

**URBAN ENVIRONMENTAL PROBLEMS IN NIGERIA: IMPLICATIONS FOR
SUSTAINABLE DEVELOPMENT**

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ABSTRACT

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. Although studies have identified various environmental problems in Nigeria, little attention has been given to their implications for sustainable development in literature. This paper therefore examined the causes and implications of increasing environmental deterioration for sustainable development in the country. Relying on archival records and observations, this paper identified colonial antecedents of Nigerian cities, rapid urbanization and poor psychological orientation of residents as being responsible for the current situation. The paper highlighted the three –fold effects on the human health, the economy and ecological system and suggested that the application of planning, economic, legal, institutional as well as educational tools will address the situation.

Keywords: Urban areas; environmental problems; population; urbanization; sustainable development; Nigeria

Introduction

The world's population is put at about 6.572 billion people out of whom the United Nations data indicated that about 3 billion people (50 percent) live in urban areas (UNCHS, 2007). Whereas about 66 percent of the entire world's population lived in the countryside in the early 1950s (World Bank, 2000; IMF, 2006), current estimates show that by 2030, about 61 percent of the total population in the world

will be living in cities; and that all the world's increase in population in the next three decades will occur in low and middle income countries (Peters, 2000:2; UNFPA, 2007). In view of the implications of the increasing urban population for sustainable development in low and middle-income countries, the 2002 Johannesburg's World Summit on Sustainable Development (WSSD) called on all governments to address the overwhelming challenge of provision of urban basic services especially decent houses, water and sanitation for the teeming people in slums where the quality of life is appalling. While continents like Europe and the Americas have stabilised their population growth and economy to a large extent, most countries in African, Asia and Latin America have in the last few decades not been able to deliver on their promises of alleviating the precarious state of living environment of their citizens (UN-HABITAT, 2003).

Within the global context, Africa is generally assessed as a rural and the least urbanized continent with the antecedent high rate of slum development, crime, underdevelopment as well as overpopulation. However, in most recent time, current trends suggested that Africa's rate of urbanization is two times faster than Latin America and Asia (Tannerfeldt, 1995; UNCHS, 2007). Globally, rapid urbanization is a major public health challenge for the twenty-first century and in Africa urbanization appears not to have translated to proportionate economic growth and better welfare for the citizens (Kjellstrom and Mercado, 2008). For instance, out of the twenty countries identified by the United Nations as possessing the lowest human development index (HDI) in 2005, about 19 representing 95 percent are in Africa. Within the sub-Saharan Africa for an example, there are well over 166 million urban slum dwellers, which also represent about 71.9 percent of its total urban population, and thus there is increasing urban poverty and low life expectancy in the region (UN-HABITAT, 2005a).

Conservative estimates indicated that within the next two decades, 87 percent of the population growth in Africa will take place in urban areas out of which about 55 percent would be living in urban areas. In view of the increasing environmental deterioration as a result of rapidly growing urban population without proportionate economic growth, seven African cities were selected for the start up of the New Partnerships for African Development (NEPAD) Cities Programme to address the situation. The cities are Rabat in Northern Africa, Bamako and Lagos in West Africa, Durban in South Africa, Lusaka in Southern Africa, Douala in Central Africa and Nairobi in East Africa.

In Nigeria, Mba *et al* (eds) (2004) identified several types of environmental problems classified as ecological, poaching and habitat loss, increasing desertification and soil erosion. These are further subdivided into pollution, deforestation, global warming and slum development, etc. Nigeria's coastal regions are currently experiencing widespread contamination from petroleum exploration (gas flaring, oil spillage) while the general poor living conditions in urban areas in the country constitutes an affront to human dignity. However, Mba et al (eds.) (2004) were of the opinion that pollution from oil activities should probably be given only a moderate priority in the light of Nigeria's other severe environmental problems. They identified deforestation resulting from road projects, subsistence activities, logging, mining, and dam construction as constituting the greatest threat to environmental sustainability in the country.

In view of the above, this paper examines the adverse effects of environmental problems on sustainable development in Nigeria. It addresses the causes of urban environmental problems and their effects on humans and the surrounding ecological system. This paper hopes to explore the implications of the increasing environmental problems spurred up by human activities for sustainable development. This is with a view to making recommendations that might provide the road map to addressing the situation. It is the opinion of the paper that the attainment of sustainable development will remain a mirage in developing countries in general and Nigeria in particular if the current rate of urban population growth and increasing environmental decay are not matched with proportionate economic growth and environmentally friendly development practices.

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 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” (Porteous, 1977:139).

