

Environmental Impact of Rural-Urban Migration in the Federal Capital Territory Abuja, Nigeria

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ABSTRACT

The impact of population growth and housing development in developing countries is usually a consequence of the push of the rural areas and the pull of the town. The growth and physical expansion of cities have been accompanied by unplanned urban sprawl, environmental pollution, deterioration, deficiencies in modern basic facilities, and general urban decay. Urban expansion without effective environmental consciousness means that in virtually every urban center – from large cities and metropolitan areas to regional centers and small market towns – a substantial proportion of the population is at risk from natural and human-induced environmental hazards. A strategic approach is essential if urban areas are to enjoy all the benefits which nature can bring. A total of 200 copies of questionnaires were administered at the neighbourhood zones I, II, III and IV of peri-urban Nyanya town for the purpose of assessing the impact of urbanization towards the suburb in order to ascertain its general environmental condition on the surrounding landscape. The study examines the environmental consequences of socioeconomic and other activities in a bid to determine how sustainable Abuja's urbanization is. The study reveals that, the city is growing faster than in the provisions of its master plan. It is fast turning into an environmental embarrassment, with developments springing up in gross violation of zoning and other planning codes. Abuja, which was supposed to be an epitome of beauty and an enlightened vision of city development, has suffered over the years from unnecessary distortions in the implementation of its master plan. The paper concludes by suggesting pragmatic strategies for achieving an integrated and ecologically balanced environment. Therefore, this paper recommends the review of the Abuja master plan for every five years to reflect the garden city concept and neighbourhood design for sustainable city living and mitigating the serious negative impacts of urbanization.

KEYWORDS: Environmental pollution, unplanned urban sprawl, urban growth, master plan.

INTRODUCTION

The clamoring for a new federal capital had arisen because of the higher intolerable conditions of living and working in Lagos. The city of Lagos is incapable of functioning as both a federal capital and a state capital, due to the problems of inadequate space for development commensurate with its status as the capital of Nigeria.

Lagos is identified with predominantly one ethnic group and a new capital in a more central location would provide equal access to Nigeria's great diversity of cultural groups. The new capital master plan target year was 2000 when the city was expected to have a population of 1.6 million and therefore, an ultimate of 3.1 million (NPC, 1996). Unfortunately, there was

population explosion, which had effect on the environment. The response to rapid population growth began to manifest when the federal government of Nigeria moved the seat of the federal government to the new capital city on 12th December, 1991 (FCDA Gazette, 2002). Since then, all the federal ministries and parastatals were in a helter skelter building activities within the city area.

This denied the planners the opportunity to carry-out the various plan concepts; more seriously, it made almost impossible the use of the accelerated district development to house the workers. The result was the emergence of a number of shanty towns and squatter settlements occupied by these workers and other growing service population in such places like Karu, Nyanya, Karmo and Gwagwa that were generally unplanned. The places were also overcrowded and lacking in basic amenities and infrastructures.

Although many of the rushed housing developments within the city area had to be demolished, the shanty settlements persisted at the outskirts of the capital city centre especially in Nyanya environments.

Furthermore, with the democratization of the government leadership in 1999, Abuja has become more attractive to every other Nigerian in the 36 states. It is a model city where every indigene of the country has equal opportunity to live in parity with his/her fellow Nigerians.

Generally, urban centres in developing countries are melting point of different sorts. It is a usual reoccurrence seeing Nigerians from all walks of life, men and women travelling into the city on daily basis. This could be for official, business, political, employment or other related purposes. Wage employment opportunities have a major driving force on urban development in Nigeria, particularly the federal capital city, FCC that serves as a hub of opportunities for both the skilled and the unskilled job seekers. Abuja has become more attractive not only to Nigerians but also the international communities.

The rate at which infrastructural developments are carried out in this model city is quite rapid. For instance, government has constructed an international airport and some roads linking major cities like Kaduna, Niger, Nasarawa and Kogi among others. The construction workers to these construction companies add to the existing high population size of the city and hence another burden of population expansion. The population figure for Federal Capital Territory, FCT was put at 1,405,201 (NPC, 2006). From this number, the municipal area has the highest population of persons with an annual growth rate of 2.9%, the period of rapid growth in population with its attendant increase in human needs brought about severe pressure on the available facilities with eventual environmental degradation in the forms of improperly disposed solid waste, heavy traffic, inadequate potable water supply and more importantly long distance shopping and recreational centres. It is a common knowledge that homelessness is seriously emerging in the new city that was planned and designed to serve as a model for the African continent in a way New York is to USA (FCDA, 2002).

Abuja Municipal Area Council was created in October 1984, with a Land mass of 2,700 square kilometers. It is located in the North East of the city between Latitudes 8° N and 9° N of the squator and Longitudes 6° E and 7° E of the Greenwich Meridian (FCT Report, 2008). The major ethnic groups are Gbagyi, Gwandara, Koro and other Nigerians from different ethnic backgrounds. The area council has well laid out network of roads at the East, west and northern arteries.

