

A Study on Housing and Environmental Quality of Moniya Community in Ibadan, Nigeria

OWOEYE, J.O and OGUNDIRAN, A.O

Department of Urban and Regional Planning; School of Environmental Technology
Federal University of Technology, Akure; P.M.B 704 Akure, NIGERIA

Abstract

This paper investigates the effect of urban lounge on housing and environmental quality of Moniya community in Ibadan, Oyo State Nigeria with a view to determine urban planning efforts at addressing the phenomenon. Using Systematic Random sampling technique, data were collected with the aid of structured questionnaires, observation and photo-snaps. Interviews were held to complement data from questionnaire survey while descriptive statistic methods were employed to resolve the objectives set for the study. Findings reveal the socio-economic characteristics of residents and its effects on physical environment of the area. It shows the level of congestion, poor state of roads and buildings, the inefficiency of infrastructure and public services and loss of available ones due to poor maintenance culture of residents. The paper recommends effective and timely regional planning through economic development and spatial integration as a way to decongest and achieve long-term environmental sustainability in the area. It advocates, essentially, for extensive urban renewal program through the provision of urban basic services in the area, which should be supported with improved sanitation strategies for sustainable management of the area.

Keywords: Urban sprawl, housing quality, infrastructure, environmental sustainability, Moniya.

1.0 INTRODUCTION

The modern age is an age of urbanization, where villages are fast growing into towns and towns into cities. It is therefore necessary to assess the impact and rates at which areas develop in order to advise on strategies for conservation and exploitation of resources, especially lands. Many peripheral areas around the urban centers are rapidly assuming most characteristics formerly associated with urban settlement. Thus, the distinction between peripheral areas and urban centers have become so vague that many town planners and geographers now believe that no effort at all should be made to differentiate between the two (Okafor and Onokerhoraye, 1986). Rapid urbanization exerts strong impact on the peripheral areas in the wake of continuous urbanization and modernization processes with the increased demands they make for land, housing, physical infrastructural development and transportation can affect significant changes in the peripheral areas/settlements. Factors attributing these changes are as a result of the improvement of infrastructural facilities as well as associated with socio-economic development. These play crucial roles in organization and changes in peripheral areas near the urban centres. Generally, urbanization processes introduces radical changes in the pattern of most peripheral areas. For instance, a lot of villages are located near semi-urbanized settlements. In these areas, modern buildings are intermixed with traditional ones and modern infrastructure are put in place which brings changes in the way of life of the people, changes in occupation as well as in population composition. These areas may be characterized as the rural-urban fringes, which are described as zones of interpenetration of urban and rural environment or incorporated residential areas of non formal and formal dwellings outside the legal cities' boundary (Mannion, 1997).

Moniya is a notable town in Akinyele Local Government Area of Oyo State, which gradually becoming an urban centre with the influence of urban expansion from the core to the peripheral areas. Presently, Moniya is the headquarters of Akinyele LGA. This research undertaking is meant to highlight the various impact of urbanization on the peripheral zone of the study area. Generally, urbanization in Oyo State is associated with a variety of problems which may include pollution, high land value, poor planning leading to poor housing conditions and scattered developments, etc. These problems in turn would lead to environmental problems such as soil erosion, flooding and general environmental degradation. However, the study focuses on these problems as they are related to growth process of Moniya as a peri-urban neighborhood in Ibadan region. The thrust therefore is to investigate the housing condition and environmental quality of the town as well as the consequential effects on the residents.

2.0 CONCEPTUAL ISSUES AND LITERATURE APPRAISAL

The concept of 'sprawl' was developed by Earle Draper in 1937 in the United States of America (Osborn, 1965), the term which has been used by city planners to refer to a wasteful type of urban growth (Black, 1996). Urban sprawl is a pattern of uncontrolled development, an increasingly common feature of the built environment in both the developed and developing countries of the world. However, rapid urbanization particularly the growth of large cities and the associated problems of unemployment, poverty, inadequate health facilities, poor

sanitation, urban slums and environmental degradation pose a formidable challenge in many developing countries. Available statistics show that more than half of the world's population live in urban areas, crowded into three percent of the earth's land area (UNFPA, 1993).