For instance, Bain, a sociologist defined environment as all the external and non personal conditions and influences that affect the welfare of a people in a given area (Bain, 1973:9). Hagget, a geographer, on the other hand, defined environment as “the sum total of all conditions that surround man at any point on the earth’s surface” (Efobi, 1994:1), while the Federal Environmental Protection Agency in Nigeria (FEPA) stated that the environment includes water, air, land, plants, animals, and human beings living therein, and the inter-relationships that exist among them (FEPA, 1989). However, a more comprehensive and all embracing definition was offered by Keller who defined the environment as:

“total set of circumstances that surrounds an individual or a community, these circumstances are made up of physical conditions such as air, water, and climate and landforms; the social and cultural aspects such as ethics, economics, aesthetics and such circumstances which affects the behaviour of an individual or a community”
(Efobi, 1994:1)

From these definitions, environment can be viewed as all physical, non physical, external, living and non living situations surrounding an organism or groups of organisms that determine the existence, development and survival of organism(s) at a particular time. It encompasses constantly interacting sets of physical (natural and man made) elements and non-physical, living and non-living (e.g. social, cultural, religious, political, economic) systems which determine the characteristic features, growth and sustainability of both the component elements of the environment and the environment itself (Johnson, 1992; Muoghalu, 2004).

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, 1998:105). 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 have 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 goal for housing or urban programmes on the account that many of bad housing or urban programmes are sustainable. However, recent development indicated that environmental sustainability is interwoven with urban development and housing programmes (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, 1987:43). This suggest that the principal goal of sustainable development is meeting present human needs in such as 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, environmental).

Urban areas as centres of arts, culture, education, entertainment, technological innovations, providers of specializes services and “economic engines” (Udeh, 1992; Okeke, 2002; Kadir, 2006; Kjellstrom and Mercado, 2008) are products of urbanization which come with far reaching economic, socio-spatial and health implications (Acho,1998; Marmot, 2006). Adedeji (2005:126) 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 to 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 accounted for this wide ecological footprint of urban areas which is not peculiar to developing countries (Stoel, 1999; Hales, 2000). Hales, (2000:11) 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.

In Nigeria, for instance, several studies (Rashid, 1982; NEST, 1991; World Bank, 1992; Anih, 2004; Muoghalu & Okonkwo, 2004; Ijioma & Agaze, 2004; Nduka, 2004; Mba, 2004; Bulama, 2005;

Ojeshina, 2005; UN-HABITAT, 2005b) have identified many of the environmental problems (Table 1) as having serious adverse socio-economic and ecological implications. A majority of these problems, it is argued are traceable to a number of factors. These include the colonial antecedent of most Nigerian cities (Ogbazi, 1992: 13; Ikya, 1993), the high rate of urbanization (Figure 1; NEEDS, 2004), the bad psychological orientation of urban residents on the environment as well as poor environmental management practices (Meale, 1991; Agukoronye, 2004). Agbola and Agbola (1997) and Areola (2001) clearly indicated that the spatial structure of Nigerian cities evolved before, during and after the colonial rule in the country made the introduction of modern infrastructural facilities very difficult and expensive especially when dealing with areas having the bulk of ancestral homes of indigenous people. It is also suggested by demographic experts that the high rate of urbanization put at 5.3 percent in Nigeria which is among the highest in the world has the tendency of spurring up environmental degradation (Goldstein, 1990). Closely related to this is the fact that most urban areas in Nigeria have grown beyond their environmental carrying capacities and existing infrastructure (National Population Commission, NPC, 1998). For instance, the 2006 National population census data (FRN, 2007) revealed that most of the urban areas in Nigeria with small land mass have their capacity to take further population increase already exhausted or extremely limited. With a population figure of more than 140 million and land mass of about 924,000 Km², current estimates indicated that 10 percent of the land area accommodated 28 percent of the country's total population (Taylor, 2000). The implication of this is that there is disequilibrium between the population and the environment, and this has adversely affected the carrying capacity of the urban areas in the country; hence the increasing poor quality of the living conditions and the low livability index of urban areas in Nigeria.

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 on human beings, livelihoods, animal and plant lives presently or transferred to posterity (Simond, 1994; Acho, 1998; Danish International Development Agency, 2000; Kjellstrom and Mercado, 2008). This has far reaching implications on sustainable development, most especially in the face of declining economic fortunes. Therefore, urban environmental issues will continue to dominant sustainable development agenda in developing nations in particular and the world in general in the next few decades.

Methodological Approach

The bulk of the data used in this paper was derived from archival sources (Nwabughuogu, 1984) and content analysis of different research findings (Okewole, 1999) in relation to environmental problems due to impacts of human production and consumption activities in major urban centres in Nigeria. Also a good proportion of the data were those compiled through observations in the course of involvement in physical development as architects, as well as teacher–student interactions in urban settings in Nigeria in which the authors have been involved over the years.

Sources and Effects of Urban Environmental Problems in Nigeria

Nigeria is a predominantly urban country. About 50 percent of the population already lives in urban areas. The prevalent environmental problems identified in this paper to be associated with human activities which constitute serious threat to sustainable development in urban areas in the country are as indicated in Table 1.

