

Built Environment Decay and Health Situation of Slum Dwellers in Residential Cores of Akure, Nigeria

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The public worldwide is now fully aware of its health and life sustainability being put at greater risk with the present level of poor sanitary conditions of the built environment in most of our cities. In this paper, the sanitary condition of the built environment of residential core of Akure was investigated to establish its close relationship with the health situation of its dwellers. Some ecological data involving housing conditions, condition of sanitary facilities; especially the water supply source, sewage and refuse disposal methods, drainage system, kitchen and bathroom facilities were collected using questionnaire survey, personal interview, direct observation, demographic and facility survey. Data on health situation of dwellers were also collected from available health institutions around the place. The research population was based on total number of existing buildings from which a sample of 20.0% was taken for interview. Findings from the study reveal that environmental variables are significantly related to health situation of people in the area. The paper suggests some policy guidelines, including redevelopment (in some parts of the area), upgrading and provision of basic facilities through the UBSP scheme. Besides, regular sanitary inspection, public enlightenment and regular environmental campaign are recommended for sustainable management of the area. On implementation, the paper suggests that the local people should not be underrated; they should be involved in every phase of the project. It is also expected of the three levels of governments (local, state, and federal) to take active part in the programe particularly in the area of mobilization, training of staff and funding.

Keywords: built environment, decay, health situation, slum dwellers, residential core, sustainable management

Introduction

The built environment in many developing countries particularly Nigeria is fast decaying. The factors responsible can be traced to rapid urbanization, rural-urban migration, steady economic downturn, decay of urban infrastructure, poor quality of original construction, lack of integrated planning, negligent urban housekeeping, preservation of historic value, disaster and war (Omole, 2000; World Bank, 2005; Omole et al., 2006; Ahiamba et al, 2008).

Generally, developing countries today face greater urbanization challenges than developed countries. Developed nations urbanized at a comparatively leisurely pace. The United States, for instance, was 40% urbanized in 1930, 70% in 1960, and 75+% in 1990 (Dimuna & Omatsone, 2010). This gradual pace is in contrast with that of many developing countries. For example, the Republic of Korea was 40% urbanized in 1970 and 78% urbanized by 1990. What took the United States 90 years to accomplish took Korea only 20 years and Brazil 30 years (Henderson, 2002).

A study by the United Nations Center for Human Settlement (UN-Habitat, 2001) stated that nearly half of world's people now live in cities and more than one billion of the world's city residents live in inadequate or deficient housing simply because of rapid urbanization.

This problem is more felt in Africa, Asia and Latin America where half of the population are either homeless or living in houses which are dangerous to health and an affront to human dignity. Nearly 80.0% of the urban population lives in slums and squatter settlements without adequate water, lighting, sanitation and waste disposal (World Bank, 2005). In Nigeria, the rate of urbanization has witnessed tremendous increase in the last two decades. Various censuses conducted in the country reveals this tremendous increase. For instance, census conducted in the early fifties showed that there were about 56 cities in the country and about 10.6% of the total population lived in these cities. This dramatically rose to 19.1% in 1963 and 24.5% in 1985 (Ajanlekoko, 2001). Meanwhile, the last population census conducted in 2006 estimated Nigerian population to be 140 million with the urban population constituting about 35.0% (NPC, 2006). The urbanization process in Nigerian cities has not

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been accompanied with a corresponding supply of adequate housing, basic infrastructures and amenities. This has given birth to the development of shanty towns, informal settlements and slums as well as disorganized congestion and decline dilapidation of the environment. Another notable contributor to urban decay has always been the negligent urban housekeeping, and irresponsible civic management enhancing its spread. Continuous neglect will mean that physical decay of urban community will continue to stretch over the built environment with its attendant consequences of city decaying.