The proportion of the world's population living in urban areas, which was less than 5.0% in 1800 increased to 47.0% in 2000 and is expected to reach 66.5% in 2030 (UN, 1991). However, more than 90.0% of future population growth will be concentrated in cities in developing countries and large percentage of this population will be poor. In Africa and Asia where urbanization is still considerably lower (about 40%), both are expected to be 54% urban by 2025 (UN-Habitat, 1995 and 2002). Although urbanization is the driving force for modernization, economic growth and development; there is increasing concern on the effects of expanding cities principally on human health, livelihoods and the environment. The question that arises is whether the current trend in urban growth is sustainably considering the accompanying urban challenges such as unemployment, slum development, poverty and environmental degradation, especially in developing countries like Nigeria.

Nigeria, like most other developing countries, is experiencing unprecedented rates of urban growth. In the 1952 census, there were about 56 cities in Nigeria with population of about 200,000. Their combined population of 3.24 million was about 10.2% of the total population of 30.4million. This rose dramatically to some 19.1% of the nation's populations of 55.7 million in 1963. And it is been estimated that by the year 2020 more than 68% of Nigerians will be living under urban condition. Population increase accounts in part for the rapid expansion of cities. For example; the physical extent of Ibadan, the Oyo State capital was 103.8 km² in 1952. This increased to 136 km² in 1981, 210 km² and 240 km² in 1988 and 1989 respectively (Areola, 1994). By 2000, it had grown more than doubled, covering 400 km² (Onibokun and Kumuyi, 1996). This gives account of spatial expansion of Ibadan.

The physical growth of Ibadan is an example of urban expansion in Nigeria which leads to demand for peripheral land space for development. According to Gillham and Maclean (2002) there are four main characteristics of sprawl, which mirror the earlier definition given by Nelson, et al (1995). These characteristics are leapfrog or scattered development, commercial strip development, low density, and large expanses of single-use development. Leapfrog and scattered development go beyond the urban fringe to create built-up communities that are isolated from the city by areas of undeveloped land. In many ways, these can be seen as the most extreme examples of urban sprawl with a highly inefficient use of the land, and a greater need to build highways and other infrastructure to service the outlying areas.

Clarke (1975), in his book titled *Advance Geography of Africa*, identify three components of urban growth which include: the extension of built-up neighborhood into the peripheral areas, the natural increase in population, and the net immigration which lead to the extension of urban areas by centrifugal growth that swallow up the peripheral areas. Natural increase in population is a much overlooked factor in urban growth and expansion which makes demand for available peripheral space for development outside the city centre. Moniya settlement is gradually experiencing centrifugal expansion from the core of the city to the peripheral settlements. Following the urbanization process of Ibadan; the growth from the core towards Moniya provides a useful outline of that urbanization involves much more than mere increase in number of people living and working in towns and cities. It is driven by a series of interrelated processes of change in economic, demographic, political, cultural, environmental, social, and technological issues. It is also modified by local factors such as topography and natural resources that cause changes in pattern of land use, social ecology and the nature of urbanism in the built environment.

3.0 RESEARCH SETTING, MATERIALS AND METHODS

Akinyele is a Local Government Area in Oyo State, Nigeria. It is one of the eleven local governments that make up Ibadan metropolis. It was created in 1976, sharing boundaries with Afijio Local Government to the north, Lagelu Local Government to the east, Ido Local Government to the west and Ibadan North Local Government to the south. It occupies a land area of 464.892km² with a population of 211,811 on a density of 516 persons per km² which is subdivided into 12 wards. One of them is Moniya, the main focus of this study and the headquarters of the Local Government Area. It is located in ward 5 at the periphery of Ibadan, sharing boundaries with villages like Onilu, Asanmajana, Balogun, Aponmade, Alade, amongst others.