Table 1: Sources and Effects of Environmental Problems

Environmental Problems	Sources	Effects
Slums and Squatter Developments	Rapid urbanization due to rural-urban migration and natural population increase (Abiodun, 1985); inadequate housing and infrastructure; legal dualism in land administration and control. Lack of proper monitoring of physical development activities in urban areas	Enhances rapid deterioration of physical environment and provide breeding ground for prostitutes, criminals and social miscreants. They constitute affront for human dignity with associated adverse health implications on 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 urban 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, industrial plant and power generating sets; gas flaring	Pollution general poses health risks to humans, terrestrial and aquatic lives. Land pollution through indiscriminate disposal of solid wastes provides breeding grounds

	(Figures 2 & 3); bush and refuse burning; solid and liquid minerals extraction activities and agro-chemicals. Weak institutional and regulatory framework for enforcing appropriate legislations	for infectious disease vectors, while air pollution results in acid rains which destroy buildings and infrastructure. Oil spillage is a threat to the livelihood of oil producing communities. While air pollution contributes to global warming by depleting the ozone layer
Urban Flooding	Absence of efficient storm water discharge system; ocean surge due to rise in sea level, extensive use of hard landscape elements; reclamation of swamps and natural storm water swales for building construction. Physical development on natural flood plains and non adherence to physical development regulations result to flooding in low lying cities like Lagos and Port Harcourt	Destruction of human lives, properties and means of livelihood as well as public infrastructure, leading economic losses. Destroys plants and animal lives, and thus leading to destabilization of the ecosystem which comes with adverse consequences.
Erosion	Indiscriminate destruction of vegetations for fuel and construction materials. Construction, installation of infrastructure, agriculture and mining activities	Threat to human lives, means of livelihoods and infrastructure as well as loss of land areas and reduction in biodiversity.

Sources: (Omiunu, 1981; Rashid, 1982; Olarinan, 1983; Odemerrho, 1988; NEST, 1991; World Bank, 1992; Anih, 2004; Muoghalu and Okonwo, 2004; Ijioma and Agaze, 2004; Nduka, 2004; Mba, 2004; Bulama, 2005; Ojeshina, 2005; UNHABITAT, 2005b)

Key Environmental Issues and Challenges in Achieving Sustainable Development

Urban environmental problems in Nigeria are multi-faceted and are associated with the colonial antecedents of Nigerian cities, urbanization and issues that come with developmental challenges, urban production and consumption patterns and psychological orientation of urban residents as well as institutional failures (Table 1). These problems pose serious environmental, economic and social challenges to achieving sustainable development in the country.

From all indications, various administrations in Nigeria-colonial, military and civilian placed very little importance on environmental issues. The essence of sustainable management of environmental resources and their harmonious relation with nature have been not been given adequate attention for

decades. The lack of political will within the public sector to address environmental problems remains one of most intricate problems in the country. A typical example of this can be seen in the issue of end to gas flaring and oil spillage in the Niger Delta Region, where environmental problems due to oil exploration have inflicted tremendous damage on the ecosystem, health and livelihood of the people of this region.

In the face of increasing urban population, there is inadequate supply of housing and infrastructure for the teeming population, as a result, the existing infrastructure and housing are overstressed, while unsanitary living conditions characterized by filthy environment, unclean ambient air, stinky and garbage filled streets and sub-standard houses continue to dominate the urban landscape in Nigeria. The concentration of more people in urban areas of the country has brought more pressure on the land space for the production of food, infrastructure, housing and industrialization. This affects the carrying capacity of the environment as each additional person increases the demand on the infrastructure and natural system and as result creating ecological imbalance which comes with adverse environmental consequences such as hazards and disaster. In this circumstance, attempts to address the situation are difficult and capital intensive, because rapidly growing population does not provide ample room for the introduction of new and innovative approaches to tackling the problems. This paper does not argue against population growth rather its concern is that there should be a corresponding socio-economic growth. The graph in Figure 1 represents appraisal of six countries with growing population. India and China have astronomical population increase; they are followed by the USA, Pakistan, Indonesia and Nigeria in that order. While China's population is growing, there are corresponding growths in their economy. This has brought about a balanced social growth in the country. This also goes for the United States of America. But, growing population in Nigeria is associated with negative economic growth, and this requires special attention.

As vast majority of urban residents in Nigeria suffer from severe deficiencies in the supply of basic infrastructure and housing, industrial, mining and domestic activities generate dangerous level of air, land and water pollution, endangering human lives and causing serious damage to the ecosystem. Statistics show that a majority of urban residents in the country fall within the low-income group. This income class is the most vulnerable group to prevalent environmental problems such as diseases associated with lack of access natural to resources and basic urban services and pollution. They also

suffer the consequences of absence of inappropriate urban planning and management systems, and thus live in disaster prone areas of the cities. These ultimately impacts on their quality of life, health, and consequently reduce their productivity and economic development capacity.

In the of loss of biodiversity, the World Fact Book 2005 for instance, identified Nigeria as one of the countries with the highest rates of forest loss (3.3 percent) in the world. Since 1990, the country has lost some 6.1 million hectares or 35.7 percent of its forest covers. The record also indicated that Nigeria's most biodiversity ecosystems are fast depleted at an unbelievable rate. For an example, between 1990 and 2005, the country lost a staggering 79 percent of these forests and since 2000 Nigeria has consistently been losing an average of 11 percent of its primary forests per year. These constitute serious challenge to environmental sustainability. The various species of plants and animals that are required to establish and sustain the various food webs and chains as well as natural cycles are systematically being depleted and thus resulting in ecological imbalance and threatening the survival of man in the environment.

