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Original Research Paper

Urbanization and its Environmental impacts in Nigeria: Implications for Sustainable Development. (A case study of Ado-Ekiti)

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Nigerian cities are witnessing high rate of environmental deterioration and are rated among urban areas with the lowest livability index in the world. It is estimated that between 20 percent and 30 percent of the urban population enjoy decent urban life in the country. This study was carried with the use of questionnaire to ascertain the level of environmental problems due to urbanization in Ado-Ekiti, Ekiti state. Analysis was carried out using Microsoft excel package. It was discovered that urbanization in Ado-Ekiti had resulted into urban slums, sprawl, decay of the inner core, and flooding of the city.

Keywords: Urbanization, Environmental problems, Urban slum, Urban sprawl, inner city, flooding.

INTRODUCTION

Urbanization is one of the most powerful and visible anthropogenic forces on Earth (Dawson *et al.,* 2009). Since the second half of the twentieth century, the world has experienced its fastest rate of urbanization, particularly in developing countries. In 1957, 30% of the global population lived in urban areas, in 2008, it reached 50% and an estimated 70% is projected to live in cities by 2050. Today there are over 400 cities in the world with populations of over 1 million) and in the foreseeable future, virtually all of the world's population growth will be absorbed by the urban areas of the less developed regions, whose population is projected to increase from 2.4 billion in 2007 to 5.3 billion in 2050. Therefore, urbanization has played an important role in the development and modernization of underdeveloped and developing countries, and increasing attention has been paid to cities and urbanization from scientists and policy makers over the last several decades (United Nation, 2007, 2008, 2010)

Rapid urbanization has greatly accelerated economic and social development, and global cities are engines of economic growth and centers of innovation for the global economy and the hinterlands of their respective nations but urbanization has also created numerous environmental problems ranging from the local to the global scale including increased air and water pollution and decreased water supply local climate alteration and increased energy demands, insufficient housing and sanitation facilities and traffic congestion and a major reduction in natural vegetation production and carbon storage/sequestration. Thus, the identification and assessment of environmental impacts as a result of modern urbanization have become a top priority and many recent studies have been conducted with the goal of better understanding the impacts and issues related to urbanization as a catalyst for sustainable development (Cui, L., & Shi, J. 2012).

The environment surrounds and affects man, man also affects the environments. The word environment means many things to different people. However, it suffices to say that the environment is made up of both biophysical and socioeconomic elements. These include air, water, plants, animals, but also other natural and man-made or modified features, which constitute the totality of our surroundings. In view of the fact that man affects the environment the responsibility of taking purposeful collective action, which may harmonize human existence with the rest of the environment falls on the man. As a result of rapid urbanization and industrialization, there is an increased demand for goods and land services, thereby leading to irreversible changes in the physical landscape. According to Akintola (1978), the two most problems associated with urbanization are flooding and

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pollution. Construction on flood prone areas and waterways lead to flooding, many urban poor cannot afford decent home, hence they live in temporary structures that are usually filthy. The demand for infrastructure, houses and land surpasses supply, thereby leading to congestion and environmental degradation.

1.1 Conceptual Framework

The concept of environment (Singh, 2003) has been viewed from diverse perspectives and defined in various ways. The variety of definitions and conceptions of environment is closely linked to the fact that the study of environment is multi-disciplinary, and thus each discipline tended to develop and adopt definition(s) in line with its interest. This multiplicity of definitions, concepts and usage of the term environments in various disciplines was clearly captured by Porteous (1977:139) when he stated that:

> "The multiplicity of the usage and concept of the term environment have resulted in a variety of adjectival forms which include social environment, molar environment, physical environment home environment, psychological environment, behavioral environment geographical environment"

Sustainability in this context relates to the ability of the environment to meet the basic requirements for the sustenance of the living and non- living components of the ecological, economic and socio-cultural systems in a manner that does not limit the possibility of meeting the present and future needs of the various components and aspects of the environment. It can also be viewed as the carrying capacity of the supporting ecosystems (Marcuse, 1998). Evidences suggested that the prevailing global environmental degradation poses serious threat to sustenance of carrying capacity of the ecosystem (Marcuse, 1998; Peters, 2000); hence environmental sustainability has a taken priority position in housing, infrastructure provision, planning, land use and urban development among others (Salama & Alshawaikhat, 2005; Aribigbola, 2008). Although, Marcuse (1998) was of the view that sustainability should not be considered as a goal for housing or urban programs on the account that many of bad housing or urban programs are sustainable. However, recent development indicated that environmental sustainability is interwoven with urban development and housing programs (Peters, 2000; Aribigbola, 2008).