The city of Ibadan is known to be the third largest metropolitan area in Nigeria after Lagos and Kano. This is because it is one of the fastest urbanizing cities in Nigeria. The increase in urbanization is attributed to the provision of better economic opportunities due to setting up of factories and industries, which has led to migration of population from rural regions to the city. As a result, people spread to the peripheral areas of the urban fringes. This spread is not properly planned; it looks haphazard thereby causing a lot of health and environmental disturbances to the community. The most versatile land use in Moniya is purely residential. However, few pieces of land were found scattered around the area on which crops are cultivated as secondary means of livelihood for the residence.

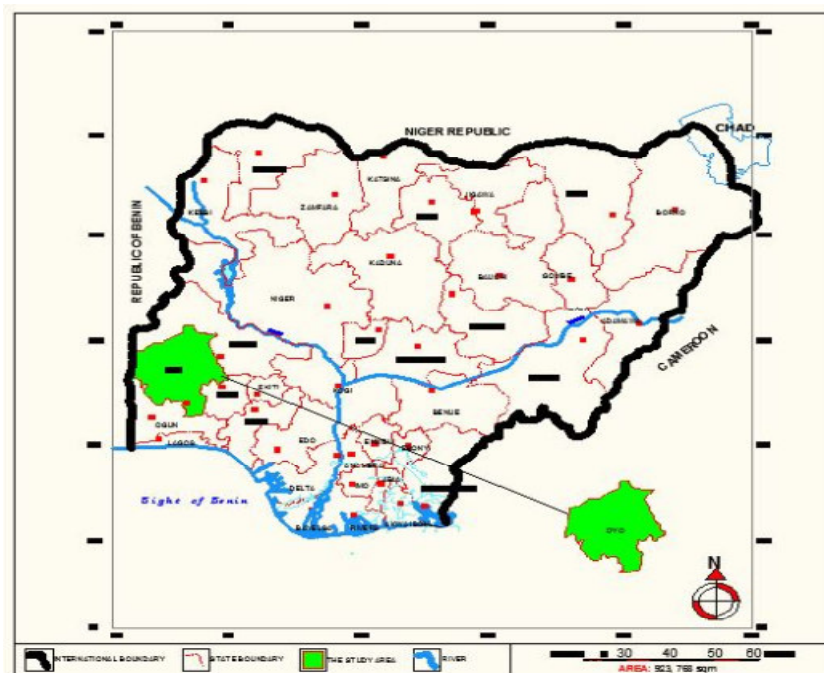


Figure 1: Map of Nigeria Showing Oyo State

Source: Google Earth, 2012 (Reproduced by Authors in AutoCAD version)

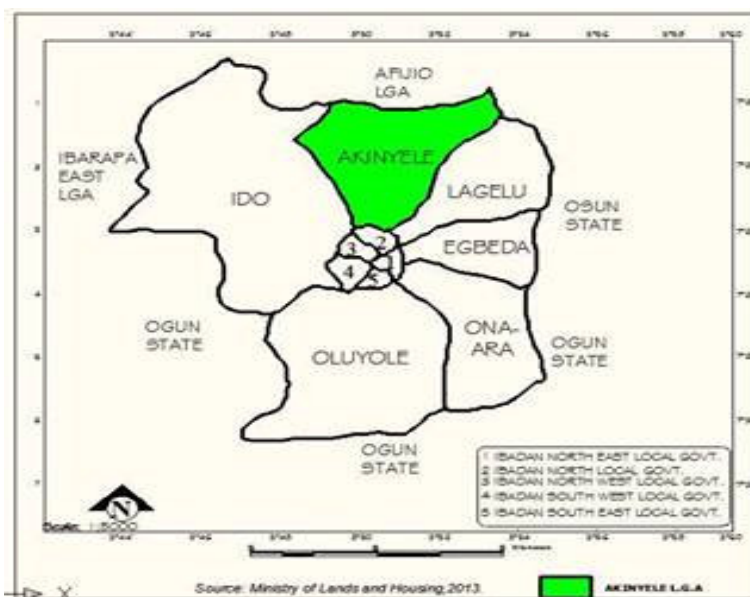


Figure 2: Map of Ibadan metropolis showing its 11 Local Govt Areas.

