals)of each LGA.

5.2.1.1 Level of Compliance and Non-compliance of Trunk A Roads (Federal Roads)

Table 5.9 presented the compliance and non-compliance levels along the Trunk A (Federal) roads in the six LGAs that make up ACT.The key to understanding the content of the table is thus:

- **LGA**: Local Government Area under consideration.
- **S.S**: Set Standard for Trunk A roads (45.72m).
- **Mean**: Mean level of compliance in the LGA,(mean of the measured distances in the LGA).
- **Mean Difference**: Difference between means of measured distances and Set Standards (Mean – S.S).
- **P – Value**: Significant value of the measured distances in the LGA. If the p-value is less than 0.05, it means significant, but if greater than or equal to 0.05, it is not significant.
- **% Compliance**: Percentage level of compliance of the sited structures in the LGA.
- **% Non-Compliance**: Percentage level of non-compliance of the sited structures in the LGA.
- **Decision**: Remark on the LGA.

Table 5.9: Compliance and Non-compliance Levels along Trunk A Roads in the Six LGAs that make up ACT,Anambra State.

S/N	L.G.A	S.S (m)	Mean (m) of compliance	Mean Difference (m)	P–Value	% Compliance	% Non-Compliance	Decision
1	Njikoka	45.72	35.633	-10.08667	.641	77.9381	22.0619	Non-compliance level is small and is not significant
2	Orumba North	45.72	13.788	-31.93111	.000	30.1594	68.8406	Non-compliance level is high and is significant
3	Awka North	45.72	16.911	-28.80889	.000	36.9984	63.0016	Non-compliance level is high and is significant
4	Awka South	45.72	15.554	-30.16545	.000	34.0212	65.9788	Non-compliance level is high and is significant
5	Dunukofia	45.72	13.640	-32.08000	.000	29.8425	70.1575	Non-compliance level is high and is significant
6	Anaocha	45.72	11.290	-34.42909	.000	24.6958	75.3042	Non-compliance level is high and is significant

Source: Author's statistical computation from field work (2017).

Graphical representation of Table 5.9 is shown in figure 5.1

From Table 5.9, it is observed that it is only in Njikoka LGA that structures built trunk A roads complied up to 77.9381% and its non-compliance level is small (22.0619%).Its mean value is 35.6333m and is less than the set standard of 45.72m. Considering the other LGAs, their mean levels of compliance were below 40% and their non-compliance levels were all above 60%. This showedthat the sited structures on trunk A roads in the six LGAs did not comply to set standards and their non-compliance levels are high.

Figure 5.1 is the bar chart for the levels of compliance of the structures in each LGA. It was produced from Table 5.9 using percentage compliance levels in that table.

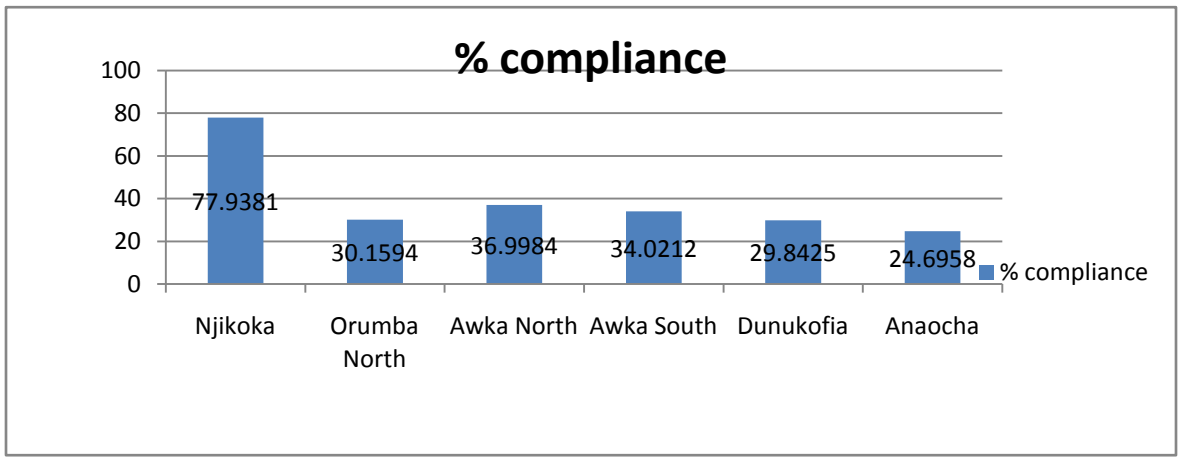

Figure 5.1: Compliance levels for trunk A roads in the six LGAs that make up ACT

From figure 5.1, it is observed that levels of compliance to sited structures of the LGAs in ACT for trunk A roads,showedthat Njikoka LGA had the highest compliance level while Anaocha had the lowest compliance level hence highest level of non-compliance.

5.2.1.2 Level of Compliance and Non-compliance of T0runk B Roads (State Roads)

Table 5.10 presented the compliance and non-compliance levels of the Trunk B (State) roads in the six LGAs that make up ACT. The key to understanding the content of the table is thus:

- **LGA**: Local Government Area under consideration.
- **S.S**: Set Standard for Trunk A roads (30m).
- **Mean**: Mean level of compliance in the LGA, mean of the measured structures in the LGA.
- **Mean Difference**: Difference between mean of measured structures and Set Standards (Mean – S.S).
- **P – Value**: Significant value of the measured structures in the LGA. If the p-value is less than 0.05, it means significant, but if greater than or equal to 0.05, it is not significant.
- **% Compliance**: Percentage level of compliance of the structures in the LGA.
- **% Non-Compliance**:Percentage level of non-compliance of the structures in the LGA.
- **Decision**: Remark on the LGA.

Table 5.10: Compliance and Non-Compliance levels along Trunk B Roads in the Six LGAs that make up ACT,Anambra State.

S/N	L.G.A	S.S (m)	Mean (m)	Mean Difference (m)	P–Value	(%) level ofCompliance	% level of Non Compliance	Decision/Remark
1	Njikoka	30	6.9357	-23.06429	.000	23.119	76.881	Non-compliance level is high and is significant
2	Orumba North	30	6.9273	-23.07273	.000	23.091	76.909	Non-compliance level is high and is significant
3	Awka North	30	7.7185	-22.28148	.000	25.727	74.273	Non-compliance level is high and is significant
4	Awka South	30	10.8438	-19.15615	.000	36.146	63.854	Non-compliance level is high and is significant
5	Dunukofia	30	6.0258	-23.97419	.000	20.086	79.914	Non-compliance level is high and is significant
6	Anaocha	30	6.3593	-23.64074	.000	21.198	78.802	Non-compliance level is high and is significant

Source: Author's statistical computation from field work (2017).

Graphical representation of Table 5.10 is shown in figure 5.2

Table 5.10, shows that for all the LGAs, none of the measured structures sited on the state roads complied with the minimum standard of 30m setback for State roads. As a result, all their non-compliance levels are high; all higher than 60% as evident onTable 5.10. Figure 5.2 is a bar chart for the compliance levels of the sited structures along the State roads. It was produced using the percentage compliance levels in table 5.10.

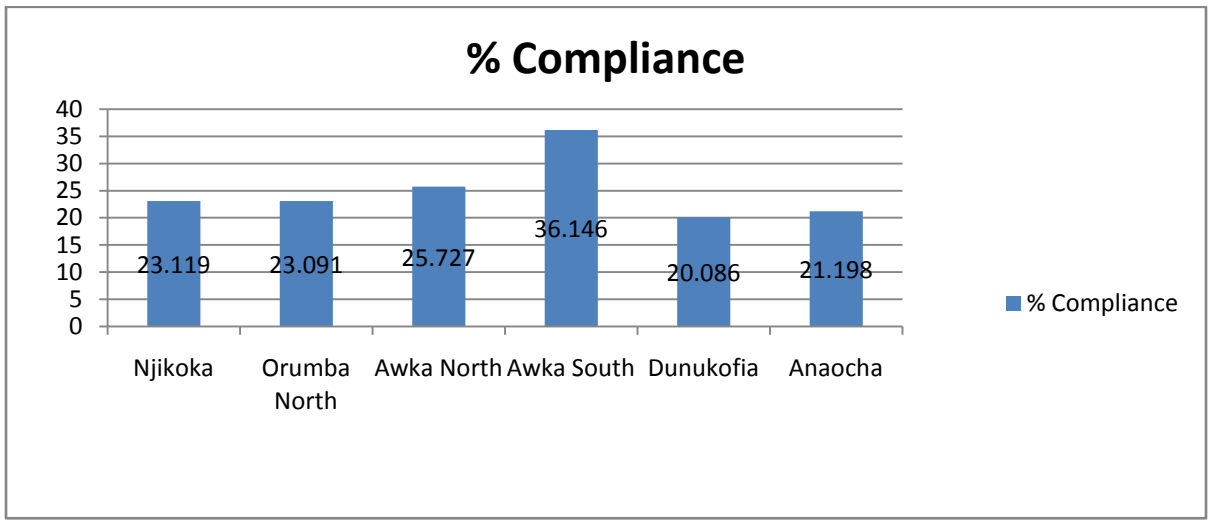

Figure 5.2:**Compliance levels for Trunk B roads in the six LGAs of ACT**

From Figure 5.2, it is observed that the LGA with highest compliance level along Trunk B (State) roads is Awka South, with 36.146%. This level is still small and showed that all structures on Trunk B roads sited did significantly deviate from set standard.

5.2.1.3 Level of Compliance and Non-compliance of Trunk C Roads

Table 5.11 presentes the compliance and non-compliance levels of the Trunk C (Local Government) roads in the six LGAs that make up ACT. The key to understanding the content of the table is thus:

- **LGA**: Local Government Area under consideration.
- **S.S**: Set Standard for Trunk A roads (45.72m).
- **Mean**: Mean level of compliance in the LGA, mean of the measured structures in the LGA.
- **Mean Difference**: Difference between mean of measured structures and Set Standards (Mean – S.S).
- **P – Value**: Significant value of the measured structures in the LGA. If the p-value is less than 0.05, it means significant, but if greater than or equal to 0.05, it is not significant.
- **% Compliance**: Percentage level of compliance of the structures in the LGA.
- **% Non-Compliance**:Percentage level of non-compliance of the structures in the LGA.
- **Decision**: Remark on the LGA.

Table 5.11: Compliance and non- compliance levels along Trunk C Roadsin the six LGAs of ACT,Anambra State.

S/N	L.G.A	S.S (m)	Mean (m)	Mean Difference(m)	P–Value	% Compliance Level	% Non-Compliance Level	Decision/Remark
1	Njikoka	25	4.1893	-20.81071	.000	16.7572	83.2428	Non-compliance level is high and is significant
2	Orumba North	25	4.3600	-20.64000	.000	17.4400	82.5600	Non-compliance level is high and is significant
3	Awka North	25	4.3103	-20.68966	.000	17.2412	82.7588	Non-compliance level is high and is significant
4	Awka South	25	5.8789	-19.12105	.000	23.5156	76.4844	Non-compliance level is high and is significant
5	Dunukofia	25	3.9259	-21.07407	.000	15.7036	84.2964	Non-compliance level is high and is significant
6	Anaocha	25	3.7000	-21.30000	.000	14.8000	85.2000	Non-compliance level is high and is significant

Source: Author's statistical computation from field work (2017).

Graphical representation of Table 5.11 is shown in figure 5.3

Looking at Table 5.11, it is observed that all the sited structures along trunk C roads did not comply with the set standard of 25m. Also, all the non-compliance levels are very high; all are above 75%. This is an indication and a confirmation of the reason why majority of the structures on Local and Street roads.In ACT are very close to the roads; in some locations, it is very difficult for people to see access roads in the streets.

Figure 5.3 is the bar chart for the compliance levels of the sited structures on Trunk C roads in ACT. It was produced using the percentage compliance levels of the Trunk C roads as presented in table 5.11.

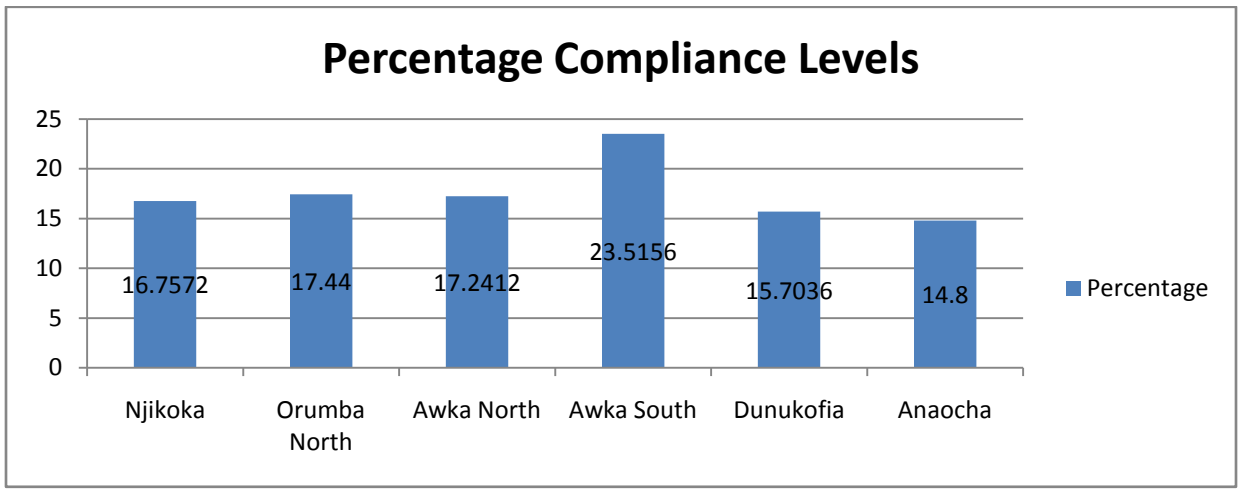

Figure 5.3:Compliance levels for Trunk C roads in the six LGAs that make up ACT

Source: 5.11

Figure 5.3 shows that the LGA with the highest level of compliance along trunk C roads is Awka South and this level of compliance is too small (23.5156%). This showes that the level of non-compliance along Trunk C roads in ACT is very high.

5.2.1.4Overall Levels of Compliance and Non-compliance ofallthe Trunks

Table 5.12 presented the overall compliance and non-compliance levels of all the Trunks (A, B and C) in ACT. The key to understanding the content of the table is thus:

- **Trunk**:Trunk under consideration.
- **S.S**: Set Standard for Trunk A roads (45.72m).
- **Mean**: Mean level of compliance in the LGA, mean of the measured structures in the LGA.
- **Mean Difference**: Difference between mean of measured structures and Set Standards (Mean – S.S).
- **P – Value**: Significant value of the measured structures in the LGA. If the p-value is less than 0.05, it means significant, but if greater than or equal to 0.05, it is not significant.
- **% Compliance**: Percentage level of compliance of the structures in the LGA.
- **% Non-Compliance**:Percentage level of non-compliance of the structures in the LGA.
- **Decision**: Remark on the LGA.

Table 5.12: Overall Compliance and non- compliance levels for all the measured Trunks in ACT, Anambra State.

S/N	Trunk	S.S (m)	Mean (m)	Mean Difference (m)	P–Value	% Compliance Level	% Non-Compliance Level	Decision/Remark
1	A	45.72	17.4356	-28.2844	.000	37.18285	62.81714	Non-compliance level is high and is significant
2	B	30	7.3933	-22.6067	.000	24.64433	75.35567	Non-compliance level is high and is significant
3	C	25	4.3208	-20.67925	.000	17.2832	82.7168	Non-compliance level is high and is significant

Source: Author's statistical computation from field work (2017).

Scree Plot Graphical representation of Table 5.12 is shown in figure 5.4

From Table 5.12, it is observed that the overall compliance level along Trunk A roads is 37.18% with non-compliance level of 62.18%. Also, the overall compliance level along Trunk B roads is 24.644% with a non-compliance level of 75.356%.The overall compliance level along Trunk C roads is 17.2832% with non-compliance level of 82.7168%.

This implied that the overall levels of compliance of all the roads are quite low, while their overall non-compliance levels are very high.

Tables 5.9, 5.10, 5.11 and 5.12 together with Figures 5.1, 5.2 1 and 5.2 helped us to verify Objective 1, thereby answering the first Research Question.

Plates of the areas that have incidents of non-compliance are contained in AppendixV.

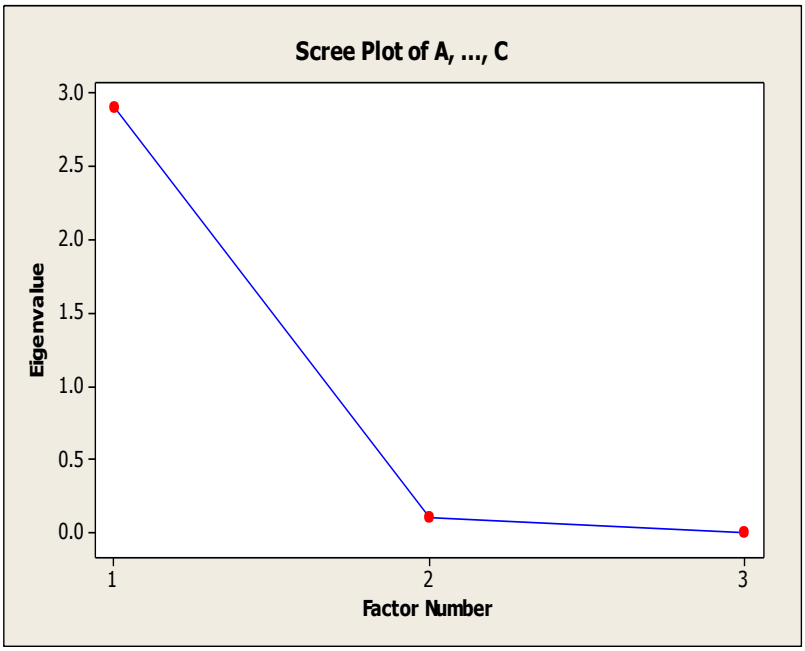

Figure 5.4: Factor Score coefficients of principal component analysis ranking order of overall level of compliance and non-compliance in ACT.
Source: table 5.12

Factor Score Coefficients

Variable	Factor1	Factor2	Factor3
A	**2.508**2.802	-4.867	
B	-1.694	**-16.819**	19.405
C	-0.147	14.846	**-14.278**

Using the factor score coefficients, the ranking of the factors can be arranged in the order A, B, and C as factor A has the highest and factor C has the lowest among the factors scores.

5.2.2 Objective 2: To identify the causes of non-compliance with road setbacks in Awka Capital Territory. This objective was met by providing the responses of the non-professionals and professionals on the causes of non-compliance with road setbacks in ACT.

5.2.2.1Responses of the Non-Professionals on the Causes of non-compliance with Road Setbacks in ACT, Anambra State

This section provided the responses of the Non-professionals on the causes of non-compliance withroad setbacks in ACT. The information of the non-professionals is contained in Table 5.13.Thetable also providedtheir mean, standard deviation and the weighted mean of the responses.

Table 5.13 is the mean, standard deviation and weighed mean of responses with respect to the respondents opinions, on the causes of non-compliance with road setbacks in ACT as responded by non-professionals.

KEY:
Mean: Mean level of responses of non-professionals on the causes of non-compliance with road setbacks in ACT.
SD: Standard Deviation

Table 5.13 Causes of non-compliance with road setbacks inACT, Anambra State as responded by the Non-professionals according to LGAs

S/N	Issue raised	Anaocha		Awka North		Awka South		Dunukofia		Njikoka		Orumba North		ACT		Remark/Decision
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
1	Rapid Urbanization in this area	4.2500	.43693	4.1538	.55470	3.9350	1.14333	4.6333	.73569	4.0222	.75344	4.1379	.83342	4.1887	.91319	Agree
2	Population Growth in this area	4.5357	.50324	4.3846	.86972	4.1463	.97243	4.1667	1.19557	4.6000	.49543	4.1724	.38443	4.3343	.87586	Agree
3	Corruption of planning officers	4.5179	.76256	4.4615	.87706	4.1626	.99486	**4.7667**	.64746	4.4444	.75545	4.6207	.94165	4.4956	.88358	Agree
4	Difficulty in land accessibility/ non enforcement of law	4.1964	.64441	4.0769	.75955	4.0407	.94434	3.0833	.97931	4.2000	.45726	2.6897	1.28462	3.7145	1.02467	Agree
5	High cost of land acquisition	4.5357	.60194	4.6154	.65044	3.6667	1.30363	2.8333	1.15225	4.2667	.88933	3.5517	1.21262	3.9116	1.23438	Agree
6	Failure of the law Enforcement agents	3.9286	.56752	3.7692	1.16575	3.2195	1.32774	**4.7667**	.46456	3.8444	.82450	4.6207	.67685	4.0249	1.13884	Agree
7	High cost of living	2.8393	.92984	2.0769	1.03775	3.3902	1.18484	2.2500	.62775	2.8889	.83182	2.5517	.73612	2.6662	1.06413	Disagree
8	Nonchalant attitudes of the government	3.9464	.35263	3.6154	.86972	4.1382	.91728	**4.7333**	.60693	3.7333	.86340	4.6207	.67685	3.8328	.83449	Agree
9	Greedy	4.5893	.68162	4.4615	1.12660	4.2439	.92631	2.1000	1.59129	4.5333	.50452	3.0690	1.68885	3.8328	1.42821	Agree

	attitudes of the developers															
10	Competition for business space among business men	4.1071	1.09010	4.6923	.48038	4.0081	1.01219	2.5833	1.12433	3.8222	1.35326	2.8276	1.28366	3.6734	1.27123	Agree
11	Siting of strctures before road construction	4.5893	.49642	4.6154	.50637	4.0569	1.02670	3.5333	.87269	4.5778	.49949	4.1034	1.01224	4.2460	.92093	Agree
12	Improper city planning	4.5000	.60302	4.4615	.51887	4.3902	.74255	4.1333	.46820	4.0444	1.06506	4.4828	.50855	4.3354	.72225	Agree

Source: Author's Computation from field work (2017)

Scree Plot Graphical representation of Table 5.13 is shown in figure 5.5

From Table 5.13, it is observed that the non-professionals agreed that all the issues raised are the causes of non-compliance with road setbacks in ACT, except high cost of living with weighted mean of 2.666. It also noticed that the major causes of non-compliance with road setbacks in Act are ranked as follows: Corruption of planning authorities, followed by improper city planning, population growth, siting of structures before road construction; Rapid Urbanization in the area; failure of the law enforcement agents; High cost of land acquisition. Nonchalant attitudes of the government together with the Greedy attitudes of the developers; Difficulty in land accessibility, competition for business space among businessmen and High cost of living with their following respective mean: 4.4956, 4.3354, 4.3343, 4.2460, 4.1887, 4.0249, 3.9116, 3.8328/3.8328, 3.7145; and 3.6734.

Among the issues raised as the major causes of non-compliance with road setbacks in ACT, it is observed that the greatest/highest weighted mean (W.M) responses of corruption of planning authorities fell within Dunukofia LGA with weighted mean of 4.7667. followed by Orumba North with W.M of 4.6207; then Aniocha (4.5179), Awka North (4.4615); Njikoka (4.4444); and Awka South (4.1628).

The above explanation implied that the 12 causes listed were agreed upon by the respondents (non-professionals) to be the causes of non-compliance with road setbacks in Awka Capital Territory of Anambra State except for high cost of livg. This is in response to objective two “to identify the causes of non-compliance with road setbacks in ACT” which corresponds to research question two.

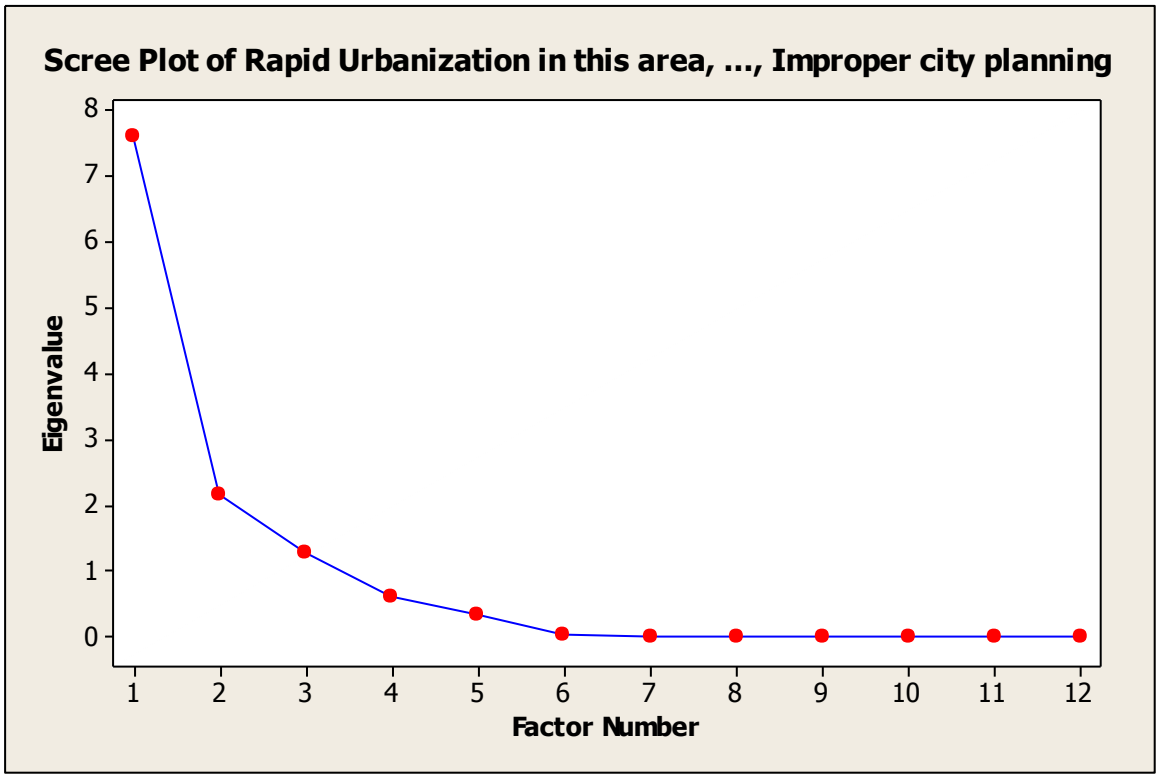

Figure 5.5: Ranking order of causes of non-compliance by non-professionals in ACT.

Factor scores of the variables can be used to rank them in order of preference of 3, 12, 2, 11, 1, 6, 5, 8. 9, 4, 10 and 7. The factor with highest factor score is the most rated cause of non-compliance with road setbacks and the factor with the least factor loading is the least rated. Using the factor score coefficients, the variables are rated in descending order as;

Corruption of planning officers

Improper city planning

Population Growth in this area

Sitting of structures before road

Rapid Urbanization in this area

Failure of the law Enforcement

High cost of land acquisition

Nonchalant attitudes of the government

Greedy attitudes of the developer

Competition for business space

Difficulty in land accessibility

High cost of living

Table 5.14is the mean, standard deviation and weighed mean of responses with respect to the professional respondents opinions, on the causes of non-compliance with road setbacks in ACT as responded.

Table 5.14: Causes of non-compliance to road setbacks in ACT, Anambra State as given by the professionals according LGAs

S/No	Issue	Aniocha		Awka North		Awka South		Dunukofia		Njikoka		Orumba North		Awka Capital Territory		Remark / Decision
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
1	Rapid Urbanization in this area	4.0542	0.0001	3.8324	0.0001	4.0021	0.0214	3.8853	0.0043	4.0026	0.0004	4.0354	0.0032	4.302	0.0022	Agree
2	Population Growth in this area	4.0331	0.0431	4.8333	0.0032	3.9943	0.0152	4.9903	0.0016	3.8865	0.0013	4.0216	0.024	4.4599	0.0021	Agree
3	Corruption of planning officers	3.8553	0.0024	0.9376	0.0033	3.7834	0.0015	3.7382	0.0112	4.0016	0.0321	3.9932	0.0015	4.8849	0.0211	Agree
4	Difficulty in land accessibility/non enforcement of law	3.8833	0.0162	3.8545	0.0022	3.9968	0.0001	4.0216	0.013	4.1417	0.0021	4.0054	0.0001	4.4839	0.0022	Agree
5	High cost of land acquisition	3.9931	0.0012	3.9657	0.0016	3.8964	0.0254	3.8692	0.0153	4.0025	0.0002	4.2621	0.0024	4.1648	0.0013	Agree
6	Failure of the law Enforcement agents	3.9935	0.2102	3.9321	0.0014	4.9827	0.0632	4.6783	0.1402	3.4316	0.0003	4.9943	0.1203	4.9188	0.1113	Agree
7	High cost of living	4.0315	0.0165	4.8862	0.0154	4.8636	0.0321	4.7437	0.0001	4.0265	0.0001	4.0426	0.0001	4.599	0.0001	Agree
8	Nonchalant attitudes of the government	3.9326	0.001	3.8869	0.1203	4.0031	0.0001	4.0032	0.0001	4.0265	0.0012	4.0327	0.0032	4.8142	0.0114	Agree
9	Greedy attitudes of the developers	4.0224	0.0002	3.8944	0.0152	3.7627	0.0002	4.0014	0.0032	4.0265	0.0041	4.0276	0.0001	4.1225	0.0021	Agree
10	Competition for business space among business men	4.0332	0.1102	3.9468	0.0154	3.9903	0.0012	4.0011	0.0001	4.0043	0.0001	4.0521	0.0215	4.6713	0.0416	Agree
11	Siting of structures before road construction	4.8645	0.0024	3.8966	0.0062	3.9943	0.0541	3.9932	0.0016	4.0426	0.0211	4.3261	0.0023	4.1862	0.0143	Agree
12	Improper city planning	**3.9955**	0.0013	3.9942	0.0001	3.9676	0.0014	4.0065	0.0153	4.0436	0.0142	3.9837	0.014	4.8319	0.2103	Agree

Source: Author's computation from field work (2017)

Scree Plot Graphical representation of Table 5.14 is shown in figure 5.6

From Table 5.14, it is observed that issues which contributed to the causes of non-compliance with road setbacks were all agreed by the respondents (professionals) in ACT. Anambra State. Also, it is noted that corruption of planning authorities was considered as the major causes of non-compliance with weighted mean of 4.9188, followed by failure of the law enforcement agents with weighted mean of 4.8849, the next one is improper city planning with wmean of 4.8319. among the responses, the highest responses under issue of corruption of planning officers fell within Orumba North with weighted mean of 4.9943 followed by Awka South with weighted of 4.9827, the next is Dunukofia with weighted mean of 4.6783.

The above explanations implied that the 12 causes listed were agreed upon by the respondents (non-professionals and professionals) to be the causes of non-compliance with road setbacks in Awka Capital Territory of Anambra State, except for high cost of living. This is in response to objective two "to identify the causes of non-compliance with road setbacks in ACT" which corresponds to research question two.SeeTables 5.13 and 5.14 and Figures 5.5 and 5.6.

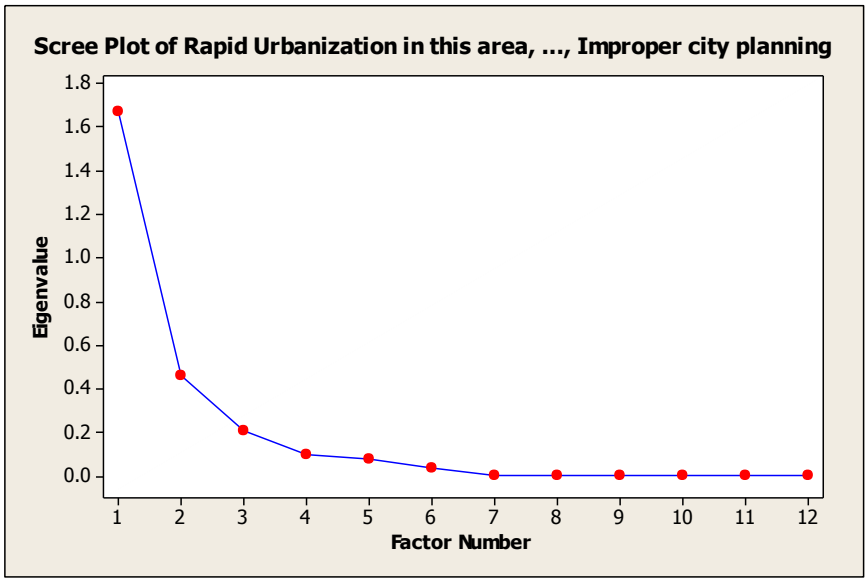

Fig. 5.6: PCAfactor score coefficient ranking order of non-compliance with road setbacks by professionals in ACT.

From the factor score coefficients, the variables can be rated in descending order; 6, 3, 12, 8, 10, 7, 4, 2, 1, 11, 5 and 9 and the variables are;
Failure of the law Enforcement
Corruption of planning officers
Improper city planning
Nonchalant attitudes of the gov.
Competition for business space
High cost of living

Difficulty in land accessibility
Population Growth in this area
Rapid Urbanization in this area
Sitting of structures before roa.
High cost of land acquisition
Greedy attitudes of developers

5.2.3 Objective 3: To determine the environmental implications/effects (social, physical, economic and health) of non-compliance with road setbacks in the Awka Capital Territory.

This Objective was met by providing the responses of the non-professionals and professionals on the environmental implications/effects (social, physical, economic and health) of non-compliance with road setbacks in ACT of Anambra State.