In the social context, environmental problems pose serious threats to the social well being of a majority of urban residents in Nigeria. Apart from general health implications of environmental problems, there are tendencies of the problems affecting the psyche of the people. For instance, residents of urban slums are known to show deviance attitudes, apathy to government programmes and anti-social values (e.g. prostitution, crimes, and juvenile delinquency). Most importantly, social indicators in Nigeria are something of a paradox. The country is rich in natural endowments but the people are living in abject poverty. This paradox is especially evident because the vast resources and windfall of oil wealth have not translated to enhance quality of life. Statistics indicated that in 2003, on the highest scale of 1.0, Nigeria had Human Development Index (HDI) of 0.453 as compared to that of other oil producing nations such as United Arab Emirates, Kuwait, Libya, Venezuela, and Indonesia which had the HDI values of 0.800, 0.844, 0.799, 0.772 and 0.697, respectively (UNDP, 2006). This is an indication of the poverty level and low life expectancy in the country.

Furthermore, environmental problems are inimical to social equity and welfare with respect to accessibility to social infrastructure and job opportunities. It is argued that urban poverty in Nigeria has strong links with underdevelopment and environmental degradation. Environmental problems have for

instance in the Niger Delta Region resulted in loss of job opportunities, increased poverty level, social exclusion and loss in cultural heritage. Many agricultural lands and fishing waters have been polluted, and the people are denied means of livelihood. As a result, a majority of the people feels reluctant to participate in economic development activities; instead they have chosen the part of militancy in the quest for resource control.

The inability of Nigerian cities to cope with increasing environmental challenges has also shown manifestation in poor economic growth and development. Rapid growth of cities due to urbanization has led to the emergence of low-income informal settlements both in the inner-city and on the outskirts. This development accounted for the over bloated informal sector. The domination of the national economy by the informal sector that is characterized by subsistence economic activities known for low productivity and income, operating in unregulated and uncompetitive markets outside government approved guidelines has far-reaching implications for sustainable economic development. A large proportion of businesses operating in informal settlements in urban areas in Nigeria hardly pay tax, have no financial records, do not form part of government statistical records, and have limited or no access to formal credit facilities . Coupled with an inefficient infrastructure network and unwholesome operating environment, industrial production is low, while manufacturing continues to contribute less than 15 percent of the gross domestic product (GDP) in Nigeria. Consequently, Nigeria's major development challenges which have to do with acceleration of economic growth , reduction of the level of poverty and improvement of environmental quality continue to grow unabated, and thus achieving the Millennium Development Goals (MDGs) by 2015 and beyond in the country is a mirage.

Urban and rural population will be increasingly interdependent for their economic, social and environmental well being in Nigeria. By 2015, more than half of the country's population is expected to live in urban centers. With an urbanization rate of about 5.5 percent per annum (Nwaka, 2005), it is anticipated that the urban population would have reached 65 percent of the total population. Therefore, unless appropriate actions are taken, environmental decay is set to rise, and this poses serious threat to sustainable development because Nigeria's economy and society largely depends on its ecology for food production, power generation and source of raw materials for industrial activities.

Recommendations

The NEPAD initiatives, National Economic Empowerment and Development Strategies (NEEDS) and Vision 2020 have gradually embraced a new concept of sustainable development in the face of rapid urbanization and increasing environmental problems in Nigeria. These strategies embrace relationship between all human settlements, from small urban centres to metropolises, and between towns and cities and their surrounding rural areas. As intractable these approaches may appear, they are potent, dynamic and desirable forces for development. For these initiatives to produce the desired impact in Nigeria, they must adopt strategies that would make significant impact on problems and issue related to urbanization, attitudinal orientation and lapses in legal and institutional frameworks in environmental management. Based on these, this paper offers the following suggestions in addressing these issues.

- 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. There is urgent need for the government to enter into partnerships with Community-Based Organizations in rural infrastructure provision. This will promote the establishment of agro-based industries, provide incentives for younger people to go into agricultural activities and make life worth living in rural areas. These will eventually reduce the number of immigrants to the urban areas and consequently cut down on the rate of urban population growth.
- 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. Collaborative efforts among of all stakeholders in taking advantage of the existing economies of scale in our urban areas in improving the infrastructure stock are inevitable. The concept of Public-Private Partnerships (PPPs) in the provision of urban infrastructure should be adopted. Slum areas in urban areas in the country should be revitalized, or remodeled through the introduction of basic infrastructure services and incorporation of mix-use development to enhance property values, and thus checking further deterioration of such areas.
- 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 (See Figures 2 and 3) .The

imposition of special tax on private cars in certain parts of cities like Lagos, Port Harcourt, Abuja, Kano, Ibadan, Enugu and other major cities at various times will definitely help to achieve this objective. Furthermore, appropriate legislations should be put in place to check indiscriminate discharge of industrial wastes (gas, liquid, solid), while the relevant regulatory institutions and agencies should be empowered to monitor the level of compliance and mete out appropriate sanctions to offenders.

