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Climate Change Reduction: A Mirage in Nigeria

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Abstract

This paper aims at assessing the weakness of Nigeria in efficaciously dealing with the menace of climate change within the country. The researchers examined how the campaigns against climate change has been embraced in the Real Estate Development Practices in Nigeria. Various surveys were conducted on deforestation, gas flaring, planning adaptations to climate change in selected housing estates, preservation of forests and the use of badly smoking vehicles on city roads. Campaigns and policy statements to reduce the adverse effects of climate change are made but not implemented. The TPAs and CDAs were blamed for inefficiency in monitoring and supervision of real estate developments at the various housing Estates surveyed. Deforestation in the Northern Nigeria was attributed to Poverty and lack of electricity supply from the public mains. It was concluded that climate change in Nigeria may not be achieved unless practical adaptive measure are taken, and all agents of Government responsible for overseeing their enforcements rises to their responsibilities without prejudice. Way forward to achieving climate change reduction in Nigeria is proffered.

Keywords: Real estate developments; Climatic change; Implementation; Challenges; Reductive Measures

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INTRODUCTION

Land is subjected to various uses such as agricultural, housing, industrial, and commercial, transportation, and other forms of land developments. With the yearly increase in each nation's population, the extent to which land is consumed for various beneficial developments also expands. Vast areas of the naturally vegetative environment has been transformed to built state with some levels of display of inexperience about the implications of unguided developments contributing to environmental degradation. (Chima; Nwagbara & Ogbonna, 2010). Deforestation has exposed large expanses of forestlands to direct reflection of the ultraviolet rays from the sun. The further conversion of the lands into habitable and work-lands, increases the concentration of carbonic gases emitted with little or no trees to reabsorb the emitted gases. Other harmful gases belonging to the category of the green house gases, ghg, are also emitted from the homes and industries, but most often locate any carbon sinking trees to reduce their harmful effects. (Efekalam, 2010). When emitted into the atmosphere, these gases form invisible blankets, trapping the sun rays and contributing to the heating up of the immediate environment, above normalcy. (Nkwocha & Pat-Mbano, 2010). Studies on African climate and development show that climatic changes emanate from such developmental activities as extensive agriculture, mass housing production, oil exploitation, commercialization and industrialization. Each of these developments contribute in varying proportion, large volumes of the green house gases, ghgs, that threatens the global community.

According to the Intergovernmental Panel on Climate Change Panel, IPCC (2008), carbonic gases contribute above 60% of the green house gases emitted into our environment. Most of its emissions are man-made. (West, 2012., and Nwajiuba, 2008). Nigeria is not exempted from climate change and has made some efforts towards its reduction through policy statements and campaigns

against bush burning and gas flaring, and campaign for tree planting. (Federal Ministry of Environment, 2010; and Isaac, 2011 September).