With the information contained on Tables 5.15, 5.16, 5.17, 5.18, 5.19, 5.20, 5.21, and 5.22, objective 3 had been met, also with them (Tables 5.15 to 5.22) research question 3 had been answered.

5.2.3.1 Responses of the non-Professionals on the Social Implications of non-compliance withroad setbacks in ACT, Anambra State

In this section, the Social implications of non-compliance withroad setbacks as given by non-professionals werepresented. The information is presented on Table 5.15.

Table 5.15 is the mean, standard deviation and weighted meansof responses with respect to the respondentsopinions, on the social implication/effects of non-compliance with road setbacks in ACT by non-professionals.

Table 5.15 :Social Effects of non-compliance with road setbacks in ACT, Anambra State as responded by the Non-professionals according to LGAs

S/N	Issue raised	Anaocha		Awka North		Awka South		Dunukofia		Njikoka		Orumba North		ACT		Remark/ Decision
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
1	Increase in crime rate	2.1786	1.08052	1.8462	.80064	3.5041	1.26345	2.0333	.31712	2.4889	1.05792	2.0345	.56586	2.3476	1.21049	Disagree
2	Uncontrolled and increased density of physical development	4.0536	.69856	4.3077	.48038	4.3902	.74255	3.1333	.59565	4.0889	.35817	3.1379	.99010	3.8519	.85396	Agree
3	Disorderliness of physical development	4.1607	.62601	3.9231	.49355	4.2927	.84671	4.0833	.38142	4.3333	.63960	4.2759	.59140	4.1781	.68410	Agree
4	Human congestion	4.7321	.44685	4.8462	.37553	4.2520	.87397	4.3000	.46212	4.7556	.43461	4.5517	.50612	4.5729	.68176	Agree
5	Manifestation of Urban sprawl	4.6607	.58081	4.1538	.55470	3.8699	1.13050	4.3500	1.29961	4.5111	.66134	3.3793	1.80107	4.1541	1.16042	Agree
6	Unregulated building pattern	4.5000	.50452	4.6923	.48038	4.2439	.87161	2.8333	1.26446	4.5111	.58861	3.7241	1.36006	4.0841	1.10043	Agree
7	Slump formation increases	4.1250	1.26581	3.4615	1.11660	4.1463	.99740	2.5833	1.13931	4.1333	.91949	2.5172	1.12188	3.4944	1.28041	Agree
8	Loss of cultural heritage	2.9286	.75936	3.0000	1.15470	3.3252	1.15585	4.5167	1.01667	2.9111	.82082	3.9655	1.54649	3.4411	1.21156	Agree
9	Bad draining	3.6250	.58968	3.5385	.87706	3.8618	1.05834	4.8667	.34280	3.7556	.48409	4.8966	.30993	4.0907	.90703	Agree
10	Time wastage	3.2857	.75593	3.3077	1.03155	3.6423	1.05683	4.0000	.61064	3.2889	.84267	4.3103	.76080	3.6391	.93599	Agree
11	Housing Congestion	3.6250	.52440	4.3077	.48038	4.2520	.87397	3.0833	.53016	3.7333	.57997	3.1724	.53911	3.6956	.82800	Agree

Source: Author's Computation from fieldwork (2017)

Scree Plot Graphical representation of Table 5.15 is shown in figure 5.7

From Table 5.15, all the social effects except increase in crime rate were considered significant (agree) by non-professionals. All the issues raisedhad been agreed upon by professionals as theSocial effects of non-compliance road setbacks in ACT of Anambra State.Among all the social effects,human-congestion was considered as the most observed social implication in ACT,with a weighted mean of 4.5729. While highest mean weighted mean of response (4.8463) was reportedfor Awka North L.G.A.

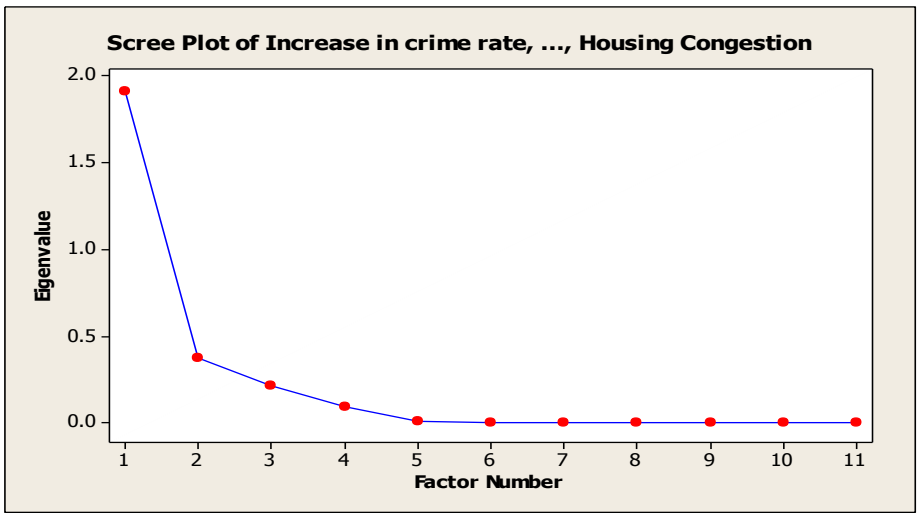

Figure 5.7: Ranking order of social implication of non-compliance with road setback by non-professional in ACT.

The rank of the variables in descending order is as follows: 4, 3, 5, 9, 6, 2, 11, 10, 7, 81 and 1. The ranking was based on factor score coefficients.
Human congestion
Disorderliness of physical development
Manifestation of Urban sprawl
Bad drainage
Unregulated building pattern
Uncontrolled and increase density
Housing Congestion
Time wastage
Slump formation increases
Loss of cultural heritage
Increase in crime rate

5.2.3.2 Responses of non-Professionals on the Physical Implications of non-compliance with Road Setbacks in ACT of Anambra State In this section, the Physical implications of non-compliance with road setbacks as indicated by non-professionals were presented in Table 5.16.

Table 5.16:PhysicalEffects of non-compliance with road setbacks in ACT, Anambra State as responded by the Non-professionals according to LGAs
Source: Author's Computation from field work (2017)

S/No	Issue raised	Anaocha		Awka North		Awka South		Dunukofia		Njikoka		Orumba North		ACT		Remark/Decission
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
1	Pollution (water, air, soil and plants)	4.7857	.41404	4.6154	.50637	4.3740	.77246	4.2500	.43667	4.8222	.38665	4.0690	.25788	4.4860	.62049	Agree
2	Destruction of aesthetic beauty	4.6429	.48349	4.3846	.65044	4.4472	.72658	4.8667	.34280	4.6222	.49031	4.7241	.45486	4.6146	.59214	Agree
3	Traffic congestion	**5.0000**	.00000	4.6154	.50637	4.4634	.72759	**5.0000**	.00000	4.9111	.28780	4.8276	.38443	4.8029	.53885	Agree
4	Flooding	4.9286	.32233	4.6154	.50637	3.9837	1.13790	4.7000	.49745	4.9111	.28780	4.5172	.50855	4.6093	.86886	Agree
5	Soil erosion/gullying	2.7679	.91435	2.9231	1.03775	3.6911	1.00922	3.4167	.86928	2.9333	.83666	3.4828	.82897	3.2024	.99519	Agree
6	Uncontrolled street trading and hawk	2.9286	1.29133	2.7692	1.09193	4.1626	.97824	2.5167	1.01667	3.3778	1.30190	3.3103	1.56076	3.1775	1.31587	Agree
7	Vehicle parking problems	4.3929	.52841	4.0769	.95407	4.3821	.90100	2.5667	1.31956	4.3333	.47673	3.7241	1.33354	3.9126	1.16981	Agree
8	Increase in noise pollution	4.3393	.76934	4.6923	.63043	3.9350	1.17166	2.5500	1.85422	4.2667	1.11600	2.5172	1.54967	3.7167	1.47444	Agree
9	Increase in solid waste generation	4.1786	.95550	4.0769	.75955	3.8699	1.07092	4.3667	1.16396	4.5333	.62523	4.6552	.72091	4.2801	1.01520	Agree
10	Increase in synthetic surface construction	4.0893	.58081	3.7692	.72501	3.5691	1.09456	2.8500	.98849	4.1556	.56228	3.0690	.99753	3.5837	1.02263	Agree
11	Felling of trees/destruction of vegetation	3.0357	.89370	3.2308	.92681	3.6423	1.08741	4.0167	.65073	2.9333	.71985	4.0000	1.00000	3.4764	1.00354	Agree
12	Environmental Disorderliness	4.3929	.59325	3.7692	.43853	3.6260	1.22406	4.8833	.32373	4.4667	.50452	4.8621	.35093	4.3333	.98308	Agree

Scree Plot Graphical representation of Table 5.16 is shown in figure 5.8

From Table 5.16it was observed that non professionals agreed with all the issues raised as being the Physical implications of non-compliance with road setbacks in ACT. and that traffic congestion was considered as the major physical effects with the highest weighted mean of 4.8029 in ACT. while the highest weighted mean of (5.0000) responded by Anaocha and Dunukofia respectively.

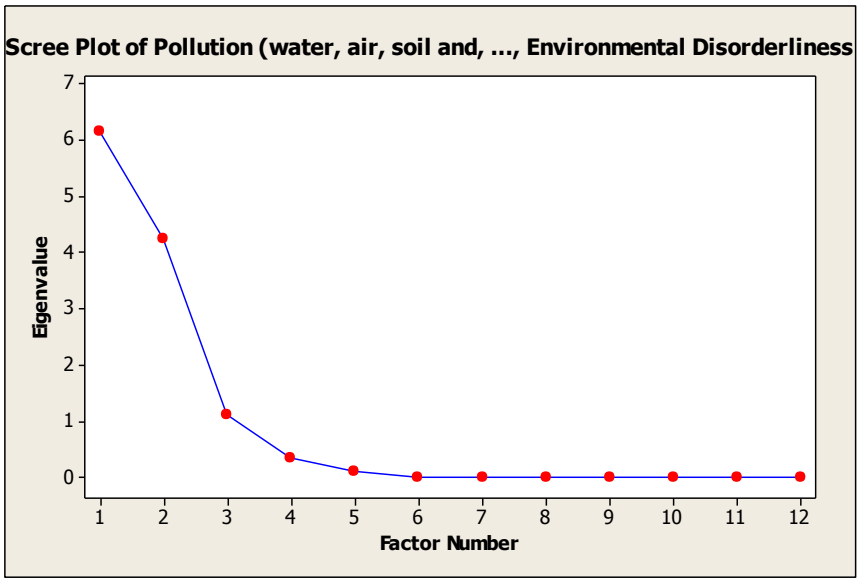

Fig. 5.8: Ranking order of physical environmental effects by non-professionals in ACT

The ranking of the observations is as follows: 2, 3, 1, 5, 4, 6, 9, 7, 10, 11, 12, and 8 and the factors are;
Traffic congestion
Destruction of aesthetic beauty
Flooding
Pollution (water, air, soil and plants)
Environmental Disorderliness
Increase in solid waste generation
Vehicle parking problems
Increase in noise pollution
Increase in synthetic surface
Felling of trees
Soil erosion/gullying
Uncontrolled street trading

5.2.3.3 Responses of the Non-Professionals on the Economic Implications of Non-compliance with Road Setbacks in ACT, Anambra State

This section contained information on the responses of non-professionals on the Economic effects of non-compliance with road setbacks in ACT. The informationis contained on Table 5.17.

5.2.3.3 Responses of the Non-Professionals on the Economic Implications of Non-compliance with Road Setbacks in ACT, Anambra State

This section contained information on the responses of non-professionals on the Economic effects of non-compliance with road setbacks in ACT. The information is contained on Table 5.17.

Table 5.17: **EconomicEffects of non-compliance with road setbacks in ACT, Anambra State as responded by the Non-professionals according to LGAs**

S/N	Issue raised	Anaocha		Awka North		Awka South		Dunukofia		Njikoka		Orumba North		ACT		Remark/Decision
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
1	Loss of Goods and properties(theft)	3.3929	1.07329	3.6923	1.03155	3.9106	1.02436	2.4000	.82749	3.6222	.80591	2.5517	.94816	3.2616	1.12912	Agree
2	Over competition for business space	3.9821	1.35501	4.5385	.87706	4.2439	.77186	3.2500	.79458	4.0444	1.31349	3.2759	1.16179	3.8891	1.09768	Agree
3	Loss of revenue	**4.8393**	.37059	4.7692	.43853	3.8211	1.00027	**4.9000**	.35415	4.6667	.56408	**4.8621**	.44111	4.6430	.85286	Agree
4	Business setbacks	3.6607	1.16427	2.9231	.95407	3.8455	1.00843	4.6333	.75838	3.7333	1.00905	4.5517	.94816	3.8912	1.07230	Agree
5	Demolition of properties	3.9107	.83724	3.6154	.76795	4.1707	.95563	4.6667	.70511	3.9556	.90342	4.4483	.90972	4.1279	.91519	Agree
6	Losing of business contacts and customers	3.6250	.98281	3.9231	.27735	3.3496	1.18033	3.1667	1.16687	3.7556	.71209	2.7586	.91242	3.4297	1.07778	Agree

Source: **Author's Computation from field work (2017)**

Scree Plot Graphical representation of Table 5.17 is shown in figure 5.9

From table 5.17, non-professionals agreed that all the issues raised are the economic implications ofnon-compliance with road setback in ACT Anambra State. Loss of revenue was observed as the highest economic effects in the ACT, with a weighted mean 4.6430 and it had highest weighted mean of response (4.900) in Dunukofia LGA

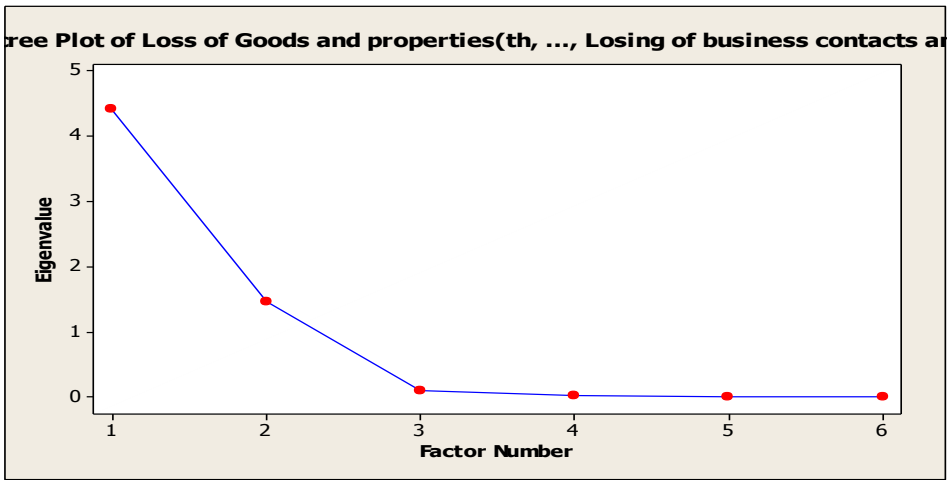

Figure 5.9: Ranking order of economiceffects of non-compliance with road setbacks in ACT, Anambra State as responded by the Non-professionals according to LGAs

Ranking of the variables are; Loss of revenue,Demolition of properties. Business setbacks, over competition for business, Losing of business contacts andLoss of Goods and properties,

5.2.3.4 Responses of Non-Professionals on the Health Implications of Non-compliance with Road Setbacks in ACT, Anambra State

This section discussed the health implications of non-compliance with road setbacks as given by non-professionals in ACT. The data are presented on Table 5.18.

Table 5.18 presented the means, standard deviations and weighed mean responses with respect to the respondents opinions, on the health implication/effects ofnon-compliance with road setback in ACT as given by non-professionals.

Table 5.18: Health effects of non-compliance with road setbacks in ACT, Anambra State as given by Non-professionals according to LGAs

S/N	Issue raised	Anaocha		Awka North		Awka South		Dunukofia		Njikoka		Orumba North		ACT		Remark/Decision
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
1	Road accident	4.8929	.36574	4.6923	.63043	4.5528	.72658	**5.0000**	.00000	4.8444	.36653	**4.9655**	.18570	4.8246	.53967	Agree
2	Loss of life	4.2500	.47673	4.1538	.37553	4.3333	.85571	4.5667	.69786	4.2667	.53936	4.6552	.55265	4.3709	.70240	Agree
3	Psycho - trauma	3.8750	.46953	3.7692	.43853	3.7724	.90366	3.0667	.75614	3.8889	.38271	3.0345	.77840	3.5677	.80293	Agree
4	Suffocation	4.2500	.89949	4.6154	.50637	3.6260	1.22406	2.6833	1.04948	4.0000	.85280	3.2414	1.18488	3.7360	1.19624	Agree

Source: **Author's Computation from field work (2017)**

Scree Plot Graphical representation of Table 5.18 is shown in figure 5.10

Table 5.18, shows that road accident,lossof life, psychological trauma,suffocationwereall considered as the health effects of non-compliance with road setbacks in ACT, Anambra State by non-professionals. This is because all their weighted mean values were above 3.0 as can be seen from Table 5.18. It also observed that road accident was considered as the major health effect in ACT with the highest weighted mean of 4.8246 and had highestweighted mean response (5.000) in Dunukofia L.G.A.

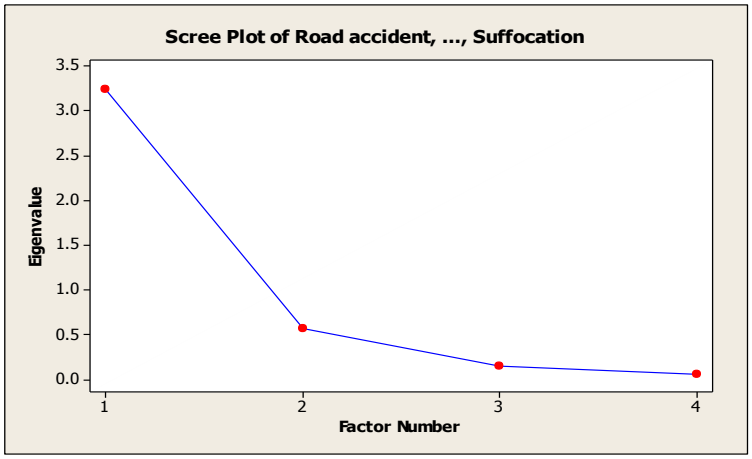

Figure 5.10: Ranking order ofhealth effects of non-compliance with road setbacks in ACT, Anambra State as given by Non-professionals according to LGAs

The variables can be rankedas road accident, loss of life,psycho –trauma and suffocation.

5.2.3.5 Responses of the Professionals on the Social Implications of Non-compliance with Road Setbacks in ACT, Anambra State

This section presentes the responses of the Professionals on the Social implications of non-compliance with road setbacks in Awka Capital Territory, Anambra State. The data for the section is presented on Table 5.19.

Table 5.19 presented the mean, standard deviation and weighed mean of responses with respect to the respondents opinions, on the social implication/effects of non-compliance with road setbacks in ACT as indicated by the professionals.

Table 5.19:Social Effects of Non-compliance withRoad Setbacks in ACT of Anambra State as indicated by the Professionals by LGAs

S/N	Issue raised	Anaocha		Awka North		Awka South		Dunukofia		Njikoka		Orumba North		ACT		Remark/Decision
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
1	Increase in crime rate	4.9167	.28868	4.8125	.40311	4.3056	.78629	4.8125	.40311	4.9167	.28868	**5.0000**	.00000	4.794	.94302	Agree
2	Uncontrolled and increase density of physical development	4.6667	.49237	4.5625	.51235	4.5833	.50000	4.5625	.51235	4.6667	.49237	**5.0000**	.00000	4.6736	.60927	Agree
3	Disorderliness of physical development	4.6667	.49237	4.5625	.51235	4.5556	.50395	4.5625	.51235	4.6667	.49237	4.8750	.35355	4.6481	.55814	Agree
4	Human congestion	4.0833	.51493	4.0625	.57373	4.2222	.72155	4.0625	.57373	4.0833	.51493	4.2500	.46291	4.1273	.61759	Agree
5	Manifestation of Urban sprawl	4.3333	.49237	4.3750	.50000	4.4722	.55990	4.3750	.50000	4.3333	.49237	4.3750	.51755	4.3773	.54114	Agree
6	Unregulated building pattern	4.1667	.38925	4.1875	.40311	4.4167	.50000	4.1875	.40311	4.1667	.38925	4.1250	.35355	4.2083	.76700	Agree
7	Slump formation increases	4.2500	.45227	4.3125	.47871	4.4722	.50631	4.3125	.47871	4.2500	.45227	4.3750	.51755	4.3287	.76383	Agree
8	Loss of cultural heritage	4.3333	.65134	4.1875	.75000	4.0556	.82616	4.1875	.75000	4.3333	.65134	4.5000	.53452	4.2662	.90314	Agree
9	Bad draining	4.8333	.38925	4.8750	.34157	4.3889	.83761	4.8750	.34157	4.8333	.38925	4.7500	.46291	4.7592	.71661	Agree
10	Time wastage	4.7500	.45227	4.7500	.44721	4.5556	.55777	4.7500	.44721	4.7500	.45227	4.6250	.51755	4.6967	.51981	Agree
11	Housing Congestion	4.5000	.52223	4.6250	.50000	4.5556	.50395	4.6250	.50000	4.5000	.52223	4.3750	.51755	4.5301	.59382	Agree

Source: Author's Computation from field work (2017)

Scree Plot Graphical representation of Table 5.19 is shown in figure 5.11

Table 5.19, all the issues raised were agreed opon by the professionals in ACT as social effects. But increase in crime rate was considered as the major social effects with the highest weighted mean of 4.794 followed by uncontrolled and increased density of physical development. The highest responses of major social effects was in Orumba North with highest weighted mean of 5.0000. According to the professionals, the least observed social effect was human congestion with the lowest mean of 4.1273 and lowest weighted mean of responses 4.0625 were fell within Awka North and Dunukofia respectively.

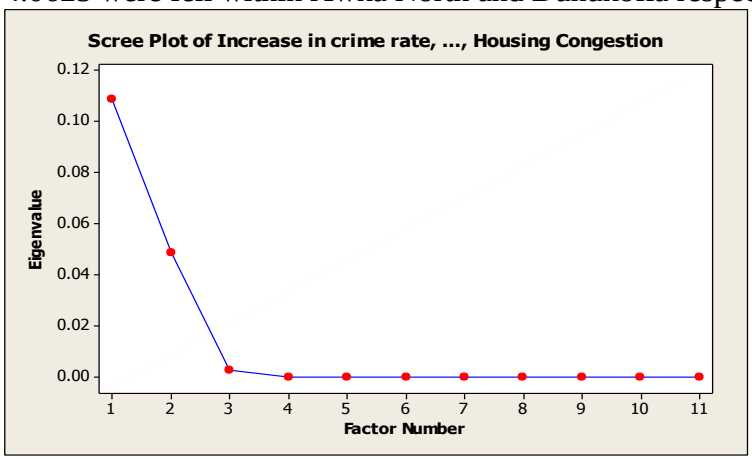

Figure 5.11: Ranking order of social effects of non-compliance with road setbacks in ACT of Anambra State as indicated by the Professionals by LGAs

The ranking of the variables is as follows; Increase in crime rate, Bad draining,Time wastage, Uncontrolled and increased density of physical development,Disorderliness of physical development, Housing Congestion, Manifestation of Urban sprawl,Slump formation increases, Loss of cultural heritage,Unregulated building pattern andHuman congestion.

5.2.3.6 Responses of the Professionals on the Physical Implications of Non-compliance with Road Setbacks in ACT of Anambra State

This section discussedthe responses of the Professionals on the Physical Effects of non-compliance with road setbacks in ACT. Their responses are presented on Table 5.20.

Table 5.20 presents the mean, standard deviation and weighted means of responses with respect to the professional respondents opinions, on the physical/effects of non-compliance with road setbacks in ACT.

Table 5.20: Physical Effects of non-compliance with road setbacks is ACT, Anambra State as responded by the Professionals according to LGAs

S/No	Issue raised	Anaocha		Awka North		Awka South		Dunukofia		Njikoka		Orumba North		ACT		Remark/ Decision
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
1	Pollution (water, air, soil and plants)	4.5833	.51493	4.5625	.51235	4.5556	.50395	4.5625	.51235	4.5833	.51493	4.6250	.51755	4.5787	.50000	Agree
2	Destruction of aesthetic beauty	4.7500	.45227	4.6875	.47871	4.6111	.49441	4.6875	.47871	4.7500	.45227	4.6250	.51755	4.6851	.48783	Agree
3	Traffic congestion	4.7500	.45227	4.6875	.47871	4.7222	.51331	4.6875	.47871	4.7500	.45227	4.6250	.51755	4.7037	.48200	Agree
4	Flooding	4.6667	.49237	4.6875	.47871	**4.7778**	.42164	4.6875	.47871	4.6667	.49237	4.5000	.53452	4.6643	.40202	Agree
5	Soil erosion/gullying	4.7500	.45227	4.7500	.44721	4.6389	.59295	4.7500	.44721	4.7500	.45227	4.6250	.51755	4.7106	.57770	Agree
6	Uncontrolled street trading and hawk	4.1667	.38925	4.2500	.44721	4.1389	.59295	4.2500	.44721	4.1667	.38925	4.2500	.46291	4.2037	.74644	Agree
7	Vehicle parking problems	4.6667	.49237	4.6875	.47871	4.6111	.54917	4.6875	.47871	4.6667	.49237	4.5000	.53452	4.6365	.78180	Agree
8	Increase in noise pollution	4.2500	.45227	4.2500	.44721	4.3611	.54263	4.2500	.44721	4.2500	.45227	4.3750	.51755	4.2893	.93523	Agree
9	Increase in solid waste generation	4.6667	.49237	4.7500	.44721	4.7778	.48469	4.7500	.44721	4.6667	.49237	4.5000	.53452	4.6852	.54411	Agree
10	Increase in synthetic surface construction	4.4167	.51493	4.3125	.47871	4.2778	.51331	4.3125	.47871	4.4167	.51493	4.5000	.53452	4.3727	.71145	Agree
11	Felling of trees/destruction of vegetation	4.7500	.45227	4.6250	.50000	4.5278	.60880	4.6250	.50000	4.7500	.45227	4.7500	.46291	4.6713	.65713	Agree
12	Environmental Disorderliness	4.5833	.51493	4.6250	.50000	4.6111	.54917	4.6250	.50000	4.5833	.51493	4.3750	.51755	4.5671	.55377	Agree

Source: Author's Computation from field work (2017)

Scree Plot Graphical representation of Table 5.20 is shown in figure 5.12

Table 5.20, shows that all issues raised as physical effects are accepted by professionals in the ACT among which soil erosion/gulling is considered as the major physical effect with the highest weighted mean of 4.7106. Followed by traffic congestion with weighted mean of 4.7037. The highest weighted mean of 4.7500 of response fell within Anaocha, Awka North, Dunukofia and Njikoka Local Government(s) respectively. While the lowest weighted mean of 4.2037 foruncontrolled street trading and hawking was considered by professionals as least/minor physical effect in ACT.

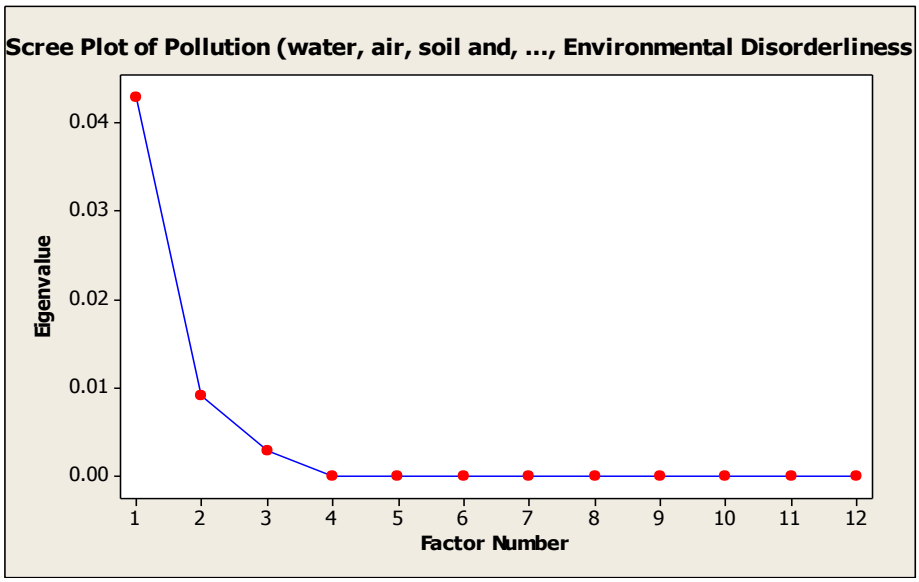

Figure 5.12: Ranking order of physical effects of non-compliance with road setbacks is ACT, Anambra State as responded by the Professionals according to LGAs
Source: Table 5.20

The variables/factors can be ranked in descending order as; Soil erosion/gullying, , traffic congestion, Increase in solid waste generation,destruction of aesthetic beauty, felling of trees/destruction of vegetation, flooding, vehicle parking problems, pollution (water, air, soil and plant),environmental disorderliness,increase in noise pollution, Increase in synthetic surface and uncontrolled street trading, and hawking.

5.2.3.7 Responses of the Professionals on the Economic Implications of Non-compliance with Road Setbacks in ACT, Anambra State

This section discussed the responses of the professionals on the economic effects of non-compliance with road setbacks in ACT. Their responses are presented in table 5.21.

Table 5.21 presented the mean, standard deviation and weighed mean of responses with respect to the respondents opinions, on the economic implication/effects of non-compliance with road setbacks in ACT as responded by the professionals.

Table 5.21:EconomicEffects of non-compliance with road setbacks in ACT, Anambra State as responded by the Professionals according to LGAs

S/N	Issue raised	Anaocha		Awka North		Awka South		Dunukofia		Njikoka		Orumba North		ACT		Remark/Decision
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
1	Loss of Goods and properties(theft)	4.2500	.45227	4.4375	.51235	4.3889	.49441	4.4375	.51235	4.2500	.45227	4.2500	.46291	4.3356	.81029	Agree
2	Over competition for business space	4.4167	.51493	4.4375	.51235	4.5278	.50631	4.4375	.51235	4.4167	.51493	4.3750	.51755	4.4352	.59152	Agree
3	Loss of revenue	4.4167	.51493	4.5625	.51235	4.7500	.43916	4.5625	.51235	4.4167	.51493	4.1250	.35355	4.4722	.45126	Agree
4	Business setbacks	4.4167	.51493	4.3125	.47871	4.5000	.56061	4.3125	.47871	4.4167	.51493	4.6250	.51755	4.4305	.57595	Agree
5	Demolition of properties	**4.7500**	.45227	**4.7500**	.44721	**4.7500**	.43916	**4.7500**	.44721	**4.7500**	.45227	4.6250	.51755	4.7291	.41633	Agree
6	Losing of business contacts and customers	4.5000	.52223	4.3750	.50000	4.2500	.43916	4.3750	.50000	4.5000	.52223	**4.7500**	.46291	4.4583	.68009	Agree

Source: Author's Computation from field work (2017)

Scree Plot Graphical representation of Table 5.21 is shown in figure 5.13

From table 5.21, it is observed that professionals in ACT agreed that all issues raised were economic effects of non-compliance with road setbacks and the major economic effect is demolition of properties, it occurred in all the LGAs almost equally (4.7500) except in Orumba North where it is lowest (4.620). Another major economic effect that followed after demolition of properties was loss of revenue, with weighted mean of 4.4722.

Figure 5.13:Ranking order of economic effects of non-compliance with road setbacks in ACT, Anambra State as responded by the Professionalsaccording to LGA.

The variables can be ranked in descending order as; Demolition of properties, Loss of revenue, Losing of business contacts and customers, Over competition for business,Business setbacks, and Loss of Goods and properties.

5.2.3.8 Responses of the Professionals on the Health Implications of Non-compliance with Road Setbacks in ACT, Anambra State

This section discussed the responses of the Professionals on the Health Effects of non-compliance with road setbacks in ACT. Their responses are presented in table 5.22.

Table 5.22presented the mean, standard deviation and weighed mean of responses with respect to the respondents opinions, on the health implication/effects of non-compliance with road setbacks in ACT as responded by the professionals.

Table 5.22: Health Effects of non-compliance with road setbacks in ACT,Anambra State as responded by the Professionals according to LGAs

S/N	Issue raised	Anaocha		Awka North		Awka South		Dunukofia		Njikoka		Orumba North		ACT		Remark/ Decision
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
1	Road accident	**5.0000**	.00000	4.9375	.25000	4.8333	.44721	4.9375	.25000	**5.0000**	.00000	**5.0000**	.00000	4.9513	.46537	Agree
2	Loss of life	**5.0000**	.00000	4.9375	.25000	4.7222	.51331	4.9375	.25000	**5.0000**	.00000	**5.0000**	.00000	4.9328	.52455	Agree
3	Psycho trauma	4.9167	.28868	4.9375	.25000	4.6667	.53452	4.9375	.25000	4.9167	.28868	4.8750	.35355	4.8750	.58767	Agree
4	Suffocation	4.0833	.28868	4.1250	.34157	3.9444	.62994	4.1250	.34157	4.0833	.28868	4.1250	.35355	4.0810	.64597	Agree

Source: Author's Computation from field work (2017)

Scree Plot Graphical representation of Table 5.22 is shown in figure 5.14

From table 5.22, it is observed that the professionals agreed that all the issues raised are the health effects of non-compliance with road setbacks in ACT. The health effect was road accident with weighted mean of 4.9513, followed by loss of life with weighted mean of 4.9328, the next is psycho-trauma with the weighted mean of 4.8750 while the least among all was suffocation with weighted mean of 4.0810. Three LGA(s) had the highest weighted mean (5.0000) of response, the LGA(s) were: Anaocha, Njikoka and Orumba North respectively.