- The provision of both closed storm water drainage (curbs, gutters, catch basins, underground pipes, culverts, inclined channels) and open drain systems (swales, filter strips) as adequate monitoring of physical developments will check perennial urban flooding in Nigerian cities. Development along flood plains, drainage channels infrastructure easements and flood prone areas should be avoided. Development Control Authorities (e.g. Town Planning and Capital City Development Authorities) should enter into partnerships with the private sector to ensure that physical development legislations are strictly adhered to by developers.
- Plants have been found to be beneficial to man not only as food but also as natural source of oxygen. In addition, they provide shades from sun, beautify the environment and protect the soil from erosion. To maximize these benefits, there is need to increase the level of the green areas and open spaces in urban areas by encouraging the preservation of green areas and open spaces. For these reasons, the annual tree planting exercise, agro forestry, and community-based conservation schemes should be taken more seriously, and people should be encouraged to plant trees, ornamental plants and establish horticulture gardens around their buildings. While the use of hard landscaping element around buildings, bush burning and illegal mining activities should be discouraged.
- Going by the level of construction activities that go on in this country, there is need for effective monitoring by the relevant authorities of every construction activity to make sure that such does not have adverse effects on the environment within, around or distance from the construction site. The relevant provisions dealing with this issue in the Environmental Impact Assessment (EIA) Act 86 of 1992 should be strictly enforced. Also, the construction industry need to imbibe the concept of “green/eco-construction” in devising new methods and develop new materials that are not injurious to the environment and does not constitute health hazards.
- Solid waste management in urban areas seems to have engaged the attention of government at all levels in Nigeria. Despite the establishment of waste management agencies, the problem of

solid waste management persists in urban areas in the country. Therefore, Public- Private Partnership or out right privatization of urban waste management activities should be explored. By this arrangement, the private organizations should be involved in house –to-collection and disposal of refuse at the expense of the households. The establishment of waste treatment or recycling plants and the use of the products for agricultural purposes should be looked into.

- It is argued that Nigeria never lacked good policies, legislations and institutional frameworks but good implementation has always been the crux of the matter. The failure of existing laws and institutions to make significant impacts in protecting and preserving the environment may be have been due to poor legal frameworks, poor funding and lack of adequate manpower. Therefore, the reorganization of environmental management institutions has become most expedient. This to ensure horizontal and vertical coordination among the institutions. Similarly, all legal ambiguity, lack of qualified personnel, inadequate funding should be addressed. The private sector should be encouraged to make significant contributions in capacity building in environmental management institutions. This will enhance the capacity of the institutions to enforce environmental laws and physical development regulations, and thus reducing the rate of illegal developments, contravention of planning laws, street trading and indiscriminate dumping of refuse in unauthorized places.
- The psychological re-orientation of the people toward proper environmental management practices is central in developing environmental consciousness in individuals. To this end, environmental education such as public enlightenment campaigns in the mass and print media, churches, mosques, and community-based organizations is highly needed. Similarly, the introduction of environmental studies into the curriculum of the educational system at all levels will most likely contribute to creating the desired environmental awareness, and thus reducing unfriendly environmental practices (e.g. indiscriminate dumping of refuse on the roads, drains and unauthorized locations, defecating in the open field) in Nigerian cities.
- Built environment professionals (e.g. architects, urban planners, estate managers, builders, engineers, etc) have a role to play in creating environment that does not jeopardize peoples' health and well being. They should accept the responsibility of being the “watch dog” over the environment in making sure that they use their professional expertise to protect the environment for the present and future generations. Through appropriate design, construction and

management solutions, significant result in environmental sustainability and by extension sustainable development can be achieved.

Conclusion

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 is assured.

REFERENCES

- Abiodun, O. (1985). Urban and Regional Planning Problems in Nigeria, Ife: University of Ife Press.
- 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.
- Anih, S. C. (2004). "Effective Survival measures against Natural hazards in settled areas" in H.C.Mba et al (eds) Ibid 29-40.