According to the Bruntland Report, sustainable development is "the development that meets of the present without compromising the ability of future generations to meet their own needs need development" (WCED, 1987). This suggests that the principal goal of sustainable development is meeting present human needs in such a way that will not jeopardize the potential of posterity to meet their needs. Viewed from a holistic perspective, Wiedenhoeft (1981) and Padisson (2001) noted that sustainable development entails the attainment of equilibrium among three contending sub-systems (economic, social-cultural, and environmental).

Urban areas as centres of arts, culture, education, entertainment, technological innovations, providers of specialized services and "economic engines" (Udeh, 1992; Okeke, 2002; Kadir, 2006;) are products of urbanization which come with far reaching economic, socio-spatial and health implications (Acho, 1998; Marmot, 2006). Adedeji (2005) noted that sustainable development as applied to urban areas is the ability of the urban areas and their regions to continue to function at levels of desired quality of life by communities without limiting the options available to the present and future generations and resulting in adverse impacts within and outside their boundaries. However, Peters (2000:1) noted that the ecological and sociological "footprint" of cities has spread over ever-wider area and that fewer places on the planet earth are unaffected by this phenomenon. Changes in the ecology of urban environment occasioned by increasing population, overcrowded habitations and uncontrolled exploitation of natural resources may account for this wide ecological footprint of urban areas which is not peculiar to developing countries (Hales, 2000). Hales, (2000) however, observed that the pace and scale of growth have outstripped the capacity to maintain acceptable standards of public health, environmental safety and sustainable economic growth in urban areas in less developed nations in Africa, Asia and Latin America.

Generally, environmental problems are mostly due to developmental processes and are of local, regional and global effects. These effects are viewed as consequences of human activities, and are most often harmful to human beings, livelihoods, animal and plant lives presently or transferred to posterity (Acho, 1998; and Mercado, 2008). This has far reaching implications for sustainable development, most especially in the face of declining economic fortunes. Therefore, urban environmental issues will continue to dominate the sustainable development agenda in developing nations in particular and the world in general in the next few decades.

1.2 Aim and Objectives

The aim of this study is to examine the impact of urbanization on the decadence of environment in Ado-Ekiti.

Objectives: The objectives of this study are the following:

a. To determine the effect of urbanization on slum and squatter development.
b. To examine the effect of urban sprawl on the decay of the inner city.
c. To evaluate the effect of urbanization on pollution of land, air, and water.
d. To determine the effect of urbanization on flooding.
e. To examine the effect of urbanization on the erosion.

1.3 Study Area

Ado-Ekiti is the capital of Ekiti State: Nigeria. It is the administrative centre of Ekiti State, Nigeria. The land in Ado-Ekiti rises Northwards from 335 metres in South East and attains a maximum elevation of about 730 metres in the Southwest (Adebayo, 1993). The low relief and gentle gradient characteristics of Ado-Ekiti region favors agriculture and construction activities. Ado-Ekiti is located between latitude 70311 and 70491 north of the equator and longitude 50111 and 50181 east of the Greenwich Meridian. It is bounded in the North by Ido – Osi and Oye local government Areas, in the West by Ijero and East West local government and in the South to Ekiti South West local Government Area (Ebisemiju, 1993). It has a planimetric area of about 884km2. Geologically, the region lies entirely within the Precambrian basement complex rock group, which underlies much of Ekiti State.

The temperature of this area is almost uniform throughout the year, with very little deviation from the mean annual temperature of 270C. February and March are the hottest 280C and 290C respectively, while June is the coldest with a temperature of 250C (Adebayo, 1993). The mean annual total rainfall is 1367mm with a low coefficient variation of about 10%. Rainfall is highly seasonal with well market wet and dry

season. The wet season lasts from April to October, with a break in August.