STATEMENT OF THE PROBLEM

Abuja was made the Federal Capital Territory of Nigeria after the population boom in the former Capital; Lagos necessitated the move of the capital to a less populated environment. Abuja was chosen out of 33 proposed cities as a result of its central geographical location which signified the neutrality that was missing in the former capital. Abuja has always being known to be a planned and tranquil city, but in recent times, the city is beginning to witness a

huge population growth stemming from the migration of people into the city. The high rate of movement resulted into the expansion of settlements beyond the population size the city was planned for as well as subsequent erection of residential blocks as well as subsequent erection of residential blocks within areas meant to be left fallow according to the city's original master plan.

Unplanned rapid urbanization has been identified as a major health hazard in Nigeria in particular. Environmental hazard, in developing countries are now exacerbated by emerging problems of housing facilities, poor sanitation and industrial waste (UNEP, 2000) leading to condition that spread serious diseases. These diseases stem from environmental problems such as contaminated water, poor sanitation, smoke-polluted indoor air and exposure to mosquitoes along with other problems of crowded living conditions.

The strain of the high population size on the nation's capital has resulted to heavy traffics. During the close of the day's work, it is a norm to see stranded and exhausted citizens waiting at major junctions to catch the popular BRT buses commonly called "El-rufai" or "Subsidy buses" in order to return to their homes at the outskirts (like Nyanya) of the city centre. This rush will mean more traffic congestion, a constant hub of blaring horns and a chaotic atmosphere for the people of the city.

The need to meet the increasing demand, and aspirations of a rapidly growing population led to some notable negative impact on the environment. One way this manifests itself is through deforestation. Deforestation takes place at an alarming rate of 350,000 square meters a year due to construction work (Winpenny, 1992). For instance, world report of 1990 noted that the current deforestation trend due to urbanization put the lives of 50 million Nigerians into jeopardy and this trend must be checked so as to ensure sustainable development. A similar world report released in 1996 revealed that an alarming growth rate of urban population from 20% in 1970 to 30% in 1993 occurs in Nigeria. The problems and challenges already posed by rapid population growth especially in urban settlements in Nigeria are immeasurable. Very frightening are the general human environmental poverty challenges including the declining quality of life, and the under-utilized as well as the untapped wealth of human resources in the urban centres (Jiriko, 1999).

Furthermore, rural-urban dichotomy has hastened the pace of rural to urban migration. The factors that encourage people to migrate from rural areas to urban centres include; increasing level of poverty, growing sense of hopelessness, high rate of illiteracy, declining productivity on the farms and lack of access to social amenities.

The declining economic situation in rural areas will continue to encourage the migration of people mostly unskilled and unemployed youth to the urban centres that are already overburdened (Agrawa, 1980). Maintaining the standard of housing facilities, social amenities, environmental quality and basic needs will pose greater challenges in the nearest future.

CONCEPT OF HOUSING ENVIRONMENT

The concept for modern housing environment is such that people can live in surroundings with a distinct sense of social life and community. Good housing models should have well spaced structures with varied distribution of rooms for living, kitchen and bathrooms and other related purposes. Building structures could be terraced, multi-storey, bungalows or other types of housing facilities. Apartments for modern buildings should be developed to have a light and airy environment for proper ventilation with good socializing opportunities through well-considered placement of the apartments, access roads and shared areas. Generally, an area with organized housing environment is referred to as urban areas (primarily brought about by urbanization)

Urbanization and Development

The term urbanization refers to the physical growth of urban areas as a result of rural migration and even urban concentration into cities. It also describes the proportion of total population of an area in cities or towns. Urbanization is not merely a modern phenomenon, but a rapid and historic transformation of human social roots whereby predominantly village culture is being rapidly replaced by urban culture in which efforts are made to reduce time, expense in commuting while improving opportunities for jobs, education, housing and transportation. In achieving this objective, adequate plan and design is necessary for urban centres for the fulfillment of the basic and superior living standards within the dwelling unit. The satisfaction of all human needs and desires represents a very wide range of factors which must be taken into account and incorporated in any design.

Nature and Pattern of Urbanization in Nigeria

More people will live in cities by the year 2025 (World Bank, 1996). This is a general picture of urbanization at global level while the developed world is already largely urbanized. The rapid urbanization process characteristic of the developing world increasingly concentrates both population and economic growth in cities.

Nigeria being a developing nation exhibits pattern of urbanization that is almost unique in Africa, South of the Sahara. Unlike other countries in Africa, Nigeria witnesses urbanization that predates the European colonization of the continents. The pace of development remains astonishing (Barnes, 2002).

As far back as 1921, Nigeria had an estimated population of 18.6 million. 1.4 million lived in 29 cities with the population of every city over 20,000. By the year 1952, 3.3 million lived in 50 cities out of the total population of 30.4 million people. Thus, 10% were living in urban centres (Mabogunje, 1972). As time progressed, the population rapidly increased from 20% in 1970 to 38% in 1993. The last census exercise in the country showed Nigeria population to be over 140 million with 40 millions now supposedly living in cities and towns with national population growing at 2.9% (NPC, 1996). Urban population in the country, Nigeria has been under increase at 5.5% (World Bank, 1995). The population growth being the highest rate globally is believed to be ascribed to rural urban migration. Latest researches suggest that urban dwellers are expected to double in only 13 years.