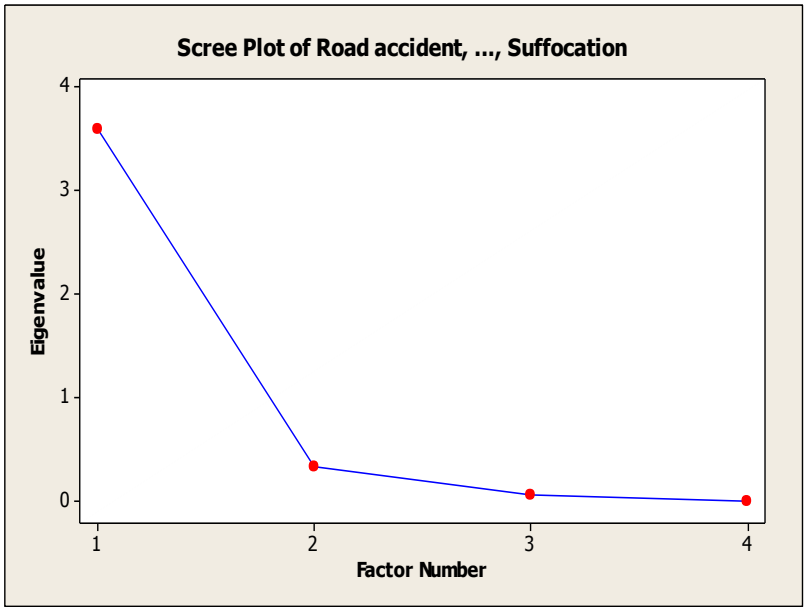

Figure 5.14: Ranking order of health effects of non-compliance with road setbacks in ACT, Anambra State as responded by the professionals according to LGAs

These variables can be ranked as Road accident, Loss of life, Psycho trauma and Suffocation.
In response to objective three, which corresponds to research question. The findings show that environmental implications are signicant in ACT. See Tables 5.15-5.22.

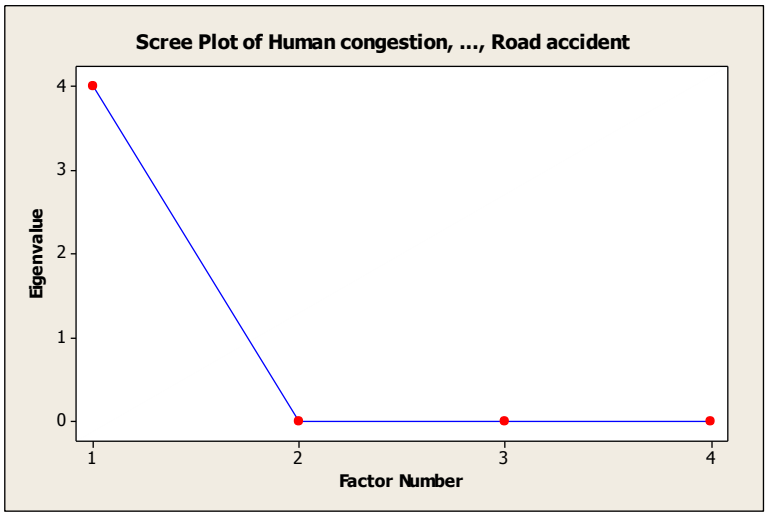

Figure 5.15: Ranking order of highest factors from each of the four group indicators of environmental implications by Professionals

The variables were ranked in ascending order as human congestion, loss of revenue, traffic congestion and road accident

5.2.4 Objectives4 and 5: To examine if there is any difference/relationship between the causes of non-compliance with road setback as reported by the non-professionals and professionals in ACT.

These objectiveswere met by running Paired Samples T-Test for the responses of the Professionals and non-Professionals together. In the process, a correlation test for the two responses was computed and met objective/hypothesis four together with objective 5.The results were contained on **Tables 5.23 and 5.24** respectively.

5.2.5 Objective 6: To determine the opinions/contributions of the professionals and non-professionals on the Causes andEnvironmentalImplications/Effects of non – compliance to road setbacks in Awka Capital Territory.This objective was met using Principal ComponentsAnalysis (PCA) to extract the opinions (responses from questionnaire) of the Professionals and Non-Professionals on the Causes and Environmental implications/Effects of non-compliance with road setbacks in ACT.The result of this Objective was used to support the frequencies and percentage frequencies of the responses that had been presented and discussed under Objectives two and three.

Table 5.23 presents the highest weighted means response of major causes (corruption among planning authorities and failure of Law enforcement agents)of non-compliance with road setbacks from each of the L.G.A. (s) in the ACT.

Table 5.23Summary of the highest weighted means response of major causes (corruption among planning authorities and failure of Law enforcement agents)of non-compliance with road setbacks from each of the L.G.A. (s) in the ACT.

S/N	Highest causes	Anaocha	Awka North	Awka South	Dunukofia	Njikoka	Orumba North	ACT
1.	Corruption among planning Authorities by Non-Professionals	4.5179	4.4615	4.1626	4.7667	4.4444	4.6207	4.4956
2	Failure of Law Enforcement Agents by Proffessionals	3.9935	3.9321	4.9827	4.6783	3.4316	4.9943	4.9188
	TOTAL	**8.5114**	**8.3936**	**9.1453**	**9.445**	**7.876**	**9.615**	**9.4144**

Source: Authors computation from field work, 2017.

From Table 5.23, it is observed that Dunukofia L.G.A. has the highest weighted mean response of corruption among planning authorities with weighted mean of 4.7667 followed by Orumba North L.G.A. with weighted mean of 4.6207, the next one is Anaocha with 4.5179 followed by Awka North with weighted mean of 4.4615, followed by Njikoka with weighted mean of 4.4444 and last one is Awka south with weighted mean of 4.1626. This implies that Awkia South has the lowest weighted mean of response.

Table 5.24 and 5.25 present the Summary of highest factors from each of the four group indicators of environmental implications by Non-professionals and professionals respectively

Table 5.24 Summary of the highest factors from each of the four group indicators of environmental implications by Non-professionals

Environmental indicators	Highest Environmental implications	Weighted mean of Highest frequency
Social	Human congestion	4.5729
Physical	Traffic congestion	4.8029
Economic	Loss of Revenue	4.6430
Health	Road accident	4.8246

Source: Authors computation from field work, 2017.

From table 5.24 it is observed that among the highest weighted mean group indicators of environmental implications by professionals, road accident has the highest weighted mean of highest frequency of 4.8246 followed by traffic congested with of 4.8029. The next one is loss of revenue with weighted mean of 4.6430 while the least is human congestion with weigthed mean of 4.5729

Table 5.25Summary of the highest factors from each of the four group indicators of environmental implications by Professionals

Environvfmental indicators	Highest Environmental implications	Weighted mean of Highest frequency
Social	Bad Drainage	4.7592
Physical	Soil Erosion/Gullying	4.7106
Economic	Demolition of Properties	4.7291
Health	Road Accident	4.9513

Source: Authors computation from field work, 2017.

From table 5.25 it is observed that among the highest weighted mean group indicators of environmental implications by professionals, road accident has the highest weighted mean of highest frequency of 4.9513 followed by bad drainage of 4.7592. The next one is demolision of properties with weighted mean of 4.7291 whole the least is soil/gully erosion ersoin with weigthed mean of 4.7106

5.2.5.1 Principal Components Analysis (PCA) for the Causes of non-compliance with road setbacks as responded by non-professionals

This section discussed the outcome of the Principal Components Analysis for the Causes of Non-compliance with Road setbacks in ACT as responded by the Non-Professionals.

Table 5.25 presented the Total variance explained for the PCA of the causes of non-compliance with road setbacks as responded by non-professionals.

Table 5.25: Total Variance Explained for PCA of causes by nonprofessionals

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.516	27.045	27.045	3.516	27.045	27.045	2.417	18.591	18.591
2	1.845	14.193	41.238	1.845	14.193	41.238	2.067	15.900	34.491
3	1.432	11.017	52.255	1.432	11.017	52.255	1.928	14.831	49.322
4	1.151	8.856	61.110	1.151	8.856	61.110	1.532	11.788	61.110
5	.990	7.613	68.723						
6	.751	5.778	80.716						
7	.586	4.506	85.222						
8	.541	4.158	89.381						
9	.455	3.498	92.879						
10	.385	2.962	95.841						
11	.278	2.136	97.977						
12	.263	2.023	100.000						

Source: Author's statistical computation from field work (2017).

Table 5.25 containsthe various components being extracted and the percentage of variance each component extracted. From there, we observed that four components were extracted with component one extracting 18.591%, component two extracted 15.900%, component three extracted 14.481% while component four extracted 11.788%.

Every factor that loads high (0.5 and above) in component one had higher contribution than those which load in component two and those of component two contribute higher than those of component three, and so on in that order. This rule (as contained in this paragraph) applied to every of the PCAs.

Table 5.26 presented the rotated components matrix for the Causes of non-compliance with road setbacks in ACT as responded by the non-professionals.

Table 5.26: Rotated Component Matrix for PCA of causes by non-professionals

	Component			
	1	2	3	4
Rapid Urbanization in this area	-.282	.272	-.049	.809
Population Growth in this area	.124	-.201	-.057	.749
Corruption of planning officers	.058	.822	.064	.031
Difficulty in land accessibility/non enforcement of law	.032	.143	.875	-.093
High cost of land acquisition	.500	-.339	.334	.363
Failure of the law Enforcement agents	.022	.493	-.498	.034
High cost of living	-.034	-.400	.326	.264
Nonchalant attitudes of the government	-.127	.740	-.081	-.024
Greedy attitudes of the developers	.592	-.166	.574	-.038
Competition for business space among business men	.413	-.292	.562	.005
Siting of structures before road construction	.815	-.105	.052	-.009
Improper city planning	.578	.258	-.071	.102

Source:Author's statistical computation from field work (2017).

FromTable 5.27, it is observed that the factors that are highly loaded in component one are high cost of land acquisition, greedy attitudes of developers, siting of structures before road construction and improper city planning. Then for component two, we have corruption of planning officers and nonchalant attitudes of the government. Component three extracted difficulty in land accessibility/non enforcement of law and completion for business space among businessmen. Finally, component four extracted rapid urbanization in the area and population growth in the area as the causes of non-compliance with road setbacks.

5.2.5.2 Principal Components Analysis (PCA) for the SocialEffects of non-compliance with road setbacks as responded by the Non-Professionals.

This section presentess and discusse the outcome of the Principal Component Analysis for the Social Implications/Effects of Non-compliance with Road Setbacks in ACT as responded to by the Non-Professionals.

Table 5.28showed Total Variance Explained by PCA of the social effects of non-compliance with road setbacks as responded by the non-Professionals. The details are discussed under the table.

Table 5.28: Total Variance Explained for Social Effects by Non-Professionals

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.089	28.077	28.077	3.089	28.077	28.077	2.317	21.060	21.060
2	1.624	14.767	42.845	1.624	14.767	42.845	1.808	16.433	37.492
3	1.236	11.239	54.084	1.236	11.239	54.084	1.517	13.792	51.285
4	1.128	10.259	64.343	1.128	10.259	64.343	1.436	13.058	64.343
5	.963	8.758	73.101						
6	.823	7.485	80.586						
7	.692	6.292	86.878						
8	.490	4.454	91.332						
9	.430	3.912	95.243						
10	.303	2.756	98.000						
11	.220	2.000	100.000						

Source:Author's statistical computation from field work (2017).

Table 5.28 contained the various components being extracted and the percentage of variance each component extracted. From there, it is observed that four components were extracted and component one extracted 21.060%, component two extracted 16.433%, component three extracted 13.792% whereas component four extracted 13.058%.

Table 5.29 presents the Rotated Component Matrix of the Social Effects of non-compliance with road setbacks in ACT as responded to by the non-Professionals.

Table 5.29: Rotated Component Matrix for Social Effects by nonprofessionals

	Component			
	1	2	3	4
Increase in crime rate	-.037	.094	.800	-.030
Uncontrolled and increase density of physical development	-.586	.326	.352	-.133
Disorderliness of physical development	.110	-.122	.667	.357
Human congestion	.045	.870	-.205	.228
Manifestation of Urban sprawl	.044	.042	-.033	-.759
Unregulated building pattern	-.485	.409	.202	.568
Slump formation increases	-.582	.394	.341	-.190
Loss of cultural heritage	.748	-.163	.169	-.072
Bad draining	.690	.078	.004	-.136
Time wastage	.522	.021	.130	.471

Housing Congestion	-.272	.750	.251	-.243

Source:Author's statistical computation from field work (2017).

From table 5.29, it is observed that the factors that are highly loaded in component one are, uncontrolled and increase density of physical development, slump formation increases, loss of cultural heritage, bad draining, and time wastage. Then for component two, we have human congestion, and housing congestion. Component three extracted increase in crime rate, and disorderliness of physical development, uncontrolled street trading and hawk and then felling of trees/destruction of vegetation. Component four finally extracted manifestation of urban sprawl and unregulated building pattern.

5.2.5.3Principal Components Analysis (PCA) for the Physical Effects of non-compliance with road Setbacks as Responded to by the non-Professionals

This section presented and discussedthe result of the Principal Components Analysis (PCA) for the Physical Effects of non-compliance with road setbacks in ACT as responded by the Non-Professionals.

Table 5.30 presented the table for the Total Variance Explained for the Physical Effects of non-compliance with road setbacks in ACT by the Non-Professionals.

Table 5.30: Total Variance Explained for Physical Effects by Non-Professionals

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.324	19.366	19.366	2.324	19.366	19.366	2.210	18.414	18.414
2	2.215	18.461	37.827	2.215	18.461	37.827	2.209	18.411	36.825
3	1.748	14.570	52.398	1.748	14.570	52.398	1.763	14.690	51.515
4	1.016	8.464	60.861	1.016	8.464	60.861	1.122	9.347	60.861
5	.940	7.832	68.693						
6	.902	7.513	76.206						
7	.698	5.816	82.022						
8	.567	4.724	86.746						
9	.516	4.303	91.049						
10	.397	3.311	94.360						
11	.373	3.108	97.468						
12	.304	2.532	100.000						

Source: Author's statistical computation from field work (2017)

From Table 5.30,it is observed the various components being extracted and the percentage of variance each component extracted. Also, it is noted that four components were extracted with component one extracting 18.414%, component two extracted 18.411%, component three extracted 14.690% while component four extracted 9.347%.

Table 5.31presented the Rotated Components matrix for the Physical Effects of non-compliance with road setbacks in ACT as responded by the Non-Professionals

Table 5.31: Rotated Component Matrix for Physical Effects by Non-Professionals

	Component			
	1	2	3	4
Pollution(water, air, soil and plants)	.358	.645	-.023	-.035
Destruction of aesthetic beauty	-.091	.619	.340	-.025
Traffic congestion	.034	.793	-.101	.017
Flooding	-.015	.606	-.035	.325
Soil erosion/gulling	-.056	.007	.780	.265
Uncontrolled street trading and hawk	.390	-.249	.716	.034
Vehicle parking problems	.792	-.178	.151	.148
Increase in noise pollution	.764	.004	-.228	-.123
Increase in solid waste generation	.012	.198	.066	.883
Increase in synthetic surface construction	.771	.182	.060	.024
Felling of trees/destruction of vegetation	-.165	.188	.655	-.319
Environmental Disorderliness	-.290	.461	-.036	.156

Source: Author's statistical computation from field work (2017)

From Table 5.31 it is observed that the factors which highly loaded in component one are, Vehicle parking problems, Increase in noise pollution, and Increase in synthetic surface construction. Then for component two, we have pollution (water, air, soil and plants), destruction of aesthetic beauty, Traffic congestion, and flooding. Component three extracted Soil erosion/gulling, uncontrolled street trading and hawk and then felling of trees/destruction of vegetation. Finally, component four extracted Increase in solid waste generation.

From table 5.32, it is observed table that contained the various components being extracted and the percentage of variance each component extracts. From there, it showed that two components were extracted with component one extracting 37.261%, while component two extracted 24.949%.

Table 5.32 contained the total variance explained for the PCA of the economic effects of non-compliance with road setbacks in ACT by the Non-Professionals. The discussion of the table is done under the table.

Table 5.32 Total Variance Explained For Economic Effects by Non-Professionals

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.394	39.899	39.899	2.394	39.899	39.899	2.236	37.261	37.261
2	1.339	22.311	62.210	1.339	22.311	62.210	1.497	24.949	62.210
3	.762	12.697	74.907						
4	.700	11.666	86.573						
5	.453	7.555	94.128						
6	.352	5.872	100.000						

Source: Author's statistical computation from field work (2017)

Table 5.32, it contained the various components being extracted and the percentage of vrince each components extracts. Also it shows that two components were extracted, with component one extracting 37.261 percent while component two extracted 29.94 percent

5.2.5.4 Principal Components Analysis (PCA) for the Economic Effects of non-compliance with road setbacks as responded by the Non-Professionals

This section contained the results of the PCA for the economic effects of non-compliance with road setbacks in ACT by the Non-Professionals. It also contained the total variance explained and the rotated components matrix for the PCA.

Table 5.33 contained the rotated components matrix for the economic effects of non-compliance with road setbacks by the Non-Professionals.

Table 5.33: Rotated Component Matrix of economic effects by Non-Professionals

	Component	
	1	2
Loss of Goods and properties(theft)	.859	-.084
Over competition for business space	.799	-.257
Loss of revenue	-.208	.698
Business setbacks	-.166	.723
Demolition of properties	-.629	.302
Losing of business contacts and customers	.627	.567

Source:Author's statistical computation from field work (2017).

From Table 5.33, it is observed that the factors that are highly loaded in component one are Loss of Goods and properties(theft), Over competition for business space, Demolition of properties and Losing of business contacts and customers. Then for component two, we have Loss of revenue and Demolition of properties.

5.2.5.5Principal Components Analysis (PCA) for the Health Effects of non-compliance with road setbacks as responded by the Non-Professionals

This section presented and discussed the outcomes of the Principal Components Analysis for the Health Effects of non-compliance with road setbacks in ACT by the Non-Professionals. It contained the table for the total variance explained and the table for the rotated components matrix of the results.

Table 5.34 is the table for Total Variance Explained gotten from the PCA of the Health Effects of non-compliance with road setbacks in ACT as responded by the Non-Professionals.

Table 5.34: Total Variance Explained for health effects by nonprofessionals

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.502	37.545	37.545	1.502	37.545	37.545	1.494	37.360	37.360
2	1.245	31.134	68.679	1.245	31.134	68.679	1.253	31.320	68.679
3	.859	21.486	90.165						
4	.393	9.835	100.000						

Table 5.34 is a table that contained the various components being extracted and the percentage of variance each component extracts. From there, we will see that two components were extracted with component one extracting 37.360%, and component two extracted 31.320%.

Table 5.35 presented the Rotated Components Matrix for the Health Effects of non-compliance with road setbacks by the Non-Professionals.

Table 5.35: Rotated Component Matrix for Health Effects by nonprofessionals

	Component	
	1	2
Road accident	.797	.033
Loss of life	.885	-.053
Psychological trauma	.181	.785
Suffocation	-.207	.796

Source:Author's statistical computation from field work (2017).

From table 5.35, it observed that component one extracted road accident and loss of life, while component two extracted psychological trauma and suffocation.

5.2.5.6Principal Components Analysis (PCA) for the Causes of non-compliance with road setbacks as responded by the Professionals

This section presentedand discussedthe outcomes of the PCA for the Causes of non-compliance with road setbacks by the professionals. The total variance explained and the Rotated component matrix for the outcomes are presented in this section.

Table 5.36 presents the total variance explained for the PCA of the Causes of non-compliance with road setbacks as responded by the Professionals.

Table 5.36: Total Variance Explained for the Causes of non-compliance by the Professionals

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.101	25.839	25.839	3.101	25.839	25.839	2.535	21.126	21.126
2	2.294	19.115	44.954	2.294	19.115	44.954	2.393	19.938	41.064
3	1.734	14.449	59.403	1.734	14.449	59.403	1.852	15.433	56.497
4	1.141	9.505	68.908	1.141	9.505	68.908	1.489	12.412	68.908

5	.714	5.952	74.861						
6	.650	5.414	80.275						
7	.560	4.668	84.943						
8	.533	4.445	89.387						
9	.408	3.397	92.784						
10	.400	3.334	96.118						
11	.277	2.310	98.428						
12	.189	1.572	100.000						

Source:Author's statistical computation from field work (2017).

From table 5.36,It is observed that four components were extracted. Component one extracted 21.126% of the total variance, component two extracted 19.938%, component three extracted 15.433%, while component four extracted 12.412%.

Table 5.37 presented the Rotated Components Matrix for the PCA output of the Causes of non-compliance with road setbacks as responded by the Professionals.

Table 5.37: Rotated Component Matrix for the Causes of non-compliance by the Professionals

	Component			
	1	2	3	4
Rapid Urbanization in this area	-.403	.190	.208	.650
Population Growth in this area	.174	.044	-.018	.814
Corruption of planning officers	-.003	-.181	.707	-.033
Difficulty in land accessibility/non enforcement of law	.765	.181	-.199	-.182
High cost of land acquisition	.755	-.115	-.310	.054
Failure of the law Enforcement agents	-.159	.049	.751	-.021
High cost of living	.637	-.220	.184	.425
Nonchalant attitudes of the government	-.163	-.042	.737	.263
Greedy attitudes of the developers	.836	.313	-.043	-.007
Competition for business space among business men	.167	.834	.041	-.117

Siting of structures before road construction	.036	.914	-.140	.028
Improper city planning	-.052	.770	-.095	.320

Source: Author's statistical computation from field work (2017).

From table 5.37, component one extracteddifficulty in land accessibility/non enforcement of law, high cost of land acquisition, high cost of living, and greedy attitudes of the developers. Component two extracted the following: competition for business space, siting of structures before road construction and improper city planning as the causes of non-compliance with road setbacks. Then, component three extracted corruption of planning officers, failure of the law enforcement agents, and nonchalant attitudes of the government. Finally, component four extracted the following: rapid urbanization in this area and population Growth in this area.

5.2.5.7 Principal Components Analysis (PCA) for the Social Effects of non-compliance with road setbacks as responded by the Professionals

This section presented the PCA results of the professionals on the Social effects of non-compliance with road setbacks in ACT. The results contain the Total Variance Explained and the Rotated Components Matrix.

Table 5.38 presented the Total Variance Explained for the Social Effects of non-compliance with road setbacks as responded by the Professionals.

Table 5.38: Total Variance Explained for the Social Effects of non-compliance by the Professionals

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.866	26.055	26.055	2.866	26.055	26.055	2.271	20.648	20.648
2	2.315	21.049	47.103	2.315	21.049	47.103	2.208	20.074	40.722
3	1.526	13.875	60.979	1.526	13.875	60.979	1.742	15.838	56.559
4	1.029	9.358	70.337	1.029	9.358	70.337	1.515	13.777	70.337
5	.711	6.464	76.800						
6	.654	5.947	82.748						
7	.608	5.527	88.274						

8	.450	4.086	92.361						
9	.383	3.483	95.843						
10	.242	2.200	98.044						
11	.215	1.956	100.000						

Source: Author's statistical computation from field work (2017).

From table 5.38, It is observed that four components were extracted. Component one extracted 20.648% of the total variance, component two extracted 20.074%, component three did extract 15.838% while component four extracted 13.777%.

Table 5.39 presented the Rotated Components Matrix for the PCA of Social Effects of non-compliance with road setbacks in ACT.

Table 5.39:Rotated Component Matrix for the Social Effects of non-compliance by the Professionals

	Component			
	1	2	3	4
Increase in crime rate	.330	.650	.416	.048
Uncontrolled and increase density of physical development	.407	.195	.745	.241
Disorderliness of physical development	.030	-.181	.850	.015
Human congestion	.131	-.207	.130	.766
Manifestation of Urban sprawl	.068	-.497	-.367	.453
Unregulated building pattern	.852	-.148	.011	-.002
Slump formation increases	.807	-.281	.296	.014
Loss of cultural heritage	-.215	.167	.059	.800
Bad draining	-.270	.706	-.187	.057
Time wastage	-.008	.818	-.074	-.107
Housing Congestion	.691	.358	.091	-.091

Source:Author's statistical computation from field work (2017).

From table 5.39,it is observed that component one extracted unregulated building pattern, Slump formation increases, and Housing Congestion. Component two extracted increase in crime rate, bad drainage and time wastage. Component three extracted Uncontrolled and increase density of physical development, and disorderliness of physical development, while component four did extract human congestion and Loss of cultural heritage.

5.2.5.8 Principal Components Analysis (PCA) for the Physical Effects of non-compliance with road setbacks as responded by the Professionals

This section presented the PCA output for the Physical Effects of non-compliance with road setbacks as responded by the Professionals. The results also contain the Rotated Components Matrix and the Total variance Explained tables.

Table 5.40 presented the Total Variance Explained for the PCA of the Physical Effects of non-compliance with road setbacks as responded by the Professionals.

Table 5.40: Total Variance Explainedfor the Physical Effects of non-compliance by the Professionals

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.034	25.287	25.287	3.034	25.287	25.287	2.889	24.077	24.077
2	2.065	17.206	42.493	2.065	17.206	42.493	1.724	14.363	38.440
3	1.500	12.498	54.991	1.500	12.498	54.991	1.625	13.541	51.981
4	1.178	9.818	64.809	1.178	9.818	64.809	1.373	11.438	63.420
5	1.065	8.873	73.682	1.065	8.873	73.682	1.232	10.263	73.682
6	.847	7.059	80.741						
7	.577	4.809	85.550						
8	.490	4.084	89.634						
9	.446	3.719	93.353						
10	.305	2.545	95.898						
11	.272	2.265	98.163						
12	.220	1.837	100.000						

Source:Author's statistical computation from field work (2017).

From table 5.40, it is observed that five components were extracted with their percentages of variance as follows: 24.007%, 14.363%, 13.541%, 11.438% and 10.263% respectively.

Next is table 5.41which presented the Rotated Component Matrix for the output of the PCA for the Physical Effects of non-compliance with road setbacks as responded by the Professionals.

Table 5.41: Rotated Component Matrix the Physical Effects of non-compliance by the Professionals

	Component				
	1	2	3	4	5
Pollution(water, air, soil and plants)	.263	-.446	.675	.196	.076
Destruction of aesthetic beauty	-.113	.473	.498	-.209	-.541
Traffic congestion	-.200	.169	.857	.005	.049
Flooding	-.195	-.084	.152	-.680	.437
Soil erosion/gullying	.202	.153	.084	-.044	.819

Uncontrolled street trading and hawk	.797	-.170	-.243	-.277	.056
Vehicle parking problems	.797	.185	.106	.276	.035
Increase in noise pollution	.860	-.141	.116	.097	.083
Increase in solid waste generation	-.101	.246	.181	.783	.187
Increase in synthetic surface construction	.794	.177	-.180	-.060	.124
Felling of trees/destruction of vegetation	.187	.749	-.050	.166	.086
Environmental Disorderliness	-.067	.711	.077	.141	.019

Source: Author's statistical computation from field work, 2017

From table 5.41, component one extracted uncontrolled street trading and hawk, vehicle parking problems and increase in noise pollution. Component two extracted felling of trees/destruction of vegetation and environmental disorderliness. Component three extracted pollution(water, air, soil and plants) and traffic congestion. Then component four did extract flooding and Increase in solid waste generation. Finally, component two extracted Destruction of aesthetic beauty and soil erosion/gullying.

5.2.5.9Principal Components Analysis (PCA) for the Economic Effects of non-compliance with road setbacks as responded by the Professionals

This section presents the PCA output for the Economic Effects of non-compliance as responded by the Professionals.

Table 5.42 presented the Total Variance Explained for the PCA of the Economic Effects of non-compliance by the Professionals.

Table 5.42: Total Variance Explained for the Economic Effects of non-compliance by the Professionals

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.138	35.630	35.630	2.138	35.630	35.630	1.951	32.523	32.523
2	1.354	22.575	58.205	1.354	22.575	58.205	1.541	25.682	58.205
3	.968	16.140	74.345						
4	.736	12.271	86.616						
5	.464	7.729	94.345						
6	.339	5.655	100.000						

Source: Author's statistical computation from field work, 2017

From table 5.42, two components were extracted with component one extracting 32.523% while component two extracted 25.682% of the total variance.

Table 5.43 presented the Rotated Component Matrix for the Economic Effects of non-compliance with road setbacks by the Professionals.

Table 5.43: Rotated Component Matrix for the Economic Effects of non-compliance by the Professionals

	Component	
	1	2
Loss of Goods and properties(theft)	.706	.189
Over competition for business space	.838	.107
Loss of revenue	.247	-.824
Business setbacks	-.587	.293
Demolition of properties	-.381	-.377
Losing of business contacts and customers	.446	.766

Source: Author's statistical computation from field work, 2017

From table 5.43, we noticed that component one extracted loss of Goods and properties (theft), over competition for business space and business setbacks while component two extracted loss of revenue and losing of business contacts and customers.

5.2.5.10 Principal Components Analysis (PCA) for the Health Effects of non-compliance with road setbacks as responded by the Professionals

This section presented and discussed the PCA results of the Health Effects of non-compliance with road setbacks as responded by the Professionals.

Table 5.44 presented the Total Variance Explained for the PCA results of the Health Effects of non-compliance with road setbacks by the Professionals.

Table 5.44: Total Variance Explained for the HealthEffects of non-compliance by the Professionals

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.371	59.275	59.275	2.371	59.275	59.275
2	.945	23.623	82.898			

3	.460	11.488	94.386			
4	.225	5.614	100.000			

Source: Author's statistical computation from field work, 2017

Table 5.44 showed that only one component was extracted and it has 59.275% of variance.

Table 5.45showed that the Component Matrix for the Health Effects of non-compliance as responded by the Professionals.

Table 5.45: Component Matrix for the Health Effects of non-compliance by the Professionals

	Component
	1
Road accident	.737
Loss of life	.859
Psychological trauma	.848
Suffocation	.608

Source: Author's statistical computation from field work, 2017

It can be seen from table 5.45 that all four issues raised were extracted by the PCA. Therefore, all the issue raised are the Health Effects of non-compliance with road setbacks by the Professionals.The answers provided so far in section 5.2.5 have helped us to meet Objective five of this study, and thus Research Question five has been answered.

5.2.6 Objective 7:To develop a workable template to solve the problem of non-compliance with road setbacks in Awka Capital Territory, Anambra State.This section presents and discusses the template that was designed and given to theprofessionals on ways to solve the problem of non-compliance with road setbacks in ACT.

Figure 5.4 is a template for management of non – compliance to road setbacks in ACT as suggested from the responses of professionals in ACT. The table from which the Template was designed is contained in Appendix one, section D

Table 5.46: Template for Management of non – Compliance to Road Setbacks in ACT, Anambra State.

S/N	Issue raised	Reduce/Relocate	Demolish

		(Percentage)	(Percentage)
1.	If the structure is on a federal Road	76.20	65.20
2.	If the Structure is on a State Road	71.20	65.20
3.	If the structure is on a local road	73.80	71.20
4.	If the structure was erected before the construction of the road	70.40	65.40
5.	If the road and location of the structure are a busy area	69.20	64.40
6.	If the distance of the structure and the road is less than 4.5m(i.e. 75% of 6m)	66.2	64.6
7.	If the structure was approved by relevant authority before construction	71.20	63.80
8.	If the structure was not approved by relevant authority before construction	79.80	65.00
9.	If the approval terms were strictly followed	71.20	66.00
10.	If the approval terms were violated	79.80	68.40
11.	If the Government is willing to compensate the owner	73.20	70.40
12.	If there was no EIA for the project before erection	70.40	70.00
13.	If there was EIA for the project before erection	69.80	63.40
14.	If the property is on a road bend	74.20	67.80
15.	If the property has the potentials of causing motor accident	91.40	69.80
16.	Traffic Congestion	79.20	65.80
17.	Noise Pollution	68.60	66.80
18.	Flooding	72.40	69.20

Source:Author's computation from field survey, 2017

Figure 5.16: Template for Proper Management ofLevels of Compliance and non-compliance with road setbacks in the siting of structures in ACT, Anambra State.