Theoretical Underpinning

This study adopts the concept of Sustainable Development as an operational framework that embodies the principles, ideals and values of the environment. This is seen as desirable and necessary if the world is to deal effectively with current global problems of the environment and development process. The concept express environment as the aggregate of the physical and biological entities outside of man that support the existence of human whether on land, in water or air (Osoko, 2000; Adedeji & Owoeye, 2008; Oriye & Owoeye, 2009). It is undoubtedly the very basis of human existence which has profound influence on the health, welfare and productivity of individuals thereby becoming a viable stimulant to national growth and economic development (WHO, 1987; Osoko, 2000; Brundtland, 2003). At such, health and environment should be seen as essential two inseparable parts of human development that cannot be upheld as though they operate in a vacuum.

Generally, there are two principal groups of environmental problems that are peculiar to high-density residential zone of a city. The first is the presence in the human environment of pathogens because of lack of basic infrastructure and services like sewers, drains or services to collect solid and liquid wastes and safely dispose of them. The second is crowded, congested and cramped living conditions in which the people live (UN-Habitat, 1989). It was further submitted that lack of infrastructure, readily available drinking water, sewerage connection (or other system to dispose human wastes hygienically), garbage collection and basic measure to prevent diseases and provide primary health care ensure many debilitating and endemic conditions among poorer households. Diseases include diarrhea, dysentery, typhoid, intestinal parasites, and food poisoning are very common in such environment. Most cities in Africa and Asia have no sewers at all. Human excrement and waste water are disposed in

rivers, streams, canals, gullies and ditches. Such constitute great danger to human environment (WHO, 2004; Oriye & Omole et al., 2011).

Brundtland (2003) identified six major classes of environmental risks to include inadequate access to safe drinking water, poor hygiene and sanitation, inadequate water resource management, air pollution (indoor and outdoor), chemical hazards and unintentional injuries. He reported that in 2000, an estimated 1.1 billion people lacked access to an improved water source. As at the 2003 when the study was carried out, about 2.4 billion people around the world do not have access to any type of improved sanitation facilities. Equally, air pollution was identified as a serious risk-factor for respiratory disease and a major contributor to ill-health among children around the world. From studies reported in WHO (2004); about 2 million children die each year from acute respiratory infections alone, with indoor air pollution from cooking and heating. Diarrhoea, a disease related to inadequate water and sanitation was identified the second biggest child killer, claiming about 1.3 million children each year.

It is clearly observed that most developing nations of the world are located in the tropics where communicable diseases are very rife. In view of this, various strategies are being adopted to improve the health of majority of the third world's population with the realization of the effect of various unseen factors. The mass eradication approach of small pox and malaria of 1950s had little effect on many killer diseases like measles, tuberculosis and diarrhoea. Further researches in the 60s and early 70s show some links between such factors as poverty, nutrition, environment, housing and health (Akinsola, 1993; Egunjobi, 2002). However, increasing number of health studies in the third world cities show the degree to which the lives of lower-income groups are dominated by ill-health, disablement or premature death. A review of nutrition and health by the World Health Organization stresses the extent to which poor urban groups suffer from very poor health. Infants in many illegal settlements are 40 to 50 times more likely to die before the age of 5 than infants born in a western country. For example the slums of port au prince, 200 infants are found dying per 1000 live births with another 100 dying before their second birthday (WHO, 1988; UN-Habitat, 1989). In Manila, the infant mortality rate in squatter communities is about three times the average of the rest of the city. The proportion of people with tuberculosis was nine times higher while diarrhoea was twice as common (Basta, 1977; Osoko, 2000). Due to these increasing trends, there have been tremendous efforts over the years by various administrations in Nigeria to improve the quality of sanitary conditions in our

urban centres. These actions resulted in the formation of various political legislations and edicts meant to control the indiscriminate and laissez-faire attitude of the people in abusing the environment. Prominent ones among these include Environmental Protection Decrees, both at Federal (FEPA) and state (SEPA) levels to perform such functions as ensuring proper waste disposal, provision of safe portable water, demolition of illegal structures, provision of adequate good shelter, and so on. All these are meant to improve the quality of life of the people through a clean and aesthetic environment. However, there are few studies which have tried to combine the traditional and modern environmental hazards as they affect the health of the poor in Nigeria. This paper therefore attempts to fill this hiatus in knowledge.

