



## Climate Change and Nigerian Government's Intervention Efforts, 2000 - 2012

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**Abstract:** *Climate change and its catastrophic effects is one of the greatest global concerns of the 21<sup>st</sup> Century. Adaptation and mitigation are two practical approaches to containing and/or reducing the adverse effects of climate change. The study examined all the climate change intervention programmes implemented by the Nigerian-state and its public administration up to 2012. This was in order to ascertain to what extent such intervention programmes implemented mitigated the adverse effects of climate change in the context of the Kyoto Protocol as a developing country. Instances of such intervention programmes include: the construction of dams, drainages, erosion control measures, dredging of River Niger, Green Wall Sahara Nigeria Programme and the enactment of laws to reducing CO<sub>2</sub> emissions into the atmosphere. Our theoretical exposition was based on Sustainable Development. Thus, we theorized that mitigation approach of which Nigeria was assigned to by KP is capable to contribute in sustaining and/or maintaining our environment at a steady level without exhausting our natural resources or causing some ecological damage, so that the environment and the Nigerian people are not put into jeopardy. The study established three hypotheses. The three hypotheses were consistent with the empirical evidence from our secondary sources of data gathered. The result arising from the test of our hypotheses show that poor climate change intervention programmes implementation significantly contributed to Nigerian governments' inability to mitigate the adverse effects of climate change in Nigeria. The inadequate attention paid to the above mentioned programmes were linked to the absence of climate change policy. This was made worse by the unwholesome character of the leadership and those of public administration that executed those climate change intervention programmes. Based on the findings of this work, it recommended some measures that would be taken in order to mitigate climate risks effectively in order not to betray our children and the future generation. Of which the emergence of good governance into the Nigerian polity is at the epi-centre to its realization.*

**Key words:** *Climate Change, Public policy & Public Administration, Sustainable Development Theory, Adaptation & Mitigation Programmes & Nigeria.*

### INTRODUCTION

Climate change has become a universal and worrisome experience. It is one of the most significant challenges to global economic development. Left unchecked, continued global warming could cause worldwide social and environment disruption (Anbumozhi, Breiling, Pathmarajah, and Reddy, 2012). Changes, be it in administration or climate, can have wide-ranging effects. In the same vein, changes in the environment can have or cause unexpected result. For instance, the burning of coal or wood that gives off many particulates that pollute the environment can choke or lead to cough. In a similar vein, any noticeable variation that alters the climate- which is "the average weather over a period of years" (Pasachoff, J.M; Paschoff, B; and Cooney, 1986:483) is a change in climate. Article 1 of the United Nations Framework Convention on Climate Change (UNFCCC) in Ezirim and Onuoha (2008:91) defines Climate change as:

A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over a comparable period of time

Put succinctly, it is “any change in climate over a time as a result of either or both natural variability and anthropogenic factors” (Ezirim and Onuoha, 2008:91). Writing on his: *Our choice-A Plan to solve the climate Crisis*, Al Gore (2009:16) asserts that “we, the human race, can solve the climate crisis. It will be hard, to be sure, but if we choose to solve it, I have no doubt whatsoever that we can and will succeed.” What may have informed Al Gore’s opinion may be that of Misra & Verma’s (n.d) position that “human activities have contributed significantly to the menace of global warming by enhancing the atmospheric level of carbon dioxide (CO<sub>2</sub>)”, in its quest to produce needed energy. Farrukh, Minhas, Hussain, and Mujahid on their work agreed that the CO<sub>2</sub> gas is the primary green house gas, which is the main cause of global warming. There is a consensus of opinion that energy plays an important role in determining the economic activities of countries and is mainly used to produce goods and satisfy the required services (Ozkan, Erdal, Pektas, and Ozkan, n.d).

It is the search to solve the global climate crisis that fostered Kyoto protocol, and national and regional environmental policies to stabilize greenhouse gas emissions (Ritterburg, Kummel, and Peramond, 2011). Though, there is the argument that to address climate change concerns would be an uphill task. To address climate change concerns, the USA will have to displace 1.2 billion tons of carbon emissions annually by 2030 using massive applications of energy efficiency and renewable energy technologies (Bezdek,n.d). More worrisome is that in the opening years of the new millennium, the green house gas (GHG) emissions of the larger developing countries-like China-began to increase steadily as their economies grew in their effort to address poverty and encouraging development (via fossil fuels energy sources) (Coetzee and Winkler, 2013). China alone has 25 – 30 percent of the emissions (Lepouge in Obayuwana 2014:21).