When consideringlevel of compliance with road setbacks in siting of structures in ACT of Anambra State, Figure 5.4 showed that the percentage level within the template is the level which when any sited structure reaches, it will be demolished/removed totally, so as to maintain the minimum setbacks. But once the percentage level of compliance exceeds that minimum percentage to outside percentage level for any of the issues in the template, such structure should be reduced or relocated to considerable level without any sentiment or compromise.For instance, if the structure is on a federal road, the professionals decided that when the compliance level of road setbacks in ACT is less than or equal to (≤)65.20%, or

29.81m, the said structure should be demolished, but if the percentage level of compliance is greater than or equal to (≥) 76.20%, or 34.84m, 23.80%or 10.88m of the structure has to be reduced/scaled down, also if the structure is on a state road, the professionals agreed that when the compliance level to state road setbacks in ACT is less than or equal to (≤)65.20%, or 19.56m the said structure should be demolished, but if the percentage level of compliance is greater than or equal to (≥) 71.20% or 21.36m, 28.20%or 8.64m of the structure has to be shelved/scaled down. If the structure is on a local road, the professionals decided that when the compliance level of road setbacks in ACT is less than orequal to (≤)71.20% or 17.80m the said structure should be demolished, but if the percentage level of compliance is greater than or equal to (≥) 73.80%, or 18.45m, then 26.20% or6.55m of the structure has to be reduced/scaled down, among others. This implies that the lower the percentage level of compliance to road setbacks, the higher the percentage level of it'snon-compliance withmore sever environmental effects in the area. On the other hand, the higher the percentage level of compliance, the lower the percentage level ofits non-compliance with road setbacks with lesser severe of environmental effects.

5.3 Tests of Research Hypotheses

In this section, the results of tests of statistical hypotheses that were postulated are presented. First, preliminary tests on the data generated were presented.

5.3.1 Preliminary Tests

5.3.1.1 Reliability Tests for the responses of the Non-Professionals

Table 5.47shows the case processing summary of the reliability of the non-professionals, with Cronbach's Alpha of 0.693.

Table 5.47: Case Processing Summary for the reliability of the responses of the public (non-professionals)with Cronbach's Alpha of 0.693

		N	%
Cases	Valid	326	100.0
	Excluded	0	.0
	Total	326	100.0

Source: Author's field work (2017).

Table 5.47 showed that 326 responses from the publicwere used in the analysis and none was excluded in the analysis.

Table 5.48: Reliability Statistics of the responses of the public (non-professionals) with Cronbach's Alpha of 0.695

Cronbach's Alpha	No. of Items
.695	46

Table 5.48 shows the reliability of the non-professionals with Cronbach's Alpha of 0.695.

Source: Author's field work (2017)

From table5.48, it is observed that the value of the Cronbach's Alpha is 0.695. This value is below the minimum acceptable value of 0.70 for five likert scales in this work. The implication is that the questionnaire responses from the residents of ACT should be used to carry out this research work.

But from the table of Item-5.48,Total statistics (Appendix 3a), we found that if poverty is deleted as a variable, the Cronbach's Alpha will increase to 0.717, which is a significant increase. Poverty was then deleted and the reliability test re-run as presented in Table 5.47.
Table 5.49shows the case processing summary of the reliability of the questionnaire for non-professionals when the Cronbach's Alpha is 0.717.

Table 5.49: Case Processing Summary for the reliability of responses of non-professionals(with Cronbach's Alpha of 0.717

		N	%
Cases	Valid	326	100.0
	Excluded[a]	0	.0
	Total	326	100.0

Source: Author's field work (2017).

Table 5.49 shows that 326 responses of the public were used in the analysis and none was excluded in the analysis.

Table 5.50presentsthe result of the reliability of the questionnaire for non-professionals which gave the Cronbach's Alpha is 0.717.

Cronbach's Alpha	N of Items
.717	45

Source:Author's computation from field work (2017).

This Table (5.50) is the result of the reliability when Poverty was deleted from the list of variables. The value can be seen is 0.717 which is quiet a high value. No other variable will yield significantly higher value of Cronbach's Alpha when deleted from the list. If the item total statistics in Appendix 3b is studied, we will observe that if delete any other variable (issue raised), there will not be much increase as was seen when poverty was deleted from the first reliability test.

5.3.1.2 Reliability Tests for the responses of the Professionals

Table 5.51 is a table for the case processing summary of the reliability of the Professionals, with Cronbach's Alpha of 0.806.

Table 5.51: Case Processing Summary for the reliability of the responses of the professionalswhen Cronbach's Alpha is 0.806

		N	%
Cases	Valid	100	100.0
	Excluded[a]	0	.0
	Total	100	100.0

Source:Author's computation from field work (2017).

Table 5.51 shows that 100 responses of the professionals were used in the analysis and none was excluded from the analysis.

Table 5.52 presents the reliability of the responses of the Professionals when Cronbach's Alpha is 0.806.

Table 5.52 : Reliability Statistics of the responses of the professionals when Cronbach's Alpha is 0.806.

Cronbach's Alpha	N of Items
.806	46

Source:Author's computation from field work (2017).

From table 5.52, it is observed that the value of the Cronbach's Alpha is 0.806. This value is quite high, and above the minimum acceptable value of 0.70. But from the table of Item-Total statistics (Appendix 3c), we found that if poverty is deleted as a variable, the Cronbach's Alpha will increase to 0.833, which is a significant increase and the increase is the highest that can be obtained from the Table of Item total statistics (Appendix 3c). Poverty was then deleted and the reliability test re-run as presented in Table 5.50

Table 5.53 presents the case processing summary for the reliability of the responses of the professionals when Cronbach's Alpha is 0.833.

Table 5.53: Case Processing **Summary for the reliability of the responses of the professionals when Cronbach's Alpha is 0.833**

		N	%
Cases	Valid	100	100.0
	Excluded	0	.0
	Total	100	100.0

Source:Author's computation from field work (2017).

From Table 5.53, 100 professionals responded to the questionnaire and all of them were included in the analysis.

Table 5.54 presents reliability statistics for the reliability of the responses of the professionals when Cronbach's Alpha is 0.833.

Table 5.54: Reliability Statistics for the reliability of the responses of the professionals when Cronbach's Alpha is 0.833

Cronbach's Alpha	N of Items
.833	45

Source: Author's computation from field work (2017).

From Table 5.54, it is observed that the Cronbach's Alpha of the test is 0.833. No other variable yield significantly higher than value of Cronbach's Alpha when deleted from the list. If the item total statistics in Appendix 3d is studied, it is observe that if delete any other variable (issue raised), there should not be much increase as was seen when poverty was deleted from the first reliability test.

5.3.1.3 Preliminary test of whether the responses of the Non-Professionals from the six LGAs are the same

A preliminary test was carried out using the responses of the Non-Professionals from the six LGAs on the Causes, and Environmental Implications (Social, Physical, Economic and Health) of non-compliance with road setbacks. The aim of the preliminary test is to know if the responses of the Non-Professionals from the six LGAs are the same. The test was done using

One-Way ANOVA. If by the test shows that responses are the same, then the whole responses can be joined together and treated as Act, but if they significantly differ, then the LGAs will be treated individually. The result of the test showed the responses were significantly the same.

The result of the One-Way ANOVA test is presented in Table 5.55.

Table 5.55a: ANOVA for validating whether the responses from six LGAs are the same

Data

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3.307	5	.661	1.238	.292
Within Groups	144.251	270	.534		
Total	147.558	275			

Source: Author's computation from field work (2017).

Statement: There is no significant difference between the responses of the Non-Professionals from the six LGAs that make up ACT, Anambra State.

Statistical tool: One – Way ANOVA.

Reason for choice of tool: Six LGAs were compared.

Decision Rule: Accept the statement if the p – value is greater than or equal to 0.05, otherwise, reject the null hypothesis.

Degrees of freedom: 275

Decision, Conclusion and Reason: From Table 5.55, it is observed that the p – value is 0.292, greater than 0.05. This means that the responses of the respondents from the six LGAs are significantly the same.From the result of this preliminary test, we can now go ahead and combine all the responses from the six LGAs and treat them as ACT.

5.3.1.4 Preliminary test of the responses of the Professionals on causes, economic effects and health effects of non–compliance to road setback in ACT to know if their opinions did not significantly vary with respect to their occupations

In this section, preliminary tests were done to ascertain if the responses of the Professionals on Causes and Environmental Implications (Social, Physical, Economic and Health) are the same with respect to their various occupations. The aim was to know if there are any of the occupations of the respondents whose opinions did significantly vary from the others. The test was done for each section of the questionnaire.One-Way ANOVA was used for the preliminary tests.The results are presented in tables 5.55a to 5.55f.

Table 5.55b: ANOVA Table for Means to Causes by the Professionals

Means to Causes

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3.721	3	1.240	1.549	.214
Within Groups	38.444	48	.801		
Total	42.165	51			

Table 5.55c: ANOVA Table for Means to Social effects by the Professionals

Means to Social effects

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	5.498	3	1.833	4.363	.009
Within Groups	16.801	40	.420		
Total	22.298	43			

Table 5.55d: ANOVA Table for Means to Economic effects by the Professionals

Means to Economic effects

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2.456	3	.819	1.140	.357
Within Groups	14.364	20	.718		
Total	16.821	23			

Table 5.55e: ANOVA Table for Means to Physical effectsby the Professionals

Means to Physical effects

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	6.271	3	2.090	3.469	.024
Within Groups	26.516	44	.603		
Total	32.787	47			

Table 5.55f: ANOVA Table for Means to Health effects by the Professionals

Means to Health effects

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1.894	3	.631	.884	.477
Within Groups	8.568	12	.714		
Total	10.462	15			

Source: Author's statistical computation from field work (2017).

From the ANOVA Tables, the sig. values of causes, economic effects and health effects are all above 0.05 (0.214, 0.357 and 0.477 respectively) while the sig. values of social effects and physical effects are below 0.05 (0.09 and 0.024 respectively).

What this implies is that the responses of the professionals on causes, economic effects and health effects of non – compliance to road setback in ACT did not significantly vary with respect to their occupations; that is all the professions responded equally, while their responses on social effects and physical effects of non – compliance to road setback did vary.

For the social and physical effects whose responses varied, we will look at Post Hoc tests to know which professions answered the same thing and those whose responses varied.

Table 5.56 presents the Post Hoc Tests for the Social Effects of the responses of the Professionals.

Post Hoc Tests

Table 5.56: Multiple Comparisons for Social effects as responded by the professionals

LSD **Means to Social effects**

(I) Occupation of respondents	(J) Occupation of respondents	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Civil Service	Trading	.82727*	.27634	.005	.2688	1.3858
	Building (engineer)	-.04818	.27634	.862	-.6067	.5103
	Contractor, Student, Clergy man, Driving, Teaching	.11636	.27634	.676	-.4422	.6749
Trading	Civil Service	-.82727*	.27634	.005	-1.3858	-.2688
	Building (engineer)	-.87545*	.27634	.003	-1.4340	-.3169
	Contractor, Student, Clergy man, Driving, Teaching	-.71091*	.27634	.014	-1.2694	-.1524
Building (engineer)	Civil Service	.04818	.27634	.862	-.5103	.6067
	Trading	.87545*	.27634	.003	.3169	1.4340
	Contractor, Student, Clergy man, Driving, Teaching	.16455	.27634	.555	-.3940	.7231
Contractor, Student, Clergy man, Driving, Teaching	Civil Service	-.11636	.27634	.676	-.6749	.4422
	Trading	.71091*	.27634	.014	.1524	1.2694
	Building (engineer)	-.16455	.27634	.555	-.7231	.3940

Source:Author's statistical computation from field work (2017).

From Table 5.56, it is observed that in Post Hoc for Social effects, all the professions had significantly the same response except traders whose responses varied from all the other professions.

Table 5.57 presents the result of the Post Hoc Test for the Physical Effects by the Professionals

Post Hoc Tests

Table 5.57: Multiple Comparisons for PhysicalEffects as responded by the professionals

LSD Means to Physical effects

(I) Occupation of respondents	(J) Occupation of respondents	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Civil Service	Trading	.91583*	.31692	.006	.2771	1.5546
	Building (engineer)	.09833	.31692	.758	-.5404	.7371
	Contractor, Student, Clergy man, Driving, Teaching	.18750	.31692	.557	-.4512	.8262
Trading	Civil Service	-.91583*	.31692	.006	-1.5546	-.2771
	Building (engineer)	-.81750*	.31692	.013	-1.4562	-.1788
	Contractor, Student, Clergy man, Driving, Teaching	-.72833*	.31692	.026	-1.3671	-.0896
Building (engineer)	Civil Service	-.09833	.31692	.758	-.7371	.5404
	Trading	.81750*	.31692	.013	.1788	1.4562
	Contractor, Student, Clergy man, Driving, Teaching	.08917	.31692	.780	-.5496	.7279
Contractor, Student, Clergy man, Driving, Teaching	Civil Service	-.18750	.31692	.557	-.8262	.4512
	Trading	.72833*	.31692	.026	.0896	1.3671
	Building (engineer)	-.08917	.31692	.780	-.7279	.5496

Source:Author's statistical computation from field work (2017).

From Table 5.57 of Post Hoc for Physical effects, all the professions had significantly the same response except traders whose responses varied from all the other professions.

5.4. Research Report

5.4.1 In-depth Interview Report

This report is to authenticate the data collected from the field measurement and distributed questionnaire. During an in-depth interview, fifty (50) were interviewed. Twenty Five (25) of them were informal workers like petty road side traders, developers and land owners. They

responded that they do settle enforcement agents by giving them money to allow them to do their normal business thereby encroaching into road setback. When law enforcement agents interviewed, their response was that their oga and oga of planning authorities do settle themselves in their respective offices, by developers and land owners, they need to fill their pockets in the field or site. These agents were ten (10) in number. But when the professionals, like some Estate Managers/Surveyors and Valuers, Builders, Architects, some of directors in Anambra State Physical Planning Board (ASPPB) and Awka Capital Territory Development Authority (ACTDA). These professionals were fifteen (15) in number and their response was that the law enforcement agents usually not to adhere to the instructions given to them. This is in line with Tables 5.13 and 5.14 with figures 5.4 and 5.5 which confirmed that the major causes of non-compliance with road setbacks in ACT were corruption among planning authorities and fairlure of law enforcement agents. Because of these failure of law enforcement agency and corruption among planning authorities, it is easy for developers to ignore road setbacks regulations, knowing the fact that officials can always be "settled".Thus proved that government and its implementing agancies have not pusued policy implementations with commitment. As a result of this, chatic and congested transport system had resulted in reduced widths or road dimensions in ACT, hence untidy environment. See plates 3.10 to 3.12. Urban infrastructural development and management together with development control practice are like proverbial case of chick and egg to economic growth for sustainable urban environmental and socio-economic development in a given urban environment and they do face a lot of challenges.

5.4.2 Problems of Providing Infrastructural Facilities

Infrastructural development in developing countries is usually attended by a lot of challenges, the most prominent being the tendency by developers and landowners to ignore laid down rules and regulations, especially implementing road setbacks in the siting of structures. This problem is very noticeable in Awka Capital Territory, which has witnessed huge violations of road setbacks in the siting of structures in the area.

Since the creation of Anambra state in 1991 there has been increase in the rate of infrastructural development in the State. This trend on its own has created what could be termed intractable problems especially with increasing rural-urban drift and as more civil servants move to urban cities of the State, especially its capital territory. It is a matter for concern that despite the existence of policies and regulatory mechanisms in the State for developers to adhere to regulations in the siting of structures, compliance with these

regulations and processes of monitoring and implementation continue to challenge policy makers even as this non-compliance worsens.

From the course of this study,the concern about this issue of non-compliance has been attributed to a lot of factors which include lack of secure access to land, high cost of construction, limited access to finance, bureaucratic procedures, high cost of land registration and titling, uncoordinated policies and implementation, ownership rights under the Land Use Act, lack of critical infrastructure like roads, affordability gap, inefficient development control, youth harassment of developers, inelegant revocation and compensation process among others. These factors are examined briefly:

The first relates to lack of secure access to land. There is no doubt that land is a critical factor in infrastructural development. Therefore, gaining access to it is very crucial to functional and sustainable infrastructural development. As Omirin (2002), noted, when we talk of accessibility to land we are actually talking about the security of land tenure, its affordability and the associated process of acquiring that parcel of land.Ikejiofor (2005), remarks that one factor that poses great difficulty in infrastructural development in any city is actually accessibility to land. Evidence about this assumption abounds. The cause of difficulty to access land, starts from the procedural delays being easily compromised by planning authorities and failure of law enforcement agents.

In Anambra State, especially the state capital (Awka Capital Territory) access to land is a huge problem. Thus, house owners, in a bid to maximize available spaces around their houses, construct unapproved structures as residential buildings. Desperate tenants are always willing to park into those houses whether completed or not. This is also true the construction of shops and petrol filling stations in ACT. It is not unusual to find filling stations within a few meters of residential building when construction is going on. In a bid to maximize available space, developers ignore regulations on road setbacks.

Experts have attributed the difficulty in achieving to the Land Use Act of 1978 (Cap L5 LFN, 2005) which created a dual structure of land delivery systems. As Ugonabo and Emoh (2013) pointed out customary and state systems prevail in the state with the consequence of double purchase from the customary owners and the state which has the effect of complicating land accessibility process. For instance some allottees of residential plots at Agu-Awka GRA cannot take possession of their land even with certificate of occupancy until they have paid the customary owners of the land supposedly acquired by the state government.But the researcher

discovered in thecourse of this study through in-depth interview supported by the opinions of professionals and non-professionalsthrough PCA ranking on the causes of non-compliance with road setbacks in ACT, that double purchase from the customary owners and the State government, is not the major difficult attributein achieving land accessibility for urban infrastructural development but unnecessary procedural delays by compromised law enforcement agents and planning authorities.

The land use Act which vests ownership of all land on the Governors was enacted to make land more accessible for housing development. The Act still facilitates easier access to land and protect the proprietary right of customary owner.

Another factor is the high cost of construction in Awka Capital Territory. Over the years construction costs have remained high in ACT due to the relentless inflationary pressure on the building materials and labour market. This is not peculiar to the state, inspite of this, greed of the land ownersin a bid to maximize the available space around their houses is a major reason why people are siting illegal structures on open spaces around their neighbourhoods without regard to road setback regulations.

Other factors include limited access to finance; and high cost of land registration and land titling. The World Bank/International Finance Corporation (IFC) (2006), cited by Ugonabo and Emoh (2013), indicated that when it comes to property registration and transfer, Nigeria has the highest cost of 27.1% of property value, compared to other developed and developing countries of the world.
The report indicated that in Nigeria there are 21 procedures to be followed and the entire process of transfer also lasts up to 274 days. This trend has not changed in ACT,Anambra State. The general belief in the state is that it takes between 2-5 years to obtain certificate of occupancy even though the researcher could not confirm this assumption.

There is also the problem of development control. Development control process involves strict enforcement of building codes and ensuring compliance of regulations. This is not the case in ACT. In the course of this study, the researcher discovered a huge gap between these policies and implementation. Officials of the Town Planning Authority are guilty of compromising standards and looking the other way while road setback regulations are flouted with impunity.

This dubiety by the officials of Anambra State Physical Planning Board (ASPPB) has been compounded by the uncoordinated policies and implementation of same by government. The major instrument used to administer land in ACT of Anambra State is the Land Use Act (Cap. L.5LFN 2004 (originally decree No 6 of 1978).

5.4.3 Factors affecting development control standards compliance in Nigeria.

1. **Increasing Urban Poverty**: increase in urban poverty is a major concern in effective land use practices and control. According to the World Bank estimates worldwide, about 30 per cent of the poor people live in urban areas like Lagos (Population Reports, 2002). Most of the urban poor live in slums and squatter settlements, without adequate access to basic infrastructural facilities such as clean water, healthcare services and hygienic environment. The preponderance of the urban poor derives from unemployment, lack of well-paying and steady jobs. It is clear that as a result of increase in population, few people could find steady job with adequate wages in the formal sector of the economy given the fact that majority of the urban poor are semi-illiterate and illiterates. The only means of survival is in the informal activities, people sell on road side setbacks, hawk on streets, or shoe shines, small scale food seller etc. Small shops are constructed on residential buildings' setbacks and setbacks of public utilities. As a result, most of the houses developed are occupied by the urban poor that do not conform to building standards; every available space is utilized for commercial purposes. This type of development and activities are noticeable in almost all the major cities in Nigeria.

2. **Procedural delays**: A lot of complicating procedure for obtaining development permission makes it difficult for developers to quickly respond to demand for real estate. In most states, approval plan requirements are costly depending on the zone, coupled with the unnecessary procedural delays of the planning authorities, thus constraining access by low income earners to safe lands in desirable locations.

3. **Inappropriate Legislation and access to land**: Land use regulations, planning and building standards constrain low income group access to land. It should be noted that while these regulations attempt to ensure citizens health, safety and welfare by strictly controlling land and building standards, the regulation force are the very group that seek to protect into completely unregulated informal sector (Dowall and Clarke, 1996). Most of the States' residential schemes are not accessible to the urban poor, yet the urban poor constitute majority of the population of most cities. In other words, space standards constrain houses that are developed on marginal

lands, flood plains, open spaces and watershes for shelter, utility setbacks, etc. Therefore, planning ends up being unsustainable as the people do not have a sense of responsibility to their environment or laid down standards. Most cities without city wide administration have their problems compounded.

4. **Weak enforcement of the law**: There is general lack of dedicated and competent staff to enforce the law, all blamed on Nigeria factor. The planning authority always compromises illegal structures, because of the corrupt nature of the system. It has led to conflicting land uses such as the infiltration of commercial land uses on housing. Many activities take place within adapted places, for example: houses become shops, warehouses become churches. Due to rapid population expansion and poor physical development control being witnessed in most urban centres, more people, especially the poor inhabit ecologically vulnerable areas and most times develop such areas without regard to development control laws.

5. **Inadequate information on land**: This poses serious constraint on development control and land management. Specific information deficiency relates to land tenure, title, land values, housing condition. In fact, conflicting title and lengthy legal and technical procedures may delay real estate transaction and force land development to illegal locations. The point is that without land use information on the resources to be managed, it is extremely difficult for the planning authority to establish effective regulations and policies.

6. **Poor title registration and tenure security**: The general lack of good title registration and tenure records is a serious constraint on efficient urban land management in Nigeria as a whole. One of the major impacts of poor title land registration system is the inability of landowners to gain access to formal credit sources. In addition the cost of registration and related procedures, in most cases may breed a cynical attitude in using the formal process.

Despite the public notice against contravention of town planning laws, the regulatory authority has been less aggressive in enforcing its own laws and more often than it is professionally/ethically questionable for some of its actions in the course of its official duties. The enforcement of town planning laws seems to be at the whims and caprices of those saddled with such responsibility. Some of their actions border on high handedness, double standard, delay tactics and selective enforcement. For instance, the former Governor of Oyo State, Alhaji Lam Adesina (1999) during a courtesy visit by the Nigerian Institute of Town Planners's (NlTP) president and members to him, stated that "the state's town planners were planning nothing except disaster for the people. They have sacrificed their professionalism on the altar

of money; all potential zones of disaster in Ibadan have been approved for building of houses and other structures".

The regulatory authority has turned a blind eye to the numerous contraventions of town planning laws being committed by some developers in that precinct. Shifting of building lines are being done with reckless abandon, construction of permanent structures on road setbacks is unabated and compliance with setback requirements is contrary to what the law stipulates. As glaring as these contraventions are, the regulatory authority has been foot dragging in checkmating offenders.

5.4.4 Tests of Research Hypotheses

This section presented and discussed the results of tests of the Statistical hypotheses

5.3.2.1 Hypothesis One: Non-compliance levels of sited structures in ACT are not significant.

To test this hypothesis, the measured structures in ACT were compared to set standards using One-Sample T-test to know if they complied to standard or not.

Table 5.58: One-Sample T – test

Trunk A roads in ACT	N	Mean	Std. Deviation	Std. Error Mean
	59	17.4356	26.36438	3.43235
	N	Mean	Std. Deviation	Std. Error Mean
Trunk B roads in ACT	172	7.3933	7.39422	.56380
	N	Mean	Std. Deviation	Std. Error Mean
Trunk C roads in ACT	159	4.3208	4.52614	.35895

Source: Author's statistical computation from field work (2017).

From Table 5.58, it is observed that in Trunk A roads in the mean is 7.4356, Trunk B roads is 7.3933 while Trunk C roads has mean of 4.3208

Table 5.59: One-Sample T-test for Trunk Analyses

	Test Value = 45.72					
					95% Confidence Interval of the Difference	
	T	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Trunk A roads in ACT	-8.241	58	.000	-28.28441	-35.1550	-21.4138
	Test Value = 30.0					
					95% Confidence Interval of the Difference	
	T	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Trunk B roads in ACT	-40.097	171	.000	-22.60674	-23.7197	-21.4938
	Test Value = 25.0					
					95% Confidence Interval of the Difference	
	T	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Trunk C roads in ACT	-57.611	158	.000	-20.67925	-21.3882	-19.9703

Source:Author's statistical computation from field work (2017).

Statistical tool: One sample T - Test.

Reason for choice of tool: One level of observation was analyzed in for each trunk.

Decision Rule: Accept the null hypothesis if the p – value is greater than or equal to 0.05, otherwise, reject the null hypothesis.

Decision, Conclusion and Reason: From table 5.59, it is observed, that following:

a. For trunk A roads, the set standard (test value is 45.72m), mean of trunk A roads is 17.4356m, the mean difference is -28.2844m and the significant value (p - value) is 0.000. Level of compliance is 38.14%.
b. For trunk B roads, the set standard is 30m, mean of trunk B roads is 7.3933m, the mean difference is -22.6067m and the significant value is 0.000. Level of compliance is 24.64%.
c. For trunk C roads, the set standard is 25m, mean of trunk B roads is 4.3208m, and the mean difference is -20.6792m, while the significant value is 0.000. Level of compliance is 17.28%.

The implication of the following is that for all the trunks (A, B and C), their mean measurements are below the set standards.

It is therefore concluded that non-compliance levels of sited structures in ACT are significant.Also, the compliance levels for trunks B and C are 23.12% and 16.76% respectively while that of trunk A is 38.14%.

5.4.5 Hypothesis Two: The causes of non – compliance to road setback in the three road types (Trunks A, B and C) in ACT are not significant.

In testing this hypothesis: One-Way ANOVA was used to test for the significance of the Causes of non-compliance as responded by the Professionals and Non-Professionals, then at the end conclusion was made.
Table 5.60 presentsT-test for hypothesis two while table 5.61 presents one-sample test for hypothesis two.

Table 5.60: One-way ANOVA for non-professionals

	N	Mean	Std. Deviation	Std. Error Mean
Causes	12	3.863862E0	.4974782	.1379756

Source: Author's statistical computation from field work (2017).
From table 5.60, it is observed that the causes of non-compliance with road setback are significant with mean of 3.8638

Table 5.61: One-Sample Test for non-professionals

	Test Value = 0					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Causes	28.004	11	.000	3.8638615	3.563238	4.164485

Source: Author's statistical computation from field work (2017).
From Table 5.61, it is observed that level of ignificance difference is 0.000 which is less than 0.05. this shows that the causes responede by non-professionals are significant in ACT.

Table 5.62:One-Way ANOVA for Professionals

	N	Mean	Std. Deviation	Std. Error Mean
Causes by Professionals	12	4.3500	.28911	.08346

Source: Author's statistical computation from field work (2017).

Table 5.63: One-Sample T-test for Professionals

	Test Value = 0					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Causes by Professionals	52.122	111	.000	4.35000	4.1663	4.5337

Statistical tool: One sample T - Test.

Reason for choice of tool: One level of observation was analyzed.

Decision Rule: Accept the null hypothesis if the p – value is greater than or equal to 0.05, otherwise, reject the null hypothesis.

Degrees of freedom: 11

Decision, Conclusion and Reason: From Table 5.63, it is observed thatthe p–values of the tests are 0.00, which is less than 0.05. This implies that the causes of non–compliance to road setbacks in ACT are significant for both the non-professionals and the professionals.

5.4.6 Hypothesis Three: The environmental implications/effects of non – compliance with road setback in the three road types (Trunks A, B and C) in ACT are not significant.

This hypothesis was tested using One-Sample T-Test to check the significance of each of the responses of the Professionals and Non-Professionals on the Environmental Effects of non-compliance, at the end conclusion was made

The results were presented in Tables 5.64 and 5.65.

Table 5.64: Tests for the significance of the Environmental Effects by Non-Professionals

S/No	Indicator	P-value	Decision
1	Social Effects	0.000	Social effects are significant
2	Physical Effects	0.000	Physical effects are significant
3	Economic Effects	0.000	Economic effects are significant
4	Health Effects	0.001	Health effects are significant

Source:Author's statistical computation from field work (2017).

From Table 5.64, it is observed that all environmental effects by non- professionals are significant

Table 5.65: Tests for the significance of the Environmental Effects by Professionals

S/No	Indicator	P-value	Decision
1	Social Effects	0.000	Social effects are significant
2	Physical Effects	0.000	Physical effects are significant
3	Economic Effects	0.000	Economic effects are significant
4	Health Effects	0.000	Health effects are significant

Source: Author's statistical computation from field work (2017).

From Table 5.61, it is observed that all environmental effects by professionals are significant

Statistical tool: One sample T - Test.

Reason for choice of tool: One level of observation was analyzed.

Decision Rule: Accept the null hypothesis if the p – value is greater than or equal to 0.05, otherwise, reject the null hypothesis.

Decision, Conclusion and Reason: From the table, it is observed that the p – values of the tests are all less than 0.05 for both the Non-Professionals and the Professionals. This implies that the Environmental effects of non–compliance to road setbacks in ACT are significant.

5.4.7 Hypothesis Four: There is no significant difference between the causes of non–compliance to road setbacks reported by professionals and those reported by the public (non-professionals) in ACT.

This hypothesis was tested using Paired Samples T-Test to test the compare the responses of the Professionals and Non-Professionals. Paired Samples correlation was also computed from the data.

The results are presented in table 5.63, table 5.64 and table 5.65.

Table .5.66: Paired Samples Statistics for hypothesis four

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Means of causes by the public	3.863862	13	.4974782	.1379756
	Means of causes by the Professionals	4.218462	13	.5491333	.1523022

Source:Author's statistical computation from field work (2017).

Table 5.66 presents the paired samples correlation and the significance value of the correlation.

Table 5.67: Paired Samples Correlations for hypothesis four

		N	Correlation	Sig.
Pair 1	Means of causes by the public & Means of causes by the Professionals	13	.837	.000

Source:Author's statistical computation from field work (2017).

From Table 5.67, it is observed that the correlation between the mean responses of the non-professionals and professionals is 0.837, that is 83.7% and the significant value is 0.00, less than 0.05.

This means that there is strong positive correlation between their responses and the correlation is significant.

Table 5.68 presents the paired samples test for the responses of the professionals and the non-professionals

Table 5.68: Paired Samples Test for hypothesis one

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Means of causes by the public - Means of causes by the Professionals	-.3546000	.3028458	.0839943	-.5376079	-.1715921	-4.222	12	.001

Source:Author's statistical computation from field work (2017).

Statistical tool: Paired sample T - Test.

Reason for choice of tool: Two related samples were compared.

Decision Rule: Accept the null hypothesis if the p – value is greater than or equal to 0.05, otherwise, reject the null hypothesis.

Degrees of freedom: 12

Decision, Conclusion and Reason: From the table, we see that the p – value of the test is 0.001, which is less than 0.05. This implies that there is significant difference between the responses of the professionals and the public on the causes of non – compliance to road setbacks in ACT.

Then from the table, it is observed that the mean response of the public is 3.863862, while that of the professionals is 4.218462; with mean difference of -.3546000. This means that the

responses of professionals on the causes of road setbacks in ACT are significantly higher than those of the public.

5.5Discussion of findings

Road networks and structures in a given urban environment are known as social and economic urban infrastructural development. Urban infrastructural development and management, together with development control practice are like proverbial case of chick and egg to the economic growth for sustainable urban environment and socio-economic development that are usually attended by a lot of challenges due to ignorance of laid down rules and regulations by mostly informal workers like non-chalant officers, developers and landowners. This problem is very noticeable in ACT which has witnessed massive incidence of non-compliance with road setbacks in the siting of structures in the area. ACT is the capital city of Anambra State, it (ACT) has not only had some form of urban sprawl and decay, but their growth continues to be distorted basically because most structures erected in the city have not conformed with the stipulated setbacks from the roads. Government and many authors had made effort in providing the reasonable measures for proper management of non-compliance with road setbacks in different areas. All their efforts to be in vain due to contravened notation of the regulations on road setbacks, thereby creating more environmental disorderliness, human congestion, unattractive environment among others. See plates 3.10, 3.11, 3.12 and plates 1 to 6 in appendix 6). Consequate upon non-compliancewith road setbacks in siting of structures in ACT. See Table 3.1 and Plates 3.1 to 3.9, this study assessed the level of compliance with road setbacks in siting of structures and their associated environmental implications in the area.

From the overall outcome of the computation and analysis of the overall compliance and non-compliance levels for all the measured trunks in ACT. It was so obvious that study area (ACT) experiences high level of non-compliance with road setbacks and far below to their set standards. See Tables 3.1, and 5.9-5.12. The result proved that the overall compliance level along Trunk. ‘A’ roadshasthe highest percentage level of 37.18285% with a non-compliance level of 62.81714%. The least among the three trunks was the overall compliance level along Trunk ‘C’ roads that has 17.2832% with a non-compliance level of 82.7168%. The whole results were shown in table 5.12. The implication of the result is that level of non-compliance

with road setbacks is highly significant in the ACT. PCA factor score coefficient confirmed the result through ranking of descending order of factors A, B and C. See Figure 5.4.