Notably, the population of Nigeria rapidly grew above 155million by 2010.(Aneikh.Com, 2010). Nigeria is also among the great nations of the world, struggling to become one of the 20 most developed nations of the world by the year 2020. (Onyenekenwa, 2011 & Akindoyeni, 2011). From the World Bank Databank in 2010, Nigeria was rated the 30th poorest nation of the world based on purchasing power parity, PPP. (quote by Wikipedia free encyclopedia, 2011). Deduced from the Federal Government of Nigeria's campaign for oil subsidy removal, 90% of her citizens are living below the poverty level, not because the nation lacks the resources to bring her citizens above the poverty line, but due to corruption, inappropriate utilization and distribution of available fund for achieving the target goals of effective housing, employment, education and supply of electricity. Oil production process in Nigeria is poorly monitored that gases worth hundreds of millions of dollars is flared rather than packaged for local consumption. Being the world's biggest flarer of Associated Gas (AG), Nkwocha & Pat-Mbano (2010) lament that only 19 percent of the total gas flared is recovered. This is despite the 2010 deadline given by the Ministry of Environment to sanction all oil companies for every cubit of gas flared, and the strategies to convert wasting gases in to useful energy with the aid of the gas master plan. (NNPC, 2010., Onyeukwu, 2009 and The Nigerian Oil Handbook, 2002). It is obvious that since her independence, the Nigerian Government has been struggling to address the major challenges of meeting the housing needs of her people, addressing energy crisis, and injecting money into the oil production and distribution sector, to mention a few. Various machineries put in place by different Governments to drive these projects, were expected to align with her programmes on the fight against adverse climatic change effects. Series of campaigns have been made through radios and television programmes. Some states of the federation even initiated their own state committees on climate change and advocate mainly on tree planting. Green programmes were adopted by various State Governments between 2007 and 2011, create green open spaces in urban centres. There has also been environmental policies to check climate change threats in the country such as the Environmental Impact Assessment Policy on all development projects in Nigeria (Agwu, 1998), the Federal and various State Environmental Protection or Sanitation Agencies, and the use of Town Planning Authorities ,TPAs, and the Capita Development Authorities CDAs, to monitor the housing standards and adherence of developers (including the Government, corporate bodies and individuals) to building rules, street codes, and general development standards. Government also took some policy measures to compel various oil companies to stop further flaring and wastage of gaseous resources. (FGN, 2009).

With all these efforts in place, the Researchers of this paper pose the questions;

How far has Nigeria practically contributed to climate change reduction? What are her major challenges on achieving reduction in climate change? Are the citizens and the various machineries on ground effectively responding to the global trend on climate change reduction as campaigned? If not, what is responsible and what should be the way forward?

It is therefore the aim of this study, to assess the weakness of Nigeria in efficaciously dealing with the menace of climate change within the country. This target shall expose the challenges of climatic change reduction within the Nigerian environment. The study shall be treated from the perspective of Real Estate Development and Planning.

GOVERNMENTS PARTICIPATION IN THE DEVELOPMENT OF MASS HOUSING ESTATES IN NIGERIAN URBAN AREAS

Residential Estates

Courageous strides to develop decent and complementarily compatible housing units for the Nigerians resident in the country was taken by the Government to resolve accommodation problems in Nigeria. From 1960 to 1983, the main target was the low-income earners. It extended to other classes of income earners from the 1990s (Nnadi, 2007). Series of Housing programmes were set up to accomplish this, though a five-yearly development plan. Although the vision was defeated due to the civil crisis of 1961 to 1966, delay in resuming the policy implementation after the war, logistic challenges and corruption and poor condition of the sites for the housing estates. (Ebie, 2009 and Odu, 1992). Vast land areas were acquired nationwide and utterly bulldozed, to commence development. Sequel to weaknesses observed from the past efforts in housing, the Nigerian Government encouraged individuals to participate immensely in housing development through different ways. This is irrespective of their income status. Some of the ways applied include housing-to-mortgage system, repayment approach adopted by the Federal Housing Authority, FHA, the sites and services housing schemes, and the National Housing Fund strategy initiated 1992. However the use of direct labour, prefabricated construction components, and the adoption of sites and services housing development approach has not prevented total destruction of the natural environments of target sites in the quest for housing developments. Instead, it exposed a lot of our lands to direct reflection of ultraviolet-B rays, flooding and the consequential loss of soil fertility. By the time the hectares of lands cleared;