MAP OF EKITI

Fig i: Map of Ekiti State

MAP OF ADO EKITI

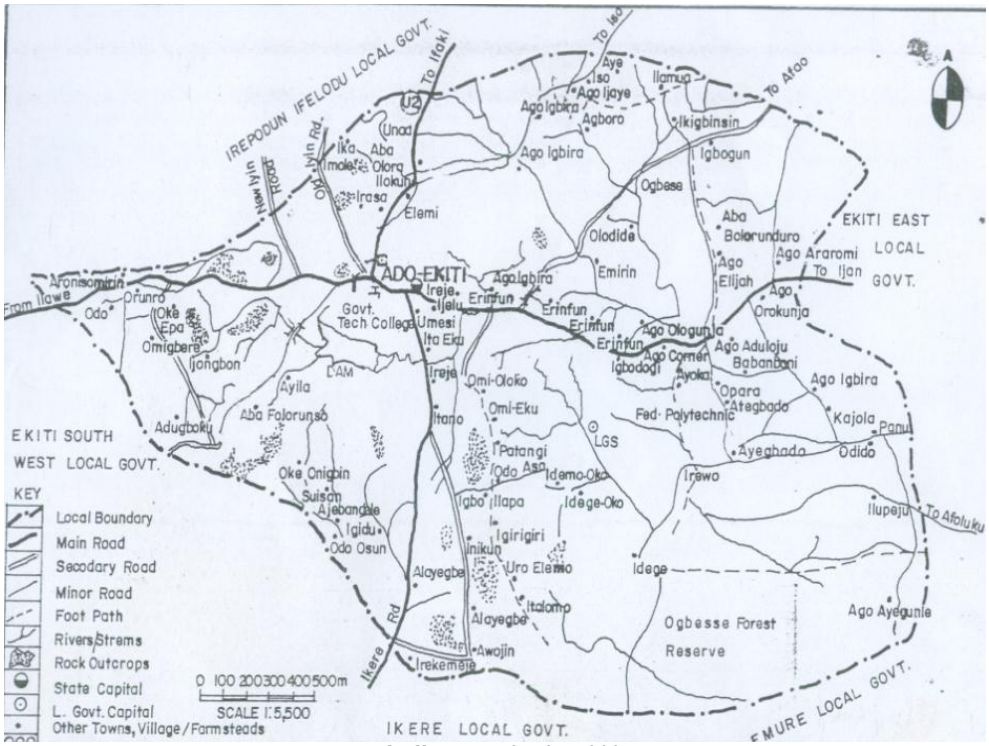

Fig ii: Map of Ado-Ekiti

1.4 Methodological Approach

Ado-Ekiti, the capital of Ekiti state was created from the old Ondo State, in 1996, and since then the city had experienced explosive and rapid development, also urban expansion. With the present area of 150km2, which have been growing about 4.5km2 and the population of about 2.5million people (National Population Commission, 2011). The resulting environmental and ecological consequences of urban sprawl have caused considerable concern and several studies have documented some environmental impacts of urbanization, for example, Odeyemi, 2007 explored the land-use and land-cover changes during 1956–2006, focusing on the impacts of the urbanization process on biodiversity.

Source of Data

The data for this study was secondary source, questionnaire (the questionnaire for this research was designed to address the issue of environmental problems in the area. The targeted population were Civil servant, Landowners and Traders. They were randomly sampled across the study area to have 250 sample size. Apart from these, data for this research were also generated from a related research and these are the Identification of expansion at 10 year interval, Increase in area of urban centre in Ado-Ekiti for each decade from 1956-2006, (Oriye, 2008).

Data Analyses

The data were analyzed by the use of Microsoft office excel package.

2.0 Result and discussion

Identification of the Expansion at 10 year interval

S/N	Year	Area of Ado Ekiti (km^2)	Area of urban centres (km^2)
1	1956	329.13	2.5
2	1966	329.13	6.9
3	1976	329.13	9.7
4	1986	329.13	13.3
5	1996	329.13	19.6
6	2006	329.13	36.7

Table 1: Expansion of Urban Centres in Ado-Ekiti and Depletion of Agricultural land at Ten Years Interval 1956-2006