Source: Oyo State Ministry of Lands and Housing, Ibadan (2013)

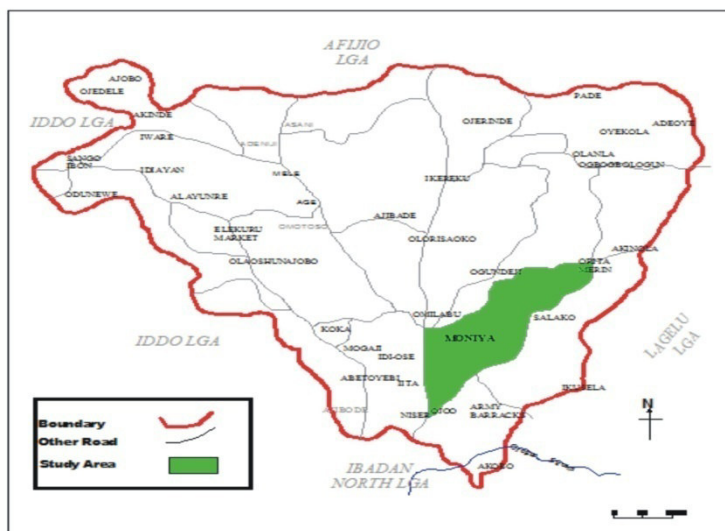


Figure 3: Map of Akinyele LGA showing Moniya (The Study Area)

Source: Oyo State Ministry of Lands and Housing, Ibadan (2013)

There are some educational institutions in the study area which is either privately or publicly owned. Light industries are found in the area too such as small block molding industries, local food processing industries, among others. Commercial activities take place along the major route with some locks-up shops and markets where farm products are sold. The Lam Adeshina Cattle market located in the town serves as a prominent feature that attracts people to the area.

Data collection for this study was essentially through personal interviews, questionnaires administration, field photograph and observation. Other sources include government ministries and establishments, journals, textbooks and internet facilities. The questionnaires were administered using Systematic Random Sampling Technique on 185 respondents, a 10.0% sample of the total population of the study area. Data collected were analyzed and interpreted using a descriptive Statistics Package for Social Scientist. Results were finally presented in form of tables, charts and photographs.

4.0 RESEARCH FINDINGS AND DISCUSSION

Research findings in this study are discussed under different sub-titles as follows:

4.1 SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENTS

❖ Age, Sex and Marital Status of Respondents

There is predominance of youth residents in the community. The age composition of the community revealed that 38.9% are between 18-25years, 20.5% between 26-35years, 36.2% between 36-45years and 4.3% between 46-65years. With this distribution, 54.1% of the population is male while 45.9% are female. This implies that the community has able men that can be utilized in the labour force. From Table 1 below, it indicates that about 40.5% of the community is single while 59.5% are married. Majority of the residents are married. This implies that there could be high natural growth rate of the population because majority of the inhabitants are still active in procreating.

Table 1: Age, Sex and Marital Status of Respondents

Variable	Frequency	Percentage
Age Distribution		
18-25 years	73	38.9
26-35 years	38	20.5
35-45 years	67	36.3
46-65 years	08	4.3
Total	185	100.0
Sex Distribution		
Male	100	54.1
Female	85	45.9
Total	185	100.0
Marital Status		
Single	75	40.5
Married	110	59.5
Total	185	100.0

Source: Field Survey, 2012

❖ **Occupation and Income Structure of Respondents**

Out of the total number of the respondent sampled, it was gathered that 39.56% were farmers, 31.87% were traders, 16.97% were self employed, 7.20% were civil servant, 4.40% were unemployment. This shows that most of the respondents are farmers. Figure 3 shows the monthly income of the respondents that were surveyed. The survey revealed that 47.46% of the residents earn between N20,000-N59,000 monthly; 43.96% earn between N60,000-N99,000; 6.59% earn below N20,000 while 1.99% earn N100,000 and above.