The overall levels of compliance of all the roads were quite low to their respective set standards. This helped to determine level of compliance of the sited structures to setbacks standards in ACT as it was in objective one of the study and helped to disconfirm the hypothesis one of the study. See Table 5.58-5.59. The reason for highest level of non-compliance in Trunk C roads was due to the nature of roads as the local roads where dwellers do not leave enough land space for roadways. This had been responsible for the uncontrolled and unplanned settlements by improper planning in the ACT.

From the result of the analysis, the causes of non-compliance had been identified through the opinions of non-prfessionals and professionals in the ACT as follows:
Failure of law enforcement agents, corruption among planning authorities, improper city planning, rapid urbanization, population growth, difficulty in land accessibility, nonchalant attitudes of Government, high cost of land acquisition, high cost of living, competition for business space, siting of structures before road construction and greedy attitudes of developers (see Tables 5.13 and 5.14 respectively). Furthermore, it was confirmed by non-professionals and professionals that the major causes of non-compliance with road setbacks in ACT, Were corruptions among planning authorities and failure of law enforcement agents respectively through the ranking of order of PCA factor score coefficients (see figures 5.5 and 5.6). This finding is in line with the findings of literature (Aliko 2000 & Ogeah 2013). The finding also agrees with the responses of some Ocha bridgade (non-Governmental organization) task force and some staff of Anambra State Physical Planning Board (ANSPPB), interviewed at their sites and offices respectively. The result disconfirmed the hypothesis II (see Tables 5.59-5.62). It disqualified the work of Ikejiofor (2005), Ugonabo and Emoh (2013) and FAO 2008 which stated that difficulty in land acessibilitlity is the majors factor that promotes the resistance of people to leave their old sites of business, residence or others only to expanding this fixed piece of land to a point of encroaching into the setback area. Cost of living is part of causes of non-compliance with road setbacks in ACT, but not significant.
From the findings, the associated environmental implications with their four indicators of social, physical, economic and health of non-compliance with road setbacks in ACT had been determined and they are significant through non-professionals and professionals. It is well understood that the environmental implications in ACT are; Increase in Crime rate,
Uncontrolled and increase density of physical development, Disorderliness of physical development, Human Congestion, Manifestation of Urban sprawl, Slump formation increases, Loss of Cultural Heritage, Bad draining, Time Wastage, Housing congestion (Social Indicator),

Pollution (Water, Air, Soil & Plants), Destruction of aesthetic beauty, Traffic congestion, Flooding, Soil erosion/gullying, Uncontrolled street trading & Hawking, Vehicle parking problems, Increase in noise pollution, Increase in solid waste generation, Increase in synthetic Surface construction, Felling of trees/destruction of vegetation, Environmental disorderliness (Physical Indicator), Loss of goods and properties (theft), Over competition for business space, Loss of Revenue, Business setbacks, Demolition of Properties, Losing of business contacts and customers (Economic indicator), Road accident, Loss of life and Psychological Trauma, Suffocation (Health Indicators).This is in line with some works of will (1991), Weiner (2003), Olomola (2003), Kazeem (2015), from the result of the analysis, it was clear that clear environmental implications with their four indicators were highly significant in ACT. SeeTables 5.15-5.22.

In response to objective four which corresponds to research question four. The findings show that there are significant differences between the professionals and non-professionals responses on the result of reliability test conducted with cronbach's Alfa, of road setbacks in the ACT.The differences are found in the causes of non-compliance and opinions used to develop template for the solving the problems of non-compliance in the ACT.

When reliability carried out during preliminary test, the findings showed the value of the cronbach's Alpha from reliability statistics of the responses of non-profession is 0.695. This value is below the acceptable value of 0.70 for this type of research point (5 points). The implication of this is that, the questionnaire responses from the residents of ACT could be used to carry out this research work but they could not be significant. It is discovered that when poverty as a variable is deleted, the cronbach's would be increased to 0.717. See Tables (5.48, 5.50) and (Appendices 3a and 3b). On the other hand, when reliability test for the responses of the professionals is carried out, without deleting poverty, the result gave cronbach's Alpha of 0.806 which is 0.111 different from 0.695 of non-professionals.

Furthermore, when poverty was deleted, the value for the professionals gave o.833 with difference of 0.116 from non-professionals see Tables (5.14).

This implies that the professionals agreed that poverty is one of the causes of non-compliance with road setbacks in ACT while non-professionals did not agree.

Also there is significant difference in high cost of living as the cause of non-compliance with road setbacks in ACT. The difference is that non-professionals agree that it is the cause of non-compliance with weighted mean of 2.6662 which is less than3.0. This shows that it is not significant. See Table 5.13. While professionals agreed also that high cost of living is the cause

of non-compliance with weighted mean of 4.599. This shows that it is highly significant. See Table 5.14.

The findings also show that there is significant difference in the opinions of professional and non-professionals in the ACT. The opinions of non-professionals were used to identify and determine the causes and environmental implications of non-compliance with road setbacks in ACT. See Tables 5.13 and 5.15 – 18 respectively. While the opinions of the professionals were used to identify and determine the causes and environmental effects of non-compliance as well as developing the Octadecagonal template for solving the problems of non-compliance with road setbacks in ACT. This shows that the opinions of professionals are more important and useful in a given urban society that expiriences non-compliance with road setbacks like ACT.

In response to objective five, which corresponds to research question five. The findings revealed that there is significant relationship between the responses of professionals and non-professionals on the causes and environmental effects in the ACT. The Opinions of both professionals and non-professionals were used to identify and determine the causes and environmental implications of non-compliance in the ACT. See Tables 5.13 to 5.22. Also, road accident is the highest environmental effects for both professionals and non-professionals. See Tables 5.24 and 5.25. Moreover, the ranking order of health indicator of environmental effects of both professionals and non-professionals were the same. See Figures 5.10 and 5.14.

The Findings of the study revealed that the opinions of both professionals and non-professionals were used to identify and determine the causes and environmental implications of non-compliance in the ACT. See Tables 5.13 to 5.22.

The findings also revealed that the opinions of the professionals were used to develop the template. See Figure 5.16 and Table 5.46. This implies that Octadecagonal Polygon template which was developed for the proper management ofthe problems of non-compliance with road setbacks would be workable when adhere to by the residents of ACT, hence professionals opinions.

CHAPTER SIX

SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATIONS

This chapter presented the summary of the findings of this study, provided the contributions to the existingbody of knowledge, some areas for further studies were suggested.The neccesary recommendations were made and conclusion weredrawn from the findings of this study.

6.1 Summary of the Findings

In a nutshell the findings of this study showed that the following

a. The study area expirenced high percentage levels of non-compliance of 62.8171, 75.3557 and 82.7168 for trunks A,B and C respectively.
b. The three road types (Trunks A, B and C) in the study area had percentage levels of compliance of 37.1827, 24.6443 and 17.2838 respectively.
c. The non-professionals confirmed that the major cause of non-compliance with road setback standards in the study area was corruption among planning authorties with weighted mean of 4.4956.
d. The professionals confirmed that the major cause of non-compliance with road setback standards in the study was failure of law enforcement agents with weighted mean of 4.9188.
e. The major environmental implication confirmed by non-professionals in study area was road accidents with weightd mean of 4.8246.
f. The professionals confirmed that the major environmental implication was road accidents with weighted mean of 4.9513.
g. There is relationship between the opinions of professionals and non-professionals in the causes and environmental implications of non-compliance in the study area.
h. There is significant difference between professionals and non-professionals in their mean perception of the causes of non-compliance with road setbacks in the study area.
i. There is significant difference in the mean compliance with road setback standard in siting of structures in the three road types in the study area.

j. The opinions of professionals on the mean perception of the causes of non-compliance with road setbacks varied from that of non-professionals.

k. The Government of Anambra State has not started making proper use of land use Act of 1978, by acquiring land from indigenous communities of the study area.

6.1.1 Reasons for varying degrees of compliance with road setbacks

The findings showed that Awka South and Njikoka LGAs show higher compliance than the other LGAs.The reason lies in the length of time these LGAs have been in the contact with formal administration from colonial period to today. Although Awka South has been classified as pre-colonial urban centre, dating back to 1000 A.D. and as the industrial suburb of Nri theocratic empire, by 1917, when the Township ordinance was promulgated by Lord Lugard, it was classified as a third class township. This meant that from 1917 it was ruled by an advisory board. Awka has had varied political and administrative fortunes from headquarters of Onitsha North country council, to the capital of Awka South Local Government Area and finally to being the capital of Anambra State in 1991. As a result of this, Awka South has been exposed to some form of physical planning ahead of other communities nesting around it. Awka South is followed by Njikoka, where Abagana was also exposed to both colonial and post-colonial administrations.

The issue of LGA roads having the lowest level compliance can be explained by the fact that even though all the 774 LG headquarters were declared urban by the Federal Government and even though all LGAs were expected to adopt the 1992 Urban and Regional Planning Act, in fact Anambra state is one of the states that has not adopted the practice. Secondly, in Anambra state as in some other states, the state government has not allowed LGAs access to their federal allocations. In fact, local government elections have not been held except the one held from 1999-2003. Denied of their funds, LGs cannot develop their roads, while the state government concentrates on inter local government roads and major collector roads in the major towns of Onitsha, Awka, Nnewi and Ekwulobia.

6.1.2 Planning and Policy Implications:

Evident from the findings of the study is that there is unacceptable level of compliance with approved road setback regulations for all three categories of roads. Some of the observed attendant implications of this is flooding, accidents, reduced level of aesthetics and lack of access to city overhead agencies in discharging their statutory functions. Atypical example is the impenetrability of Anambra State Waste Management Authority's (ASWAMA) vehicles to execute removal of solid wastes. The policy and planning implications of these findings are:

i. Land acquisition and planning: Consequent on Awka becoming the capital of Anambra State and poor level of planning operations by planning officials in the State Ministry of Lands, Survey and Urban planning and the parastatals charged with physical planning, such as the Anambra State Urban Development Board then (now Anambra State Physical Planning Board) (ASPPB), the major problem has been availability of public land for development planning. Government has been tardy and slow in acquiring land in compliance with the 1978 Land Use Act. As a result, communities within the Awka Capital Territory survey their lands, sub-divide the land into plots without regard to stipulated urban planning regulations. Except for land within Awka legal town where government, using the power of eminent domain, compulsorily acquired land in overall public interest, and allocated same to potential developers. Some is true of the housing estates belonging to Anambra State Housing Development Corporation(ASHDC) and Anambra State Home Ownership Company Limited (AHOCOL). Apart from these, it has been laisser faire in outlying towns, such as Amansea, Okpuno, Isuaniocha, Mgbakwu, Nibo, Nise, Umuawulu, which are witnessing the highest tempo of housing developments. Land speculators have been enjoying a free day. The only way out of the clandestine development which is responsible for poor setback compliance is for government to acquire all land within the ACT, pay communities for their land and institutionalize sustainable urban planning that

will implement control regulation Hopefully this will be realized in Isiagu, where government intends to develop the Millennium CSity.

ii. The second policy and planning implication is the necessity to embark on sustainable urban renewal strategy that will ensure a healthy, functional urban settlement with the active corporation of the residents. The major problem here is whether government has the necessary funds to pay compensation to right title holders of land, whose property may have to be demolished to make way for roads and other urban public and community facilities. It must be emphasized that right land owners must be provided alternative land and be aided in developing their structures. This is why demolition has to be reduced to the barest minimum.

iii. The third planning and policy implication is the enlistment of public participation in physical development planning. The very essence of sustainable development is massive involvement of those likely to be negatively affected by any development endevour. In order to achieve this within the purview of this study, urban residents need a good dose of planning education, that will make them realize the disbenefits of non compliance with development control regulations and how best to go along within the domain in realizing a city that is livable. There are a number of strategies to realize this including making residents choose from a number of design alternatives, use of surveys, making planning teams reside in planning areas an d setting up committees on public participation(Muoghalu, 2001). On the use of survey, Gisans (1979) has argued that "sociology is a democratic method of enquiry; it assumes that people have some right to be what they are". On the dissemination of planning education, it is argued that physical planners, especially at the localgovernments level should provide information and advice on the workings of the planning system and rights of individuals within it. This does two things: selling planning competence and as strategy for reviving the battered planners' image in society as buttressed by this study.

iv. The fourth implication is for development control officials to be transparent and honest in discharging their duty and diminish corruption.

6.1.3 Reflection of Sustainable Development, Externalities and Planning Standard in the Study.

Discussion on urban sustainable development also implies that the theoretical issues of social, physical, economic and health concerns are stimulateneously reconciled. The issues of social equity are always embedded in the course for improved urban environments. For example, in this study the top and middle income classes live in areas where government intervention in land acquisition and planning created residential areas where setback regulations are enforced, while the poor live in areas of most noticeable violations.

Complex interdependence has further implications in society, including issues of governance. Issues of governance include policy formulations, institutional reform, transparency, probity and participation (Pugh, 1996). Town planning has been primarily concerned with the theory and practice of land use and development control, while sustainable development has been added in fragmentary and occasional manner. Successful development has not been incorporated or pursued from the basis of theory, concept and professional operation in town planning.

John Paul II (1979) stated that people do shun sustainability and often tend "to see no other meaning in their natural environment than what serves immediate use and consumption". The manifestation of this is already being (manifested and) experienced in the contestation and personal aggrandizement of public space in ACT road setbacks. Decision is involved with choice of best alternative course of action. We plan because of tomorrow's uncertainty and because resources are scarce. It is difficult to achieve orderliness and sustainable development without planning.

Physical planning commonly referred to as " planning standard" is the process that involves the spatial ordering of land uses both in the urban and rural settings for the purpose of creating functionally efficient and aesthetically pleasing physical environment for living, working, circulation and recreation (NITP, 1993). Through physical planning, physical space is organized and managed in such a way that:-

(i) The environment created today will meet the demands of tomorrow (i.e. promotion of sustainable development);

(ii) The environment will satisfy the pluralistic values and attendant needs of identified groups of people;

(iii) All activities arising from needs, individually or collectively expressed, co-exist in harmony; and

(iv) Investments, conveniences, functionality, living and working within the environment are maximized.

The scope of physical planning is very broad – It varies from the smallest scale, where the focus of attention is on the preparation of a plan for a single project such as a small factory or a market, to the broadest scale such as when a physical development plan is for a region or a country as an entity. In Nigeria, the practice in the past was to use the term "town planning" to describe physical planning activities. The limitation of the usage of the term "town planning" is that one may erroneously interpret this term as being restricted to towns alone. Hence, the adoption of the use of the term "physical planning" because it best describes town planning activities at all levels.

The physical planning of any city has been recognized as a multi-faceted discipline and this is why many scholars in the environmental sciences conceive the concept from different perspectives. For instance, Oyelami (2005) conceives physical planning as the preparation and construction of plans in accordance with which growth and extension of a town is to be

regulated so as to make the most of the natural advantages of the site, and to secure the most advantageous conditions of housing and traffic.

Agoha and Oladoja (2004), define it as relating to the design, growth and management of the physical environment in accordance with a predestined guide and policies...Its goal is to make provision for the coordination of all forms of development activities at the national, regional and local level

According to Okpala (1987), physical town planning is a process of programming the coordination of the direction, structure and pattern of development, growth and management of urban settlements with the goal of ensuring that all necessary land use needs (including economic, social, environmental, institutional, cultural, recreational and leisure needs) for all the socio-economic population groups in the society, are provided for in compatible and symbiotic locational relationships and densities. Experience has shown that urban settlements with large concentration of people offer enormous contributions to national development. It is because of this that urban centers are regarded and catalysts of economic growth, socio-cultural and to some extent spiritual nourishment, which in addition offer opportunities for technological innovations.

Therefore, when cities or urban centers are well-planned and secured. They attract a lot of people who engage in commercial and industrial developments. Such well-planned cities, according to UN-Habitat, (2009) involve an array of stakeholders. This is why the Nigerian Vision 20:20:20 emphasizes proper urban planning as a prerequisite to development. That Vision 20:20:20 document also emphasized strict adherence to building standards especially as outlined in Chapter V of the Nigerian National Building Code of 2008.

According to Okoro (2014), physical planning also described as “Land use planning”, “Town and country planning”, “Urban and Regional planning” or simply “Town Planning” relates generally to the use of land or the spatial expression of the desired form of social and economic development to be translated on the ground. Physical planning is a comprehensive and system

related process through which plans and policies are evolved for enhancing the quality of our environment and the lives of the inhabitants (The Urban and Regional Planning Law (Decree 88 of 1992). Franklin (1992) cited by Okoro (2014) defined Physical Planning as focusing on the concern with the design, growth and management of the physical environment in accordance with predetermined, and agreed policies, where balanced social and economic objectives may be achieved. Physical planning was summarized thus under the following headings.

a. Physical planning provides a planned spatial framework of development for the physical environment within which a balanced programme of social and economic development can be carried out. It provides a master plan or compass for development;
b. It provides the legislation necessary for the planning, controlling and implementation of the physical development process; and
c. It is done to ensure the establishment of centralized infrastructure with overall responsibility for planning, evaluation, co-ordination, administration and implementation of a comprehensive development programme. Physical planning in this context is the planning of buildings, parks and gardens, roads, basic social services and other physical things. It is the art and science of controlling the use of land, the character and arrangement of building so as to achieve economy, convenience and beauty.

Falade (2011) stated that Physical planning is synonymous with "Development Planning" which means any development, which when embarked upon or executed by either private or public developer brings about development. While development plan in physical term is the policy document prepared to guide physical development decisions and solve some planning problems in the built environment. National (Economic Development) Planning is not directly the same thing as Physical Planning. Physical Planning is a subset or one of the sectors supposed to be treated under national planning but often a time, the economic issues dominate to the extent of neglecting physical planning backup in National Development Plans.

Economic growth is the percentage change in real gross national product. It is the increase or decrease in the total product when compared with the past year. So we have Economic boom (Eldorado, growth) or economic retardation (doldrums debacles/Slump) respectively. The conditions that encourage economic growth include qualified labour, technological innovations, sound management; natural resources, macro economic and fiscal policies. National Planning is concerned with the objectives related to growth, allocation and redistribution of resources. Developing countries, like Nigeria, simply prepare National Development Plans within given periods at some stages to guide their efforts in national development. This is with the recognition that national economies are vulnerable to foreign competitions and technological changes. National planning provides the framework for the overall development of all the sectors. Urban and Regional Development is inclusive along with other sectors such as Education/Human Resources development, Health and Capital Finance. This is what is called integrative approach to the issue of urban and regional development.

Development in general terms connotes a planned process of change in the right direction which have some implications for livelihood. Okoro (2014) also defined development as growth plus change towards ideal level of modernization such as that traceable to productivity, social and economic equalization, modern knowledge, improved institution, attitude, rationally co-ordinated system of policy measures that can remove the host of undesirable conditions in the social system perpetuating the state of under-development. It answers three fundamental questions viz;

1.What has been happening to unemployment?

2.What has been happening to inequality? and

3.What has been happening to poverty?

All these are issues raised in Millennium Development Goals (MDG) target 1 to address the problem of economic wellbeing of human beings.

Duruzoechi, (2009) further expanded the physical planning focus to include urban land market, and culture-bound considerations such as customs, traditions and belief. The land use zoning emphasis come into the fore as result of the debate on the public interest perspective of land use planning. Land use zoning has come to recognition as government intervention instrument packaged in form of legislation and legal control in Town and country planning matters.

The Place of Physical Planning in the Attainment of Sustainable Physical Development:

Physical planning like other areas of human endeavour has a credible role to play if sustainable physical development is to be achieved in any society. Urban planning has a central role in achieving sustainability (Olomola 1999). Though urban planning is a service and does not necessarily result directly into goods (Jiriko, 1998). It is judged by its product i.e. the outcome of the implementation of the planning provisions and programmes. It provides a plan-document to be used for physical development of the human habitat. By implication urban planning provides the led system for "building" the environment which is fundamental for the attainment of sustained control and development of the environment.

Physical planning documents are vehicles for environmental development in the immediate term and set the direction of future growth. This is achieved through the use of a plan diagram backed-up with many legislative guidelines and administrative reports. Therefore sustainable physical development and management of human settlement hinges greatly on the effectiveness of physical development plans. This involve the reconciliation of land uses, provision of the right site for the right use, control of development, provision of facilities, services and public goods, preservation, protection and conservation of resources, preservation of heritage among others. Planning has a positive catalytic role to play towards achieving sustainable development (Takano, Nakamura and Watanabe; 2002). Planning provide a plan-led system. Such plans provide sustainable and best sites for various human activities. To a very high level, physical planning forecast and projects activities relationships through a

planning process which involve evaluation, thus such plan stands a good chance of promoting sustainable development.

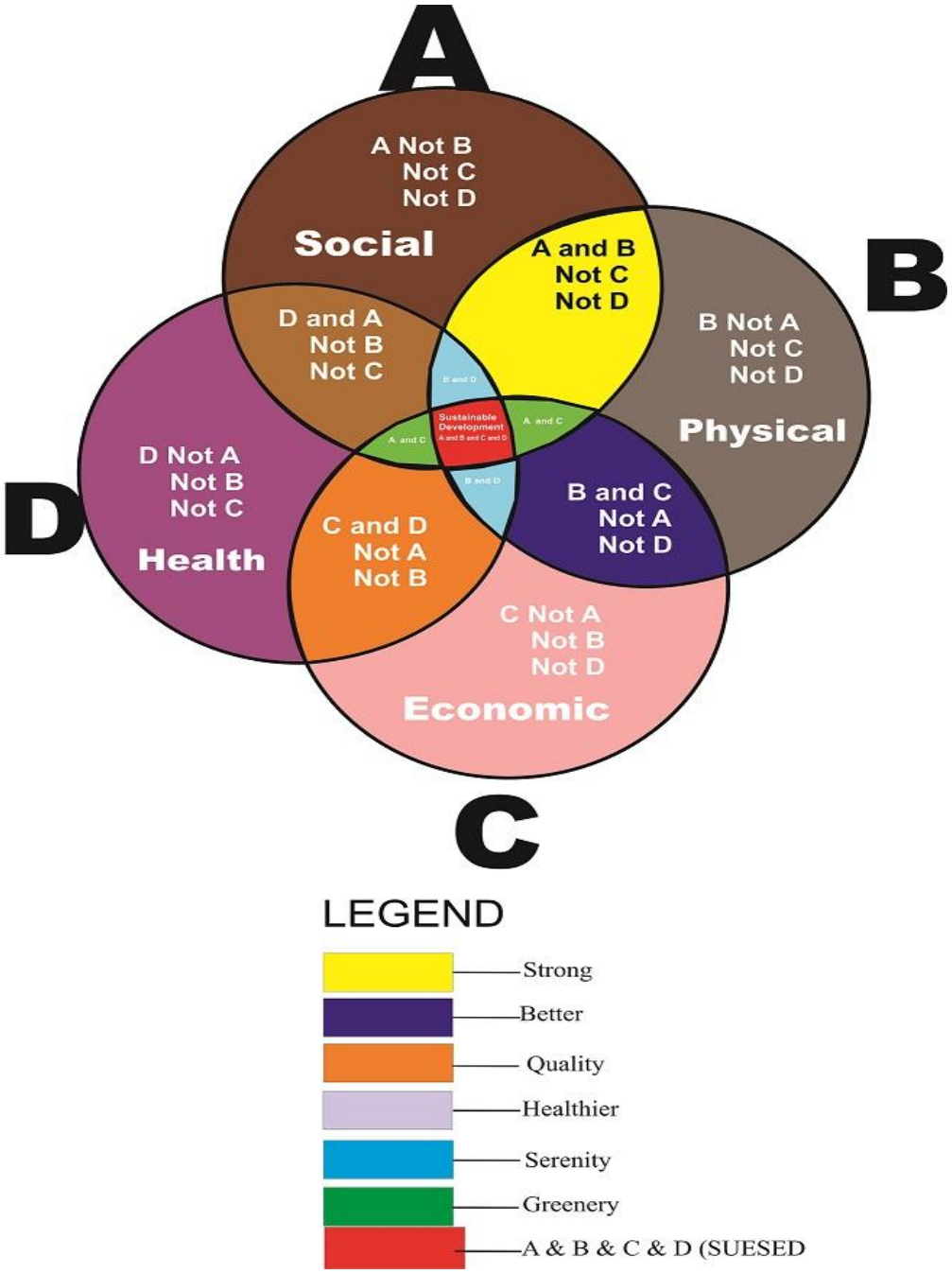

Figure 6.1: Developed Modified Framework of Sustainable Urban Environmental and Socio-Economic Development (SUESED). (Source: Author's Field Work, 2017).

From Figure 6.1, it is observed that SUESED can be achieved, when ‘All hands be on deck’ which means that Aand B must reconcile to produce strong sustainability, then B and C to give better environment, C and D to give quality sustainability, D and A to give healthier sustainability, A and C to give serenitysustainability and B and D must reconcile to produce greenery sustainability. All these products have their respective produced components as stated below:

Strong (just, bearable, equitable and regulated)

Better (planned, controlled, tidy and Aesthetic)

Quality (revenue generated, development, growth and orderliness)

Healthier (clean, neather, attractive and vibrant)

Serenity (active, productive, prosperity and condusive)

Greenery (protected, exciting, safety and liveable)

When all these (strong, Better, Quality Healtheer, Serenity and Greenery) reconciled, sustainable Urban Environmental and Socio-Economic Development (SUESED) ewould be achieved.This shows that SUESED is a simultaneous reconciliation of social, physical, economic and health issues with their produced components. This also implies that sustainable urban environmental and Socio-economic development balances on the four stands to give sustainable urban growth.

In outlining these implications and reflection of the conceptual frameworks, the driving philosophy of both is when taken together, they will work in relieving the poor level of compliance with established road setbacks, but what required most is the political will to effectuate change and that physical planners see the residents and the land owners in ACT as worthwhile partners in renewing the wrong done and doing what is right in future.

6.2: Contributions to Knowledge

The research made the following contributions to knowledge:

1. Development of an OctadecagonalTemplate for Management of Non – Compliance to Road Setbacks in ACT, Anambra State. (see figure 5.16).
2. Percentage rates of compliance and non-compliance with road setbacks in the six Local Government Areas in ACT had been established/determined, with the aid of Arc. GIS .
3. Levels of compliance and non-compliance of sited structures to road setbacks in ACT for Trunks A, B and C had been established, with the aid of Arc. GIS 10.4 software.
4. Massive incidence of non-compliance with road setbacks in ACT with its major causes had been established, by both professionals and non- professionals.
5. Environmental effects with four indicators (Social, Economic, Physical and Health) in ACT had been established.
6. Environemtal effects of non- compliance with road setbacks and their highest effect as road accidents have been determined both by professionals and non-professionals in ACT.
7. PCA factor score coefficients were used to rank causes and their associated implications independent variables in environmental order of their importance.
8. Development of a modified framework of four indicators for sustainable urban environmental and socio – economic development. (see figure 6.1).

6.3 Suggested Areas for Further Studies

1. There is need to investigate the causes and effects of non-compliance in the development control practice laws/regulations in ACT.
2. There is need to study the extent of implementation of certain development control practices especially in the major cities across the State where researchers have not considered like Onitsha, Nnewi, Ekwulobia in Anambra State and other parts of the country as well as the whole world.
3. There should be critical analyses of the causes of non-compliance with road setbacks and other development control practices as the major causes differ from locality to

locality, depending on the political, social economical and environmental conditions of the locality as the same solution may not be effective in all localities.

4. Also, there should be an in-depth assessment of the causes and effects of non-compliance of all development control laws rather than road setbacks to establish a model which will be passed on to the public in a language they will understand so as to make them aware of the looming danger awaiting them as they disobey.

6.4: Conclusion

Based onthe findings, the following conclusions were drawn: there is massive incidence of non-compliance with road setbacks in ACT and the major causes of it are the corruption of planning authority and failure of law enforcement agents. Due to the low level of compliance to the ACTDA standard, it is also concluded that there is high rate ofnon-compliance with road setbacks in siting of structures in ACT. Consequently, having the high rate of non-compliance in ACT, Anambra State, it would mean to result danger to ACT environment.

The above conclusions are drawn based on the analysis made with hypothesis and computation of the following:

1. Level of compliance to road setbacks was established by the computation of distances of sited structures from serviced roads in ACT and the distances varied some far below the set standard in the three different road types (Trunks A,B, and C) in the area which showed massive incidence of non-compliance with road setbacks in ACT, Anambra State.
2. Causes of non-compliance with road setbacks were significant in ACT.
3. Environmental effects of non-compliance with road setbacks in ACT were significant which supports the research question number 3.
4. There is significant difference between the responses of the professionals and the public (non-professionals) on the causes of non-compliance with road setbacks in ACT.

5. The opinion of professionals and non-professionals are of the view that corruption of planning authorities and failure of law enforcement agency werethe major factors contributing to the non-compliance with road setbacks in siting of structures in ACT.

6. The template for solving the problems of non-compliance with road setbacks in ACT, Anambra State was developed.

6.4 Recommendations

From the findings made, the following recommendations were made:

There is need for the three different planning agencies (Physical Planning Commission for Federal Roads, Physical Planning Board for State Roads and Town Planning Authorities for Local Roads) that are chargedwith the management of those three different road types respectively, to make sure that the buildings to be newly constructed comply with minimum setbacks as it is stipulated or said by theMinistry and other planning standards. Also, existing/already sited structures which did not comply with setstandards be served with the necessary notices, then followed up by the enforcement of such standards through demolition and shelving/reducing exercise as stipulated in the template of this study. When this is done, the problem of non-compliance with road setbacks in the study area would be reduced considerably and Awka Capital Territory environmentwill look attractive and healthier for better quality life.

There is need to educate the public on the causes and environmental implications of non-compliance with road setbacks in the study area and officers should ensure that undue excuses, delay and corruption in any form should be avoided as much as possible.

Since the bulk of the problem in the issue of non-compliance with certain developmental control practice (example road setbacks) laws in Nigeria today is as a result of corruption on the part of the officers in authority. Therefore, it is so pertinent and urgent that the Government

should develop and introduce a stronger Commission/Board/Authority that will checkmate the other three planning agencies for Trunks A,B and C. Consequently, all the developmental team like Estate Manager/Surveyor and Valuer, Urban Planner, Architect, Civil Engineer, Builder, Environmental Manager, among others must be represented. Also, during enforcement, all should come out and join with reasonable number of forces like Police, Army, Civil defence among others. With this, occupants in the study area and entire Anambra State will help to implement developed template from the study.

The octadecagonal template and modified framework of sustainable development generated from this study should be strictly adhered to by all and sundry for proper management of non-compliance with road setbacks and achievement of sustainable urban environmental and socio-econmomic development in the study area.

Since the responses of professionals vary from most of the responses of non-professionals, efforts should be made to educate the non-professionals on the need and importance to adhere strictly to the generated template and modified sustainable development framework. Also personnel involved in this area (development control practice) should be trained, rewarded as when due. Conditions for carrying out responsibilities within this setting should be streamlined. This will help to check the degree or level to which monitoring officials are easily being compromised.

Since there is severe environmental effects as a result of massive incidence of non-compliance with road setbacksin the study area, there is need for environmental education and awareness in the area, so as to educate the public on the importance of implementing road setbacks. When people understand the reasons for urban planning, they will be far less likely to violate the legal construction standards and will likewise make objections known, when their neighbours, relatives, friends, even their enemies build illegally. For the environment to gain its quality and aesthetic beauty, all hands should be on deck and to adequately handle the problem of non-

compliance with road setbacks in the area, the developed modified sustainable development of frame work should be applied accordingly.

There is need for post occupancy assessment which deals with the continuous periodic/systematic assessment of the level of compliance with road setbacks and environmental orderliness of sited structures in terms of aesthetics, drainage, accessibility, productivity and sustainability. This can effectively be done by Estate Managers/Surveyors for sustainable urban environment and socio-economic development. Without proper management and maintenance, there would be nothing like sustainable development.

Finally, since Government has not obtained the power of eminent domain to acquire community lands due to inability to compensate the community land owners who normally sell their community lands to the people who violate the road setbacks in a bid to maximize their lands. Government should therefore buy up the lands at the on-going rent, resell them to the people and resort to judicial process to enforce compliance. This can help immensely to rehabilitate the old traditional urban development and move to new modern urban development in the study area.

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APPENDIX ONE: QUESTIONNAIRE

Department of Environmental Management
Faculty of Environmental Sciences
Nnamdi Azikiwe University
P.M.B 5025, Awka Nigeria.

Dear Sir/Madam,

I am a PhD student of the above named Institution. I am currently carrying out a research on Assessment of the Level of Compliance to Road Setbacks in Siting of Structures and their Environmental Implications in Awka Capital Territory of Anambra State. Consequently, I solicit that you help me to complete the research by answering the questions below.

Please, note that this research is purely for academic purposes and not intended to tax or victimize or intimidate any person or group. In addition, it will be treated with absolute privacy and confidence.

Thanks for your anticipated co-operation and consideration.

Yours faithfully

Okafor Benedicta N.

Please supply the following information as they relate to you, indicate by ticking (✓) the appropriate option.

Section A: Personal Information

1	**YOUR AGE BRACKET**	**INDICATE**
	18 – 30 years	
	31 – 40 years	
	41 – 50 years	
	50 and above	
2	**YOUR GENDER**	
	Female	
	Male	
3	**WHERE DO YOU LIVE?**	
4	**YOUR OCCUPATION**	
	Civil Service	
	Trading	
	Building (engineer)	
	Contractor, Student, Clergy man, Driving, Teaching	
5	**HIGHEST QUALIFICATION ATTAINED**	
	First School Leaving Cert.	
	WAEC, GCE, NECO	
	B.SC	
	M.Sc	
	Ph.D	

Tick (✓) the option that best represents your opinion on the statement made.