The scenario has serious implication on the available natural resources in view of the casual relationship between urbanization and development. The relationship is succinctly described as one in which the resources provide a basis for development while the rate and pattern of urbanization influences the state of the environment (Omolabi, 1993).

Urban Management in Nigeria

Nigeria like any other developing country is experiencing urbanization at one and a half decades at a starting rate of 11% per annum with an alarming growth rate of 3% annually (Sado and Oguntuyinbo, 1981). Individual urban areas have been found growing at a higher rate than the national growth rate. For instance, Lagos metropolis has a growth rate of about 19% and Ilorin 16% annually (Sada 1973).

Therefore, planning was necessitated by the unsatisfactory consequence of free market forces and private actions which became intolerable (Culeson, 1974).

Urban planning has therefore been accepted as a modern mechanism for controlling human activities and actions taking place over urban spaces.

Urbanization in Nigeria and its Attendant Problems

Rapid urbanization in Nigeria has its attendant problems categorized under four classes namely unemployment, serviceability, manageability and livability (Ayeni, 1978).

i Unemployment

This is consequent upon the influx of migrants from rural areas into urban areas for the sole purpose of employment opportunities many of whom are without good educational background and professional skills. Our mushroom type of urbanization which lacks a commensurate level of industrialization and other job creating economic activities is perhaps, a more serious cause of urban unemployment. The result is manifested in street hawking, street trading and other informal sector activities as well as their attendant problems, social vices and so on. Lack of job is seriously linked to urban poverty.

ii Serviceability

Serviceability problem stems from the failure of our cities to provide sufficient social amenities, and infrastructures like health, education, recreation, portable water, energy and so on for their inhabitants.

iii Manageability

Manageability problems relate to issues of planning and upkeep of the city. The dual city phenomenon and the existence of urban districts in many of our urban areas, and the creation of colonialism add to our urban management in terms of their planning developing and governance

iv Livability

The problem of livability is more or less the product of several of the problems highlighted in the three groups discussed. Livability simply means the creation and maintenance of a decent environment and the cause of circulation within the urban facilities and infrastructures including the flow of goods and services. If the provision of the urban facilities and infrastructures are not adequate, they lead to over utilization, waste disposal problems, housing shortages, overcrowding, slums development, flooding and urban deterioration. Traffic congestion and pollution must be added to the list of the problems including urban poverty also.

In Nigeria, a number of strategies have been adopted as a means of ameliorating, eradicating and preventing the future occurrence of these problems. These include planning scheme such as urban renewal scheme covering parts of urban areas, several satellite towns as a means of decentralizing the population and contracting cities growth.

Urbanization in Abuja

Abuja which is supposed to be an epitome of beauty and an enlightened vision of city development, suffered a serious setback from unnecessary distortion in the implementation of its master plan. This was under the guise of “necessities of planning” which remained unchanged until October 1999 when the FCT minister acted by putting an end to the long time encroachment and erection of illegal structures into open space and recreation centres.

Many of the existing and officially planned satellite towns have failed to take off in an orderly fashion as it was in Gwarimpa Estate.

Furthermore, virtually all of them are now experiencing jaundiced growth without meeting the landable aspiration of its founding fathers. It is most disgusting that the “Nigerian factor” which includes corruption and indiscipline has gone deep into the system and created a lot of problems despite the existence of laws and other regulations on planning. Personalities tend to be more powerful than the existing institution checkmating these abnormalities. A person that breaks the law often goes unpunished once he/she has some one standing for him at the corridors of power. This situation has seriously weakened the planning institutions and further led to unhealthy use of land resources in forms of shanty town development and environmental degradation.

Abuja has often been tagged a “big man’s city” with little or no attention given to promotion of development of small towns and intermediate cities within the territory. The lower income

class in this situation resulted into living in squatter settlements and shanty towns of substandard housing, dirty environment without the basic infrastructural facilities. An examination of the experiences from developed countries shows that the pressure of urbanization and population explosion of the metropolitan cities require the planners concern about balancing the urbanization trends. Among the strategies developed in various countries for special distribution of population include the slow growth plan used to promote urban town population policy. The instruments used here made available grants, loans tax incentives for setting up bases in designated areas or for relocation from larger cities to smaller towns.

It is unfortunate that such policies on slow growth plan to promote small towns does not exist in Nigeria in particular. The local government areas within the federal capital territory, FCT and also not involved in the development of their small satellite towns although town plan maps exist in various local government planning offices but the areas are yet to be opened up for development.

Another factor that constituted to urban decay was the adoption of inappropriate planning concepts. It is true that the master plans are means designed to serve as framework for controlling and directing the future expansion and development of urban areas for which they were produced but the very conception and the methodology of master planning itself have been found unsuited to our rapid kind of urbanization in this part of the world. This is because the patterns were originally meant for the types of urbanization in Western Europe (Mumtez, 1982).