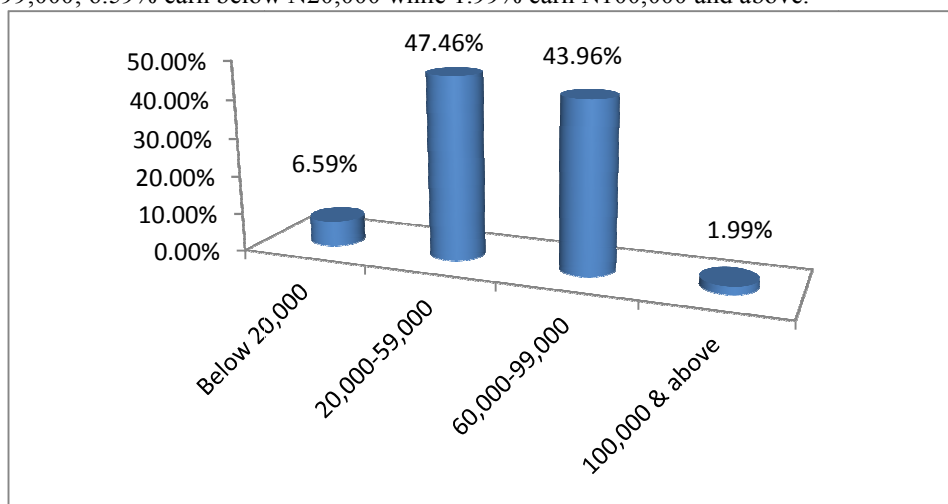


Figure 3: Monthly Income of Respondents

Source: Field Survey, 2012.

❖ **Educational Status and Household Size**

Survey revealed that 54.95% of the residents have no formal education, 31.16% have Primary School Leaving Certificate while 9.89% have secondary education. This shows that majority of the resident have only primary school education. There is neither an adult literacy school nor a vocational training centre in this community. This is a notable index of rural settings which has great consequences on their socio-economic characteristics. Survey on household size of respondents show that 44.73% has between 6-10 persons, 30.72% has 10 and above persons, 21.25% has between 3-6 persons, while 3.30% has less than 3 persons. This goes a long way to reflect that Moniya is a high density area as the high household size is a reflection of the overall population of the study area.

4.2 INDICES OF POOR ENVIRONMENTAL QUALITY OF MONIYA

The survey carried out revealed Moniya as a typical slum community with following attributes:

▪ **Inadequate Basic Services**

Survey shows that Moniya lack basic services that are essential to sustainable healthy environment. These services include access to sanitation facilities, safe source of water supply, electricity supply, improved surface road conditions, and dominance footpaths in the neighborhood.

▪ **Substandard Housing and Derelict Structures**

There is high number of substandard buildings in the community, constructed with low quality and non-permanent materials unsuitable for urban housing such as mud blocks, iron sheet, strips of timber, etc as shown in Plate1 below. Various space and dwelling placement bylaws are extensively violated as seen in leapfrog pattern of development in the study area.



Plate 1: Archetypal example of buildings predominant in the study area.

Source: Field survey, 2012

▪ **Overcrowding and Congestion**

Overcrowding in the study area is as a result of low space per person, high occupancy rates, cohabitation by different families and a high number of single-room units. The dwelling units in the study area are overcrowded with five or more persons sharing a room or a one-room unit used for multiple purposes like cooking, sleeping and as well used as living room. Cheap housing is one factor that attracts people into the area. This is because there are cheaper lands and housing in the suburbs as compared to what obtain in urban centers. Household accommodation in urban centres cost very high compared to those in the suburbs owing to rise in land value which makes purchase, mortgage rental rates higher. This has lured many to settle in this area. Also, from personal interviews conducted and observations made, it is evident that migrants came into this area due to the fact that they were herdsmen. This was as a result of the presence of agriculturally rich environment from which animal can graze sufficiently.

