IMPLICATIONS OF URBANIZATION ON ENVIRONMENTAL SECURITY IN DEVELOPING ECONOMY COUNTRIES: A CASE STUDY OF NIGERIA

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ABSTRACT

Environmental security is an offshoot of the principle of sustainable development which focuses on societal and global environmental sustainability and peace in the face of uncontrolled environmental degradations that are witnessed in different parts of the world. The urbanization tendency of different parts of the world mostly in developing economy countries sometimes has negative implications on its environmental security.

The environmental security and sustainability of urban in most developing economy countries have been affected by inadequate planning, weak projections and insufficient funds. These subject urban societies in the face of continuous urbanization to myriad of problems and hazards that impinge on their growing populations. Therefore, this study uses Nigeria as a case in examining the urbanization tendency of developing economy countries in relation to its environmental hazards and problems. These at many times lead to human and public security threats.

The study posits that urbanization trends affect the environmental security and sustainability of urban centers in Nigeria hindering among others its water security, food security and community ecological security. At the end, it advocates all-stakeholders self inclusive urban environmental governance for the management of developing economy countries urban centers.

Keywords: Environmental Security, urbanization, sustainability, developing economy countries and Nigeria.

INTRODUCTION

There has been uncontrolled population growth and urbanization in many developing economy countries urban centers and cities in the recent years. This urbanization tendency in different parts of the world now gives rise to the growth of many cities. The urbanization alongside urban growth has continued to be a significant trend since population increased from 200 million (approximately 15% of world population) in 1900 to 2.9 billion (approximately 50% of world population) in 2000 (McGranahan *et al.* 2005). However, the world urbanization is known to be growing faster than the total population of the world (United Nations 2004). This is because, the population of the world is expected to increase by 2.5 billion passing from 6.7 billion to 9.2 billion between 2007 and 2050 (United Nations, 2008), while its urban population is expected to increase from 3.3 billion in 2007 to 6.4 billion in 2050 (United Nations, 2008).

The expectations of most rural-urban migrants in cities and urban centers in most developing economy countries are to have improved lifestyles and comfortable wellbeing. This could only be possible if the cities and urban societies encourage human dignity alongside environmental sustainability. Therefore, the desire for human dignity and survival in every society may promote the rural-urban migrations in most developing economy countries.

This study examines the concept of environmental security in relation to the urbanization tendencies in the developing economy countries using Nigeria as a case. It further inter-relates urbanization to the components of environmental security such as water security, food security and community ecological security.

ENVIRONMENTAL SECURITY AS A CONCEPT

The word "security" is becoming enlarged with the attachment of newer appendages that brings about broader, more focused and explicit definitions that not only make it to accommodate the protection of the society from physical or external aggression but encompasses threats from societal needs that sometimes generates tension in the society. This makes the definitions for security to now depend on the goals of analysis (Levy 1995). Environmental security is a special area of security that is advocating the human and ecological aspect of the global security.

Environmental security is an evolving concept developed with the consciousness of the need of societal and global environmental sustainability in the face of uncontrolled environmental degradation that is witnessed in different parts of the world. Therefore, it could be looked at as an offshoot of the principle of sustainable development with the unique aims of preserving the future of our environment for the use of the present and future generation.

El Zain Hamid (undated cited Ryan, 2011) is of the opinion that the concept of environmental security was muted as part of the struggle to achieve a decent society. This promotes a unique bond between urbanization and environmental security. Also, Soroos (1994) in his paper titled *"Global Change, Environmental Security, and the Prisoner's Dilemma's"* states that the overall objective of environmental security is to prevent or minimize human induced changes to the environment that degrade and disrupt it with adverse consequences for current and future generation. While, Steiner (2006) at the G8 summit of 2006 sum up environmental security as issues from energy security and climate security to water and health security.

Environmental security may also be seen "as the area of research and practice that addresses the linkages among the environment, natural resources, conflict and peacebuilding" (UNEP2009). Therefore, environmental issues which threatens national security of a nation could be regarded as environmental security (Fagboun, 2011)