forestry and agricultural practices is affected, sublimating substances that fertilizes the soil evaporates, and the immediate temperature rises as well. Today in Nigeria, this practice of utter clearance of the project sites before starting (say) a market, institution, or the likes has become a tradition that indicates the ignorance of the appropriate professionals or authorities addressing climate change on the implications of the Government or individuals actions. Secondly, the Researchers observed in municipals within the south-eastern Nigeria, that even where the cities were formed by modifying the pre-existing rural settlements, proper effort was not made to ensure that people planted cover trees around their houses. The situation is worse at the densely populated urban layouts where no cover trees are found around virtually all the developed plot and area. It is a risky situation as these trees which not only act as wind breakers but plays vital roles as carbon sinkers are absented from the living environment as scarcely preserved. In Nigeria, recent studies on the urban climate by Ndoke, Akpan & Kato (2006), have shown that above 70% of the green house gases responsible for climate change are carbonic gases most of which comes from generating plants and moving vehicles. Where the population of workers or residents is dense more carbonic gas (CO_2) is exhaled with very few or no trees or water bodies to convert them and release sufficient oxygen (O_2) for human and other animals consumption. (Chima, Nwagbara & Ogbonna, 2010; Izrael, 2008 & Satterthwaite, 2008). This situation accounts for the numerous respiratory diseases associated with our urban cities, which most inhabitants are ignorant of. It indicates that the Environmental Impact of our housing projects as well as the transportation systems within these cities are not rarely assessed to avert their negative impacts to our climate.

Further on housing estate development in Nigeria, the Researchers conducted street-walk visits in six simple-randomly selected housing estates in the Southern Nigeria, to find out whether adequate adaptive measures have been taken to correct the housing exposure to climate change. They include the Asaba Housing Estate, Delta State, Ehimiri Housing Estate Umuahia, World Bank Housing Estate, Umuahia, Ebeano Housing Estate, Enugu, Federal Housing Estate, Umuguma, World Bank Housing Estate, New Owerri. The Researchers found spaces in-between houses, grossly insufficient for tree planting. In some cases the semi-detached houses did not conform with the uniform pattern as designed and planned. There was maximum economy on the plot areas allocated especially to allotees at the sites and services Estates to develop. As a result, these homeowners make every effort to squeeze in other space uses within their plots of land. Despite the smallness of space, each developer fenced his property with a very high wall. On further inquiry, they residents reported frequent crime attacks on lives and properties within the neighbourhoods, forcing the developers to take such adaptive measures. Firstly, the findings indicate that the Planning Authorities have failed to monitor, supervise and enforce the developments by these individuals within the estates as contained in the development policy for these areas. Secondly, since these are low-income areas, the government paid less attention to their space and security requirements during the planning and development stages of the estates. The implication to climate change is that the free flow of air for which the properties should not have been fenced, is obstructed by the fenced properties, trapping the flowing air and causing further change in temperature of the poorly ventilated areas.

Thirdly, at the design stage, the researchers observed from the developments, that the Government never considered these developers outgrowing their income status as low income earners, and bearing children above two, such that a household in the area grows up to nine occupants at a time as observed from our study at the World Bank Housing Estates. The Researchers view on this situation is that during sunny periods, the temperature within the environment grows higher than it should be, due to insufficient ventilation, lack of cover trees in each compound, ramping of the compound with screeds, interlocking blocks, etc, and the increasing population resident in the area but grows extremely cold in the midnights than previously experienced. This is attributed to lapses on the side of the Planning Authorities and the Project Agencies overseeing the actualisation of these Housing Estates, to incorporate adaptive measures towards reducing the adverse effects of climate change on the developed areas.

Worried about the situation is that despite the campaigns and conferences of climate change by the Government and her academic sector to encourage tree planting and adequate ventilation as ways of reducing climatic change, Nigerian Government has failed to vigorously apply her campaigns and climate control-related-policies while executing her development projects. In the Developed nations like, Germany and Canada with highly intensified developments, the Government ensures trees capable of absorbing about 60 percent of the carbon emission within city environments are grown around properties with some grasses to convert the carbon gases to bio-energy. Also their governments marshalled out strict penalties for unlawfully cutting the trees and has since then enforced the laws unsentimentally that citizens imbibe it as part of their culture. Such measures have rarely been adopted in especially in the Southern Nigerian cities. Instead we find congested developments that display neglect of what has been campaigned. Even years after these plots are developed, most residents do not cultivate the attitude of planting vegetative covers around their houses. Over-flooding is highly experienced

within some of the un-tarred areas and this is traced to the heavy down pour associated with highly exposed environments whose climatic condition has been greatly altered by developments. (Pat-Mbano & Alaka, 2009 and Satterthwaite, 2008).