▪ **Unhealthy Living Conditions and Hazardous Locations**

These are associated with air pollution, water pollution, overcrowding and poor ventilation. In the study area, unhealthy living conditions associated with the lack of basic services coupled with visible open sewers, uncontrolled dumping of wastes, and polluted environments, among others are predominant. Houses are built on hazardous locations or lands unsuitable for settlement, particularly in areas prone to severe erosion. The layout of the settlement is hazardous because of lack of access ways to buildings and lack of airspace (or open spaces) around buildings.

▪ **Insecure Tenure, Irregular or Informal Settlements**

There is existence of squatter settlements, meaning that it is a typical slum area. Informal or unplanned settlements were identified in the study area. Many definitions emphasize both informality of occupation and the noncompliance of those settlements; but essentially, they lack land-use plans and structurally at variance with planning standard.

▪ **Poverty and Social Exclusion**

Income and standard of living of residents in the study area are very low; hence, they are characterized with high poverty rate. This constitutes barriers for residents to improve their physical environment. Thus, the environment deteriorates and breed atmosphere that encourage slum development.

4.3 CONDITION OF HOUSING AND INFRASTRUCTURAL FACILITIES

4.3.1 Housing Condition

The quality of housing in the study area, as shown in Table 2, is very low due to poor quality of building materials used for construction, the inadequate technology, and poor planning standard in handling the building components. About 29.89% used mud material for constructing their buildings, 1.10% used timber, 45.82% used sun dried blocks and 23.19% used cement blocks. Sun dried blocks and mud accounts for the highest material used for building in the study area. Only 7.69% of buildings are in good condition (see Plates 2a and 2b).

Table 2: Building Characteristics in the Study Area

Materials used for construction	Frequency	Percentage
(a) Walling – Mud	55	29.89
- Mud/Sun dried blocks	85	45.82
- Cement blocks	43	23.19
- Timber	02	01.10
Total	185	100.0
(b) Roofing –Zinc/corrugated iron sheet	177	95.7
- Aluminum roofing	08	2.4
Total	185	100.0
Physical Condition – Good condition	14	07.69
- Fair condition	48	26.02
- Poor condition	89	48.02
- Dilapidated	34	18.27
Total	185	100.0

Source: Field Survey, 2012



Plate 2a: Typical Housing and Environmental Condition in the study area.

Source: Field Survey, 2012



Plate 2b: Showing Buildings without setback in the study area.

Source: Field Survey, 2012

4.3.2 Condition of Infrastructural Facilities

❖ Source of Water Supply

Findings shows that 63.74% get water from hang-dug well, 10.68% pipe borne water and 25.58% from borehole. It can therefore be concluded that hand-dug well is the main source of water supply in the environment. This situation does not guarantee adequate supply of good quality water in the area. Most of the wells are located in unkempt surroundings, some of which are without cover while the water is used raw without treatment. Areas where there is evidence of bore holes, they are not functioning (see Plates 3a and 3b). The rain water used as substitute during raining season has the possibility of being contaminated as majority of the roofing sheets are rust and dirty.



Plate 3a: An uncovered hand-dug well.
Source: Field survey, 2012



Plate 3b: A non-functional borehole in the Study Area
Source: Field survey, 2012



❖ **Toilet and Bathroom Facilities**

About 62.24% use pit latrine in their homes, 32.78% use aqua privy while 8.9% use water closet. This shows that the use of pit latrine is dominant in the study area. Plate 4a and 4b show a typical example of this primitive method used for faecal waste disposal, the condition of septic tank of most of the WC system and types of bathroom facility predominantly used in the area.