The result is that such plans have little effect on the urbanization phenomenon in the third world cities. The rapid growth of towns and cities in Britain during the nineteenth century led to many problems among which are the serious congestion of the urban settlements. This in turn resulted to in adequacy of public services and facilities, high density population and growing disparity between the urban and the rural areas which brought about the movement of people from rural to urban centres. Howard's idea in 1876 focused on the many problems associated with the increasing influx of people to the cities from rural areas. He explained the attraction of people from rural settlement (weak magnet) to the urban inhabitation (strong magnet) that attracts people to itself because of the availability of better opportunity to the people, the presence of jobs and higher wages, social and recreational opportunities as well as the host of other advantages serve to attract people from less privileged dwelling places to the urban.

Howard concluded that neither the urban centres nor the rural areas were ideal for human living purposes. The researcher's solution was to create new growth centres that will incorporate the good aspect of urban as well as those of rural areas. He argues that in doing this, stronger magnet will attract people from the overcrowded cities because people who are seeking for better living conditions will then move back to rural areas.

The development of the city was designed to be in four phases with a clearly defined target population of three million inhabitants. Generally, the physical developments in Phase I are completed. The 230,000 populations projected for Phase 1 was distributed among 5 districts: Central Area, Garki (I & II), Wuse (I & II), Asokoro and Maitama. Phase II is nearing completion. The detailed design for Phase III has been prepared and the Federal Housing Authority has begun work in the area. Work is yet to commence on Phase IV.

However, housing in Abuja is grossly inadequate while the adverse effects of unplanned human settlements in urban and suburban areas in the Federal Capital Territory are already visible. These problems are as a result of the rushed movement of workers from Lagos to Abuja without adequate provision for accommodation. The result was the emergence of a number of shantytowns and squatter settlements occupied by workers and the growing service population in such places as Karu/Nyanya, Karmo and Gwagwalada. These

settlements have developed rapidly and are generally unplanned, overcrowded and lacking basic amenities and infrastructure. Although, many of the rushed housing developments within the city area have had to be demolished, the shanty developments persist in the periphery of Abuja especially as there is still little provision for housing accommodation for the low-income workers within the city. Urban dwellers and workers suffer from the poor state of sanitation, congested traffic, air and water pollution and inadequate supply of food and energy needs. The absence of proper implementation in this field calls for a thorough review of urban and regional planning strategies to meet the growing population and the deteriorating situation visible in most parts of the city.

The philosophy of the adopted Federal Capital Territory Plan is to use open space and important urban structuring elements, places for recreation and amenity as follows: A city-wide open space structure based on a longitudinal parkway system interval to the city, retention of the stream valley and water course network for both aesthetic and drainage purposes and preservation of the surrounding escapement of hills and inselbergs which just up in the body of the Gwagwalada plains and form the visual back drop to the city and major focal points within the City". (The Master Plan of Abuja 1979) In the master plan, provisions were made for the development of a variety of parks and gardens. However, from a survey of the city, it is obvious that only very few parkways, recreational facilities, parks and gardens have been developed. Most of the land allocated to recreation has been put to other uses, mostly residential.

Distortions in the Implementation of the Abuja Master Plan

Abuja which was supposed to be an epitome of beauty and an enlightened vision of city development, suffered over the years from unnecessary distortions in the implementation of its master plan. The civilian administration that took over from the military regime in 1979 (when the master plan was designed) departed from the principles that underlay the original conception of the new federal capital.

The main cause of the distortions of the master plan was the creation of the Ministry of the Federal Capital Territory (MFCT) in 1980 and its being super imposed on the Federal Capital Development Authority (FCDA). The Ministry lacked the professional personnel to understand the philosophy of a master plan and the need for detailed planning and design to be carried out before the master plan could be transformed into construction activities in any part of the City.

The 1999 International Conference on the Review of the Abuja Master Plan highlighted some distortions (FCDA, 1999). Major distortions include the following:

1. The ecological survey had underscored the fact that a large part of the territory was still infested with tsetse-fly whilst the river courses still provided breeding grounds for the simulum fly, the carrier of the disease vector giving rise to river blindness. To evacuate the entire human population whose farming activities had helped to keep down and destroy much of the habitat favorable to the tsetse fly was to compromise the future health status of the population of the new capital. The decision to evacuate all the inhabitants had to be revised and compensation and resettlement undertaken only in respect of those occupying the site chosen for building the city and the footprints of that development. This has resulted in the conversion of most of these villages to slums as they accommodate the lower cadre civil servants and other low-income workers.
2. The initial implementation strategy for the Master Plan envisaged that the workers would be housed in the "Accelerated District" within the Phase 1 Area of the city development. This "Accelerated District" developed for low-income workers so as to prevent the emergence of shanty towns of construction workers in the periphery of the

capital city was also to serve as a model for testing out the detailed plan concepts. This was also to prepare the city for a projected population of no more than 160,000 by 1986, the year when the capital was to be formally moved to Abuja. However, seeing the mass of buildings going up in the “Accelerated District”, the civilian government took the mistaken decision to rush the movement to Abuja by shifting it forward to the year 1982/83. This decision led to helter-skelter building activities within the city area. It also denied the planners the opportunity to test out the various plan concepts. As such areas such as Nyanya, Lugbe rose up to cater for the population influx.