URBANIZATION TENDENCY IN NIGERIA

In the twenty century, rapid urbanization has been a common trend in most developing economy countries including Nigeria. Nigeria is the most populous country in Africa. At present, it has a staggering population of 162,470, 737 (World Bank, 2012). It is located in West Africa between longitude 3^0 to 14^0 East and latitude 4^0 to 14^0 North with an area of 923,768 sq km bordered to the west by Republic of Benin, north by Niger Republic, East by Chad and Cameroon and to the South by Bight of Benin (Atlantic Ocean) (Fig. 1)
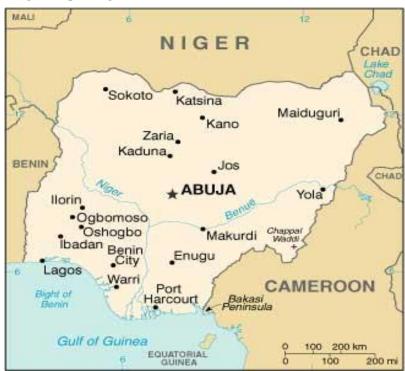
Fig. 1 Map of Nigeria

Source: http://atlas.freegk.com/world/africa/nigeria/nigeria.php accessed August 21st, 2012

This study authenticates Nigeria urbanization trends through examinations of the number of urban centers relating them to the nation's urban population growth and urban historical statistical analysis. World over, the definition of urban center and city are uniquely different from one location or country to another. Generally, urban centers are regarded as settlements with minimum concentration ranging from 200 to 50,000 inhabitants (WaterAid 2006).

Olujimi (2009) citing Afolayan (1978), Olujimi (2000) and Agbola (2004) indicated that Nigeria classified its urban center in 1953 as a settlement with population above 5,000. While the 1963 National Population Census figure of Nigeria classified the urban centers as settlements with population of more than 20,000.

Therefore, the urbanization tendency in Nigeria may be analyzed by examining the urban population growth trend witnessed from 1952 to 2006 (Table 1). The table showed the increase in urban centers from 56 in 1952 to staggering 600 in the year 2004.

This increase in urban centers corroborates the data of the National and Urban Trend for Nigeria 1985-2004 data below (Table 2) which shows the national population growth rate in percentage for the year 1985, 1990, 1995, 2000, 2002 and 2004 as 2.8%, 2.9%, 3.0%, 2.8%, 2.7% and 2.8% compared to the urban population growth rate of 5.7%, 5.5%, 5.4%, 4.5%, 4.0% and 4.3%. The Table 2, further gave the urban population as percentage of the total population for the year 1985, 1990, 1995, 2000, 2002 and 2004 as 31%, 35%, 40%, 44%, 46% and 49%.

Table 1: Urban Population Growth Trend in Nigeria1952-2006

Year	Total National Population (Million)	No of Urban Centers (20,000+)
1952	30 million	56*
1963	55.67 million	183
1991	88.5 million	359
2004**	115 million	600
2006	140 million	N.A.

Sources: Afolayan (1978), Olujimi (2000), and Agbola(2004) in Olujimi (2009)

Notes *The Classification number for an urban centre was 5,000 persons then.

**Estimated figure by Agbola (2004);

N.A. =Not Available

Table 2: National and Urban Trend for Nigeria 1985-2004

Year	National Population Growth Rate (%)	Urban Population Growth rate (%)	Urban Population as % of Total
1985	2.8	5.7	31
1990	2.9	5.5	35
1995	3.0	5.4	40
2000	2.8	4.5	44
2002	2.7	4.0	46
2004	2.8	4.3	49

Source: World Bank (various years) in Ogun (2010)

Therefore, Table 1 and Table 2 above delineate the urban tendency of Nigeria. Akali (2005) posited that there were more than 840 urban centers and well over 10 cities with population of over a million in Nigeria in the year 2005. This further substantiates the urbanization tendency of Nigeria.

NIGERIA, URBANIZATION AND ENVIRONMENTAL SECURITY

Environmental security and sustainability of urban centers in most developing countries have been affected by weak projections and inadequate planning with management. Thus, with continuous urbanization the urban society is thereby, subjected to myriad of problems and hazards that impinge on its growing population. In many Nigeria urban centers, the environmental problems and hazards associated with urban centers and cities include uncontrolled erosion, uncontrolled flood, waste management issues, land contamination, water pollution, air pollution, biodiversity and ecological issues etc.

Nigeria practices a Federal System of Government which delineates governance into three-tier, the federal, state and local governments. The planning, administration and management of urban centers are mostly done by the local governments which are an aspect or sometimes enclave of some of the urban communities. The local governments in Nigeria expectedly the closest to the urban are at many times saddled with inadequate funds and capacity for city management. The few metropolitan state capitals and municipal commercial centers always have the touch and finances of federal and state governments in their development.   Thereby, most of the urban centers in Nigeria apart from the metropolitan state capitals and municipal commercial centers are saddled with myriad of urban challenges, environmental hazards and problems. These problems may generate tensions and societal threats that may at times require urgent attention of the state and national government because of its human and environmental insecurity undertones.