Markets

The Researchers also surveyed some public markets in the Southern and Northern Nigeria to observe actual implementation of campaigned adaptive measures to climatic change effects. The analysis of the survey result is presented on Table 1.

Table 1
Observation of Tree Planting and Adequate Spacing in Market Developments in Selected Renown Markets in Nigeria

Name of market	Location	State	Shop Spacing	Dominant Roof Type	Trees/Carbon Sink	Use of Electric Generators
New Market	Owerri	Imo	Congested	Zinc	Not Available	Very High
Eke-Ukwu Owerre Market	Owerri	Imo	Congested	Concrete	Not Available	Very High
World Bank Market	Owerri	Imo	Congested	Zinc	Not Available	High
Relief Market	Owerri	Imo	Congested	Zinc	Not Available	Very High
Ariaria Market	Orlu	Imo	Congested	Zinc	Scarcely Available	Very High
Ariaria Market	Aba	Abia	Congested	Zinc	Not Available	Very High
Umuahia main	Umuahia	Abia	Congested	Zinc	Not Available	Very High
Opi Weka Market	Onitsha	Anambra	Congested	Zinc	Not Available	Very High
Ekwulobia Market	Ekwulobia	Anambra	Congested	Zinc	Not Available	Very High
Onitsha Main Market	Onitsha	Imo	Congested	Zinc	Not Available	Very High
Asaba main Market	Asaba	Delta	Congested	Zinc	Scarcely Available	Very High
New Market	Ngwo	Enugu	Congested	Zinc	Scarcely Available	High
Keita Market	Enugu	Enugu	Congested	Zinc	Scarcely Available	High
Sara Main Market	Gwaram	Jigawa	Congested	Zinc	Scarcely Available	Low
Kiyawa Main Market	Kiyawa	Jigawa	Congested	Zinc	Scarcely Available	Low
Kano main market	Kano	Kano	Congested	Zinc	Scarcely Available	Very High
Guzo market	Guzo	Zamfara	Congested	Zinc	Scarcely Available	Low
Ojuelegba market	Ojuelegba	Lagos	Congested	Zinc	Not Available	Very High
Ojota International Market	Ojota	Lagos	Congested	Zinc	Not Available	Very High

Source: Researchers Survey, 2011.

The above result shows that the shop spacing in all the surveyed markets are congested. In most cases, trees are scarcely found within the markets, despite the congestion of shops and stalls within these markets. Invariably the situation is the same all over Nigerian's urban markets. Observed also is the unreliable supply of electricity energy from public power mains, to these market areas to support the services of these traders such as tailoring, refrigerated goods, grinders, sawing, painters etc. This was found responsible for the many generators we found in use at the time of our lane-to-lane survey. Electricity generators are widely used in all the urban markets. The analysis indicates that the use of electricity generators is very high in the southern Nigerian urban markets than in the Northern urban markets. The Researchers lament the entire situation is a unacceptable for a nation that has the welfare of her citizen at heart. According to Franks (2009), above 60 million generators are in used in Nigeria, as at June 2009. The situation has not changed for good yet. These generators are used individually in our offices, homes, industries, markets and other activity places without considering its contribution to climate change, noise and air pollution, with some associated health defects that may lead to death in extreme cases. Unfortunately there exists no law or regulation on the use of electricity generators or even substandard ones within the country. This accounts for its very high use in our markets.