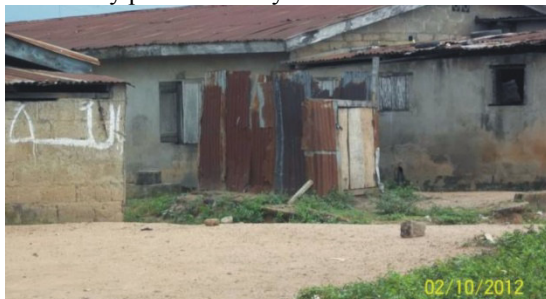


Plate 4a: External pit toilet and bathroom
Source: Field Survey, 2012



Plate 4b: Showing dilapidated Septic Tank
Source: Field survey, 2012

❖ **Source of Electricity Supply**

Survey on source of electricity supplied to the area shows that majority (about 56.8%) depends on PHCN which is not regularly available. Over 90% of sampled respondents responded that they experienced poor and incessant supply of electricity to the area. Other source used as alternative is either generator or hurricane lamp.

❖ **Condition of Drainages**

Investigation on drainage condition reveals that 60.44% is in a very poor condition, 21.98% is in a poor condition and the remaining 17.58% is in average condition. This implies therefore that the condition of drainage system in the environment is generally very poor as shown in Plate 5.



Plate 5: Showing dilapidated & damaged drainage System in the study area

Source: Field survey, 2012

❖ **Method of Waste Disposal**

About 67.03% of respondents dispose their wastes in open space (dump sites) while 32.97% burn theirs. The modern system of waste disposal by the Waste Management Authority is yet to be embraced in the area. This reveals the primitive method used in the area as shown in Plate 6.



Plate 6: Indiscriminate disposal of solid wastes in open spaces in the study area

Source: Field survey, 2012

❖ Health and Educational Facilities

There is a basic health center in this community being a local government headquarters, but in dearth of essential facilities. There are other available privately owned health institutions such as clinics and maternity homes, only that they are poorly staffed. Educational facilities too in the area are mostly primary and secondary schools which majority is not in good condition. Example is shown in plate 7.



Plate 7: Condition of Educational Facility in the study area

Source: Field survey, 2012

❖ Condition of Access Roads

Road accesses to buildings in the area are mainly through footpath as revealed by 71.43% respondents while only 28.57% access their buildings by road. The conditions of these roads are in sorry state as majority of them are not motor-able. See examples in plate 8.



Plate 8: Condition of Access roads in the study area

Source: Field survey, 2012

5.0 POLICY IMPLICATIONS AND RECOMMENDATIONS

It is obvious from the survey carried out that the underline factors to the deterioration of physical conditions of Moniya community are largely related to lack of both technical and social facilities, security of tenure, deterioration of building quality and overcrowding. It is therefore imperative to put up some policy recommendations that are necessary for the improvement of the study area. Such policies, according to Onokeroraye and Omuta (2000) cited in Owoeye (2012), are classified into two categories - short and long term policies. The short term policy relates to various developmental programmes aimed at upgrading the physical environment of any deplorable area. The aim of this policy is to provide decent and adequate housing units as well as healthy environment for dwellers of degraded neighborhood. This involves total redevelopment, rehabilitation and renovation approaches. The second category which is long-term renewal strategy focused on methods to prevent slum formation and development. Issues addressed here relates to urban employment generation, otherwise known as *Economic Revitalization*. Onokerhoraye (1995) argued that the quality of life

and urban environment cannot be significantly improved in Nigerian cities without increasing employment opportunities for urban dwellers. It therefore stands as mean of alleviating poverty rate in our cities. Other issue considered by the approach includes reduction in urban rate of population growth as a way to reduce overcrowding and high resource pressure.

After due consideration of the characteristics and potentials of the study area, including source of funds to undertake any gigantic project in the study area; upgrading programme through rehabilitation/renovation approach, provision of urban basic services and employment generation are considered suitable for the area. This simply has to do with rejuvenation of the affected parts of the area by retaining those structures that are retainable, rehabilitating some old buildings and structures, upgrading the roads particularly the un-tarred ones and opening up the blighted areas. It also involves improving the existing infrastructural facilities as well as providing new ones with a view to improving the structural quality and aesthetics of the environment. However, the aspect of job provision cannot be neglected. Government should make concerted efforts to create jobs for the unemployed through revitalization of moribund local industries (or establishment of new ones) like cassava processing, tie and dye, laundry, bakery, and block making industries among others. Besides, access to loans should be granted in addition to provision of vocational skill acquisition schemes, which can be achieved through public-private partnership initiatives. This has the potential of re-orienting the people and revitalizing their economic base which is believed will offer them privileges to meet their basic needs and invest in the improvement of their dwellings.