The Study Area

The rapid urbanization process in Akure has its own attendant consequences similar to those highlighted above, such as overcrowded dwellings, high rate of population growth, inadequate household facilities, and carefree attitude of people toward poor environmental conditions. Akure emerged as the capital of Ondo State as well as the administrative headquarters of the Akure Local Government Authority on February 3rd, 1976. This development made the town to assume the status of a metropolitan city. Like most other traditional centers in Nigeria, the city has continued to witness haphazard

development without conscious effort to physical planning. In spite of its many years of existence, the city has no physical development plan (Master plan) as different land-uses juxtapose each other in a reflection of its traditional setting before and during colonial administration. This has contributed in no small measure to the rapid decaying of the built environment in the city. Presently, the city is characterized by the proliferation of squalid and slum condition of environmental sanitation, overcrowded dwellings, poor waste disposal management, pollutions, inadequate water and unreliable power supply (Olanrewaju & Akinbamijo, 2002; Owoeye, 2006; Adedeji & Owoeye, 2008; Omole & Owoeye, 2011).

Thus, the sanitation coverage has not been able to keep pace with the urban population growth which has put the health of residents in greater risks. However, this paper attempt to investigate the impacts of built environment decay on the health situation of slum dwellers in Nigeria with a particular reference to residential cores of Akure. The areas involved include Araromi, Ojaoshodi, Isolo, Odokoyi and Ijomu as shown in Figures 1 and 2.

In the study, the condition of residential environment and sanitary services available in the core of the city were examined as well as various sanitary problems and hazards experienced in the area. The general cause-effects were investigated while possible solutions were proffered in the form of policy-guidelines and recommendations.

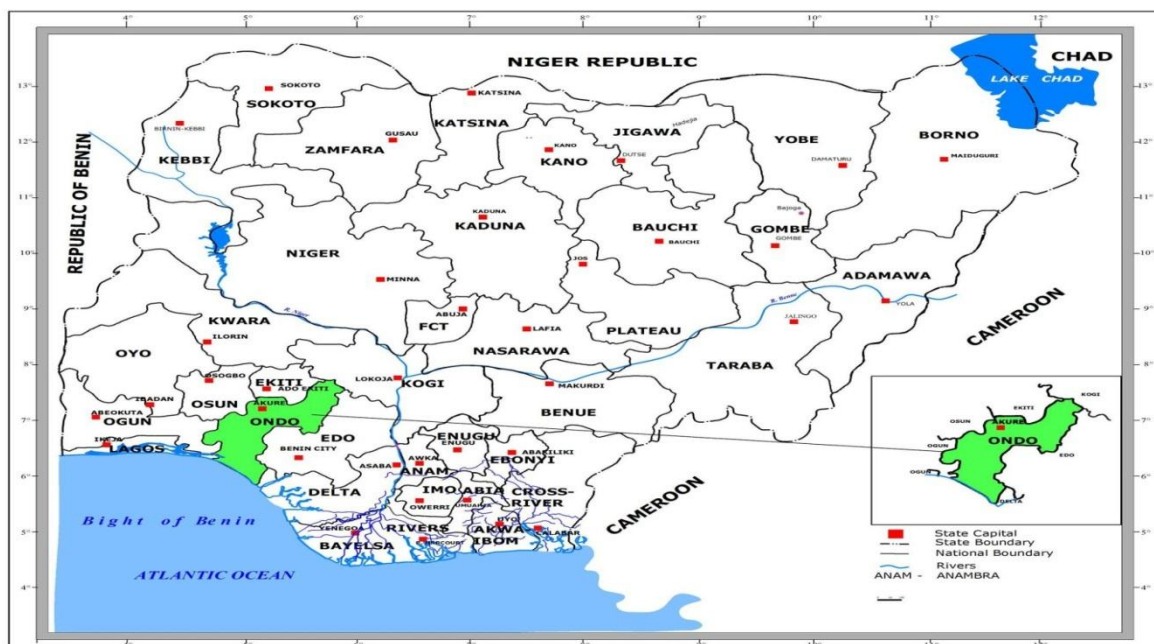


Figure 1. Ondo state map in the national settings; Source: Ondo State Ministry of Lands and Housing, Akure; (2010)