3. The post-civilian military regime preferred a presidential palace secluded away and closer to Aso Rock than in the middle of the central area of the city where it was located on the Master Plan. The presidential residence was meant to be located on one side of a national square that was to be the intersection of a central mall and a parkway and the National Square. Instead, the present Presidential Villa has usurped the site meant for the National Monument and this makes the beauty and grandeur of such a building no longer part of the prominent and salient feature of Abuja.
4. Initially, building plots in the Federal Capital were allocated on some equitable basis of federal character. However, as geo-political biases became prominent in staffing of the FCDA, distortions became manifest both in the motives for allocation of building plots and in the distribution of allottees.
5. The delay in constructing the transit way and introducing a rapid transit system to serve the City can be regarded as a distortion of the Master plan. This delay has allowed the right of way reserved for the transit way to be encroached upon through indiscriminate plot allocation in several places. This will create a lot of problem in the future for the development of the transit way for buses and eventually a rapid rail system.
6. The Parkway Concept as a major element of open space system is gradually giving way to physical development in Phase 1 and II.
7. Development of Green Areas/Hill Tops for Housing: These and other ancillary facilities are major distortions to the plan. At the same time, these buildings have enhanced the beauty of the city and have added to the housing stock of the city. There are also cases of incidental designs of residential layouts involving some minor redesigns mostly in areas reserved as green to meet the urgent desire for residential development.

In 2003, a Ministerial Committee on Illegal Structures in FCT was constituted to collate a list of all illegal structures in the FCT and present a strategy for demolition. Interestingly, most of the members of the committee were not professional planners.

In Phase 1 alone, over five hundred plots contravened the provisions of the Master Plan. Of the 55 plots allocated for educational uses, 22 were converted to residential, thereby causing illegal conversion of residential plots to schools in some areas.

Other distortions identified include changes in land use in respect of public institutions especially in Phase II. Most of these plots have been converted to residential plots. Infringement by public and private developers of housing estates on Primary Infrastructure also occurred. An example is the Ministers Quarters in Maitama that was not provided for in the Master plan. Squatter settlements have also sprung up to cater for the low-income population and junior civil servants.

The consequences of all these distortions include increased water scarcity as the dams are no longer able to cater optimally for the rapidly growing population; Low voltage electricity and power outages are now being experienced; overhead power lines have become common sight,

distorting the panoramic view of the landscape. The master plan proposed underground cabling for both electricity and telecommunication. Furthermore, the conversion of green areas to built-up areas has increased surface run-off of water, hence there is overloading of existing drains thereby increasing the threat of flooding. The construction of buildings without existing infrastructure has led to uncoordinated service provision especially in Phase II. Moreover, the addition of unplanned estates to the master plan has a cumulative effect on the pressure on existing infrastructure.

Based on above-mentioned, it can thus be concluded that:

- a. **Professionals have not been adequately involved in the drawing up of local environmental policies and the implementation of the Master plan:** Administrators rather than professional planners, more often than not get decisive roles in urban planning and development issues, while professional planners only participate on a peripheral basis. The Ministry of Federal Capital Territory as against the Federal Capital Development Authority dictates the pace of physical development.
- b. **Government policies have not been effective in ensuring environmentally sustainable development:** The implementation of the master plan has been defective due to military influence, political instability, inefficient administration and the corrupt practices of some government officials. Lack of continuity in plans and programs between different administrations and the unstable state of the Nigerian economy and environment has led to distortions.
- c. **The review of the master plan in 1999, about 21 years after it was designed had been long overdue:** Periodical review would have reduced the rate of distortions/deviations from the master plan. The dynamics of any Master Plan is a function of time, technological and political development, financial capability and other factors. A plan should be flexible and adaptable. As such, structural plans, rather than master plan should have been used
- d. **Land use zoning regulations have been poorly enforced.** Present development control measures have not been able to curb planning contraventions in the Capital City. There is little or no consideration for treatment of open spaces. Though the master plan made adequate provision for these natural elements, implementation has been faulty leading to loss of planned open spaces. Parks, gardens, and green belts have been either re-zoned or neglected. Integrated planning and sustainability have hence been sacrificed for profit

It is evident from the foregoing that the Federal Capital City hasn't fully met the objectives of sustainable or integrated development which is to: Improve the health and well being of urban dwellers. An appraisal of development in the capital city has also shown that it has not been able to successfully create a balance within the human society as well as balance between humans and nature which is what the concept of the integrated city planning is all about. According to Yanhua (2001), integrated cities should be built on the principles of ecology, which are cycle regeneration – to ensure continuity within the urban system, harmonious symbiosis – to ensure integration in the environment, sustainable self-generation and minimum emission.

THE STUDY AREA AND RESEARCH METHODOLOGY

The Study Area

Abuja is found on latitude 8° 25" and 9° 25" North of the Equator and longitude 6° 45" and 7° 45" East of the Greenwich. It is bordered to the North by Kaduna state, to the east by Nasarawa state, to the west by Niger state and to the south by Kogi state (Ujoh et al, 2009) (Figure 1).