CONSERVATION AND PRESERVATION OF FORESTS IN THE NIGERIA

Poverty is a core disease of the third world nations. (Onyenekenwa, 2011 and Onwuchekwa, 2010). The inability of rural dwellers to earn enough money to buy kerosene for daily use has strained many into cutting down large areas of the Nigerian Tropical forests for fuel and money. Predominantly in the southern Nigerian markets, large chunks woods are cut in pieces, bundled,

assembled and sold for cooking and other domestic uses. (Pat-Mbano & Alaka, 2009). Deforestation arising from the above practice is currently on the increase and since the poor people are left with little option for survival, the available option (to deforest) is left to be abused. Only a few persons have been penalised for the act. (Isaac, 2011) and majority of the masses claim not to be aware of any law or enforcement, preventing them from deforesting. Also in Warri, Sapele and some parts of Ondo State, these trees are mercilessly cut by both licensed and unlicensed persons for industrial uses, and exportation. In most cases they do not reforest the cleared areas. This is how most forest regions of the world lost their natural values. Land degradation of this pattern subjects the environment to such adverse effects climatic change as flooding, erosion, and often desertification. (Efekalam, 2010 & Agwu, 1998).

Between January and November 2011, the Researchers also surveyed some rural settlements in Seven states of the Northern Nigeria. The essence was to observe in some non-capital local government areas, how far the trees planted by the State and Local Governments have been sustained by the residents and the Governments. The States include Kano, Kaduna, Nasarawa, Katsina, Bauchi, Kebbi and Jigawa. Without prejudice, the Researchers found that instead of allowing the trees serve as vegetative covers and soil compactors for agriculture, the residents either cut whole trees, or chunk virtually all the branches for wood and for building. This further reduces the land productivity and subjects the region to threats of desertification which further exposes the regional climate to more increased temperature. It also explains why the temperature of the area goes to the extremes (22-24^{0}c during the night and 30-44^{0}c during the day), at all seasons (Sayne, 2011) especially in present times. It is the role of the Department of Forest and Agriculture in the various State Ministries to monitor and bring defaulters to book. Unfortunately the situation has grown worse with time as inefficiency and supervision lapses are displayed in all cases. This has lead to more and more areas in the northern region of Nigeria, becoming more arid and unfertile for productive farming, with over-flooding experienced during the rainy season.

ELECTRICITY SUPPLY, OIL EXPLORATION, FUEL MANAGEMENT IN NIGERIA AND INCOME STATUS OF NIGERIANS

Petroleum is presently the major source of income to Nigeria. Since 1955 millions of barrels of crude oil has been extracted from thousands of Nigerian oil rigs. (Odu, 2001). Unfortunately the oil bunkers, have not helped the situation. Most of these pipes are weak, leaking and require replacements. The Federal Ministry of Environment (2006), recorded not less than 13million barrels of crude oil that has escaped to the environment due to ineffective monitoring and management of the facilities of the oil industries in Nigeria. An expedition to some of the oil rig stations in the southern region of Nigeria gives a clearer description of the extent gas is flared annually. According to Sayne (2011), Nigeria ranks the second of gas flaring in the world. She is currently the biggest supplier of crude oil to the United States of America. The resultant degradation include cases of oil spillage on the land and the sea, oil explosion and associated loss of lives, fertile agricultural lands, structural developments and general pollution. (Pat-Mbano & Alaka, 2009). The affected communities have restively listed heat, health effects and conspicuous waste of gas flaring emanating from the oil and gas producing activities in the Niger-Delta region of Nigeria. The Abuja NNPC (2009) equated the volume of gas flared in the country from oil and gas industries, (at least 70 billion cubic feet of gas), to roughly annual gas usage of twenty-three cities, the size of Washington D.C. or Brazil. From the stations where gas is flared daily in the country, thick concentration of carbon gas is fumed into the atmosphere, to the detriment of the surrounding residents. The environment has higher temperature than other areas around them. Cultivated crops seldom yield desired harvests particularly up to a kilometre from the source of flare. Although, the Oil pipe line act CAP 350 LFN 1990, provides for fair compensation on affected properties, the social cost of gas flared, the extent of harm caused by hazardous spills or the steady flaring of gas within the affected communities are not considered in the compensation valuation. Even if attempt is made to value and pay for them (may be) in future, the emitted cannot be reversed and this means more loss to climate change.