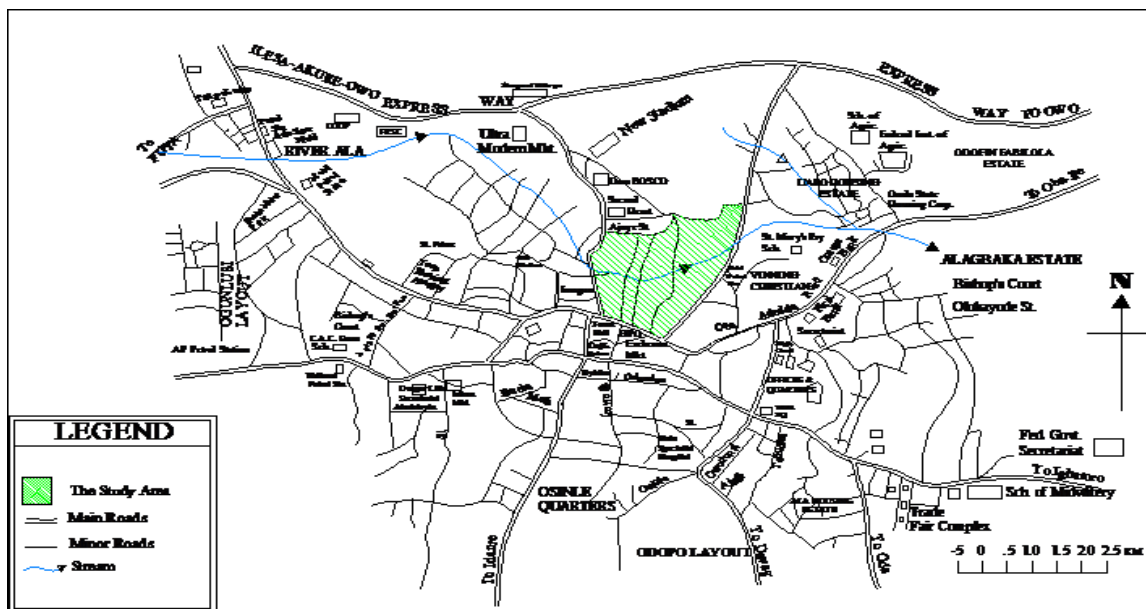


Figure 2. Map of Akure showing the study area. Source: Ondo State Ministry of Lands and Housing, Akure; (2010) (Digitized by the Author in AutoCAD version).

Methodology

Before the survey proper, an intensive reconnaissance survey was carried out in the area. The major facilities in the area were mapped out, the area demarcated into zones for the purpose of enumeration of all the existing buildings and the major streets were identified for the purpose of the survey. Copies of questionnaires used were pretested and amended before the final survey was carried out.

Collection of data for this research involved both primary and secondary sources. The primary source includes direct observation, questionnaire administration, housing demographic and facility survey while the secondary data on health records; especially cases of prevalent diseases in the study area which were sourced from the few available health institutions in the area. This supplement the information given by the residents on the perception of their environment and various environmental related problems experienced in the area. To have an unbiased representation of the study area, the existing buildings in each of the five neighbourhoods involved were counted, which added-up to 1306 on a land expanse of about 3.6Km². Out of these, 1258 are residential which form the target population. From this, a sample size of 20.0%, amounting to 250 was selected through a systematic random sampling technique. The questionnaires were administered mainly to the heads of the selected households. Precisely only 230 of the 250 questionnaires

distributed were retrieved in usable form which was used for the data analysis.

Research Findings

The research findings are discussed under two broad sections, which help to establish the relationship of environmental factors with health of residents in the study area.

Environmental conditions

The environmental variables considered here for the purpose of this study focus on housing characteristics measured by the condition and age of buildings, water quality measured by the sources of water supply, sanitary conditions measured by the types of toilet and methods of refuse disposal. The condition of bathroom and kitchen services as well as the condition of drainage and household facilities were equally investigated.