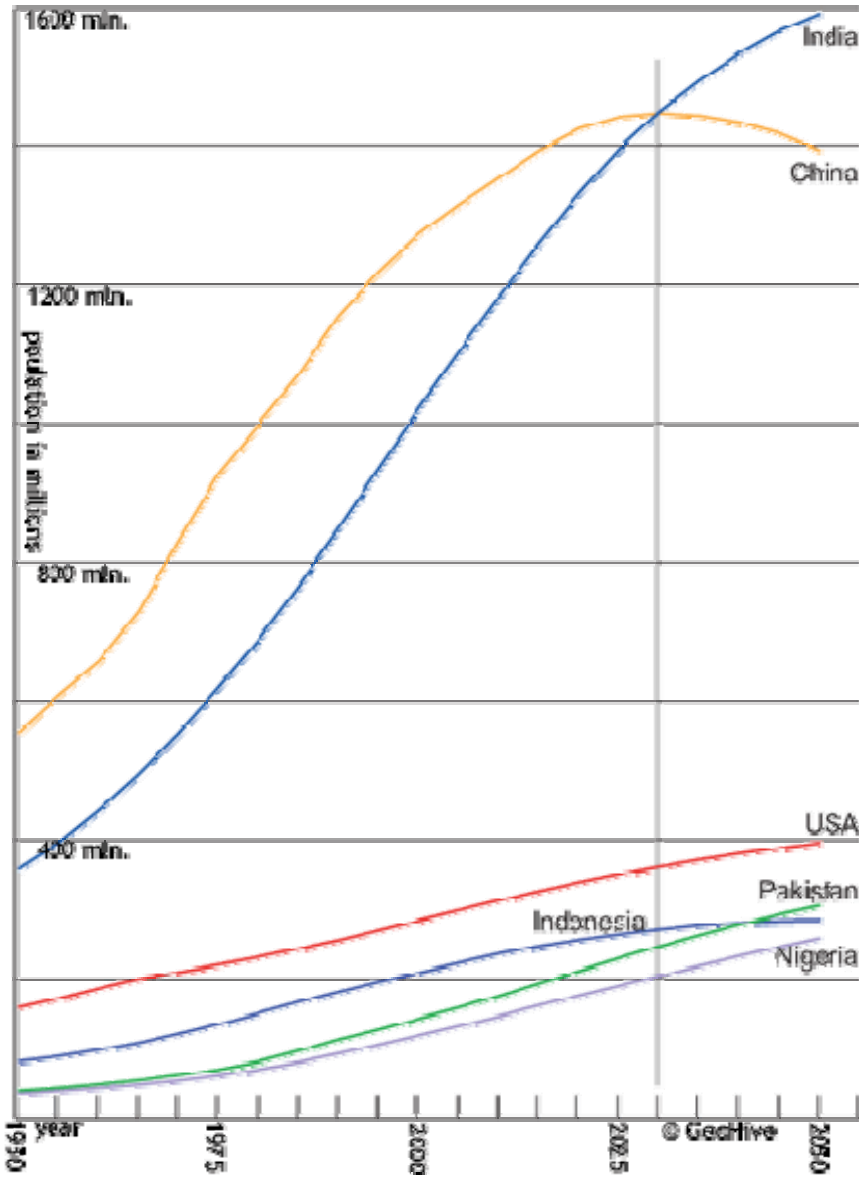
- Areola, O. (2001) in T. Agbola and E.O. Agbola (1997). “The Development of urban and Regional Planning Legislation and their impact on the morphology of Nigerian Cities” Nigerian Journal of Economics and Social Studies Vol.39 (1) pp123-143.
- Aribigbola, A. (2008). “Housing Policy Formulation in Developing Countries: Evidences of Programme Implementation from Akure, Ondo State Nigeria” Journal of Human Ecology Vol.23(2):125-134.
- Bain, J. S. (1973). Environmental Decay: Causes and Remedies, Little Brown and Co Inc. pg.9.
- Bulama, M. (2005). “The Nigerian Built Environment Challenges’ in A.S.Alabi and Sam Epelle (eds) Proceedings of the first National Built Environment Summit on Built Environment Disasters: For National Action Plan Nigerian Institute of International Affairs 8th-10th February, Lagos: Nigerian Institute of Architects , 185-196.
- Danish International Development Agency (DANIDA) (2000). “Improving the Environment and Reducing poverty” Workshop Papers Copenhagen. Downloaded from [http://web.mit.edu/urbanupgrading/urban environment/issues/introduction.html](http://web.mit.edu/urbanupgrading/urban%20environment/issues/introduction.html). On February 20, 2006
- Efobi, K. O. (1994). Studies in Urban Planning, Enugu; Fidelity Publishers and Printers Co.Ltd.
- Federal Environment Protection Agency (FEPA) (1989). National Policy on Environment, Lagos: FEPA.
- Federal Republic of Nigeria (FRN) (1998). “Urbanization” *1991 National Population Census: Analytical Report at National Level*, Abuja: NPC pp 32-48.
- Federal Republic of Nigeria (FRN) (2007). Official Gazette on the breakdown of the National and State Provisional Totals 2006 census, S.I N0 23 of 2007, N024, Vol.94 Lagos 15th May.
- Goldstein, G. (1990). “Urbization, Health and Wellbeing: A Global Perspective” The Statistician – Special Issue: Health of Inner Cities and Urban Areas, Vol.39 (2) 121-133. Available Online: <http://www.jstor.org> . Retrieved in June 18, 2007.
- Hales, D. F. (2000). “Practical Steps Toward Healthier Cities and a Cleaner Global Environment” Global Issue-An Electronic Journal of the U.S. Department of State, March 5 (1) 11-16.
- Ijioma, M. A. and Agaze, U. (2004). “Erosion Phenomenon and Development Dynamics in South-Eastern Nigeria” in H.C.Mba et al (eds) Ibid pp 1-12.
- Ikyia, S. G. (1993). Urban Passenger Transport in Nigeria, Ibadan: Heinemann Books Plc.
- International Monetary Fund (IMF) (September, 2006). Finance and Development (F&D), BPA International, Washington, DC.