There has been notable rapid urbanization in Nigeria with the development of mega urban centers in different parts of the nation. Even though, Lagos is the only mega-city at present but a few other urban centers such like Kano, Port Harcourt, Warri, Ibadan, Ilorin, Kaduna, Aba and Abuja are already showing indications towards tending to emerging mega-city (Mabogunje, 2008). This urbanization process that is connected with uncontrolled growth pattern has at most times responsible for the diverse environmental problems in these cities (Jiboye, 2011 citing Fourchard, 2003 and Jiboye, 2005). Human security has continually been the target of diverse environmental problems and hazards witnessed in the mega-urban centers. For example, flood has at many times led to loss of lives and properties in some of the mega-urban centers.

The security goals of Nigeria as a nation like most countries are tailored towards state and military power and assumedly silent on environmental security issues. Nevertheless, in principle it commits to the promotion of welfare of the people by affirming social, economic and political justice, thereby making it to encompass not just physical security but also economic and social security (Fagbohun, 2011). These components of Nigeria security aligns with the components of human security as put forward by 1994 UNDP reports which are economic security, food security, environmental security, personal security, community security and political security (Svenson, 2007). Human security and environmental security are intertwined and interconnected (Akiyode, 2011). Therefore, the components of Nigeria security have within it a latent concept of environmental security.

The implications of diverse environmental problems caused by continuous rapid urbanization in these urban centers will hinder their human and societal development. This thereby may lead to the inability of some urban seekers and dwellers to access the expected benefits of socio-economic and human development inherent in a supposedly urban society. Thereby, the focus of environmental security in an urban setting is the sustainability of its environment with the intent of making it an ideal society. Therefore, the consequences of urbanization in relation to the concept of environmental security shall be assessed by linking the concept to urban poverty situations and some of the relevant components of security such as water security, food security and community ecological security.

POVERTY, URBANIZATION AND ENVIRONMENTAL SECURITY

Nigeria as a nation is endowed with natural resources both renewable and non renewable which gives the country reasonable economic earnings. The economic earnings derived from these gifts of nature to the country have not transformed the economic wellbeing of most of the populace. Even though, their has been continuous economic growth being witnessed in the nation over the last decade, but notably a very high percentage of the populace both in urban and rural still wangle in economic poverty that is associated with low or no income or money.

Nigeria has been estimated by the World Bank (2012) to have 55% of its population living below national poverty line. The same bulletin reported about 50% urban population in Nigeria between the year 2004 and 2010 are living in poverty. The urban poverty has been exacerbated in Nigeria by low levels of social development that results from corruption, misallocation of funds, poor investment habits, poor family planning habits, minimum wage laws and declining life expectancy (Lawanson, 2012).

Building up from the widely recognized assertion that poverty may exacerbate environmental degradation (UNDP, undated), therefore the poverty situation or levels in a society may determine the adequacy of its environmental security. Consequently, the poverty levels of urban society may have role to play in determining the components of environmental security such as water security, food security and community ecological security.

Also most of the urban growth experienced is due to over urbanization that is driven by the reproduction of poverty and not by the supply of jobs (Davis 2006). The growth of urban poverty has led to the growth of urban slum where most of the components of environmental security are hampered. Three quarters of urban population in most developing economy countries urban centers live in slums (Myers and Kent 2005). Statistics shows that Lagos, the biggest city in Nigeria has more than 100 slums (UNDP, 2003 and Adelakan, 2009). Other notable cities in Nigeria such as Enugu, Kano and Ibadan have considerable proportion of slums at their city outskirts (Fourchard, 2003). Most of the slums in many of the cities and urban centers are deficient of safe water, adequate health facilities, and other urban essential living infrastructures Hence, they are mostly predisposed to adverse negative impacts from unsustainable urban management that culminates into environmental security issues such as floods, health implication arising from contaminated water and waste management challenges and food insecurities.

WATER SECURITY

Water security is a veritable part of environmental security. It inter-connects most of the components of environmental security. In line with this discourse, water security is examined alongside urbanization in Nigeria as "in the vein of potable water for consumption and the threat of water related risks such as in flooding and water borne diseases" (Akiyode, 2010).