The quality of housing in the study area is generally low due to poor quality materials used for construction, the inadequate technology and poor housing standard of handling the building components. About 79.0% of the buildings are constructed with mud materials while only 21.0% are made of cement blocks. About 97.8% of the sampled building has zinc materials while only 2.2% is made of asbestos materials. This shows that the level of technology of building construction in the area is

rudimentary. The assessment of the level of maintenance also reveals that over 80.0% need repairs, which could be either minor or major repairs out of which 18.3% are completely old and dilapidated. Only about 15.2% exhibit evidence of physical soundness

Table 1. Building characteristics.

Variables	Frequency	Percentage
Material Used for Construction		
(a)Walling – Mud/mud blocks	182	79.1
-Cement/sand-crete blocks	48	20.9
Total	230	100.0
(b)Roofing–Zinc/corrugated iron sheet	225	97.8
-Asbestos Materials	05	2.2
Total	230	100.0
Structural Condition		
Physical soundness	35	15.2
Need minor repair	80	34.5
Need major repair	73	31.7
Old and dilapidated	42	18.3
Total	230	100.0
Age of Buildings		
Below 10 years	11	4.8
10 – 19 years	13	5.7
20 – 29 years	18	7.8
30 – 39 years	55	23.9
40 years and above	133	57.8
Total	230	100.0

Following the submission of Fadamiro (2002) which establishes the average lifespan of traditional mud buildings to be 50years, over 80.0% of the buildings in the study area are to be considered old and aged. Only 10.5% of the total housing stocks in the area are buildings of recent construction, which are just below 20 years. Thus, a large proportion of the housing stocks in this area have low relative habitability which has direct effect on the state of health, socio-economic well-being and emotional stability of the residents.

The main source of water supply in the area is through hand-dug well. This accounts for 85.7% of sampled buildings, some of which are not ringed and the water are not treated before used. Just about 14.3% get theirs through taps, which are not regularly available. With this prevailing situation of water supply in the area, quality water supply cannot be guaranteed. It exposes the people to a greater risk of contacting serious water borne and other health related diseases.

Findings reveal that pit latrine is rampant in the area which accounts for about 62.2% as shown in Table 2. Only 10.9% used modern day WC while a whole 23.9% do not have provision for it at all. Such people make use of mobile pail (4.8%), bush or

dunghills (11.3%), stream and drainage channels (7.8%) or squatting in the neighbouring buildings. Without any doubt, this condition has innumerable attendant problems it contributes to the deplorable condition of the area and, consequently, the ill-health of individuals. It makes the area look ugly, stinking and unattractive as well as making the possibility of epidemics becoming rife. The condition of refuse disposal is generally absurd in spite of government efforts to control indiscriminate refuse disposal. Over 30.0% dispose their refuse indiscriminately; out of which 11.7% burnt theirs within the residential environment thereby generates air pollution to the surroundings. Some dispose theirs at road sides and gutters where nobody cares for them. Such hamper the free flow of run-off and constitute comfortable breeding grounds for flies, mosquitoes, rodents and other health infested animals that could contribute to the spread of diseases. Liquid wastes too are poorly managed as waste water from bathrooms, kitchens and laundries are not properly directed into drainages. They constitute standing water all over the places that affords breeding ground for mosquito and flies as well as foul smelling water that creates swimming ponds for pigs and ducks. A good number of houses interviewed have bathroom facilities, only that majority is either substandard or inconveniently located. Such are located outside the main buildings without drainage. About 10.0% have no provision for this facility at all. They only share with the nearest buildings.

Table 2. Condition of household facilities.