- Johnson, V. (1992). "What is Environmental Education" in Michael Atchia (ed) Environmental Education in the African School Curriculum, Ibadan; African Curriculum Organization.
- Kadir, K. O. (2006). "Planning Sustainable Cities in Nigeria" Research Journal of Social Science 1(1) 40-50.
- 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.
- Mba, H.C; Ude, B.C; Ume, L.C and Uchegbu, B. (eds) (2004) Management of Environmental Problems and Hazards in Nigeria, Hants: Ashgate Publishing Ltd
- Mba, H. C. (2004). "Towards Environmental Awareness in Nigeria" in H.C.Mba et al (eds) Ibid pp 177-187.
- Meale, A. (1991). "Sustainable Development: The view from Government" British Geological Services, Earthwise Journal issue 13 pp 4-5.
- Muoghalu, L. N. (2004). "Environmental Problems and their Effects on Human Life: From Awareness to Action" in H.C. Mba et al (eds) Ibid. pp 93-107.
- Muoghalu, L. N. & Okonkwo, A. U. (2004). "Urban Environmental Factors of Flooding: A Preliminary Enquiry of Awka Capital Territory of Anambra State: The place of Environmental Knowledge for survival in H.C.Mba et al (eds) Ibid pp 13-28.
- Nduka, O. (2004). "Air Pollution: A threat to Human Survival" in H.C.Mba et al (eds) Ibid. 73-79.
- National Economic Empowerment and Development Strategy (NEEDS) (2004). Abuja: National Planning Commission.
- National Population Commission (NPC) (1998). 1991 Population Census of the Federal Republic of Nigeria: Analytical Report at the National Level. Abuja: National Population Commission
- Nigeria Environmental Study/Action Team (NEST) (1991). Nigeria's Threaten Environment: A National Profile, Ibadan: Interface Printers Ltd.
- Nwabughuogu, A. I. (1984). The Isusu: An institution for capital formation among the 734 Ngwa Ibo: Its origin and development to 1951 Africa. Journal of the International Africa Institute Vol.54(4), 46-58.

- Nwaka, G. I. (2005). "The urban Informal sector in Nigeria: Towards Economic Development, Environmental Health and Social Harmony" Global Urban Development Magazine, Vol.1 May Global Urban Development.
- Odemerrho, F. O. (1988). "Case Study of Urban flood and Problems in Benin City" in P.O.Sada and F.O. Odemerrho (eds) Proceedings of the National Conference on Environmental issues and Management in Nigerian Development, pp179- 195.
- Ogbazi, J. (1992). "Historical Development of Urban Planning in Nigeria" in H.Chike Mba et al (eds) Principles and Practice of Urban and Regional Planning in Nigeria, Awka: Mekslink publishers (Nig) pp 12-19.
- Ojeshina, A. (2005). "Paper presented at the Built Environment Summit" in A.S. Alabi and A.O.Sam-Epelle (eds) Ibid.
- Okeke, D. C. (2002). Environmental and Urban Renewal Strategies : Theoretical and analytical Framework, Enugu: Institute of Development Studies.
- Okewole, I. A. (1999). "Evolution of Urban Land Use Patterns In Democratic Setting: The Human Mind or The Natural Physical Environment" Ela: Journal of African Studies 5&6 45-60.
- Olaniran, O. J. (1983). "Flood Generating Mechanism at Ilorin-Nigeria, Goe-Journal, pp. 7(3) 271- 277.
- Omiunu, F. G. (1981). "Ogunpa Flood Disaster: An Environmental Problem or a Cultural Fiction" Aman, pp.110-120.
- Padisson, R. (ed.) (2001). Hand Book of Urban Studies, London: Sage Publications.
- Peters, William (ed.) (2000). Green Cities- Urban Environmental Solutions, Global Issues-An Electronic Journal of the U.S Department of State, March 5(1) 1-39.
- Porteous, J. D. (1977). Environment and Behaviour, Planning and Every Life, Addison: Wesley Publishing Company.
- Rashid, H. (1982). "Urban Flood problem in Benin City- Nigeria: Natural or Man-made?" Malaysian Journal of Tropical Geography vol.6 pp17-30.
- Salama, A. M. and Alshawaikhat, H.M. (2005). "A Trans-Disciplinary Approach for a Comprehensive Understanding of Sustainable Affordable Housing" Global Built Environment Review 5 (3) 35-50.
- Simond, J. O. (1994). Garden Cities 21: Creating a livable Urban Environment, New York: Mc Graw-Hill Inc.
- Singh, A. P. (2003). Concept of Environment in Ancient Art and Architecture, Delhi: Prakasham.