Keys:
SA = Strongly Agree
A = Agree
NO = No Option
D = Disagree
SD = Strongly Disagree

SECTION B: THE CAUSES OF NON-COMPLIANCE WITH ROAD SETBACKS IN THE STATE

	Causes	SA	A	NO	D	SD
1	Rapid Urbanization in this area					
2	Population Growth in this area					
3	Corruption of planning Officers					
4	Difficulty in land Accessibility					
5	High Cost of land Acquisition					
6	Poverty					
7	Failure of the law Enforcement Agents					
8	High Cost of Living					
9	Nonchallant attitudes of the Govt.					
10	Greedy attitudes of the developers					
11	Competition for business space among businessmen					
12	Siting of structures before road construction					
13	Improper city planning					

SECTION C: EFFECTS ON NON- COMPLIANCE TO ROAD SETBACKS

Social Effects of Non- Compliance to Road Setbacks

	Effects	SA	A	NO	D	SD
1	Increase in Crime rate					
2	Uncontrolled and increase density of physical development.					
3	Disorderliness of physical development					
4	Human Congestion					
5	Manifestation of Urban sprawl					
6	Unregulated Building Patterns/Relocation					
7	Slump formation increases					
8	Loss of Cultural Heritage					
9	Bad draining					
10	Time Wastage					
11	Housing congestion					

Economic Effects of Non-compliance of Road Setbacks

	Effects	SA	A	NO	D	SD
1	Loss of goods and properties (theft)					
2	Over competition for business space					
3	Loss of Revenue					
4	Business setbacks					
5	Demolition of Properties					
6	Losing of business contacts and customers					

Physical Effects of Non-compliance of Road Setbacks

	Effects	SA	A	NO	D	SD
1	Pollution (Water, Air, Soil & Plants)					
2	Destruction of aesthetic beauty					
3	Traffic congestion					
4	Flooding					
5	Soil erosion/gullying					
6	Uncontrolled street trading & Hawking					
7	Vehicle parking problems					
8	Increase in noise pollution					
9	Increase in solid waste generation					
10	Increase in synthetic Surface construction					
11	Felling of trees/destruction of vegetation					
12	Environmental disorderliness					

Health Effects of Non-compliance of Road Setbacks

	Effects	SA	A	NO	D	SD
1	Road accident					
2	Loss of life					
3	Psychological Trauma					
4	Suffocation					

SECTION D: FOR DEVELOPING THE TEMPLATE
TARGETED AUDIENCE: PROFESSIONALS
RANK YOUR AGREEMENT ON THE FOLLOWING AS MEASURES FOR SOLVING THE PROBLEM OF NON-COMPLIANCE WITH ROAD SETBACKS IN AWKA CAPITAL TERRITORY

S/N	Issues	Demolish (%)					Reduce/Relocate (%)				
		20	40	60	80	100	20	40	60	80	100
1	If the structure is on a Federal road										
2	If the structure is on a State road										
3	If the structure is on a local road										
4	If the structure was erected before the construction of the road										
5	If the road and location of the structure are a busy area										
6	If the distance of the structure and the road is less than 4.5m (ie 75% of 6m)										
7	If the structure was approved by relevant authority before construction										
8	If the structure was not approved by relevant authority before construction										
9	If the approval terms were strictly followed										
10	If the approval terms were violated										
11	If the Government is willing to compensate the owner										
12	If there was n EIA for the project before erection										
13	If there was EIA for the project before erection										
14	If the property is on a road bend										
15	If the property has the potentials of causing Motor accidents,										
16	If the property has the potentials of causing Traffic congestion,										
17	If the property has the potentials of causing Noise pollution,										
18	If the property has the potentials of causing Flooding,										

Appendix Two

THE LEVEL OF COMPLIANCE TO ROAD SETBACK IN SITING OF STRUCTURES ON THREE DIFFERENT ROAD TYPES (TRUNK A, BAND C) IN AWKA CAPITAL TERRITORY

Keys:
TA = Trunk A Roads
TB = Trunk B Roads
TC = Trunk C Roads

S/N	CLASSES OF LAND USE	TYPES OF DEVELOPMENT	FIELD MEASUREMENT (FM) IN METRE)			SET STANDARD (SS) (METRE)			DIFF BTW SS & FM (METRE)			PERCENTAGE (%)		
			TA	TB	TC	TA	TB	TC	TA	TB	TC	TA	TB	TC
1	Residential (A)	i) Bungalows												
		ii)Duplexes												
		iii) Maisonettes												
		iv) Flats												
		v) Terrace housing/Apartments												
		vi)Tenement houses Cottages												
2	Recreational(B)	i)Cinemas/Theatres/opera houses/ Concert houses												
		ii) Sport complexes/ gymnasia/Fitness center												
		iii)Club Houses												
3	Commercial (C)	i) Markets												
		ii) Shopping Centers/Malls												

		iii)Showrooms/ Garages/Warehouses												
		iv) Banks												
		v) Petrol Filling Stations												
		vi) Hotels												
		vii) Motels/Guest Houses												
		viii)Bars/Restaurants												
4	Employment Area (D)	i) Printing Press/Publishing Houses												
		ii) Dry Cleaning												
		iii) Wash Repairs/Cobblers/ Electronic Repairs/Vulcanizes												
		iv) Warehouses/ Workshops												
		v) Gas Filling Center												
5	Education (E)	i) Daycare/ Playground												
		ii) Primary Schools												
		iii) Secondary Schools/Colleges												
		iv) Tertiary Institution												
		v) Research												

		Institute												
		vi)Training Centers												
		vii) Vocational Centers												
6	Religious (F)	i)Churches												
		ii) Mosques												
		iii)Ed-Ground												
		iv)Crusade Ground												
7	Institutional Buildings, Utilities and Services(G)	i) Secretarial Complex												
		ii) General Hospital/Health Centers												
		iii) Libraries												
		iv) Bus Terminals												
		v) Motor Parks												
		vi) Lorry Depots												
		vii)Truck Depots												
		viii} Fire Station												
		ix) Postal services												
		x) Gas Depots												
		xi) Radio Stations												
		xii)TV												

		Stations/ Viewing Centers												
		xiii) Prisons												
		xiv) Juvenile centers												
		xv) Judicial Courts												
8		i) Police Stations												
		ii) Barracks												
9	Conservation (H)	i) Cemeteries												
		ii) Old/Listed Buildings												
		iii) Wetlands												
10	Health Institution	i)Teaching Hospitals												
		ii) General Hospitals												
		iii) Specialist Hospitals												
		iv) Clinics												
		v) Laboratories												
11	Industrial (J)	i) Light Industry												
		ii) Medium Industry												
		iii) Heavy Industry												
12	Agriculture (K)	i) Farm House												
		ii) Poultry												
	TOTAL													

Appendix Three

Appendix 3a: item-total statistics for reliability of the responses of the public (non-professionals) when cronbach's alpha is 0.693

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Rapid urbanization in this area	176.0491	147.228	.015	.698
Population growth in this area	175.9141	144.571	.145	.692
Corruption of planning officers	175.7791	146.991	.029	.698
Difficulty in land accessibility/non enforcement of law	176.4110	140.434	.285	.684
High cost of land acquisition	176.4325	140.634	.213	.688
Failure of the law enforcement agents	176.3466	151.741	-.165	.711
High cost of living	177.3160	140.131	.283	.684
Nonchalant attitudes of the government	176.0245	149.784	-.102	.703
Greedy attitudes of the developers	176.3528	135.663	.321	.680
Competition for business space among business men	176.5460	136.704	.339	.679
Siting of structures before road construction	176.0552	138.655	.410	.678
Improper city planning	175.8804	142.530	.310	.686
Increase in crime rate	177.5368	141.782	.179	.691
Uncontrolled and increase density of physical development	176.2607	140.070	.376	.681
Disorderliness of physical development	175.9847	144.015	.238	.689
Human congestion	175.7423	142.703	.321	.686
Manifestation of urban sprawl	176.0552	146.046	.036	.699
Unregulated building pattern	176.1687	135.027	.475	.672
Slump formation increases	176.5245	132.453	.485	.668
Loss of cultural heritage	176.7423	151.336	-.148	.712
Bad draining	176.1350	151.822	-.190	.708
Time wastage	176.5613	148.561	-.046	.702
Housing congestion	176.4417	140.937	.345	.683
Loss of goods and properties(theft)	176.8313	137.316	.371	.678
Over competition for business space	176.2914	141.967	.200	.689
Loss of revenue	175.7638	146.876	.038	.697
Business setbacks	176.2362	148.236	-.038	.703
Demolition of properties	176.0153	147.966	-.018	.700
Losing of business contacts and customers	176.8160	138.255	.354	.680
Pollution(water,air,soil and plants)	175.7393	142.846	.348	.685
Destruction of aesthetic beauty	175.6012	146.585	.102	.694
Traffic congestion	175.4509	145.091	.232	.690
Flooding	175.7270	143.854	.182	.690

Soil erosion/gulling	**176.8773**	**144.748**	**.111**	**.694**
Uncontrolled street trading and hawk	**176.7975**	**137.337**	**.302**	**.682**
Vehicle parking problems	**176.2331**	**135.472**	**.424**	**.674**
Increase in noise pollution	**176.5061**	**134.318**	**.348**	**.677**
Increase in solid waste generation	**176.0215**	**142.513**	**.200**	**.689**
Increase in synthetic surface construction	**176.6350**	**135.605**	**.493**	**.672**
Felling of trees/destruction of vegetation	**176.6810**	**146.372**	**.042**	**.698**
Environmental disorderliness	**175.9847**	**148.858**	**-.059**	**.703**
Road accident	**175.4294**	**144.258**	**.297**	**.688**
Loss of life	**175.8313**	**144.079**	**.227**	**.689**
Psycho trauma	**176.5951**	**141.940**	**.304**	**.685**
Suffocation	**176.5890**	**139.978**	**.247**	**.686**
Poverty	**177.3344**	**152.722**	**-.182**	**.717**

Source: author's statistical computation from field work (2017).

Appendix 3b: item-total statistics for reliability of the responses of the public (non-professionals) when cronbach's alpha is 0.717

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Rapid urbanization in this area	173.1779	152.621	-.032	.723
Population growth in this area	173.0429	148.897	.143	.715
Corruption of planning officers	172.9080	151.185	.035	.720
Difficulty in land accessibility/non enforcement of law	173.5399	144.255	.301	.707
High cost of land acquisition	173.5613	143.872	.247	.710
Failure of the law enforcement agents	173.4755	156.521	-.179	.734
High cost of living	174.4448	144.783	.266	.709
Nonchalant attitudes of the government	173.1534	154.370	-.113	.726
Greedy attitudes of the developers	173.4816	137.746	.386	.700
Competition for business space among business men	173.6748	139.949	.371	.702
Siting of strctures before road construction	173.1840	141.837	.458	.700
Improper city planning	173.0092	146.465	.328	.708
Increase in crime rate	174.6656	146.586	.159	.715
Uncontrolled and increase density of physical development	173.3896	144.011	.389	.704
Disorderliness of physical development	173.1135	148.409	.231	.712
Human congestion	172.8712	146.322	.360	.708
Manifestation of urban sprawl	173.1840	151.166	.007	.724
Unregulated building pattern	173.2975	137.570	.540	.693
Slump formation increases	173.6534	135.803	.512	.692

Loss of cultural heritage	173.8712	156.919	-.187	.736
Bad draining	173.2638	156.515	-.203	.731
Time wastage	173.6902	153.131	-.056	.724
Housing congestion	173.5706	144.744	.366	.706
Loss of goods and properties(theft)	173.9601	141.115	.385	.702
Over competition for business space	173.4202	145.875	.213	.712
Loss of revenue	172.8926	151.235	.036	.720
Business setbacks	173.3650	153.857	-.086	.728
Demolition of properties	173.1442	152.819	-.041	.724
Losing of business contacts and customers	173.9448	142.335	.359	.704
Pollution(water,air,soil and plants)	172.8681	146.896	.362	.708
Destruction of aesthetic beauty	172.7301	151.078	.089	.717
Traffic congestion	172.5798	149.364	.233	.713
Flooding	172.8558	148.185	.179	.714
Soil erosion/gullying	174.0061	149.846	.077	.719
Uncontrolled street trading and hawk	173.9264	141.299	.310	.706
Vehicle parking problems	173.3620	138.915	.451	.697
Increase in noise pollution	173.6350	137.599	.374	.700
Increase in solid waste generation	173.1503	147.482	.171	.714
Increase in synthetic surface construction	173.7638	139.233	.516	.696
Felling of trees/destruction of vegetation	173.8098	151.090	.025	.721
Environmental disorderliness	173.1135	153.479	-.071	.726
Road accident	172.5583	148.660	.287	.711
loss of life	172.9601	148.801	.200	.713
psycho trauma	173.7239	146.274	.299	.709
Suffocation	173.7178	143.514	.271	.708

Source: Author's statistical computation from field work (2017).

Appendix 3c: item-total statistics for reliability of the responses of the professionals when cronbach's alpha is 0.806

	Scale Mean if Item Deleted	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
Rapid Urbanization in this area	**197.0900**	**100.992**	**-.113**	**.811**
Population Growth in this area	**196.9500**	**96.795**	**.301**	**.802**
Corruption of planning officers	**196.8800**	**100.672**	**-.083**	**.810**
Difficulty in land accessibility/non enforcement of law	**196.9300**	**93.844**	**.523**	**.795**
High cost of land acquisition	**197.2200**	**91.143**	**.476**	**.794**
Poverty	**198.9000**	**108.071**	**-.412**	**.833**
Failure of the law Enforcement agents	**197.1400**	**101.657**	**-.180**	**.812**

High cost of living	**197.8200**	**89.705**	**.450**	**.794**
Nonchalant attitudes of the government	**197.1200**	**101.076**	**-.122**	**.811**
Greedy attitudes of the developers	**197.0900**	**87.275**	**.693**	**.784**
Competition for business space among business men	**197.6500**	**92.210**	**.324**	**.801**
Siting of strctures before road construction	**197.3700**	**95.751**	**.236**	**.803**
Improper city planning	**197.0200**	**97.959**	**.191**	**.804**
Increase in crime rate	**197.4000**	**87.899**	**.640**	**.786**
Uncontrolled and increase density of physical development	**197.0900**	**93.537**	**.526**	**.795**
Disorderliness of physical development	**197.0000**	**97.919**	**.170**	**.805**
Human congestion	**197.2200**	**98.577**	**.094**	**.807**
Manifestation of Urban sprawl	**197.0500**	**101.785**	**-.180**	**.813**
Unregulated building pattern	**197.3000**	**92.636**	**.466**	**.795**
Slump formation increases	**197.2200**	**92.375**	**.487**	**.794**
Loss of cultural heritage	**197.3900**	**100.119**	**-.046**	**.815**
Bad draining	**197.0800**	**100.256**	**-.046**	**.812**
Time wastage	**197.0900**	**97.032**	**.274**	**.802**
Housing Congestion	**197.0100**	**92.717**	**.616**	**.793**
Loss of Goods and properties(theft)	**197.4400**	**90.734**	**.565**	**.791**
Over competition for business space	**197.1000**	**94.798**	**.431**	**.798**
Loss of revenue	**196.8200**	**101.765**	**-.204**	**.812**
Business setbacks	**197.0000**	**102.606**	**-.242**	**.815**
Demolition of properties	**196.7600**	**100.689**	**-.090**	**.809**
Losing of business contacts and customers	**197.4300**	**91.803**	**.602**	**.792**
Pollution(water,air,soil and plants)	**197.0900**	**98.709**	**.116**	**.806**
Destruction of aesthetic beauty	**196.9200**	**100.014**	**-.015**	**.808**
Traffic congestion	**196.8400**	**100.762**	**-.091**	**.810**
Floodig	**196.7400**	**100.982**	**-.128**	**.810**
Soil erosion/gullying	**196.9000**	**96.495**	**.289**	**.802**
Uncontrolled street trading and hawk	**197.3200**	**91.189**	**.587**	**.791**
Vehicle parking problems	**197.1100**	**89.998**	**.640**	**.789**
Increase in noise pollution	**197.2500**	**88.129**	**.632**	**.787**
Increase in solid waste generation	**196.9100**	**100.386**	**-.052**	**.810**
Increase in synthetic surface construction	**197.3700**	**90.538**	**.670**	**.789**
Felling of trees/destruction of vegetation	**197.1900**	**95.610**	**.317**	**.801**
Environmental Disorderliness	**196.9600**	**99.877**	**-.007**	**.809**
Road accident	**196.7000**	**97.667**	**.242**	**.803**
Loss of life	**196.8000**	**96.606**	**.313**	**.801**
Psychological trauma	**196.9500**	**92.876**	**.608**	**.793**
Suffocation	**197.6700**	**91.779**	**.639**	**.791**

Source: Author's statistical computation from field work (2017).

Appendix 3d: item-total statistics for reliability of the responses of the professionals when cronbach's alpha is 0.833

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Rapid Urbanization in this area	194.4500	109.058	-.118	.837
Population Growth in this area	194.3100	104.580	.307	.829
Corruption of planning officers	194.2400	108.811	-.097	.837
Difficulty in land accessibility/non enforcement of law	194.2900	101.582	.522	.824
High cost of land acquisition	194.5800	98.610	.486	.823
Failure of the law Enforcement agents	194.5000	109.828	-.194	.838
High cost of living	195.1800	97.341	.447	.825
Nonchalant attitudes of the government	194.4800	109.141	-.127	.837
Greedy attitudes of the developers	194.4500	94.290	.719	.815
Competition for business space among business men	195.0100	99.182	.358	.828
Siting of strctures before road construction	194.7300	103.068	.267	.830
Improper city planning	194.3800	105.511	.224	.831
Increase in crime rate	194.7600	95.457	.636	.818
Uncontrolled and increase density of physical development	194.4500	101.260	.525	.824
Disorderliness of physical development	194.3600	105.849	.166	.832
Human congestion	194.5800	106.509	.093	.834
Manifestation of Urban sprawl	194.4100	109.901	-.187	.839
Unregulated building pattern	194.6600	100.166	.477	.824
Slump formation increases	194.5800	99.802	.504	.823
Loss of cultural heritage	194.7500	108.432	-.063	.841
Bad draining	194.4400	108.411	-.057	.839
Time wastage	194.4500	104.957	.267	.830
Housing Congestion	194.3700	100.417	.613	.822
Loss of Goods and properties(theft)	194.8000	98.545	.551	.822
Over competition for business space	194.4600	102.352	.449	.826
Loss of revenue	194.1800	109.866	-.211	.838
Business setbacks	194.3600	110.435	-.223	.840
Demolition of properties	194.1200	108.814	-.106	.836
Losing of business contacts and customers	194.7900	99.258	.616	.821
Pollution(water,air,soil and plants)	194.4500	106.432	.135	.833
Destruction of aesthetic beauty	194.2800	108.123	-.029	.836
Traffic congestion	194.2000	108.788	-.094	.837
Floodig	194.1000	109.081	-.140	.836

Soil erosion/gullying	194.2600	104.356	.286	.830
Uncontrolled street trading and hawk	194.6800	98.604	.601	.821
Vehicle parking problems	194.4700	97.403	.652	.819
Increase in noise pollution	194.6100	95.129	.661	.817
Increase in solid waste generation	194.2700	108.401	-.055	.837
Increase in synthetic surface construction	194.7300	97.896	.687	.819
Felling of trees/destruction of vegetation	194.5500	103.563	.305	.829
Environmental Disorderliness	194.3200	108.038	-.024	.836
Road accident	194.0600	105.370	.260	.830
Loss of life	194.1600	104.479	.309	.829
Psychological trauma	194.3100	100.701	.596	.823
Suffocation	195.0300	99.322	.647	.821

Source: Author's statistical computation from field work (2017).

T-Test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Trunk A roads in Njikoka	9	35.6333	62.54684	20.84895
Trunk A roads in Orumba North	9	13.7889	9.79597	3.26532
Trunk A roads in Awka North	9	16.9111	12.02450	4.00817
Trunk A roads in Awka South	11	15.5545	11.61063	3.50074
Trunk A roads in Dunukofia	10	13.6400	12.59270	3.98216
Trunk A roads in Anaocha	11	11.2909	7.85665	2.36887

Source: Author's statistical computation from field work (2017).

One-Sample Test

	Test Value = 45.72m					
					95% Confidence Interval of the Difference	
	T	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Trunk A roads in Njikoka	-.484	8	.641	-10.08667	-58.1644	37.9911

Trunk A roads in Orumba North	-9.779	8	.000	-31.93111	-39.4610	-24.4013
Trunk A roads in Awka North	-7.188	8	.000	-28.80889	-38.0517	-19.5660
Trunk A roads in Awka South	-8.617	10	.000	-30.16545	-37.9656	-22.3653
Trunk A roads in Dunukofia	-8.056	9	.000	-32.08000	-41.0883	-23.0717
Trunk A roads in Anaocha	-14.534	10	.000	-34.42909	-39.7073	-29.1509

Source: Author's statistical computation from field work (2017).

T-Test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Trunk B roads in Njikoka	28	6.9357	7.78104	1.47048
Trunk B roads in Orumba North	33	6.9273	5.96250	1.03794
Trunk B roads in Awka North	27	7.7185	8.58030	1.65128
Trunk B roads in Awka South	26	10.8438	8.80175	1.72616
Trunk B roads in Dunukofia	31	6.0258	6.64264	1.19305
Trunk B roads in Anaocha	27	6.3593	6.17073	1.18756

Source: Author's statistical computation from field work (2017).

One-Sample Test

	Test Value = 30.0					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Trunk B roads in Njikoka	-15.685	27	.000	-23.06429	-26.0815	-20.0471
Trunk B roads in Orumba North	-22.229	32	.000	-23.07273	-25.1869	-20.9585

Trunk B roads in Awka North	-13.493	26	.000	-22.28148	-25.6757	-18.8872
Trunk B roads in Awka South	-11.098	25	.000	-19.15615	-22.7113	-15.6011
Trunk B roads in Dunukofia	-20.095	30	.000	-23.97419	-26.4107	-21.5377
Trunk B roads in Anaocha	-19.907	26	.000	-23.64074	-26.0818	-21.1997

Source: Author's statistical computation from field work (2017).

T-Test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Trunk C roads in Njikoka	28	4.1893	4.85107	.91677
Trunk C roads in Orumba North	30	4.3600	4.90894	.89625
Trunk C roads in Awka North	29	4.3103	4.62148	.85819
Trunk C roads in Awka South	19	5.8789	5.87949	1.34885
Trunk C roads in Dunukofia	27	3.9259	2.83394	.54539
Trunk C roads in Anaocha	26	3.7000	4.06251	.79672

Source: Author's statistical computation from field work (2017).

One-Sample Test

	Test Value = 25.0					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Trunk C roads in Njikoka	-22.700	27	.000	-20.81071	-22.6918	-18.9297
Trunk C roads in Orumba North	-23.029	29	.000	-20.64000	-22.4730	-18.8070

Trunk C roads in Awka North	-24.109	28	.000	-20.68966	-22.4476	-18.9317
Trunk C roads in Awka South	-14.176	18	.000	-19.12105	-21.9549	-16.2872
Trunk C roads in Dunukofia	-38.640	26	.000	-21.07407	-22.1951	-19.9530
Trunk C roads in Anaocha	-26.734	25	.000	-21.30000	-22.9409	-19.6591

Source: Author's statistical computation from field work (2017).

Appendix 3d: item-total statistics for reliability of the responses of the professionals when cronbach's alpha is 0.833

Principal Component Factor Analysis of the Correlation Matrix
Unrotated Factor Loadings and Communalities

Variable	**Factor1**	**Factor2**	**Factor3**	**Communality**
A	0.966	**0.257**	-0.005	1.000
B	0.997	-0.080	**0.023**	1.000
C	**0.985**	-0.171	-0.018	1.000
Variance	2.8977	0.1014	0.0009	3.0000
% Var	0.966	0.034	0.000	1.000

Rotated Factor Loadings and Communalities
Equamax Rotation

Variable	**Factor1**	**Factor2**	**Factor3**	**Communality**
A	**0.779**	0.439	0.448	1.000
B	0.524	0.593	**0.611**	1.000
C	0.446	**0.657**	0.608	1.000
Variance	1.0796	0.9757	0.9447	3.0000
% Var	0.360	0.325	0.315	1.000

Factor Score Coefficients

Variable	**Factor1**	**Factor2**	**Factor3**
A	**2.508**	2.802	-4.867
B	-1.694	**-16.819**	19.405
C	-0.147	14.846	**-14.278**

Appendix Four:

4a. Principal Component Analysis

Eigenanalysis of the Correlation Matrix

Eigenvalue	7.5807	2.1609	1.2626	0.5957	0.3494	0.0506	0.0000	0.0000
Proportion	0.632	0.180	0.105	0.050	0.029	0.004	0.000	0.000
Cumulative	0.632	0.812	0.917	0.967	0.996	1.000	1.000	1.000

Eigenvalue	0.0000	0.0000	-0.0000	-0.0000
Proportion	0.000	0.000	-0.000	-0.000
Cumulative	1.000	1.000	1.000	1.000

Variable	**PC1**	**PC2**	**PC3**	**PC4**	**PC5**	**PC6**
Rapid Urbanization in this area	-0.272	0.315	0.075	0.409	-0.578	-0.110
Population Growth in this area	0.236	0.411	0.310	-0.346	-0.246	0.058
Corruption of planning officers	-0.275	0.434	-0.012	-0.153	-0.131	-0.083
Difficulty in land accessibilit	0.326	0.046	0.253	0.326	-0.350	0.126
High cost of land acquisition	0.324	0.268	-0.171	-0.132	-0.024	0.132
Failure of the law Enforcement	-0.314	0.296	-0.051	-0.312	0.027	-0.121
High cost of living	0.150	-0.513	0.249	-0.401	-0.484	-0.277
Nonchalant attitudes of the gov	-0.330	-0.196	-0.080	-0.197	-0.265	0.859
Greedy attitudes of the develop	0.361	0.021	-0.018	-0.111	-0.073	0.094
Competition for business space	0.338	0.076	-0.148	0.388	0.012	0.226
Siting of strctures before road	0.318	0.264	-0.114	-0.318	0.109	0.133
Improper city planning	0.084	-0.069	-0.836	-0.069	-0.378	-0.194

Variable	PC7	PC8	PC9	PC10	PC11	PC12
Rapid Urbanization in this area	0.068	-0.021	-0.085	0.204	0.282	0.418
Population Growth in this area	0.161	-0.219	0.111	0.364	0.163	-0.501
Corruption of planning officers	-0.097	-0.189	0.410	-0.665	-0.181	-0.021
Difficulty in land accessibilit	-0.344	0.114	-0.372	-0.210	-0.462	-0.236
High cost of land acquisition	-0.113	0.357	0.425	0.338	-0.404	0.400
Failure of the law Enforcement	0.237	0.659	-0.429	-0.056	-0.076	-0.121
High cost of living	0.288	0.068	0.088	-0.164	-0.106	0.216
Nonchalant attitudes of the gov	0.000	0.000	-0.000	0.000	-0.000	-0.000
Greedy attitudes of the develop	-0.378	0.372	0.073	-0.299	0.682	0.037
Competition for business space	0.729	0.129	0.133	-0.279	0.050	-0.098
Siting of strctures before road	0.097	-0.411	-0.522	-0.157	0.002	0.458
Improper city planning	-0.077	-0.114	-0.073	0.062	-0.020	-0.276

4b. Factor Analysis of the variables

Principal Component Factor Analysis of the Correlation Matrix

Unrotated Factor Loadings and Communalities

Variable	**Factor1**	**Factor2**	**Factor3**	**Factor4**	**Factor5**
Rapid Urbanization in this area	-0.749	0.464	0.084	0.317	-0.341
Population Growth in this area	0.650	0.603	0.349	-0.266	-0.145
Corruption of planning officers	-0.756	0.638	-0.013	-0.118	-0.078
Difficulty in land accessibilit	0.899	0.068	0.284	0.253	-0.205
High cost of land acquisition	0.893	0.393	-0.193	-0.102	-0.013

Failure of the law Enforcement	-0.865	0.436	-0.058	-0.242	0.014
High cost of living	0.413	-0.755	0.280	-0.309	-0.289
Nonchalant attitudes of the gov	-0.919	-0.288	-0.089	-0.147	-0.147
Greedy attitudes of the develop	0.995	0.030	-0.020	-0.085	-0.042
Competition for business space	0.932	0.112	-0.167	0.300	0.010
Siting of strctures before road	0.877	0.387	-0.129	-0.245	0.065
Improper city planning	0.231	-0.102	-0.939	-0.053	-0.225
Variance	7.6035	2.1623	1.2627	0.5952	0.3481
% Var	0.634	0.180	0.105	0.050	0.029

Variable	Factor6	Factor7	Factor8	Factor9	Factor10
Rapid Urbanization in this area	-0.017	0.000	0.000	0.000	0.000
Population Growth in this area	0.011	-0.000	-0.000	-0.000	0.000
Corruption of planning officers	-0.013	0.000	-0.000	-0.000	-0.000
Difficulty in land accessibilit	0.022	-0.000	-0.000	0.000	-0.000
High cost of land acquisition	0.023	0.000	0.000	0.000	-0.000
Failure of the law Enforcement	-0.020	0.000	-0.000	0.000	-0.000
High cost of living	-0.045	0.000	0.000	-0.000	-0.000
Nonchalant attitudes of the gov	0.145	-0.000	-0.000	0.000	0.000
Greedy attitudes of the develop	0.016	-0.000	-0.000	0.000	-0.000
Competition for business space	0.038	0.000	-0.000	-0.000	-0.000
Siting of strctures before road	0.022	0.000	-0.000	0.000	0.000
Improper city planning	-0.031	-0.000	-0.000	-0.000	-0.000
Variance	0.0281	0.0000	0.0000	0.0000	0.0000
% Var	0.002	0.000	0.000	0.000	0.000

Variable	Factor11	Factor12	Communality
Rapid Urbanization in this area	0.000	0.000	1.000
Population Growth in this area	0.000	0.000	1.000
Corruption of planning officers	-0.000	0.000	1.000
Difficulty in land accessibilit	0.000	0.000	1.000
High cost of land acquisition	0.000	0.000	1.000
Failure of the law Enforcement	0.000	0.000	1.000
High cost of living	0.000	0.000	1.000
Nonchalant attitudes of the gov	0.000	0.000	1.000
Greedy attitudes of the develop	-0.000	0.000	1.000
Competition for business space	0.000	0.000	1.000
Siting of strctures before road	0.000	0.000	1.000
Improper city planning	-0.000	0.000	1.000
Variance	0.0000	0.0000	12.0000
% Var	0.000	0.000	1.000

4c. Rotated Factor Loadings and Communalities
Equamax Rotation

Variable	**Factor1**	**Factor2**	**Factor3**	**Factor4**	**Factor5**
Rapid Urbanization in this area	0.323	0.118	-0.782	0.114	-0.116

Population Growth in this area	-0.026	0.253	-0.107	-0.511	0.506
Corruption of planning officers	0.420	0.085	-0.450	-0.037	0.033
Difficulty in land accessibilit	-0.186	0.146	-0.096	-0.254	0.254
High cost of land acquisition	0.108	-0.247	0.139	-0.422	0.420
Failure of the law Enforcement	0.323	0.053	-0.270	0.041	-0.045
High cost of living	-0.908	0.046	0.279	0.009	-0.009
Nonchalant attitudes of the gov	-0.122	-0.066	-0.145	0.280	-0.286
Greedy attitudes of the develop	-0.191	-0.133	0.254	-0.333	0.333
Competition for business space	0.107	-0.211	0.097	-0.220	0.222
Siting of strctures before road	0.071	-0.174	0.250	-0.452	0.450
Improper city planning	0.020	-0.988	0.079	-0.019	0.021
Variance	1.3250	1.2463	1.1690	0.9621	0.9587
% Var	0.110	0.104	0.097	0.080	0.080

Variable	**Factor6**	**Factor7**	**Factor8**	**Factor9**	**Factor10**
Rapid Urbanization in this area	-0.121	-0.171	0.207	0.207	0.207
Population Growth in this area	0.494	0.261	-0.052	-0.054	-0.061
Corruption of planning officers	0.023	-0.164	0.378	0.376	0.369
Difficulty in land accessibilit	0.255	0.296	-0.375	-0.374	-0.371
High cost of land acquisition	0.417	0.320	-0.199	-0.201	-0.205
Failure of the law Enforcement	-0.054	-0.227	0.425	0.423	0.417
High cost of living	-0.009	0.002	-0.157	-0.156	-0.151
Nonchalant attitudes of the gov	-0.297	-0.494	0.267	0.272	0.282
Greedy attitudes of the develop	0.333	0.307	-0.295	-0.295	-0.296
Competition for business space	0.228	0.321	-0.381	-0.380	-0.379
Siting of strctures before road	0.445	0.311	-0.150	-0.152	-0.158
Improper city planning	0.023	0.037	-0.054	-0.053	-0.054
Variance	0.9511	0.9051	0.9033	0.9019	0.8985
% Var	0.079	0.075	0.075	0.075	0.075