Another point is that most homes in Nigeria rely on carbon fuel as the ultimate source of energy for electricity, cooking, vehicles, domestic machines, etc. Suppose the volume of carbonic gases emitted from the millions of Nigerian homes is measured daily, the extent to which she contributes to global warming would have been quantifiably imagined. Apart from industrial flaring of gas, over 60million generators were reportedly used by Nigerians as at 2009 (Franks, 2009). Most of these electricity generators are poorly serviced before use, emitting dense volumes of carbon gases which are threat to human and wildlife respiration and have caused the death of many lives in the urban areas where in recent times.(Igboeroteonwu, 2011 and The World from African Perspective from Hague, 2011 September 6). Also in the cities, it is now common to find up to 70 percent of the vehicles in congested traffics, with bad engines releasing thick carbon fumes through exhaust pipes. The emission is directly inhaled by pedestrians and street traders and

flows into shops cum other buildings along these roads. Despite existing health and safety policies that prevent the use of such badly fuming vehicles from being used on Nigerian roads, and that supporting the fresh flow of air, the Ministry of Health and the Federal Road Safety Commission appears to be complacent about ensuring that human lives in Nigeria are not endangered through the use of a significant number of such bad-conditioned vehicles. The fleets of vehicles in this bad condition that enters our city roads each day, is seemingly alarming. All these agents of pollution contribute unmeasured amounts of gases that cause climate change. Sometimes the inability of Nigerians to go for quality vehicles or carbon-fuelled devices and sound services to their domestic machines is attributed to their income status which has left them less options for survival. Nevertheless, the appropriate guiding policies should not be jettisoned.

CONCLUSION

Increasing Real Estate Development practices have made climatic change an inevitable phenomenon in Nigeria. Government agencies responsible for overseeing various facets of environmental developments in the country have not lived up to their responsibilities in incorporating mitigative measures against the evolving climate change causes, via different forms of environmentally degradable development activities. Allotees in sites and services Housing Estates facing untold hardship are not adhering to the development plans and patterns designated for the various low-income housing estates. Worse is that poverty is playing devastating role in deforestation especially in the non-capital local government areas with less or no monitoring of tree fellers. It is therefore conclusive that Nigeria is yet to adopt concrete steps to climate change reduction in her real estate development sector.

THE WAY FORWARD

Poverty status of Nigerians should be taking into consideration during the planning stage of new housing estates particularly for the low income class. At each of the new housing estates flexible scheme should be adopted by the planning team to take care of the expansive household ratios. Again, Sufficient spacing for cover trees should be well considered at the planning and implementation stages. In fact, the TPAs and CDAs must not wait until developments have advanced to completion before they can come to supervise work in progress in the sites. We suggest that they should be well facilitated to conduct effective monitoring and supervision of all developing sites at least once a week. Were the plan is faulted during and after development, the Planning Authority should penalise the team responsible for the monitoring and supervision of the location. If there is insufficient manpower, let the Government employ more. After all a lot of graduate Planners are roaming the streets seeking for jobs. As for the developed Estates, Government should not wait for the residents to cultivate the habit of planting vegetative covers, because they failed to administer it ab initio. Let them nurse special trees, assign the appropriate professionals the responsibility of planting them one or more per plot, in each Estate, and where the strategic space has been developed, alternative space should be located. Otherwise, demolition of the structure is inevitable. For subsequent developments whether by direct housing production or sites and services, we suggest that the substructures should be developed at first, cover trees planted and appropriate site measures considered before allocating them to successful allotees.

Furthermore, it is high time the Federal Road Safety Commission, FRSC, started penalising users of vehicles that emit thick smokes which is dangerous to human habitation. Trees must be planted in the markets, and watered regularly to absorb bulk of the carbon emission in the markets. Although it is real that millions of Nigerians are in possession of generators we are of the view that more regular supply of electricity from public mains will drastically reduce the carbon gas contributing to the climate change. Improved and new technologies should be sought and expertises engaged to explore possibilities of converting the gas flaring into useful energy, which can serve a sizeable population of the country. Now is therefore the time for Nigeria to transcend from campaign to practical adaptation.

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