Variables	Frequency	Percentage
Waste Disposal (Toilet)		
Pit latrine	150	65.2
Water closet	25	10.9
Bucket latrine	11	4.8
Bush / dunghills	26	11.3
Streams and Drainage	18	7.8
Total	230	100.0
Bathroom facilities		
Indoor – Self contained	10	4.3
-Shared	124	53.9
Out-door – open court yard	73	31.7
None (Not available)	23	10.0
Total	230	100.0
Kitchen facilities		
Indoor- Self contained	12	5.2
- Shared	145	63.0
Outdoor –open courtyard	65	28.3
None (Not available)	8	3.5
Total	230	100.0
Waste Disposal Facilities		
Free Range @Road sides	4	1.7
@Open space	49	21.3
Controlled Tipping	150	65.3
Incinerating / Burning	27	11.7
Total	230	100.0

Drainage facility is lacking in some parts of the area. Where they are provided, they are being misused with human defecation and constantly blocked by garbage and household wastes which increase the rate of flooding into premises of buildings. The use of firewood and charcoal energy for cooking is prevalent. This account for over 80.0% of the household interviewed. Only about 5.2% make use of kerosene stoves as supplement. About 60.0% confessed that their household facilities are not adequate, 37.0% fairly adequate while only 3.0% can cope satisfactorily with the level of household facilities provided in their dwellings.

Health conditions

Figure 3 describe the situation of various diseases and health problems experienced in the study area. The most prevailing disease in the area is malaria, closely followed by typhoid fever. The causative factors identified include inadequate sanitary facilities (57.4%), poor water supply (14.8%), dirty environment (14.8%), overcrowding and congestion (12.2%) as well as poor drainage system (0.9%). Meanwhile, the condition of health facility in the area is far below satisfaction. About 73.9% of the residents indicated non-availability of health institution within their reach. They are either located farther away from their dwellings or completely absent. Only 26.1% can be sure of having at least a chemist store or mini health clinic within their neighborhoods.

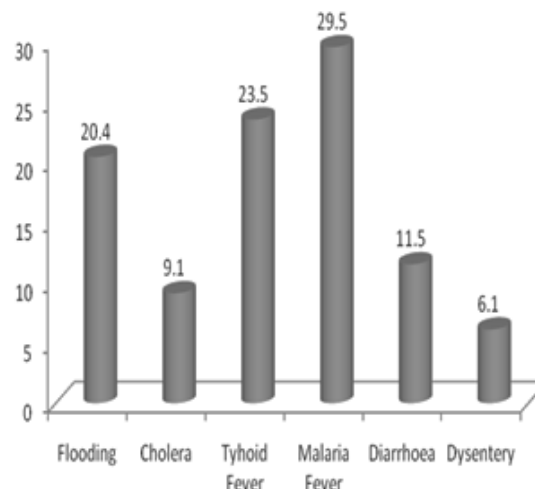


Figure 3. Environmental related problems and diseases experienced in the study area

The correlation analysis computed to investigate the relationship between environmental variables and health condition of residents show a negative but significant association of -0.158 . This confirms that residents of high-density residential areas such as slum and squatter communities suffer from environmental hazards occasioned by such factors examined in the study. It implies therefore that as these factors increase in number and intensity so the condition of health of residents degenerates. The correlation matrix for this analysis is shown in Table 3.

Table 3. Correlation matrix.

		Environmental variables	Health variables
Environmental variables	Pearson correlation	1.000	-.158*
	Sig. (2-tailed)		.016
	N	230	230
Health variables	Pearson correlation	-.158*	1.000
	Sig. (2-tailed)	.016	
	N	230	230

*Correlation is significant at the 0.05 level (2-tailed).

Summary and Policy Implications

This study has identified environmental health-risk factors experienced by the residents of high-density communities in Nigeria as epitomized in a residential core area of Akure. However, the followings are some of the policy implications of this paper. The first to be considered is the need for quality housing and hygienic environment. To achieve this, extensive redevelopment and upgrading programmes through the provision of urban basic services are essential in

the area priority should be given to provision of portable water disposal facilities, and proper maintenance of drainages. Sanitary inspections should be regularly carried out on provision of household facilities with the enforcement of environmental sanitary laws. Adequate funding should be given to Waste Management Authority for effective service as well as improved health facilities in the Area. Generally, poverty tends to breed poor environmental and unhygienic conditions that have great impact on human health. This is because the