As suggested in Owoeye and Omole (2012) and Owoeye (2013) in their studies on Akure urban development; effective and enforceable environmental policies may be difficult to develop and implement in many sub-Saharan countries including Nigeria, but this appear to be a viable solution if a country must be environmentally secured and its cities more habitable. In this wise, the re-introduction of the old sanitary inspectors is recommended as a sustainable strategy for any intending renewal and upgrading effort to be efficiently carried out and sustained in such deplorable area. Besides, residents of such area should be educated through enlightenment campaign program whereby they get acquainted with the benefits of healthy environments. Since poverty has the tendency to breed such activities that lead to slum formation and growth, the ongoing minimum wage increase is hereby recommended to be extended to all and sundry so as to reduce the high rate of poverty that ravage the inhabitants of the area.

ACKNOWLEDGEMENT

The commitment of Miss EKEKE, A.C. in collection of data used for this study is well appreciated.

REFERENCES

- Areola, O. (1994): The Spatial growth of Ibadan city and its Impact on rural Hinterland in *M.O. Filani, et al (Edited)*; Rex Charles Publication, Ibadan.
- Black, J. T. (1996): The Economics of Sprawl; *Urban Land*; 55(3), 52-53.
- Gilham, O. and Maclean, A. S. (2002): *The Limitless City: A Primer on the Urban Sprawl Debate*; Island Press, Washington DC.
- Mannion A. M. (1997): *Global Environmental Change: A Natural and Cultural Environmental History*; Longman Publication, Ibadan.
- Okafor, F.C. and Onokerhoraye, A.G. (1986): *Rural Systems and Planning for Africa*; University of Benin.
- Onibokun, A.G. and Kumuyi, A.S. (1996): *Urban Poverty in Nigeria: Towards Sustainable Strategies for its Alleviation*; Centre for African Settlement Studies and Development (CASSAD).
- Onokerhoraye, A.G. and Omuta, G.E.D. (2000): *Urban Systems and Planning*; The Geography and Planning Series, University of Benin, Nigeria.
- Osborn, F.J. (1965): Preface in *Garden Cities of Tomorrow*; Cambridge Mass Press.
- Owoeye, J.O. (2006): Analysis of Slum Formation and its Associated Effects on a Residential Core Area of Akure – M. Tech. Thesis submitted to the Department of Urban and Regional Planning, Federal University of Technology, Akure.
- Owoeye, J.O. (2012): *Slum Formation in Core Residential Neighbourhood of Akure, Nigeria*; Lambert Academic Publishing (LAP), Germany; <http://www.get-morebooks.com>.
- Owoeye, J.O. (2013): A Study on Environmental Habitability of Core Residential Neighbourhood in Akure, Nigeria; *American Journal of Research Communication*; 1(2): 140-153; www.usa-journal.com.
- Owoeye, J.O. and Omole, F.K. (2012): Analysis of Housing Condition and Neighbourhood Quality of Inner Residential Core of Akure, Nigeria; *Mediterranean Journal of Social Scientists*; Rome, Italy; <http://mjss@mcser.org/mjss>.
- UN-Habitat (2002): *Urbanization and Sustainable Development in the Third World: An Unrecognized Global Issue*; UN- Habitat Centre for Human Settlement, Nairobi.
- United Nations Development Programme (1995): *Human Development Report 1995*; Oxford University Press.

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:
<http://www.iiste.org>

CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

Prospective authors of journals can find the submission instruction on the following page: <http://www.iiste.org/journals/> All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

MORE RESOURCES

Book publication information: <http://www.iiste.org/book/>

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digital Library, NewJour, Google Scholar