Figure 1: Nigeria showing FCT Abuja

The area is characterized by a hilly, dissected terrain and is the highest part of the FCT with several peaks that are 760 m above sea level (Balogun, 2001). The geology of the area is underlain by basement complex rocks. The annual rainfall is highest within the FCC and its environs which is about 1,631.7 mm. The annual mean temperature ranges between 25.8 and 30.2°C (Adakayi, 2000; Balogun, 2001). The soils of the study area are basically Alluvial and Luvisols. The FCC is rich in infrastructure such as expanding road network, drainage and sewage systems, and piped water.

The area of study Nyanya is located in the periphery of Abuja city. It is a town in Abuja municipal area council and bounded in the North by Runji, East by Keffi and to the south of Karu in Nasarawa state (Figure 2).

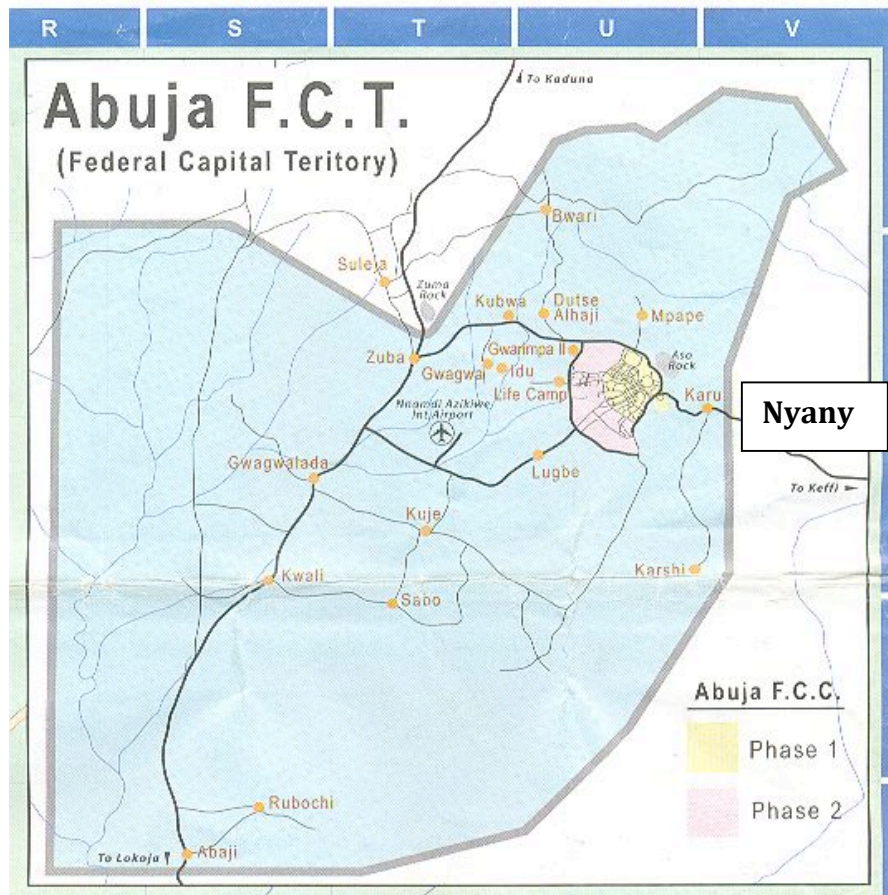


Figure 2: FCT showing Nyanya Town

The study area is dynamic in human resources with the majority of its inhabitants being civil servants because of the Nyanya workers camp. The area is sub-divided into four phases I, II, III and IV. The settlement developed rapidly and was generally unplanned.

The area also serves as a major centre that links other urban centres to the federal capital territory city centre

The Case Study Area (Nyanya)

Nyanya town is generally a densely populated urban settlement. It is lacking in adequate and well planned infrastructural facilities like the road network, toilet facilities, clean water supply and housing structures. Majority of the building structures in the study area are bungalours and the brazillian face types without good ventilation systems.

Inhabitants for Nyanya are generally low income civil servants as well as traders and some jobless youth that are mostly squatters. The town is dominated by the two major religious worshipers Christians and Muslims although traditional religions worshipers still remain in the remote villages of the town. More than half of the population are married and others are singles and widows with an average number of persons per household as 7. The people in the study area are majority immigrants from other states of the federation but some original inhabitants which are Gwandaras, Gades, Ganagana are still living at remote areas of Nyanya and their major occupation is faming.

Research Methods

The research tools employed for collection of data for the purpose of this research include: the primary and secondary data sources. The primary data comprises of data collected from the field. The data were obtained through the following principal methods.

i. Direct personal observation: This is a method by which the researcher makes observations or take measurement in the field as noticed. Data collected through this method include the identification of physical condition of building's ventilation pattern and environmental problems peculiar to the area such as land dereliction, open waste dump and others that could have contributed to the deterioration of the environment

ii. Questionnaire method: Prepared questions were administered to residence within the area (Nyanya) and responses recorded. For the purpose of this study 200 copies of the questionnaires were administered at the neighbourhood zones. Quantitative data obtained included household information such as household size, occupation, age group, building information and land use information to mention but a few.