Source: Oriye , 2008

Urbanization	Low	%	Ave	%	High	%	V.High	%	Total
Building concentration	0	0	10	4	68	27.2	172	68.8	250
Population concentration	0	0	5	2	88	35.2	157	62.8	250
Poor life among people	0	0	8	3.2	92	36.8	150	60	250
Dirtiness of neighborhood	0	0	12	4	75	30	165	66	250
Total	0		33		323		644		1000

Table2: Urbanization effects on Slum and Squatters

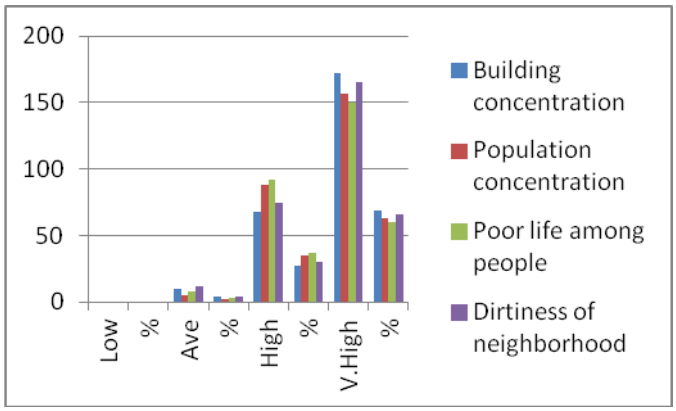

Fig 2: Urbanization effects on slum and squatters

In the figure 2, it was discovered that urbanization has led to the increase in dirtiness of the environment in the neighborhood. Also, it has led to more concentration of building which has resulted into slums and squatter; High population concentration which contributed to the poor life of people in the neighborhood.

Core city development	Low	%	Ave	%	High	%	V.High	%	Total
Infrastructure development	0	0	5	2	70	28	175	70	250
Concentration of commerce	0	0	5	2	80	32	165	66	250
Distrib. Of social amenities	0	0	6	2.4	75	30	169	67.6	250
Increasing in building cong.	0	0	8	3.2	85	34	157	62.8	250
Total	0		24		310		666		1000

Table 3: Sprawling of building on the decay of Inner city

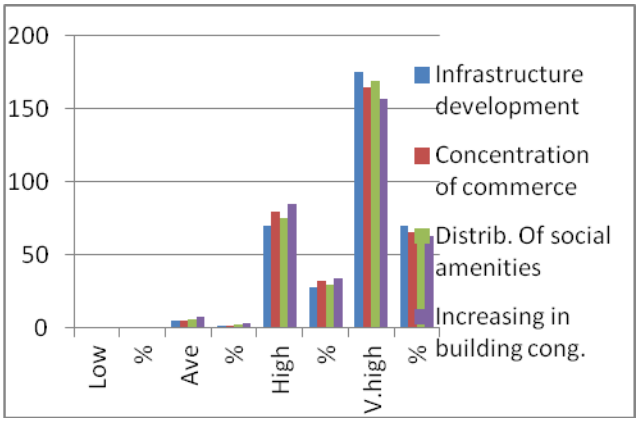

Fig 3: Sprawling of building on the decay of inner city

In the figure 3, infrastructural development, concentration of commerce in the neighborhood, the presence of social amenities, increasing in the building construction encouraged the concentration of building without coordination in the inner city, this has resulted in the sprawling of the building and the decay of the inner city.

Pollution	Low	%	Ave	%	High	%	V.High	%	Total
Land	0	0	6	2.4	90	36	154	61.6	250
Water	0	0	5	2	70	28	175	70	250
Air	0	0	8	3.2	95	38	147	58.8	250
Total	0	0	19		255		476		1000

Table 4: Effect of urbanization on pollution

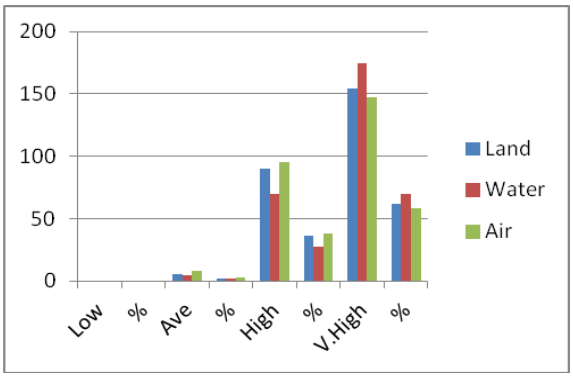

Fig 4: Effect of urbanization on pollution

In the figure 4, it was discovered that high pollution of land, water and air, as a result of the inefficient waste management system, increase in automobile exhaust due to population explosion in the city due to urbanization.