Uncontrolled urban population growth associated with poor governance might have encouraged the decay of existing infrastructure and hamper the development of adequate infrastructure in many cities in Nigeria. This has made flooding an unavoidable security risk to many urban centers in Nigeria. This is coupled with the threats of environmental challenges which include climate change.

Though, flooding is now recurrent occurrence in Nigeria's urban societies mostly during the raining season's year in year out. It destabilizes the environmental security in Nigeria urban areas affecting the security of life and properties. For example, incessant rains between June and August 2010 led to flooding caused by the overflowing of the bank Goronyo dam in the Sokoto State in northern Nigeria and water released from the Oyan dam in the south western part of Nigeria led to displacement of people from their homes and loss of huge properties in urban and rural societies in Sokoto, Kebbi and Jigawa (3 States in North Nigeria) and Lagos and Ogun States (3 States in South Nigeria) (Fagboun, 2011).

Also, Ibadan city in the south western part of Nigeria witnessed a disaster caused by flooding through torrential rains for few hours which led to the submerging of many houses with more than fifty people unaccounted for and several families loses both in human and material terms (Vanguard, 2011 and This Day, 2011). Likewise in the year 2012, excessive flood were witnessed in the months of June and July in many urban settings in Nigeria which included Lagos mega-city, Ibadan and Jos cities. The overflowing of River Rikkon in Jos in Nigeria middle belt led to the loss of 47 persons with no fewer than 3000 displaced and no fewer than 36 persons declared missing and 200 houses swept away (The Punch, 2012 and Tribune, 2012).

Study of urbanization trends in Kaduna city in the Northern part of Nigeria over a period 1962 and 2009 by Alayande and Agunwamba (2010) indicated that increasing urbanization along the Kaduna River floodplain is responsible for the problem of flooding that has been experienced in recent times along the river floodplain.

Adequate water for consumption and sanitation are prime ingredients that determine satisfactory water security. It is the determinant of urban health security. Most of the diseases world over is associated with unsafe water. The most recent estimate (2004-2010) of access to an improved water source of Nigeria population is fifty eight percent (World Bank, 2012).

Nigeria is sub-divided into 36 states and a Federal Capital Territory. The supply of water for consumption and sanitation is the responsibility of the states and private sectors not the federal government. Thereby, access to water for consumption and sanitation differs from states to states. This has shown a decline for sometime now. About 79% of urban dwellers in 1990 had access to safe water while in 2000 and 2008, it decreased to 77 and 75% respectively (Olajuyigbe, 2011 citing WHO, UNICEF JMP, 2010)

Akiyode (2011) citing George (2010) in a study titled *"Urbanization trend and water insecurity in developing economy mega-city"* highlighted that Lagos mega-city in the South Western part of Nigeria (this is the most populated city in Nigeria and one of the largest known mega-city in the developing world) requires about 650 million gallons of water per day. The study further inferred that the water supply by Lagos State Water Corporation the sole organization expected to supply pipe wholesome water in the state could only meet about 20% of the city need. While the other water needs of the mega-city are met through private and commercial sunk boreholes spread around the city. Olajuyigbe (2010) citing Sullivian et al (2003) in a study assessing water service delivery in urbanizing city in Nigeria affirms that access to piped water may be regarded as access to safe water. Therefore, the safety of water for consumption for Lagos residence from the private and commercial sunk boreholes which are the alternative avenues when not accessible to pipe borne water in Lagos may be doubtful.

FOOD SECURITY

The Food and Agriculture Organization of the United Nations (FAO) defines food security as a condition that occur when people "at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and active life" (FAO, 1996). Therefore, food Security in vein of availability, accessibility and safety is an important part of urban sustainability.

Nigeria is endowed with 74 million hectares of arable land and additional 2.5million hectares of irrigable land with advantage climatic condition for food production which could make variety of crops thrive well with maximum yield in its different ecozones (Oriola, 2009). The notable seasons of rainy and dry seasons yearly in the country have at most times supports its agricultural production potentials with reduction in the need for the use of irrigation in many parts of the nation.

Therefore, the climatic plus economic conditions of Nigeria as a nation favors in-country food availability but its accessibility to individuals may depend on personal economy or income. However, reports still shows the percentage of food insecure households in Nigeria in the year 1986 was 18% and over 40% in 2005 with the food security status of the households being influenced by its socio-economic characteristics (Sanusi et al 2006). Therefore, food access may mean reducing poverty (Obamiro et al. 2003). The poverty level (i.e. low income or no income or money) of urban society is thereby paramount in influencing its level of food security.