Secondary Data Source: These are ready made materials from previous research findings obtained from various relevant fields. They include textbooks, journals and publications, maps obtained for the purpose of making the research as comprehensive as possible. The secondary data for this research was obtained from National population commission on population trend in FCT about the reviewed master plan of Abuja. Data from ministry of Environment on environmental reports; data from federal Road safety corps on traffic volumes as well as statistical records from office of statistics and location map from Abuja municipal Area council

Sampling Procedure: Techniques of sampling were used in the selection of elements in the population. The sampling, procedure employed for this project was taken to represent a whole. This means every third house in every neighbourhood zone was selected for sampling to eliminate bias.

Traffic Census: Traffic interviews on the origin and destination of those phying some motor parks were conducted. Those interviewed included passengers in commercial vehicles, private commuters and those driving trucks as well as those along heavy traffic jams in the pre-selected study locations in Nyanya town. The information obtained were, purpose of trip, land use of origin and other relevant parameters.

RESULTS AND DISCUSSION

The sample household survey is to obtain the population in the field to represent a general statement. The sample estimate of the population size obtained from the survey reveals an averaged number of 7 persons per household for a total of 844 people.

Occupation of the Respondents

The occupation of the people according to table 1 for the survey indicates that 55% of the total populations in the study area are civil servants which could be attributed to the presence of Nyanya workers camp that was designed for the civil servants in Nyanya. The results also indicate 31.67% traders implying the lots of commercial activities within the area.

The table also shows 13.33% unemployed persons that are mainly able-bodied youth. This category could be responsible for the lots of social vices caused by unemployment and hopelessness in the study area.

However, the various occupations of the respondents in the study area were categories between the public sector (civil service, political Appointees and other government agencies) and the private sector (private companies, firms, non-profit organizations and religions bodies). It was also observed that some parts of the location were mainly occupied by senior and middle level class of the citizens; the spatial organization in these parts was commendable. Houses were well-spaced and fenced, less waste deposits as only polythene bags and paper were seen. This scenario is the opposite to areas occupied by the majority of respondents who fall into the junior level (lower class) of social stratification in the society.

Table 1: Occupation Distribution of Respondents

Occupation	Number of persons	Percentage
Civil servants	66	55.00
Self employed	38	31.67
Unemployed	16	13.33
Total	120	100.00

Building Structures Information

The criteria used in assessing the housing quality are based on the weighted index method which involves ranking of materials used for construction, ventilation pattern and age of building. The method also involves allocating scores on each number of indices selected (Ayeni 1980).

Ventilation Pattern

The results for the ventilation pattern on table 2 indicate a generally poor ventilation type. 46.67% of the buildings are without adequate ventilation design. It allows for one window for the sitting room and bedroom each. Also the minimum gap between two adjacent buildings is about 0.9m which is an indication that the apartments are not conducive.

According to FCDA Gazette 2002, where two or more houses are to be built on a plot, the distance between the structures should not be less than the mean height of the two buildings.

Table 2: Ventilation Pattern of Residents of Respondents

Ventilation Pattern	Number of persons	Percentage Composition
Well ventilated	26	21.67
Fairly ventilated	38	31.66
Poorly ventilated	56	46.67
Total	120	100.00

Table 3 and 4 below suggests that 46.67% of the houses in the study area in good conditions in terms of access road, toilet facilities, clean water and physical appearance of the building then other factors like maintenance, culture, rentage services are in deplorable conditions (Andreze, 1964).

Table 3: Housing conditions (Weighted index method) of Respondents

Condition	Frequency	Rank Score
Well ventilated	24	3
Good roofing condition		
Fairly ventilated	40	2
Fair roofing condition		
Poorly ventilated	56	1
Poor roofing condition		

Table 4: Housing condition of Respondents

Housing condition	Number of persons	Percentage Composition
Poor	56	46.67
Fair	40	33.33
Goo	24	20.00
Total	120	100.00

Materials used for Construction

The results on table 5 shows the housing structures indicating 76.61% being built with concrete blocks. This implies that the buildings are majorly made of concrete blocks. Also 13.33% use burnt block for construction for the reason of its economic advantage. Those built with locally moulded blocks are for the villagers in remote areas particularly in Gwanzarape around Nyanya.

Table 5: Materials of Housing Construction of Respondents

Material used	Number of persons	Percentage Composition
Concrete blocks	92	76.67
Mud	12	10.00
Bricks	16	13.33
Total	120	100.00

Building Type

Table 6 shows that 53.33% of the inhabitants of Nyanya dwell in the Brazilian face to face and 40% live in Bungalow which could be attributed to the people's low level of income with small percentage of 6.67% of the buildings the only storey building structures.

Table 6: Building types of Respondents

Building type	Number of persons	Percentage Composition
Bungalow	48	40.00
Storey building	8	6.67
Brazilian design	64	53.33
Total	120	100.00

Age of Buildings

The results for the age of the buildings reveals that 15% were built less than 5 years ago and 31.67% between the ages of 5 and 10 years. Table 7 shows 20% of the houses were constructed 15 years ago. These results suggest that about half of the entire structures were built in less 10 years ago which means a very rapid expansion in population of the area within this period.