Flooding & Erosion	Low	%	Ave	%	High	%	V.High	%	Total
Poor drainage system	2	0.8	8	3.2	50	20	190	76	250
Poor waste management	5	2	10	4	60	24	175	70	250
Encroachment of flood plain	4	1.6	8	3.2	75	30	163	65.2	250
Erosion due to poor land management system	2	0.8	6	2.4	65	26	177	70.8	250
Total	13		32		250		705		1000

Table 5: Effect of urbanization on flooding and Erosion

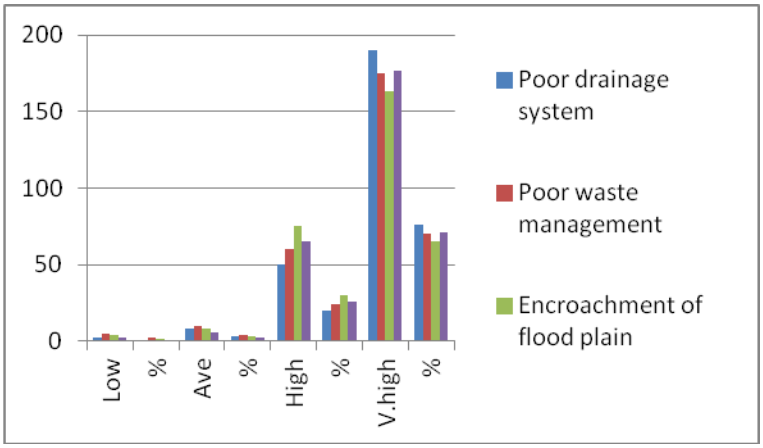

Fig 5: Effect of urbanization on flooding and Erosion

In the figure5, due to urbanization and consequence building concentration in the city, flood plain was encroached, land surface were degraded which make infiltration very low in the area, waste generation was poorly managed and the drainage system were blocked due to poor management. These contributed to the incessant flooding and erosion in the city.

3.0 Conclusion, Suggestion and Recommendation

3.1 Conclusion

Types of Environmental Problems, Sources and Effects that are evidence in and around Ado-Ekiti

Environmental Problems	Sources	Effects
Slums and Squatter Developments	Rapid urbanization due to rural-urban migration and natural population increase Inadequate housing and infrastructure; legal dualism in land administration and control. Lack of proper monitoring of physical development by the State Ministry of Land and Urban Development in Ado-Ekiti	Enhances rapid deterioration of the physical environment and provide a breeding ground for prostitutes, criminals and social miscreants. They constitute an affront for human dignity with associated adverse health implications for residents, and thus negate the goal of environmental sustainability.
Urban Sprawl	Absence of updated master plans Uncoordinated spatial urban growth Decay of inner cities Land speculation and rapidly growing all around Ado-Ekiti population	Depletion of green areas and open spaces resulting in the loss of biodiversity, air pollution and traffic congestion due to increasing use of private automobiles. There is also the issue of incompatible land use due to lack of planning and haphazard developments.
Pollution: Land Air Water	Inefficient waste management systems Emissions from automobiles and power generating sets; Bush and refuse burning; Weak institutional and regulatory framework for enforcing appropriate legislations	Pollution general poses health risks to Humans. Land pollution through indiscriminate disposal of solid wastes provides breeding grounds for infectious disease vectors, while air pollution results in acid rains which destroy buildings and infrastructure. While air pollution contributes to global warming by depleting the ozone layer
Urban Flooding	Absence of efficient storm water discharge system Physical development on natural flood plains and river banks Non adherence to physical development regulations result to flooding	Destruction of human lives, properties and means of livelihood as well as public infrastructure, leading economic losses.
Erosion	Indiscriminate destruction of vegetation for fuel and construction materials.	Threat to human lives, means of livelihoods and infrastructure as well as loss of land areas and reduction in biodiversity.