Societal or civil insecurity caused by the Boko Haram insurgency permeating the northern Nigeria recently is having is toil on Nigeria food security. This has effects on food production and market forces. Boko Haram insurgency has resulted in about 118 attacks and death of more than 300 people since 2009 in some northern states (USAID, 2012). These attacks are at most times in the urban communities. The USAID 2012 reports further that in the year 2012, food supply is low relative to 2011 for all commodities because of high transportation costs and low production in 2011 caused by instability. Also, at different times dawn to dawn curfew has been declared in 2012 in some urban centers in the upper northern parts of Nigeria hindering food market forces and accessibility by the urban residents.

COMMUNITY ECOLOGICAL SECURITY

Apart from water and food security that are being affected by urbanization, it also has its toil on community security in diverse ways. It affects mostly the environments of many urban centers in Nigeria destabilizing its ecological capitals in various ways. Such includes its pristine nature and its enduring biodiversity. This has continued to create differential gaps between the rural and urban communities.

Community ecological security and quality urban life are hindered by inadequate waste management in many developing economy countries like Nigeria. Urbanization, industrial and socio-economic development with population growth is changing the compositions and patterns of wastes in societies. This is because, the urban consumables determine the nature and types of urban wastes which invariably decides the kind of impacts they will have on the environment.

Solid wastes sometimes don some streets in most urban centers and cities in Nigeria which depicts challenges in its management. Solid waste technology in some of the developing economy countries including Nigeria at most times has its processing and end points in uncontrolled dumps called landfills in cities and urban centers. For example, Lagos mega-city has four notable uncontrolled landfills (Abule-Egba, Solous, Isolo and Olushosun) surrounded by residential buildings in different parts of the cities. These uncontrolled dumps are seen in most of the urban centers in Nigeria surrounded by residential houses giving out landfill gas and obnoxious odors to their surroundings.

Apart from landfill gases that are readily sent into atmosphere of residential areas in most of the urban centers in Nigeria, there are uncontrolled emissions of gases from the industries and factories in many of the industrial urban centers like Lagos, Kano, Ota, Aba etc. Efe (2008) in a study on the "Spatial distribution of particulate air pollution in Nigerian cities" found that "the urban environments of Nigeria are characterized with increased particulate matter (PM_{10}) The study further suggested that that the urban corridors of over 70% of Nigerian cities are sites having a high rate of daily mean/annual mean ambient particulate matter of over $120\mu g/m^3$, while less than 30% of Nigerian urban centers had mean annual ambient particular matter value of $119.2\mu g/m^3$. Uncontrolled air pollution has socioeconomic, physical, chemical and health implications on cities and urban dwellers.

Furthermore, there has been increase in concentration of pollutants in the air in urban centers in Nigeria because of high congestion caused by increased in the number of automobile vehicles plying the urban roads. Abam and Unachuckwu (2009) in their paper on the "Vehicular Emissions and Air Quality Standards in Nigeria" analyzing diverse urban air depicts increased pollution from mobile transportation source with increase in per capital vehicle ownership which is resulting to high congestion on Nigeria city road and increase in the concentration of pollutants in the air, consequently, increasing health risk on human population".

Additionally, there has been destabilization of urban biodiversity in most of the urban communities in Nigeria. Landcover, landuse and urban space in most of the cities have been changed due to urbanization that has triggered infrastructural development and societal change. This leads to both terrestrial and aquatic biodiversity loss in many of the urban centers.

Oka (2009) citing Esspee (2006) revealed that 11 per cent of the bird species in the urban areas in Nigeria may be threatened by developmental activities within the urban setting.

CONCLUSION

The concept of environmental security is designed to encourage sustainable management of global and local environmental issues in order to achieve global societal sustainability and peace. Therefore, its principles promote better living conditions for mankind and its other living components in every society. Therefore, its analysis for urban setting is essential in determining its security, safety and sustainability.

The study affirms through using Nigeria as a case study of developing economy countries, the interrelationship of urbanization, environmental security and sustainable development. It identifies the concept of environmental security as one of the components of Nigeria nation/state security but recognizes that it is latent in its policy thrust. It posits that urbanization trends affect the environmental security of urban centers in Nigeria hindering among others its water security, food security and community ecological security.

The study recommends that emphasis should be given to environmental security in the national policy thrust of Nigeria and other developing economy countries and suggest the formation of all-stakeholders self inclusive urban environmental governance for the management of urban centers.

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