Variable	**Factor11**	**Factor12**	**Communality**
Rapid Urbanization in this area	0.206	0.171	1.000
Population Growth in this area	-0.062	-0.285	1.000
Corruption of planning officers	0.369	0.164	1.000
Difficulty in land accessibilit	-0.372	-0.310	1.000
High cost of land acquisition	-0.206	-0.335	1.000
Failure of the law Enforcement	0.417	0.230	1.000
High cost of living	-0.151	-0.025	1.000
Nonchalant attitudes of the gov	0.279	0.406	1.000
Greedy attitudes of the develop	-0.297	-0.322	1.000
Competition for business space	-0.379	-0.324	1.000
Siting of strctures before road	-0.158	-0.326	1.000
Improper city planning	-0.054	-0.046	1.000
Variance	0.8984	0.8808	12.0000
% Var	0.075	0.073	1.000

4d. Factor Score Coefficients

Variable	**Factor1**	**Factor2**	**Factor3**	**Factor4**	**Factor5**
Rapid Urbanization in this area	-8.013	-5.303	**-4.783**	1.887	-2.136
Population Growth in this area	-7.086	-2.650	-2.605	0.740	**-1.044**
Corruption of planning officers	**13.010**	7.552	5.531	-2.650	3.187
Difficulty in land accessibilit	10.389	**6.576**	3.917	-2.401	2.726
High cost of land acquisition	-0.638	-2.832	-0.816	-0.296	0.234
Failure of the law Enforcement	0.000	-0.000	0.000	-0.002	-0.002
High cost of living	-0.001	0.000	0.000	0.031	0.080
Nonchalant attitudes of the gov	0.531	0.024	0.263	**-1.146**	1.002
Greedy attitudes of the develop	0.000	-0.000	0.000	-0.003	0.009
Competition for business space	0.000	-0.000	0.000	-0.005	-0.011
Siting of strctures before road	0.000	-0.000	0.000	0.002	0.004
Improper city planning	-0.000	-0.000	0.000	-0.012	0.030

Variable	**Factor6**	**Factor7**	**Factor8**	**Factor9**	**Factor10**
Rapid Urbanization in this area	-0.627	9.620	3.947	2.730	1.813
Population Growth in this area	0.112	7.052	3.474	2.471	1.769
Corruption of planning officers	0.758	-14.114	-6.078	-4.060	-2.654
Difficulty in land accessibilit	0.708	-13.189	-5.957	-4.320	-3.058
High cost of land acquisition	**0.466**	0.284	0.347	0.126	0.019
Failure of the law Enforcement	0.001	0.002	-0.005	-0.001	0.008
High cost of living	-0.061	**-0.008**	-0.117	0.035	0.077
Nonchalant attitudes of the gov	0.745	-4.220	-0.973	-0.861	-0.630
Greedy attitudes of the develop	-0.012	0.002	-0.011	0.004	0.008
Competition for business space	0.009	0.004	0.011	-0.002	**-0.014**
Siting of strctures before road	-0.001	0.003	-0.010	**0.008**	0.002
Improper city planning	-0.045	0.006	**-0.064**	0.001	0.034

Variable	**Factor11**	**Factor12**
Rapid Urbanization in this area	2.259	-3.774
Population Growth in this area	2.177	-2.736
Corruption of planning officers	-3.401	5.462
Difficulty in land accessibilit	-3.684	5.103
High cost of land acquisition	0.029	-0.235
Failure of the law Enforcement	-0.003	0.003
High cost of living	0.018	-0.032
Nonchalant attitudes of the gov	-0.706	1.768
Greedy attitudes of the develop	-0.001	**0.002**
Competition for business space	0.003	0.009
Siting of strctures before road	-0.001	0.006
Improper city planning	0.033	-0.001

Output

Principal Component Factor Analysis of the Covariance Matrix

Unrotated Factor Loadings and Communalities

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Rapid Urbanization in this area	0.118	-0.016	-0.048	-0.057	-0.027
Population Growth in this area	-0.197	-0.273	-0.135	0.071	**0.215**

Corruption of planning officers	0.266	-0.456	**0.272**	-0.096	-0.003
Difficulty in land accessibilit	0.141	-0.065	-0.119	0.001	-0.047
High cost of land acquisition	0.058	0.001	-0.008	-0.097	-0.020
Failure of the law Enforcement	**1.181**	0.060	0.004	0.111	0.037
High cost of living	-0.161	-0.315	-0.020	**0.106**	-0.052
Nonchalant attitudes of the gov	0.193	-0.140	-0.174	-0.072	-0.046
Greedy attitudes of the develop	0.056	0.018	-0.063	-0.032	0.048
Competition for business space	0.149	-0.103	-0.139	-0.083	-0.020
Siting of structures before roa	0.118	**0.158**	0.052	-0.175	0.137
Improper city planning	0.158	-0.131	-0.203	-0.084	-0.034
Variance	1.6677	0.4623	0.2069	0.1012	0.0785
% Var	0.654	0.181	0.081	0.040	0.031

Variable	Factor6	Factor7	Factor8	Factor9	Factor10
Rapid Urbanization in this area	-0.020	0.000	0.000	-0.000	0.000
Population Growth in this area	0.036	0.000	-0.000	0.000	0.000
Corruption of planning officers	0.028	-0.000	0.000	0.000	0.000
Difficulty in land accessibilit	0.026	-0.000	-0.000	0.000	0.000
High cost of land acquisition	**0.074**	0.000	-0.000	-0.000	-0.000
Failure of the law Enforcement	-0.008	0.000	-0.000	-0.000	-0.000
High cost of living	-0.115	0.000	-0.000	-0.000	-0.000
Nonchalant attitudes of the gov	-0.001	0.000	0.000	0.000	0.000
Greedy attitudes of the develop	0.042	-0.000	0.000	-0.000	-0.000
Competition for business space	-0.013	-0.000	-0.000	0.000	-0.000
Siting of structures before roa	-0.102	-0.000	-0.000	0.000	0.000
Improper city planning	-0.018	0.000	0.000	0.000	0.000
Variance	0.0345	0.0000	0.0000	0.0000	0.0000
% Var	0.014	0.000	0.000	0.000	0.000

Variable	Factor11	Factor12	Communality
Rapid Urbanization in this area	0.000	0.000	0.021
Population Growth in this area	-0.000	0.000	0.184
Corruption of planning officers	0.000	0.000	0.363
Difficulty in land accessibilit	-0.000	0.000	0.041
High cost of land acquisition	-0.000	-0.000	0.019
Failure of the law Enforcement	0.000	-0.000	1.411
High cost of living	-0.000	-0.000	0.152
Nonchalant attitudes of the gov	-0.000	-0.000	0.094
Greedy attitudes of the develop	-0.000	-0.000	0.013
Competition for business space	-0.000	0.000	0.060
Siting of structures before roa	-0.000	-0.000	0.101
Improper city planning	0.000	-0.000	0.092
Variance	0.0000	0.0000	2.5511
% Var	0.000	0.000	1.000

Rotated Factor Loadings and Communalities
Equamax Rotation

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Rapid Urbanization in this area	0.034	-0.021	0.041	0.019	0.035
Population Growth in this area	-0.104	-0.030	-0.396	-0.044	-0.090
Corruption of planning officers	0.052	-0.573	-0.036	-0.062	-0.021
Difficulty in land accessibilit	0.060	-0.009	0.007	0.035	-0.056
High cost of land acquisition	0.006	-0.022	0.022	0.034	0.015
Failure of the law Enforcement	0.765	-0.352	0.370	0.460	0.159
High cost of living	-0.149	-0.124	-0.147	-0.202	-0.152
Nonchalant attitudes of the gov	0.040	-0.044	-0.020	0.018	-0.024
Greedy attitudes of the develop	0.038	0.028	-0.035	0.061	0.024
Competition for business space	0.023	-0.031	-0.022	0.014	0.012
Siting of structures before roa	0.049	0.010	0.055	0.076	0.297
Improper city planning	0.015	-0.009	-0.040	0.007	-0.009
Variance	0.63195	0.47310	0.32585	0.27099	0.15112
% Var	0.248	0.185	0.128	0.106	0.059

Variable	Factor6	Factor7	Factor8	Factor9	Factor10
Rapid Urbanization in this area	-0.051	-0.050	0.051	0.051	-0.050
Population Growth in this area	-0.007	-0.007	0.007	0.007	-0.007
Corruption of planning officers	-0.062	-0.062	0.062	0.062	-0.062
Difficulty in land accessibilit	-0.074	-0.074	0.074	0.074	-0.074
High cost of land acquisition	-0.021	-0.021	0.021	0.021	-0.021
Failure of the law Enforcement	-0.231	-0.231	0.231	0.231	-0.231
High cost of living	-0.020	-0.020	0.020	0.020	-0.020
Nonchalant attitudes of the gov	-0.121	-0.121	0.121	0.121	-0.121
Greedy attitudes of the develop	-0.022	-0.022	0.022	0.022	-0.022
Competition for business space	-0.097	-0.097	0.097	0.097	-0.097
Siting of structures before roa	-0.002	-0.002	0.002	0.002	-0.002
Improper city planning	-0.122	-0.122	0.122	0.122	-0.122
Variance	0.10560	0.10560	0.10551	0.10550	0.10538
% Var	0.041	0.041	0.041	0.041	0.041

Variable	Factor11	Factor12	Communality
Rapid Urbanization in this area	0.051	-0.024	0.021
Population Growth in this area	0.007	0.073	0.184
Corruption of planning officers	0.062	-0.059	0.363
Difficulty in land accessibilit	0.074	-0.012	0.041
High cost of land acquisition	0.021	-0.117	0.019
Failure of the law Enforcement	0.230	0.094	1.411
High cost of living	0.020	0.164	0.152
Nonchalant attitudes of the gov	0.121	-0.035	0.094
Greedy attitudes of the develop	0.022	-0.042	0.013
Competition for business space	0.097	-0.035	0.060
Siting of structures before roa	0.002	-0.041	0.101
Improper city planning	0.122	-0.030	0.092
Variance	0.10501	0.06549	2.55112
% Var	0.041	0.026	1.000

4d. Factor Score Coefficients

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Rapid Urbanization in this area	-0.738	0.159	-0.084	-0.630	**2.029**
Population Growth in this area	0.120	0.054	**-1.320**	0.462	0.720
Corruption of planning officers	-0.206	**-1.025**	0.284	-0.518	-0.400
Difficulty in land accessibilit	0.097	0.210	0.465	-0.206	-2.103
High cost of land acquisition	0.117	0.025	-0.313	**0.599**	-0.032
Failure of the law Enforcement	**1.237**	-0.145	-0.538	1.206	0.479
High cost of living	-0.000	-0.000	0.000	0.000	-0.000
Nonchalant attitudes of the gov	-0.002	-0.000	0.000	0.002	-0.000
Greedy attitudes of the develop	0.000	0.000	-0.000	-0.000	0.000
Competition for business space	-0.001	-0.000	0.000	0.001	-0.000
Siting of structures before roa	0.003	0.001	-0.001	-0.003	0.000
Improper city planning	-0.002	-0.000	0.000	0.002	-0.000

Variable	Factor6	Factor7	Factor8	Factor9	Factor10
Rapid Urbanization in this area	-0.428	-0.420	0.421	0.413	-0.399
Population Growth in this area	-0.065	-0.062	0.061	0.059	-0.055
Corruption of planning officers	0.008	0.005	-0.002	-0.005	0.002
Difficulty in land accessibilit	**-0.185**	-0.189	0.196	0.194	-0.203
High cost of land acquisition	0.092	0.093	-0.097	-0.093	0.093
Failure of the law Enforcement	0.186	0.189	-0.195	-0.190	0.193
High cost of living	0.001	**0.002**	-0.005	-0.000	-0.001
Nonchalant attitudes of the gov	0.002	-0.000	-0.001	**0.002**	-0.001
Greedy attitudes of the develop	0.001	-0.001	0.000	-0.000	-0.000
Competition for business space	0.001	-0.000	-0.001	0.000	**-0.003**
Siting of structures before roa	0.004	0.002	**0.001**	0.003	-0.008
Improper city planning	0.002	0.001	-0.000	0.000	-0.003

Variable	Factor11	Factor12
Rapid Urbanization in this area	0.432	0.425
Population Growth in this area	0.067	0.037
Corruption of planning officers	-0.016	0.027
Difficulty in land accessibilit	0.172	-0.068
High cost of land acquisition	-0.085	-1.151
Failure of the law Enforcement	-0.177	0.208
High cost of living	0.007	0.000
Nonchalant attitudes of the gov	0.000	0.001
Greedy attitudes of the develop	-0.000	**-0.000**
Competition for business space	-0.001	0.000
Siting of structures before roa	-0.007	-0.001
Improper city planning	**0.000**	0.001

Output

Principal Component Factor Analysis of the Covariance Matrix

Unrotated Factor Loadings and Communalities

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Increase in crime rate	0.207	0.486	0.044	0.027	0.012
Uncontrolled and increase densi	0.482	0.070	-0.037	-0.102	0.000
Disorderliness of physical deve	0.004	0.080	0.014	0.105	0.030
Human congestion	0.108	-0.177	-0.047	0.046	0.027
Manifestation of Urban sprawl	0.181	-0.162	0.329	-0.048	0.009
Unregulated building pattern	0.566	-0.110	-0.187	0.095	-0.004
Slump formation increases	0.640	0.134	0.167	0.091	-0.017
Loss of cultural heritage	-0.556	0.110	0.060	-0.103	-0.006
Bad draining	-0.535	0.082	-0.013	0.066	0.022
Time wastage	-0.345	0.108	-0.101	0.052	-0.025
Housing Congestion	0.380	0.085	-0.145	-0.181	0.017
Variance	1.9095	0.3732	0.2120	0.0943	0.0036
% Var	0.737	0.144	0.082	0.036	0.001

Variable	Factor6	Factor7	Factor8	Factor9	Factor10
Increase in crime rate	-0.000	0.000	-0.000	0.000	0.000
Uncontrolled and increase densi	0.000	0.000	0.000	-0.000	0.000
Disorderliness of physical deve	0.000	0.000	-0.000	-0.000	-0.000
Human congestion	0.000	-0.000	0.000	0.000	-0.000
Manifestation of Urban sprawl	0.000	0.000	-0.000	0.000	-0.000
Unregulated building pattern	0.000	0.000	-0.000	0.000	0.000
Slump formation increases	0.000	-0.000	0.000	-0.000	-0.000
Loss of cultural heritage	0.000	-0.000	-0.000	0.000	0.000
Bad draining	-0.000	0.000	0.000	0.000	0.000
Time wastage	0.000	0.000	0.000	0.000	-0.000
Housing Congestion	0.000	0.000	0.000	-0.000	-0.000
Variance	0.0000	0.0000	0.0000	0.0000	0.0000
% Var	0.000	0.000	0.000	0.000	0.000

Variable	Factor11	Communality
Increase in crime rate	0.000	0.282
Uncontrolled and increase densi	0.000	0.249
Disorderliness of physical deve	0.000	0.019
Human congestion	0.000	0.048
Manifestation of Urban sprawl	-0.000	0.170
Unregulated building pattern	-0.000	0.376
Slump formation increases	-0.000	0.464
Loss of cultural heritage	-0.000	0.336
Bad draining	-0.000	0.298
Time wastage	0.000	0.144
Housing Congestion	-0.000	0.206
Variance	0.0000	2.5925
% Var	0.000	1.000

Rotated Factor Loadings and Communalities
Equamax Rotation

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Increase in crime rate	0.055	0.386	0.053	0.055	0.056
Uncontrolled and increase densi	-0.038	0.075	0.164	0.165	0.166
Disorderliness of physical deve	0.014	0.023	-0.000	-0.001	-0.001
Human congestion	-0.021	-0.179	0.046	0.045	0.045
Manifestation of Urban sprawl	-0.386	-0.031	0.051	0.050	0.050
Unregulated building pattern	0.062	-0.166	0.219	0.218	0.217
Slump formation increases	-0.214	0.131	0.221	0.220	0.220
Loss of cultural heritage	0.056	0.138	-0.209	-0.207	-0.207
Bad draining	0.126	0.033	-0.191	-0.191	-0.191
Time wastage	0.190	0.056	-0.115	-0.115	-0.116
Housing Congestion	0.073	0.074	0.126	0.128	0.129
Variance	0.26404	0.26153	0.24026	0.24000	0.23969
% Var	0.102	0.101	0.093	0.093	0.092

Variable	Factor6	Factor7	Factor8	Factor9	Factor10
Increase in crime rate	0.054	0.056	0.058	0.059	-0.191
Uncontrolled and increase densi	0.165	0.166	0.167	0.167	-0.223
Disorderliness of physical deve	-0.001	-0.001	-0.001	-0.001	0.008
Human congestion	0.045	0.045	0.044	0.044	0.014
Manifestation of Urban sprawl	0.050	0.050	0.050	0.050	0.012
Unregulated building pattern	0.218	0.217	0.216	0.215	-0.117
Slump formation increases	0.220	0.220	0.219	0.219	-0.149
Loss of cultural heritage	-0.207	-0.206	-0.205	-0.205	0.099
Bad draining	-0.191	-0.191	-0.191	-0.191	0.153
Time wastage	-0.115	-0.116	-0.116	-0.116	0.102
Housing Congestion	0.128	0.130	0.131	0.132	-0.264
Variance	0.23967	0.23949	0.23925	0.23908	0.23588
% Var	0.092	0.092	0.092	0.092	0.091

Variable	Factor11	Communality
Increase in crime rate	-0.268	0.282
Uncontrolled and increase densi	0.017	0.249
Disorderliness of physical deve	-0.134	0.019
Human congestion	0.032	0.048
Manifestation of Urban sprawl	0.046	0.170
Unregulated building pattern	-0.042	0.376
Slump formation increases	-0.202	0.464
Loss of cultural heritage	0.071	0.336
Bad draining	-0.053	0.298
Time wastage	-0.039	0.144
Housing Congestion	0.091	0.206

Variance	0.15364	2.59255
% Var	0.059	1.000

4e. Factor Score Coefficients

Variable	Factor1	Factor2	Factor3	Factor4
Increase in crime rate	**-27.713**	-21.451	4699.592	2891.052
Uncontrolled and increase densi	21.478	**15.810**	-3733.281	-2296.752
Disorderliness of physical deve	12.217	8.956	-2138.549	**-1315.673**
Human congestion	-17.768	-15.452	**2982.921**	1834.930
Manifestation of Urban sprawl	-2.657	-1.325	240.232	147.727
Unregulated building pattern	-0.190	0.337	89.118	54.939
Slump formation increases	-0.260	0.460	121.562	74.951
Loss of cultural heritage	0.147	-0.260	-68.783	-42.399
Bad draining	0.072	-0.127	-33.601	-20.713
Time wastage	-0.006	0.010	2.637	1.632
Housing Congestion	0.069	-0.122	-32.286	-19.906

Variable	Factor5	Factor6	Factor7	Factor8
Increase in crime rate	-1754.075	239.921	-150.560	-7722.035
Uncontrolled and increase densi	1392.725	-191.055	119.148	6132.937
Disorderliness of physical deve	797.795	-109.450	68.235	3513.141
Human congestion	-1113.697	152.048	-95.799	-4901.993
Manifestation of Urban sprawl	**-89.890**	12.106	-7.854	-395.176
Unregulated building pattern	-32.785	4.876	**-2.512**	-145.507
Slump formation increases	-44.731	**6.657**	-3.435	-198.478
Loss of cultural heritage	25.290	-3.764	1.952	**112.307**
Bad draining	12.365	-1.842	0.949	54.863
Time wastage	-0.977	0.147	-0.069	-4.311
Housing Congestion	11.879	-1.771	0.911	52.713

Variable	Factor9	Factor10	Factor11
Increase in crime rate	1546.804	-254.850	-9.835
Uncontrolled and increase densi	-1228.906	197.435	7.259
Disorderliness of physical deve	-703.993	114.218	3.177
Human congestion	981.690	-163.623	-6.682
Manifestation of Urban sprawl	78.994	-13.744	-0.711
Unregulated building pattern	29.484	-2.872	0.083
Slump formation increases	40.217	-3.918	0.114
Loss of cultural heritage	-22.760	2.217	-0.064
Bad draining	**-11.120**	1.083	-0.031
Time wastage	0.871	-0.085	**0.002**
Housing Congestion	-10.676	**1.041**	-0.030

Output

Principal Component Factor Analysis of the Correlation Matrix

Unrotated Factor Loadings and Communalities

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Pollution (water, air, soil and	-0.849	0.479	-0.023	0.179	0.131
Destruction of aesthetic beauty	0.810	0.497	0.117	0.287	-0.011
Traffic congestion	0.342	0.907	0.062	0.222	-0.091
Flooding	-0.118	0.991	-0.023	-0.058	0.016
Soil erosion/gullying	0.619	-0.749	0.154	0.146	0.098
Uncontrolled street trading and	-0.272	-0.663	0.669	0.187	0.053
Vehicle parking problems	-0.850	-0.127	0.452	-0.080	-0.225
Increase in noise pollution	-0.986	0.084	-0.137	-0.014	0.046
Increase in solid waste generat	0.536	0.556	0.523	-0.335	0.134
Increase in synthetic surface c	-0.923	0.315	0.210	0.071	0.006
Felling of trees/destruction of	0.890	-0.437	-0.094	-0.042	-0.080
Environmental Disorderliness	0.764	0.590	0.256	-0.004	-0.044
Variance	6.1744	4.2531	1.1056	0.3491	0.1178
% Var	0.515	0.354	0.092	0.029	0.010

Variable	Factor6	Factor7	Factor8	Factor9	Factor10
Pollution (water, air, soil and	0.000	0.000	-0.000	0.000	0.000
Destruction of aesthetic beauty	-0.000	-0.000	-0.000	0.000	-0.000
Traffic congestion	-0.000	0.000	0.000	-0.000	0.000
Flooding	0.000	-0.000	0.000	-0.000	-0.000
Soil erosion/gullying	0.000	-0.000	0.000	-0.000	0.000
Uncontrolled street trading and	-0.000	0.000	-0.000	-0.000	-0.000
Vehicle parking problems	0.000	0.000	0.000	0.000	0.000
Increase in noise pollution	0.000	-0.000	-0.000	-0.000	-0.000
Increase in solid waste generat	-0.000	-0.000	0.000	0.000	0.000
Increase in synthetic surface c	-0.000	-0.000	0.000	-0.000	0.000
Felling of trees/destruction of	0.000	-0.000	0.000	-0.000	0.000
Environmental Disorderliness	0.000	0.000	-0.000	-0.000	0.000
Variance	0.0000	0.0000	0.0000	0.0000	0.0000
% Var	0.000	0.000	0.000	0.000	0.000

Variable	Factor11	Factor12	Communality
Pollution (water, air, soil and	0.000	0.000	1.000
Destruction of aesthetic beauty	0.000	0.000	1.000
Traffic congestion	0.000	0.000	1.000
Flooding	-0.000	0.000	1.000
Soil erosion/gullying	-0.000	0.000	1.000
Uncontrolled street trading and	-0.000	0.000	1.000
Vehicle parking problems	-0.000	0.000	1.000
Increase in noise pollution	0.000	0.000	1.000
Increase in solid waste generat	0.000	0.000	1.000
Increase in synthetic surface c	-0.000	0.000	1.000
Felling of trees/destruction of	0.000	0.000	1.000
Environmental Disorderliness	0.000	0.000	1.000
Variance	0.0000	0.0000	12.0000
% Var	0.000	0.000	1.000

Rotated Factor Loadings and Communalities
Equamax Rotation

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Pollution (water, air, soil and	0.021	-0.122	0.069	-0.027	-0.027
Destruction of aesthetic beauty	0.031	0.226	-0.340	-0.475	-0.475
Traffic congestion	0.258	0.243	-0.173	-0.522	-0.522
Flooding	0.429	0.337	-0.085	-0.344	-0.344
Soil erosion/gullying	-0.468	-0.090	-0.171	0.117	0.117
Uncontrolled street trading and	-0.866	-0.025	0.351	0.203	0.203
Vehicle parking problems	-0.323	-0.012	0.683	0.171	0.171
Increase in noise pollution	0.056	-0.249	0.230	0.213	0.213
Increase in solid waste generat	0.020	0.860	-0.060	-0.277	-0.277
Increase in synthetic surface c	-0.123	-0.036	0.334	0.037	0.037
Felling of trees/destruction of	-0.003	0.008	-0.209	-0.016	-0.016
Environmental Disorderliness	0.123	0.503	-0.183	-0.439	-0.439
Variance	1.3597	1.3038	1.0224	1.0175	1.0170
% Var	0.113	0.109	0.085	0.085	0.085

Variable	Factor6	Factor7	Factor8	Factor9	Factor10
Pollution (water, air, soil and	-0.027	0.405	-0.404	-0.404	0.404
Destruction of aesthetic beauty	-0.474	-0.160	0.161	0.161	-0.161
Traffic congestion	-0.521	0.069	-0.068	-0.068	0.068
Flooding	-0.343	0.240	-0.238	-0.238	0.238
Soil erosion/gullying	0.116	-0.342	0.342	0.342	-0.342
Uncontrolled street trading and	0.202	-0.023	0.022	0.022	-0.022
Vehicle parking problems	0.171	0.237	-0.238	-0.239	0.239
Increase in noise pollution	0.213	0.352	-0.352	-0.352	0.352
Increase in solid waste generat	-0.279	-0.064	0.065	0.064	-0.065
Increase in synthetic surface c	0.037	0.380	-0.380	-0.380	0.380
Felling of trees/destruction of	-0.016	-0.400	0.399	0.399	-0.399
Environmental Disorderliness	-0.439	-0.141	0.141	0.141	-0.142
Variance	1.0164	0.8783	0.8773	0.8772	0.8772
% Var	0.085	0.073	0.073	0.073	0.073

Variable	Factor11	Factor12	Communality
Pollution (water, air, soil and	-0.403	-0.403	1.000
Destruction of aesthetic beauty	0.162	0.162	1.000
Traffic congestion	-0.067	-0.067	1.000
Flooding	-0.238	-0.237	1.000
Soil erosion/gullying	0.342	0.342	1.000
Uncontrolled street trading and	0.022	0.022	1.000
Vehicle parking problems	-0.240	-0.240	1.000
Increase in noise pollution	-0.352	-0.352	1.000
Increase in solid waste generat	0.065	0.065	1.000
Increase in synthetic surface c	-0.380	-0.380	1.000
Felling of trees/destruction of	0.399	0.399	1.000
Environmental Disorderliness	0.142	0.142	1.000

Variance	0.8767	0.8766	12.0000
% Var	0.073	0.073	1.000

Sorted Rotated Factor Loadings and Communalities

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Uncontrolled street trading and	-0.866	-0.025	0.351	0.203	0.203
Soil erosion/gullying	-0.468	-0.090	-0.171	0.117	0.117
Flooding	0.429	0.337	-0.085	-0.344	-0.344
Increase in solid waste generat	0.020	0.860	-0.060	-0.277	-0.277
Environmental Disorderliness	0.123	0.503	-0.183	-0.439	-0.439
Vehicle parking problems	-0.323	-0.012	0.683	0.171	0.171
Traffic congestion	0.258	0.243	-0.173	-0.522	-0.522
Destruction of aesthetic beauty	0.031	0.226	-0.340	-0.475	-0.475
Pollution (water, air, soil and	0.021	-0.122	0.069	-0.027	-0.027
Felling of trees/destruction of	-0.003	0.008	-0.209	-0.016	-0.016
Increase in synthetic surface c	-0.123	-0.036	0.334	0.037	0.037
Increase in noise pollution	0.056	-0.249	0.230	0.213	0.213

Variance	1.3597	1.3038	1.0224	1.0175	1.0170
% Var	0.113	0.109	0.085	0.085	0.085

Variable	Factor6	Factor7	Factor8	Factor9	Factor10
Uncontrolled street trading and	0.202	-0.023	0.022	0.022	-0.022
Soil erosion/gullying	0.116	-0.342	0.342	0.342	-0.342
Flooding	-0.343	0.240	-0.238	-0.238	0.238
Increase in solid waste generat	-0.279	-0.064	0.065	0.064	-0.065
Environmental Disorderliness	-0.439	-0.141	0.141	0.141	-0.142
Vehicle parking problems	0.171	0.237	-0.238	-0.239	0.239
Traffic congestion	-0.521	0.069	-0.068	-0.068	0.068
Destruction of aesthetic beauty	-0.474	-0.160	0.161	0.161	-0.161
Pollution (water, air, soil and	-0.027	0.405	-0.404	-0.404	0.404
Felling of trees/destruction of	-0.016	-0.400	0.399	0.399	-0.399
Increase in synthetic surface c	0.037	0.380	-0.380	-0.380	0.380
Increase in noise pollution	0.213	0.352	-0.352	-0.352	0.352

Variance	1.0164	0.8783	0.8773	0.8772	0.8772
% Var	0.085	0.073	0.073	0.073	0.073

Variable	Factor11	Factor12	Communality
Uncontrolled street trading and	0.022	0.022	1.000
Soil erosion/gullying	0.342	0.342	1.000
Flooding	-0.238	-0.237	1.000
Increase in solid waste generat	0.065	0.065	1.000
Environmental Disorderliness	0.142	0.142	1.000
Vehicle parking problems	-0.240	-0.240	1.000
Traffic congestion	-0.067	-0.067	1.000
Destruction of aesthetic beauty	0.162	0.162	1.000

Pollution (water, air, soil and	-0.403	-0.403	1.000
Felling of trees/destruction of	0.399	0.399	1.000
Increase in synthetic surface c	-0.380	-0.380	1.000
Increase in noise pollution	-0.352	-0.352	1.000
Variance	0.8767	0.8766	12.0000
% Var	0.073	0.073	1.000

Output

Principal Component Factor Analysis of the Correlation Matrix

Unrotated Factor Loadings and Communalities

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Pollution (water, air, soil and	-0.849	0.479	-0.023	0.179	0.131
Destruction of aesthetic beauty	0.810	0.497	0.117	0.287	-0.011
Traffic congestion	0.342	0.907	0.062	0.222	-0.091
Flooding	-0.118	0.991	-0.023	-0.058	0.016
Soil erosion/gullying	0.619	-0.749	0.154	0.146	0.098
Uncontrolled street trading and	-0.272	-0.663	0.669	0.187	0.053
Vehicle parking problems	-0.850	-0.127	0.452	-0.080	-0.225
Increase in noise pollution	-0.986	0.084	-0.137	-0.014	0.046
Increase in solid waste generat	0.536	0.556	0.523	-0.335	0.134
Increase in synthetic surface c	-0.923	0.315	0.210	0.071	0.006
Felling of trees/destruction of	0.890	-0.437	-0.094	-0.042	-0.080
Environmental Disorderliness	0.764	0.590	0.256	-0.004	-0.044
Variance	6.1744	4.2531	1.1056	0.3491	0.1178
% Var	0.515	0.354	0.092	0.029	0.010

Variable	Factor6	Factor7	Factor8	Factor9	Factor10
Pollution (water, air, soil and	0.000	0.000	-0.000	0.000	0.000
Destruction of aesthetic beauty	-0.000	-0.000	-0.000	0.000	-0.000
Traffic congestion	-0.000	0.000	0.000	-0.000	0.000
Flooding	0.000	-0.000	0.000	-0.000	-0.000
Soil erosion/gullying	0.000	-0.000	0.000	-0.000	0.000
Uncontrolled street trading and	-0.000	0.000	-0.000	-0.000	-0.000
Vehicle parking problems	0.000	0.000	0.000	0.000	0.000
Increase in noise pollution	0.000	-0.000	-0.000	-0.000	-0.000
Increase in solid waste generat	-0.000	-0.000	0.000	0.000	0.000
Increase in synthetic surface c	-0.000	-0.000	0.000	-0.000	0.000
Felling of trees/destruction of	0.000	-0.000	0.000	-0.000	0.000
Environmental Disorderliness	0.000	0.000	-0.000	-0.000	0.000
Variance	0.0000	0.0000	0.0000	0.0000	0.0000
% Var	0.000	0.000	0.000	0.000	0.000

Variable	Factor11	Factor12	Communality

Pollution (water, air, soil and	0.000	0.000	1.000
Destruction of aesthetic beauty	0.000	0.000	1.000
Traffic congestion	0.000	0.000	1.000
Flooding	-0.000	0.000	1.000
Soil erosion/gullying	-0.000	0.000	1.000
Uncontrolled street trading and	-0.000	0.000	1.000
Vehicle parking problems	-0.000	0.000	1.000
Increase in noise pollution	0.000	0.000	1.000
Increase in solid waste generat	0.000	0.000	1.000
Increase in synthetic surface c	-0.000	0.000	1.000
Felling of trees/destruction of	0.000	0.000	1.000
Environmental Disorderliness	0.000	0.000	1.000
Variance	0.0000	0.0000	12.0000
% Var	0.000	0.000	1.000