3.2 Suggestion

Urban environmental problems are of different dimensions and are mostly due to geologic, climatic and cultural factors. However, the cultural factors seems to be more pronounced in the Nigerian context because most of the identified urban environmental issues are so much associated with the way of life of the people either as reactions to urbanization or their spatial heritage. Their effects are far reaching on efforts to attain sustainable development in the country. Since no section of the country's urban environment is immune to environmental effects, there is urgent need to seek workable solutions by the application of planning, economic, legal, institutional and educational tools as have been suggested here. It is hoped that if these tools are properly adopted it will result in the enculturation of the right environmental management practices that would prevent the further deterioration of our physical urban environment; hence the possibility of achieving sustainable development in Nigeria in the nearest future is assured.

3.3 Recommendations

1. Rural –Urban migration remains one of the major contributors to the ever increasing urban population growth in Nigeria; this is probably due to the perceived wide gap between the urban and rural areas in terms of job opportunities and availability of basic infrastructural facilities. This infrastructure gap has to be bridged through comprehensive rural infrastructure provision.

2. Similarly, increasing the environmental carrying capacity is necessary for enhancing the livability of urban areas in Nigeria. Massive rehabilitation

and expansion of urban infrastructure stock in the country should be taken more seriously.

3. Remodeling of urban transport system from automobile -based to pedestrian, bicycle and mass transit (e.g. Intra-city and inter-city) systems is a worthwhile venture. This will reduce the level of dependence on single passenger automobiles, and consequently reduce the problems of air pollution, traffic congestion and high energy consumption.

4. The provision of both closed storm water drainage and open drain as adequate monitoring of physical developments will check perennial flooding in Ado-Ekiti. Development along flood plains, drainage channels, infrastructure easements and flood prone areas should be avoided. Development Control Authorities (e.g. Town Planning Authority) should enter into partnerships with the private sector to ensure that physical development legislations are strictly adhered to by developers.

5. Solid waste management in urban areas seems to have engaged the attention of government at all levels in Nigeria

References

Acho, C. (1998). "Human Interference and Environmental Instability: Addressing the Environmental Consequences of Rapid Urban Growth in Bamenda, Cameroon" Environment and Urbanization, Vol.10 (2) 161-174.

Adedeji, Y.M.D. (2005) "Sustainable Low- Cost Housing Technology in Cities: Accelerated Construction Initiative Option" Journal of Land Use and Development Studies 1(1)

Agbola, T. and Agbola, E.O. (1997). "The Development of urban and Regional Planning Legislation and their impact on the morphology of Nigerian Cities" Nigerian Journal of Economics and Social Studies, 39. (1) 123-143

Agukoronye, O. C. (2004). "Urban Poverty and Environmental Degradation in Nigerian Cities" in H.C.Mba et al (eds) Management of Environmental Problems and Hazards in Nigeria, Hants: Ashgate Publishing Ltd ,161-170.

Aribigbola, A. (2008). "Housing Policy Formulation in Developing Countries: Evidences of Programme Implementation from Akure, Ondo State Nigeria" Journal of Human Ecology Vol.23(2):125- 134.

Cui, L., & Shi, J. (2012). Urbanization and its environmental effects in Shanghai, China. Urban Climate, 2(0), 1–15. doi:http://dx.doi.org/10.1016/j.uclim.2012.10.008

Kjellstrom, T. & Mercado, S. (2008). "Towards Action on Social Determinants For Health Equity in Urban Settings" Environment and Urbanization, Vol.20 (2)551-574. Marcuse, P. (1998). "Sustainability is not Enough" Environment and Urbanization Vol.10 (2) 103-111.

Marmot, M. (2006). "Harveian Oration, Health In An Unequal World", Lancet (368) 2081-2094. United Nations (1987). World Commission on Environment and Development, Our Common Future, Oxford University Press.

Singh, A. P. (2003). Concept of Environment in Ancient Art and Architecture, Delhi: Prakasham

Van Nostrand: Reinhold Company. Porteous, J. D. (1977). Environment and Behaviour, Planning and Every Life, Addison: Wesley Publishing Company.

WCED (1987). Our Common Future, The Bruntland Report, New York: Oxford University Press.

Wiedenhoeft, R. (1981). Cities for the People: Practical Measures for improving Urban Environment.