Table 7: Age of building of Respondents

Age of building	Number of persons	Percentage Composition
Less than 5 years	18	15.00
5-9 years	38	31.67
10-14 years	40	33.33
15 years above	24	20.00
Total	120	100.00

Toilet Facilities

The most common type of toilet facility available according to Table 8 below is the unhygienic pit type that forms 58.33% of the total housing facility. Also, 8.33% of the houses have no toilet facility of any kind.

Table 8: Toilet Facilities of Respondents

Toilet type	Number of persons	Percentage Composition
Pit	70	58.33
WCT	40	33.33
Not available	10	8.33
Total	120	100.00

Bathroom Facilities

Table 9 shows that 53.33% of inhabitants use the enclosed type of bathroom while 33.33% use the open-rood type with the remaining 13.33% without bathroom of any kind. This suggests that about half of the building structures are either without good bathroom facilities or without any one at all of such facility and which is dangerous to the hygienic nature of the entire human habitation.

Table 9: Bathroom facilities of Respondents

Bathroom type	Number of persons	Percentage Composition
Open type	40	33.33
Enclosed	64	53.33
Not available	16	13.33
Total	120	100.00

Infrastructural Facilities

The infrastructural facilities in form of social amenities within the study area are lacking. These basic amenities have been lacking despite the fact that Nyanya was zoned as a residential district.

Table 10 shows that 50% of the access road to individual buildings are untarred, and lack pipe borne water and as such the inhabitants solely depend on water hawkers popularly called “Mai ruwa”. The table also shows that there is lack of good drainage facilities with improper refuse disposal systems. The schools and clinic facilities available are ill-equipped.

Table 10: Infrastructural facilities within Respondents location

Infrastructures	Available	Not Available
Tarred road		-
Pipe borne water		-
Refuge site		-
School	-	
Clinic	-	

Traffic Information***Time taken into Nyanya***

Table 11 below shows results for the duration taken from the average of the neighbouring municipal Area Council to the study location. Here central Area District is considered in this location and the average of the time taken from it to Nyanya was determined the table suggests that 61.67% of respondents spent about 30 minutes with the least number spending only 20 minutes to travel the distance.

Table 11: Duration from city centre to Nyanya by Respondents

Time duration (minutes)	Number of persons	Percentage Composition
10-19	16	13.33
20-29	6	5.00
30-59	74	61.67
1 hour and above	24	20.00

Trip Purpose

The results on table 12 suggests that 66.67% is for the trip purpose for going to work which implies that more than half of the respondents are workers with only 20% the trip for business purposes and 8.33% mainly as school children going to their various schools in Nyanya.

Table 12: Trip purpose of the Respondents

Purpose of Trip	Number of persons	Percentage Composition
School	10	8.33
Home	6	5.00
Business	24	20.00
Work	80	66.67
Total	120	100.00

Mode of Transportation

The results for this survey on table 13 reveal that half of the entire population mainly depends on commercial transport facilities. Next to the 50% commercial dependent transportation is private vehicles of 31% with the least as 8.33% for cabs.

Table 13: Mode of Transportation by the Respondent

Mode of Transport	Number of persons	Percentage Composition
Taxi cabs	10	8.33
Commercial vehicles	60	50.00
Motor cycle	20	10.77
Private vehicles	30	31.00

CONCLUSIONS AND RECOMMENDATIONS

This study reveals that Nyanya town is lacking in basic amenities and other social infrastructures which it was designed to have all these amenities and facilities according to the FCT master plan. The housing structures are generally unplanned and without good access road network and with no standard for waste storage and disposal. Respondents use a range of storage receptacles and dispose both household and industrial wastes in either open dumps or directly into the streams within the neighbourhood. This is partly responsible for the high level of littering and drainage blockages observed in the study location. The inhabitants of Nyanya are mainly dominated by civil servants of low income category and live in improperly designed face to face Brazilian housing types with other attendant shanty structures lacking in good sanitary facilities and ventilation. The suburban town under study receives a huge number of migrants every time especially with the current ethnic and religion conflicts in some parts of the county. This phenomenon has greatly expanded the population

of the area as clearly evident in the increase of unplanned housing development in less than 10 years period. This seriously calls for urgent attention.

The town of Nyanya in the suburb of the federal capital city would require some forms of federal government, community as well as more concerted effort of the FCT administration's planned initiatives in addressing the adverse impact of urbanization on this area of study. The influx of migrants is on the increase day by day. This development encourages easy expansion of shanty homes with other sub-standard structures with deplorable facilities that seem affordable to some of the migrants. It was specifically observed that three families and more share a two-bedroom flat, and some even occupy vacant shops with no toilet facility. The sanitary facilities like the toilets, bathrooms and other waste disposal systems in the area are very inadequate and without good design. For example, in areas where sewers are available; it was observed that they leak off directly into the few gutters around, giving off offensive stench in the surrounding neighborhood. There are structures that contravene the land use act, as some industrial buildings are erected on certain areas meant for residential purposes. It is common to see a residential building beside an industry with smoke billowing from huge generators. Nyanya district is in dire need of spatial re-organization despite the attempts by the Municipal Area Council to sanitise the area through regular demolitions and sanctions for erring landowners.

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