poor are incapable of paying for the required amenities for a healthy living, most especially, quality housing thus they become vulnerable to health hazards. To avert this situation and ensure good environmental standard, the ongoing national policy of sustainable minimum wage should be extended to all and sundry. Besides, public enlightenment and environmental education would be necessary to keep the people well informed about the importance of healthy and hygienic environment. There is only one choice to make and that is preservation and proper management of our environment in such a way that it can be useful for the future generation. It is often said that health is wealth. The most promising area where the greatest impact can be made in combating the disease burden in our environments and ensure a stable healthier and longer lifespan for people surely lies on investment in environmental sanitation, good housing condition and sound health. Adequate plans should be made therefore to involve stakeholders, individuals and governments (local, state and federal) to redeeming the image of deplorable parts of our cities and rescue the lives of the poor residents.

References

- Adedeji, Y.M.D & Owoeye, J.O. (2008). Environmental sanitation and the health of Slum Dwellers in Akure: *Knowledge Review (a multidisciplinary Journal)*; National Association for the Advancement of Knowledge, University of Benin, Benin-City, Nigeria; 17(2), 57-67.
- Ahianba, J.E; Dimuna, K.O & Okogun, G.R.A. (2008). Built Environment Decay and Urban Health in Nigeria: *Journal of Human Ecology*; 23(3), 259-265.
- Ajanlekoko, J.S. (2001). *Sustainable housing development in Nigeria– The financial and infrastructural implication*. Paper presented at the International Conference on Spatial Information for Sustainable Development; Nairobi, Kenya.
- Basta, S.S. (1997). Nutrition and health in low-income urban areas of the Third World: *Ecology of Food and Nutrition*, 6(2),113-124.
- Akinsola, H.A. (1993). *A to Z of community health and social medicine in medical and nursing practice* (with special reference to Nigeria); 3 AM Communications, Ibadan.
- Brundtland, H. G (2003). *Start new movement to address environmental crisis affecting children's health*. A paper delivered at the launch of World Health Day, New Delhi, India. Retrieved from <http://whosea.org/en/section260/section484>.
- Dimuna, K.O & Omatsone, M.E.O. (2010). Regeneration in the Nigerian urban built environment, *Journal of Human Ecology*, 29(2), 141-149.
- Egunjobi, T.O. (2002). *Environmental health sanitation in Ibadan City: Urban health in the Third World*; A.P.H Publishing Corporation, New Delhi
- Fadamiro, J.A. (2002). An appraisal of architectural principles in the provision and maintenance of affordable rural Housing: *Journal of Rural Environment and Sustainable Development*; Department of Geography and Planning Science, University of Ado-Ekiti, 112-116
- Henderson, J.V. (2002). Urbanization in developing countries. *World Bank Research Observer*, 17(1), 89-112.
- NPC. (2006). National Population Commission of Nigeria: Provisional Population Figures, Nigeria.
- Olanrewaju, D.O. & Akinbamijo, O.B. (2002). Environmental health and target audience: A programmatic panacea for poverty alleviation in Nigerian cities: *African Journal of Environmental Studies; Development Africa consortium*; 3(2), 82-89.
- Omole, F.K. (2000). *Urban renewal process: Issues and strategies*; Concept Books and Publication Company Nigeria Limited, Lagos.
- Omole, F.K & Owoeye, J.O. (2011). Slum characteristics of deplorable residential district of Akure: *FUTY Journal of the Environment*, 6(2)
- Ondo State Ministry of Lands and Housing, Akure. (2010). Maps of Ondo state in the national setting and Akure showing the Study Area, Nigeria
- Oriye, O. & Owoeye, J.O. (2009). Combating environmental health-risk factors in a high-density residential district of a Medium City in Nigeria: *Journal of Geography, Environment and Planning*, 5(2), 52-58.
- Osoko, O.S. (2000). *Environmental sanitation and the health of the People of Ogun State: A Case Study of Abeokuta*, Unpublished MURP Dissertation; CURP, University of Ibadan, Nigeria.