Rotated Factor Loadings and Communalities
Equamax Rotation

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Pollution (water, air, soil and	0.021	-0.122	0.069	-0.027	-0.027
Destruction of aesthetic beauty	0.031	0.226	-0.340	-0.475	-0.475
Traffic congestion	0.258	0.243	-0.173	-0.522	-0.522
Flooding	0.429	0.337	-0.085	-0.344	-0.344
Soil erosion/gullying	-0.468	-0.090	-0.171	0.117	0.117
Uncontrolled street trading and	-0.866	-0.025	0.351	0.203	0.203
Vehicle parking problems	-0.323	-0.012	0.683	0.171	0.171
Increase in noise pollution	0.056	-0.249	0.230	0.213	0.213
Increase in solid waste generat	0.020	0.860	-0.060	-0.277	-0.277
Increase in synthetic surface c	-0.123	-0.036	0.334	0.037	0.037
Felling of trees/destruction of	-0.003	0.008	-0.209	-0.016	-0.016
Environmental Disorderliness	0.123	0.503	-0.183	-0.439	-0.439
Variance	1.3597	1.3038	1.0224	1.0175	1.0170
% Var	0.113	0.109	0.085	0.085	0.085

Variable	Factor6	Factor7	Factor8	Factor9	Factor10
Pollution (water, air, soil and	-0.027	0.405	-0.404	-0.404	0.404
Destruction of aesthetic beauty	-0.474	-0.160	0.161	0.161	-0.161
Traffic congestion	-0.521	0.069	-0.068	-0.068	0.068
Flooding	-0.343	0.240	-0.238	-0.238	0.238
Soil erosion/gullying	0.116	-0.342	0.342	0.342	-0.342
Uncontrolled street trading and	0.202	-0.023	0.022	0.022	-0.022
Vehicle parking problems	0.171	0.237	-0.238	-0.239	0.239
Increase in noise pollution	0.213	0.352	-0.352	-0.352	0.352
Increase in solid waste generat	-0.279	-0.064	0.065	0.064	-0.065
Increase in synthetic surface c	0.037	0.380	-0.380	-0.380	0.380
Felling of trees/destruction of	-0.016	-0.400	0.399	0.399	-0.399
Environmental Disorderliness	-0.439	-0.141	0.141	0.141	-0.142

Variance	1.0164	0.8783	0.8773	0.8772	0.8772
% Var	0.085	0.073	0.073	0.073	0.073

Variable	Factor11	Factor12	Communality
Pollution (water, air, soil and	-0.403	-0.403	1.000
Destruction of aesthetic beauty	0.162	0.162	1.000
Traffic congestion	-0.067	-0.067	1.000
Flooding	-0.238	-0.237	1.000
Soil erosion/gullying	0.342	0.342	1.000
Uncontrolled street trading and	0.022	0.022	1.000
Vehicle parking problems	-0.240	-0.240	1.000
Increase in noise pollution	-0.352	-0.352	1.000
Increase in solid waste generat	0.065	0.065	1.000
Increase in synthetic surface c	-0.380	-0.380	1.000
Felling of trees/destruction of	0.399	0.399	1.000
Environmental Disorderliness	0.142	0.142	1.000

Variance	0.8767	0.8766	12.0000
% Var	0.073	0.073	1.000

Sorted Rotated Factor Loadings and Communalities

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Uncontrolled street trading and	-0.866	-0.025	0.351	0.203	0.203
Soil erosion/gullying	-0.468	-0.090	-0.171	0.117	0.117
Flooding	0.429	0.337	-0.085	-0.344	-0.344
Increase in solid waste generat	0.020	0.860	-0.060	-0.277	-0.277
Environmental Disorderliness	0.123	0.503	-0.183	-0.439	-0.439
Vehicle parking problems	-0.323	-0.012	0.683	0.171	0.171
Traffic congestion	0.258	0.243	-0.173	-0.522	-0.522
Destruction of aesthetic beauty	0.031	0.226	-0.340	-0.475	-0.475
Pollution (water, air, soil and	0.021	-0.122	0.069	-0.027	-0.027
Felling of trees/destruction of	-0.003	0.008	-0.209	-0.016	-0.016
Increase in synthetic surface c	-0.123	-0.036	0.334	0.037	0.037
Increase in noise pollution	0.056	-0.249	0.230	0.213	0.213

Variance	1.3597	1.3038	1.0224	1.0175	1.0170
% Var	0.113	0.109	0.085	0.085	0.085

Variable	Factor6	Factor7	Factor8	Factor9	Factor10
Uncontrolled street trading and	0.202	-0.023	0.022	0.022	-0.022
Soil erosion/gullying	0.116	-0.342	0.342	0.342	-0.342
Flooding	-0.343	0.240	-0.238	-0.238	0.238
Increase in solid waste generat	-0.279	-0.064	0.065	0.064	-0.065
Environmental Disorderliness	-0.439	-0.141	0.141	0.141	-0.142
Vehicle parking problems	0.171	0.237	-0.238	-0.239	0.239
Traffic congestion	-0.521	0.069	-0.068	-0.068	0.068
Destruction of aesthetic beauty	-0.474	-0.160	0.161	0.161	-0.161
Pollution (water, air, soil and	-0.027	0.405	-0.404	-0.404	0.404
Felling of trees/destruction of	-0.016	-0.400	0.399	0.399	-0.399

Increase in synthetic surface c	0.037	0.380	-0.380	-0.380	0.380
Increase in noise pollution	0.213	0.352	-0.352	-0.352	0.352
Variance	1.0164	0.8783	0.8773	0.8772	0.8772
% Var	0.085	0.073	0.073	0.073	0.073

Variable	Factor11	Factor12	Communality
Uncontrolled street trading and	0.022	0.022	1.000
Soil erosion/gullying	0.342	0.342	1.000
Flooding	-0.238	-0.237	1.000
Increase in solid waste generat	0.065	0.065	1.000
Environmental Disorderliness	0.142	0.142	1.000
Vehicle parking problems	-0.240	-0.240	1.000
Traffic congestion	-0.067	-0.067	1.000
Destruction of aesthetic beauty	0.162	0.162	1.000
Pollution (water, air, soil and	-0.403	-0.403	1.000
Felling of trees/destruction of	0.399	0.399	1.000
Increase in synthetic surface c	-0.380	-0.380	1.000
Increase in noise pollution	-0.352	-0.352	1.000

Output

Principal Component Factor Analysis of the Correlation Matrix

Unrotated Factor Loadings and Communalities

Variable	Factor1	Factor2	Factor3	Factor4	Communality
Road accident	-0.738	-0.671	0.073	0.004	1.000
Loss of life	-0.971	0.149	-0.063	-0.178	1.000
Psycho –trauma	0.956	-0.087	0.254	-0.115	1.000
Suffocation	0.914	-0.293	-0.274	-0.065	1.000
Variance	3.2364	0.5654	0.1490	0.0492	4.0000
% Var	0.809	0.141	0.037	0.012	1.000

Rotated Factor Loadings and Communalities

Equamax Rotation

Variable	Factor1	Factor2	Factor3	Factor4	Communality
Road accident	-0.933	-0.171	-0.229	-0.217	1.000
Loss of life	-0.293	-0.477	-0.477	-0.677	1.000
Psycho –trauma	0.317	0.387	0.738	0.453	1.000
Suffocation	0.198	0.806	0.371	0.416	1.000
Variance	1.0967	1.0558	0.9629	0.8846	4.0000
% Var	0.274	0.264	0.241	0.221	1.000

Sorted Rotated Factor Loadings and Communalities

Variable	Factor1	Factor2	Factor3	Factor4	Communality
Road accident	-0.933	-0.171	-0.229	-0.217	1.000
Suffocation	0.198	0.806	0.371	0.416	1.000
Psycho –trauma	0.317	0.387	0.738	0.453	1.000
Loss of life	-0.293	-0.477	-0.477	-0.677	1.000
Variance	1.0967	1.0558	0.9629	0.8846	4.0000
% Var	0.274	0.264	0.241	0.221	1.000

Factor Score Coefficients

Variable	Factor1	Factor2	Factor3	Factor4
Road accident	**-1.223**	-0.011	0.355	0.286
Loss of life	0.233	0.983	1.375	**-3.239**
Psycho –trauma	-0.221	-0.374	**2.515**	-1.414
Suffocation	-0.016	**1.999**	-0.317	-1.177
Variance	0.8767	0.8766	12.0000	
% Var	0.073	0.073	1.000	

Output

Principal Component Factor Analysis of the Correlation Matrix

Unrotated Factor Loadings and Communalities

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Loss of Goods and properties(th	-0.881	0.444	-0.160	0.041	0.000
Over competition for business s	-0.974	0.191	0.117	-0.032	0.000
Loss of revenue	0.198	-0.979	-0.014	0.034	0.000
Business setbacks	0.971	0.172	-0.168	0.003	0.000
Demolition of properties	0.970	0.225	0.019	-0.092	0.000
Losing of business contacts and	-0.884	-0.436	-0.137	-0.095	-0.000
Variance	4.4274	1.4643	0.0870	0.0213	0.0000
% Var	0.738	0.244	0.014	0.004	0.000

Variable	Factor6	Communality
Loss of Goods and properties(th	0.000	1.000
Over competition for business s	0.000	1.000
Loss of revenue	0.000	1.000
Business setbacks	0.000	1.000
Demolition of properties	0.000	1.000
Losing of business contacts and	0.000	1.000
Variance	0.0000	6.0000
% Var	0.000	1.000

Rotated Factor Loadings and Communalities

Equamax Rotation

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Loss of Goods and properties(th	0.579	0.361	0.280	0.303	0.501
Over competition for business s	0.348	0.342	0.483	0.465	0.348
Loss of revenue	-0.993	0.084	-0.036	-0.033	-0.064

Business setbacks	0.014	-0.361	-0.529	-0.505	-0.338
Demolition of properties	0.072	-0.413	-0.431	-0.437	-0.500
Losing of business contacts and	-0.262	0.607	0.358	0.368	0.385
Variance	1.5159	0.9243	0.9071	0.8905	0.8897
% Var	0.253	0.154	0.151	0.148	0.148

Variable	Factor6	Communality
Loss of Goods and properties(th	-0.336	1.000
Over competition for business s	-0.437	1.000
Loss of revenue	0.027	1.000
Business setbacks	0.469	1.000
Demolition of properties	0.445	1.000
Losing of business contacts and	-0.388	1.000
Variance	0.8725	6.0000
% Var	0.145	1.000

Sorted Rotated Factor Loadings and Communalities

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Loss of revenue	-0.993	0.084	-0.036	-0.033	-0.064
Loss of Goods and properties(th	0.579	0.361	0.280	0.303	0.501
Losing of business contacts and	-0.262	0.607	0.358	0.368	0.385
Business setbacks	0.014	-0.361	-0.529	-0.505	-0.338
Over competition for business s	0.348	0.342	0.483	0.465	0.348
Demolition of properties	0.072	-0.413	-0.431	-0.437	-0.500
Variance	1.5159	0.9243	0.9071	0.8905	0.8897
% Var	0.253	0.154	0.151	0.148	0.148

Variable	Factor6	Communality
Loss of revenue	0.027	1.000
Loss of Goods and properties(th	-0.336	1.000
Losing of business contacts and	-0.388	1.000
Business setbacks	0.469	1.000
Over competition for business s	-0.437	1.000
Demolition of properties	0.445	1.000
Variance	0.8725	6.0000
% Var	0.145	1.000

4f.Factor Score Coefficients

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
Loss of Goods and properties(th	-0.494	-2.485	**-1.274**	-0.620	5.344
Over competition for business s	**4.325**	31.094	-0.615	-2.817	-23.007
Loss of revenue	0.270	9.809	-0.973	**-1.407**	**-5.182**
Business setbacks	3.667	**26.494**	-2.092	-3.522	-17.647
Demolition of properties	0.000	-0.000	-0.001	0.000	-0.000

Losing of business contacts and	0.000	-0.005	-0.065	0.042	**-0.014**

Variable	Factor6
Loss of Goods and properties(th	-0.147
Over competition for business s	3.502
Loss of revenue	1.199
Business setbacks	3.553
Demolition of properties	-0.000
Losing of business contacts and	-0.043

Appendix Five

Set Standard of Road Setback in ACT by ACTDA

Right of way (ROW) is the allowable distance measured from the center line of a road/highway to the nearest development on either side of it. Appropriate Right of Ways of all classes of roads shall be observed. The planner shall ensure that no plot encroaches on the right of way of any road/highway. The following Right of Ways shall apply:

CATEGORY "A" - FOR NEW AREA DEVELOPMENTS

1. Expressways
   – Arterial roads with multiple lanes and seperators/medians 50m
2. Trunk "A" Roads/Federal Highways
   Arterial Roads with double lanes linking States 45.72m
3. Trunk "B" Roads/State Roads, that is,
   Roads linking two Federal Roads, ...30m
4. Trunk "C" Roads Linking Local Government Roads.... 25m
5. Major State Roads/Streets 20m
6. Primary Distributors/Collectors 15m
7. Local Distributors 12m
8. Minor Access Roads.....10m

CATEGORY "B" - FOR EXISTING NATIVE SETTLEMENTS

1. Major Roads/Streets 15m
2. Primary Distributors.....12m
3. Local Distributors 10m
4. Service Roads/Local Streets.....8m

*Federal Republic of Nigeria Official Gazette (Supplementary) No .71, Vol. 100, September2013

Appendix Six

Some Pictures Showing the Incidence, Causes and Environmental Implications/Effects of Non-compliance with Road Setback in Siting of Structures in Awka Capital Territory Together with the Attractive Environment when Sited Structures Comply to Set Standard

Plate1. Busy road side trading in ACT

Street trading in Awka

Plate 2. View of disorderliness of environment due to street trading in ACT

Plate 3. View of street hawking of sachet water which after use discard indiscriminately thereby causing blocking of the existing drainage.

Plate 4. Congested high street in ACT due to non-compliance withroad setback

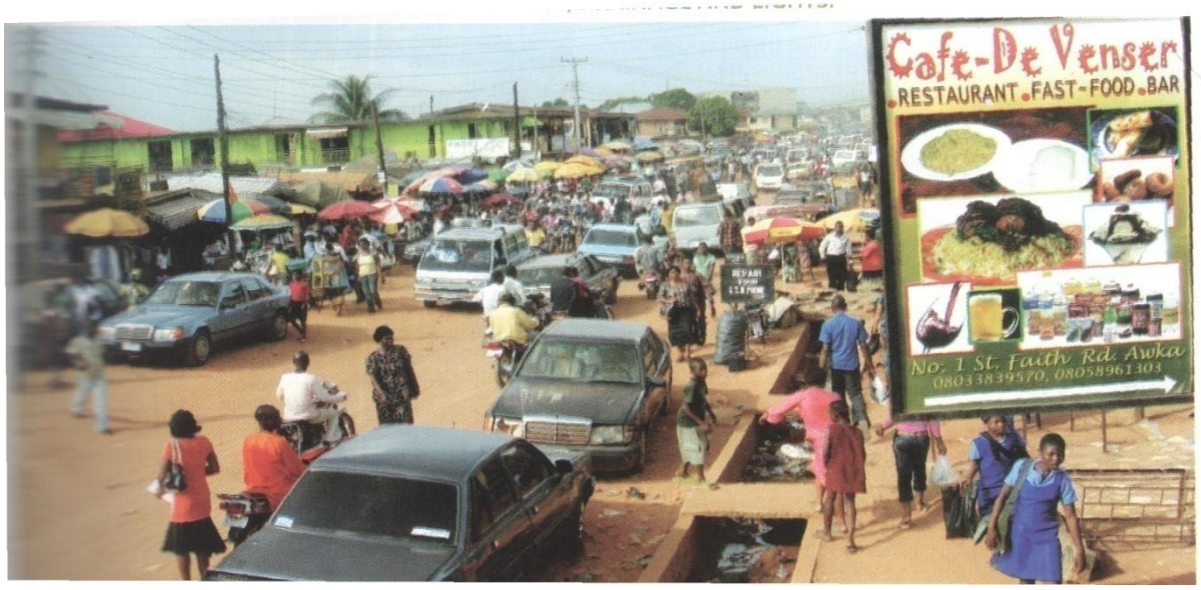

Plate 5. Developed high street in ACT without adequate drainage. It is caused by improper planning

Plate 6. Eroded landscaping due to improper planning of the city

Plate 7. A model for adequate recreational road setback

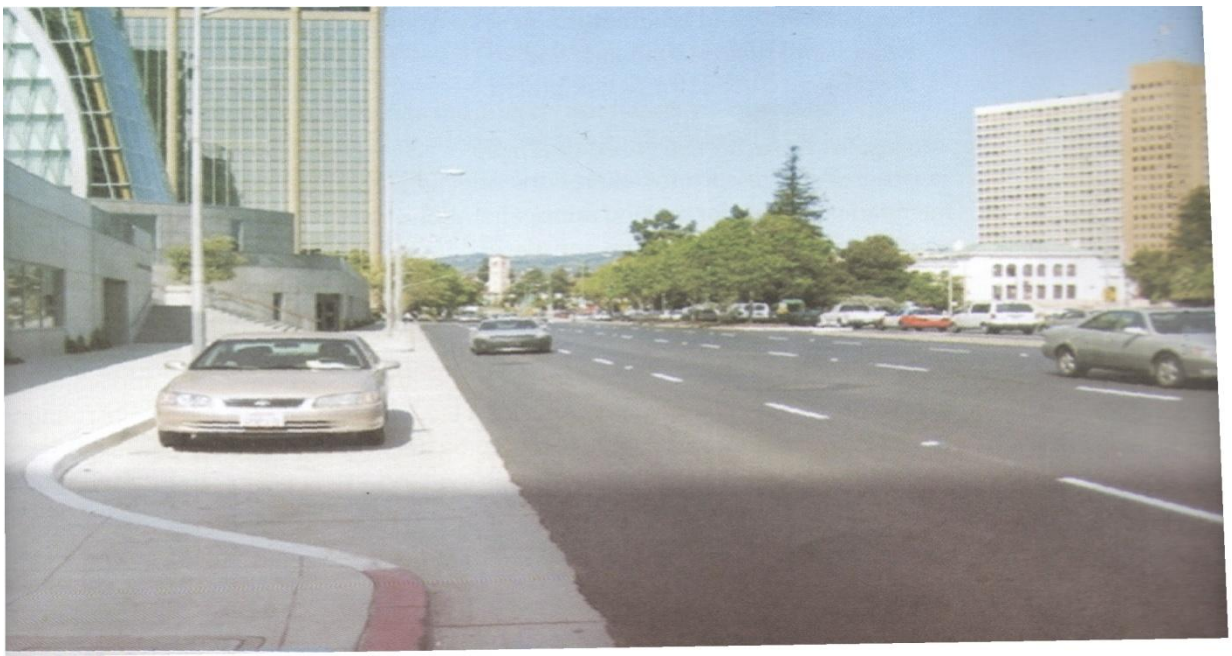

Plate 8. A model for the cleaner neater healthier and attractive environment

Plate 9. Model for aesthetic built environment

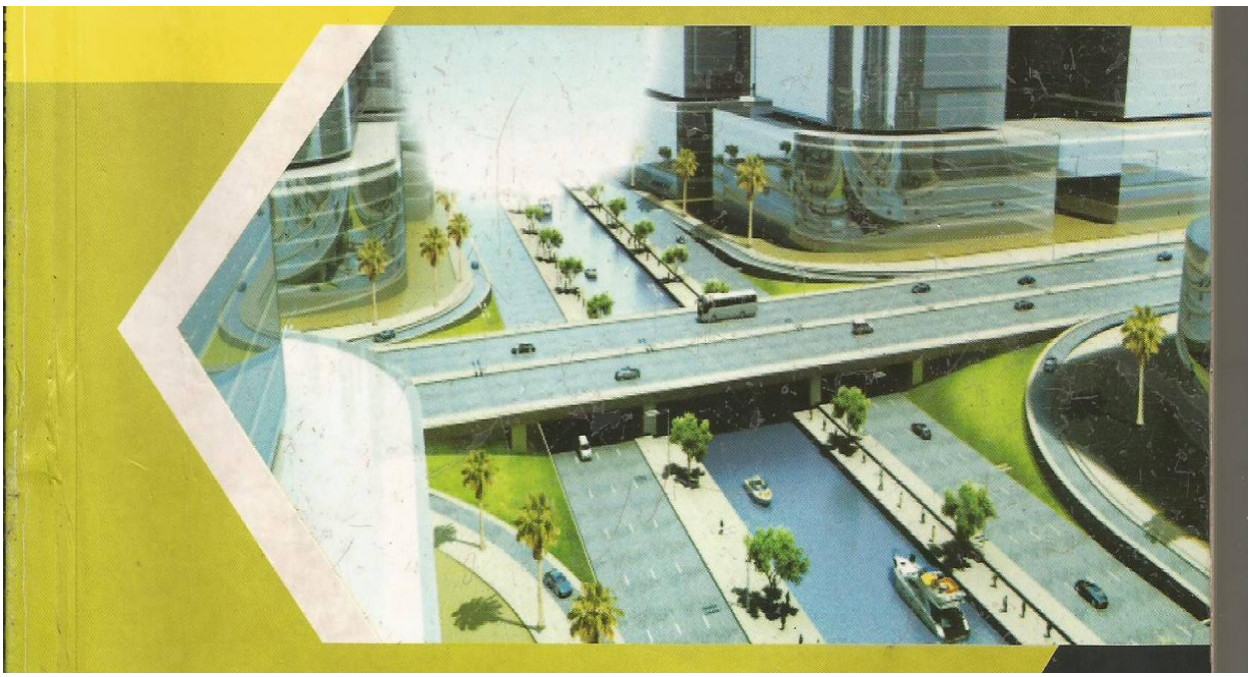

Plate 10. A view of recent drainage in ACT

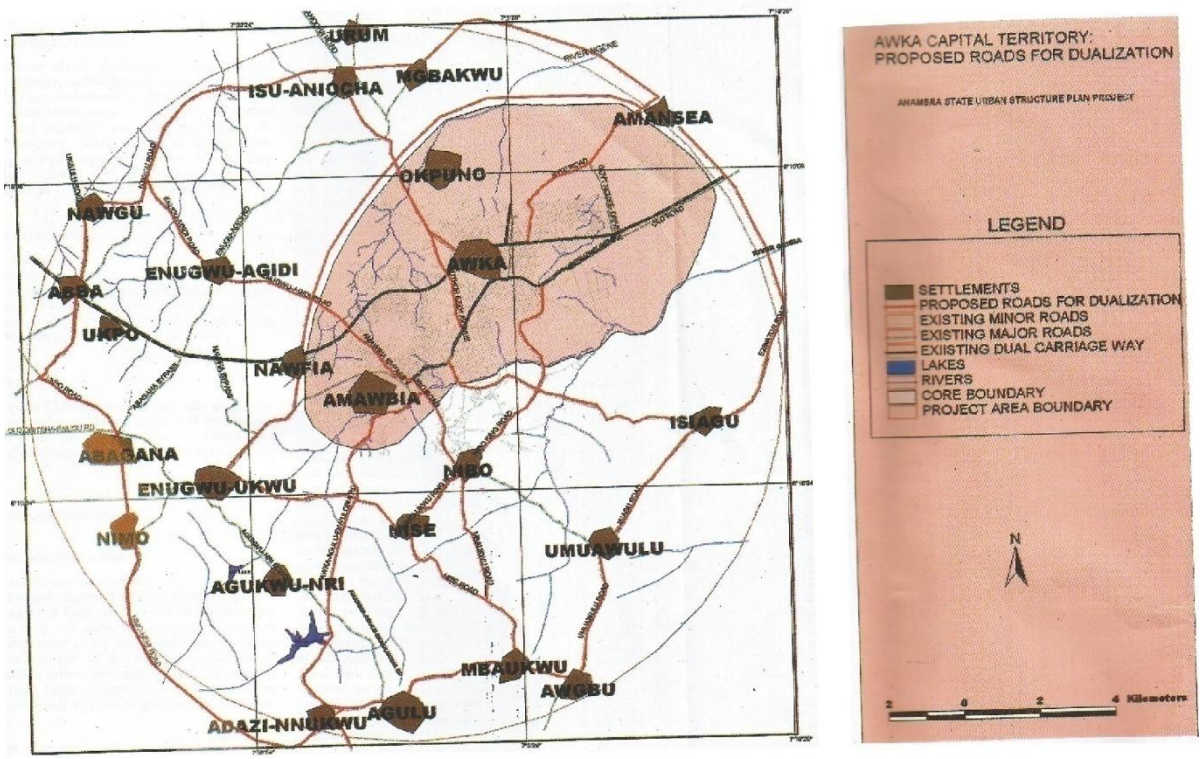

Plate 11. View of a proposed roads in ACT

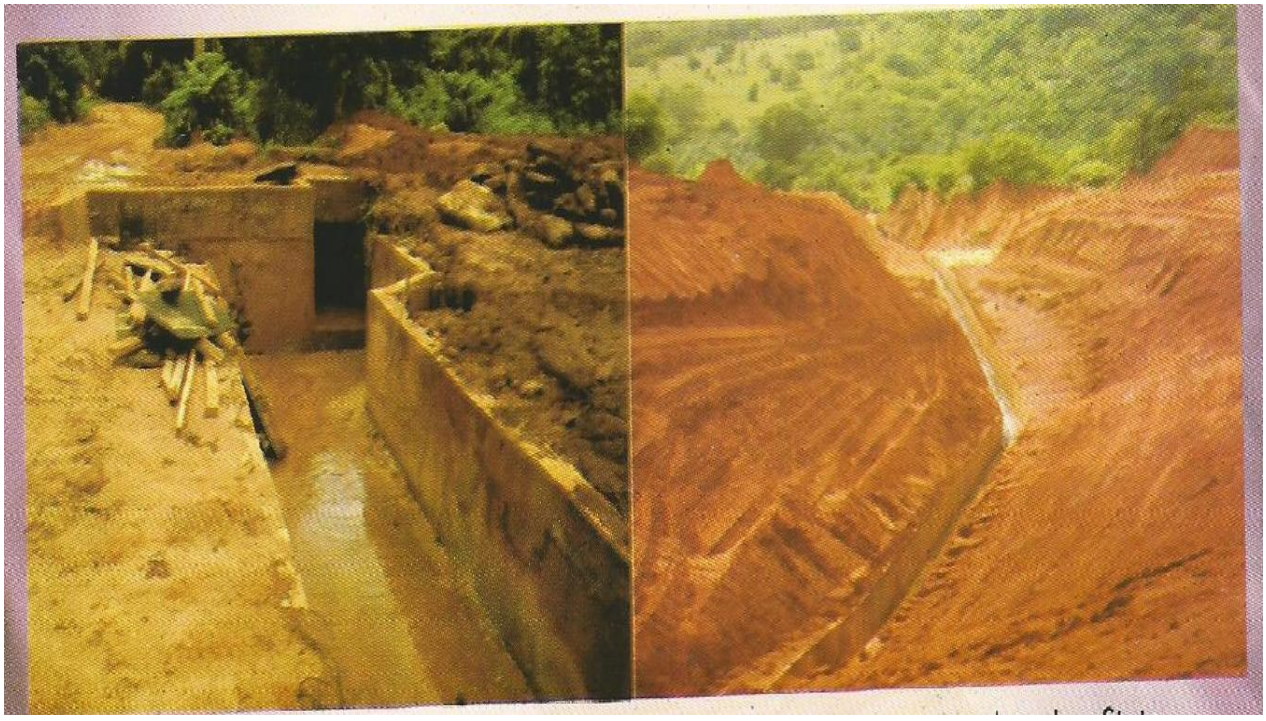

Plate 12. A view of an adequate drainage system in Anaocha LGA. ACT.

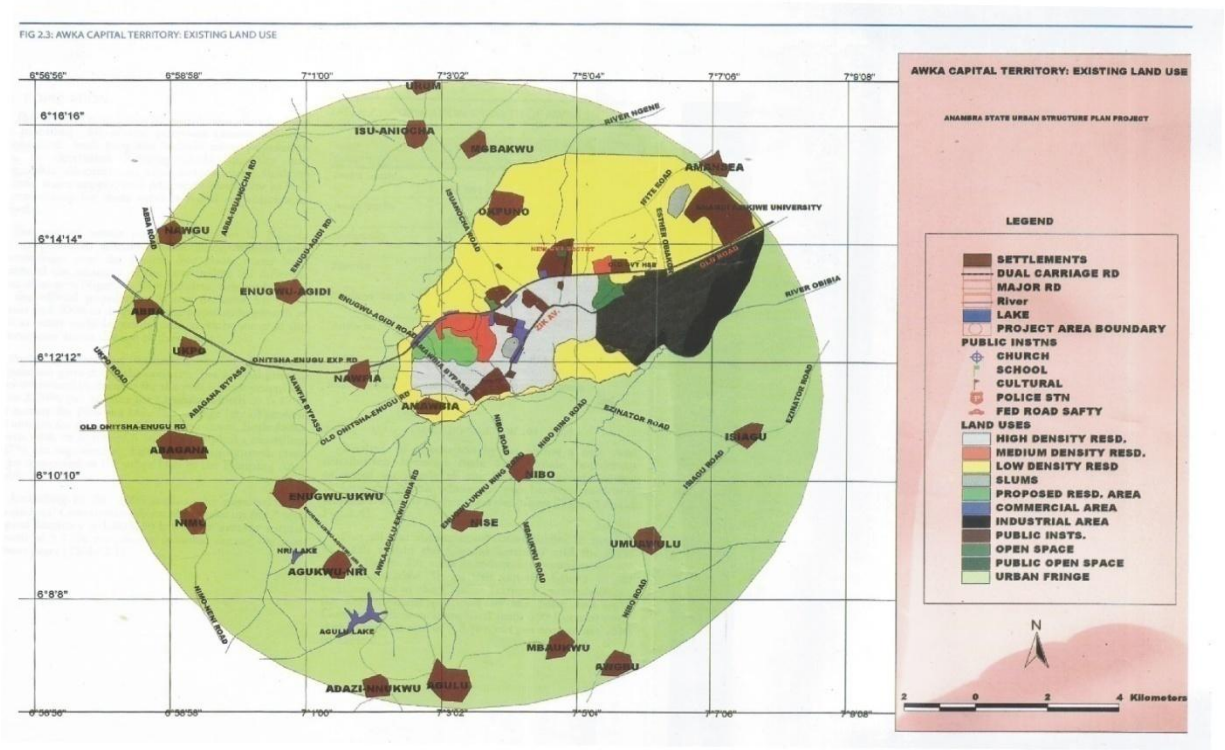

Plate 13. View of existing land use in ACT.

Appendix Seven

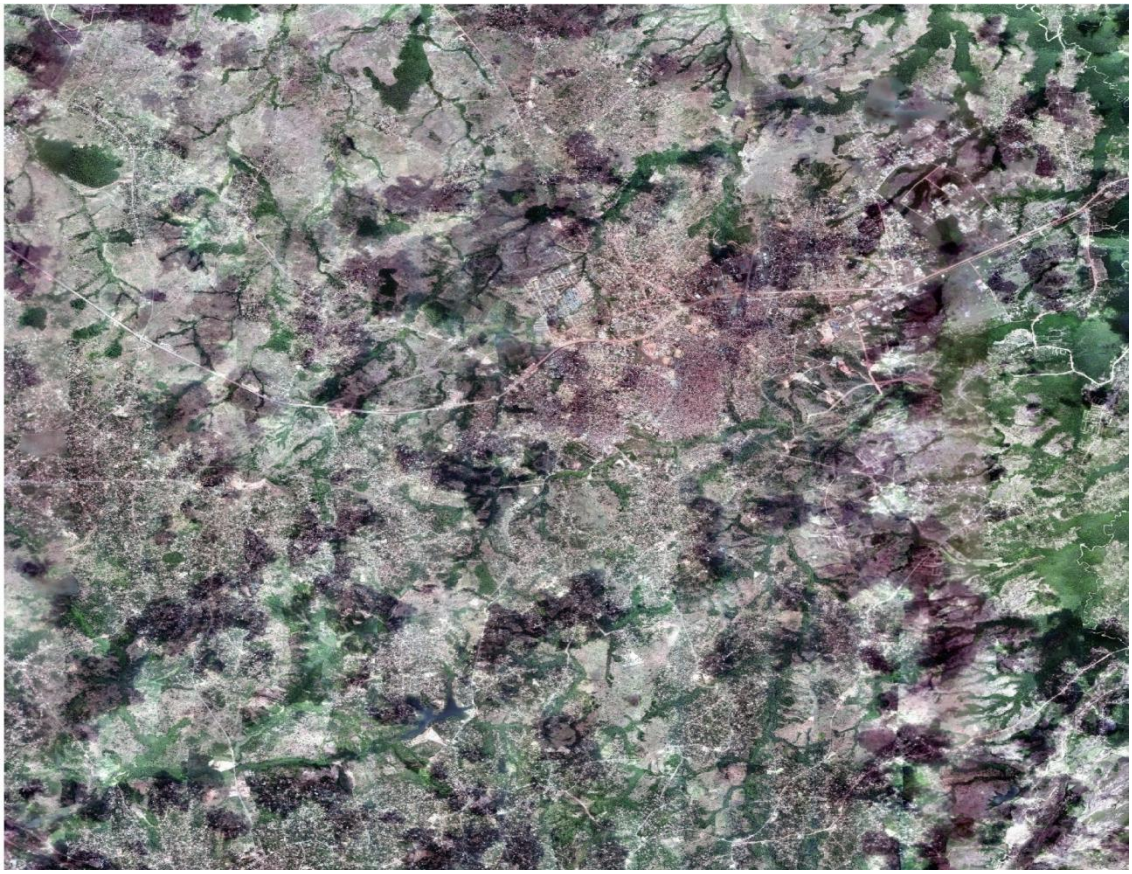

Plate 14. Awka Capital Territory Imagery (ACT Area photograph)