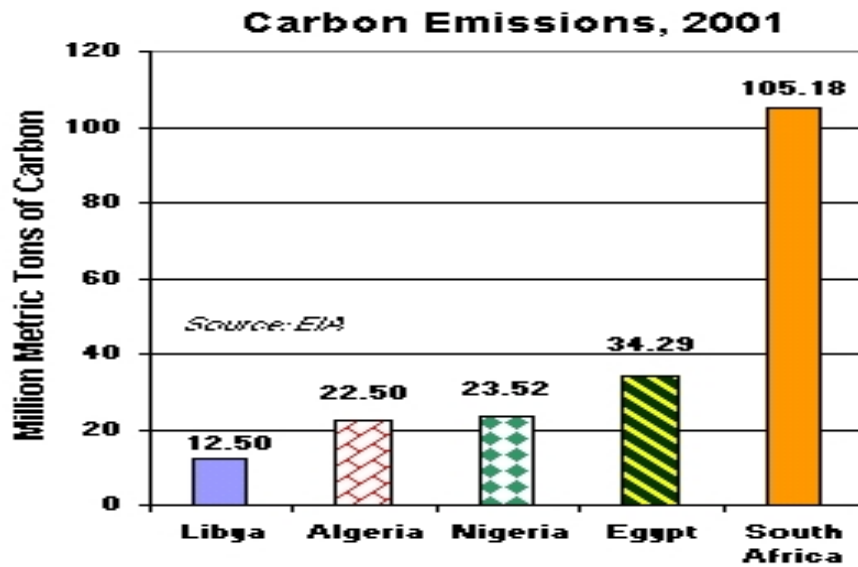
- Stoel, T. B. (1999). Reining in Urban Sprawl, Environment, Vol.41(4) 6-11.
- Tannerfeldt, G. (1995). Towards An Urban World: Urbanization and Development Assistance. Stockholm: Swedish International Development Agency.
- Taylor, R.W. (2000). Urban Development Policies in Nigeria: Planning, Housing, and Land Policy, New Jersey: Centre For Economic Research in Africa, Montclair State University.
- Udeh, C. (1992). “Urban Design and City Appearance” in H. Chike Mba et al (eds) Principles and Practice of Urban and Regional Planning in Nigeria, Awka: Mekslink Publishers (Nig) Pp110-125.
- UNCHS (2007). Urbanization: A Turning Point in History, Global Report on Urbanization www.unhabitat.org.
- UNDP (2006). Niger Delta Human Development Report, Abuja: United Nations Development Programme.
- UNFPA (2007). State of the World Population 2007, Unleashing the Potential of Urban Growth, New York: United Nations Population Fund.
- UN-HABITAT (2003). The Challenge of Slums, 2003 Global Report on Human Settlements, Nairobi: United Nations Centre for Human Settlements.
- UN-HABITAT (2005a). African Cities Driving the NEPAD Initiative An Introduction to the NEPAD Cities Programme www.unhabitat.org/downloads/docs/2558_81291_nepad.pdf.
- UN-HABITAT (2005b). “Air Quality Monitoring in Africa” Urban Environment, Kenya: UN Urban Environment Section.
- United Nations (1987). World Commission on Environment and Development, Our Common Future, Oxford University Press.
- WCED (1987). Our Common Future, The Bruntland Report, New York: Oxford University Press.
- Wiedenhoef, R. (1981). Cities for the People: Practical Measures for improving Urban Environment, Van Nostrand: Reinhold Company.
- World Bank (1992). Environment and Development, Washington DC: World Bank.
- World Bank (2000). World Bank Report 1999/2000 ‘Entering the 21st Century’, New York: Oxford University Press.
- World Environmental Investigation Agency(EIA) Report (2003). Climate and Atmosphere-Nigeria. Downloaded from: earthtrends.wri.org/pdf/country_profile/cli_cou566.pdf on June 13, 2007.

Fig 1: Population Development of the Largest Countries from 1950 to 2050



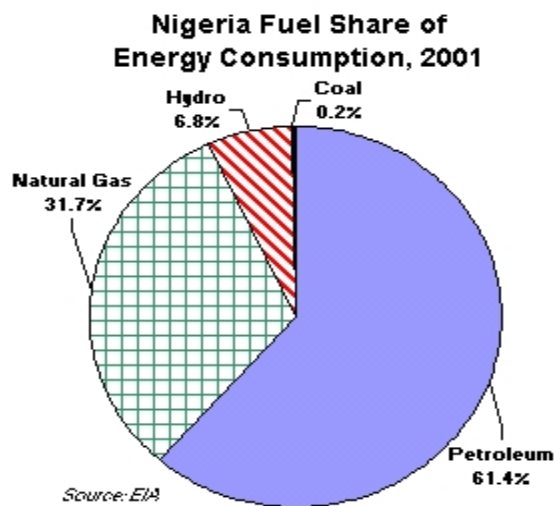
Source: Population Division of the Dept. of Economic and Social Affairs of the UN Secretariat, *World Population Prospects: The 2004 Revision*.

Figure 2: Carbon Emission in 2001



Source: World EIA Report (2003)

Figure 3: Nigeria Fuel Energy Consumption, 2001



Source: World EIA Report (2003)