In spite of all these climate challenges, the global search to solve the climate crisis has begun. It was the global concerns over the changes in climate that led to the negotiations between sovereign states on limiting GHG emissions. These efforts resulted to the signing of a framework agreement or convention in 1992 into a formal institution known as UNFCCC (Coetzee and Winkler, 2013). The UNFCCC institution, according to Coetzee and Winkler, pursued vigorously four key climate elements that include the environmental objective of stabilizing GHG concentration in the atmosphere at the level that would prevent dangerous anthropogenic interference with the climate system. It defined and outlined a clear principle that balanced the responsibilities of developed and developing countries. The global concern via the Kyoto Protocol has been pushing “to supplement, if not to replace, fossil fuels with renewable. Of which Brazil, the United States and the European Union (have embraced)” (Ritterburg, Kummel, and Peramond, 2011).The global warming and climate change threat is obviously amongst us with gloomy predicted future. The World Meteorological Organization (WMO) revealed that the world experienced unprecedented high impact of climate extremes during the 2001-2012 decade; which estimated that 90 percent of natural disaster worldwide including that of Nigeria’s 2012 flooding that devastated most part of the country were caused by extreme weather (Alao and Falaju, 2014:11, March 24). What is more, Alao and Falaju added that experts have predicted that “the low income countries, including Nigeria, will remain on the frontline of human induced climate change over the next century and would be experiencing gradual sea-level rises, stronger cyclones, warmer days and nights, more unpredictable rains and larger heat waves”. What is worse, by 2030, the severity of climate change (if not tackled effectively) will negatively impact food, water and other resources and “it will worsen the outlook of the availability of these critical resources” (The Guardian Editorial, 2012:14, Dec. 21).

To tackle climate change effectively there is the need to adapt sustainable development approach in climate programme execution. In conceiving and pursuing on Sustainable Development Policy and Measure SD or PAM, Coetzee and Winkler (2013) posit that developing country decision-makers would begin by identifying the development priorities and only then isolate the policies and measures that provided synergies between sustainable development and reductions of GHG emissions. Therefore, climate policy is expected to provide policy guidelines and technical advice to governments on how “to implement climate change solutions and in maintaining the ecosystem services in the face of changing climate (Conservational International, n.d). That may be why, the Delhi Ministerial Declaration on Climate Change and Sustainable Development at COP8 in 2002 outlined their integration of its climate change policies and measures into their national development programmes in a manner that took into account “their specific national and regional development priorities,

objectives and circumstances” (Coetzee and Winkler 2013). By and large, all countries ought to be active in its adaptation or mitigation actions, in order to contribute its efforts to achieve climate change solutions.

In the pursuance of its mitigation actions did the Nigerian governments or its public administration pursued both macro and micro environmental issues like other developing countries did, as highlighted by Coetzee and Winkler, that suggested building or upgrading its energy infrastructure-hydroelectric dams, wind farms and solar programmes; to micro issues of promoting the use of improved stoves in households, from the rural focus of reforestation and afforestation projects to more urban issues of public transport improvements and waste management. To what extent did the Nigerian governments encouraged traditional knowledge that has helped various communities in the past to survive and thrive in a similar ecosystem likened to what Padigala(n.d) referred to as ethno climatological or ethno scientific traditional knowledge of the Himachal Pradesh Region of India, that was said to have a tremendous potential to contain their challenges of climate change impacts.

The Nigerian state via its public administration, in line with other countries’ climate change programmes, was expected to have intervened intensively principally via various mitigation measure approaches amongst other initiatives as assigned to all Non-Annex Parties of developing countries to solving climate change catastrophe. Of which the basis of this study is to ascertain how far the Nigerian governments’ intervention efforts in the context of Kyoto Protocol (KP) assigned responsibilities were able to change the behaviour, action and thinking of both the Government and its citizenry in decreasing the intensity of GHGs emissions amongst other mitigation approaches, in order to reduce the adverse effects of climate change within the period of study: 2000 – 2012.

In view of the above, We wish to situate this work in order to ascertain how far the Nigerian Governments’ intervention programmes and projects were able to reduce the adverse effects of climate change threats in Nigeria within the period of study: 2000-2012

The research questions that will guide the study are as follows:-

- 1) To what extent did the Nigerian Governments climate change Intervention programmes contribute to mitigate the adverse effects of climate change in Nigeria?
- 2) How did the absence of climate change policy affect the Nigeria Governments Intervention efforts within the period of study?
- 3) Did the Nigerian Governments demonstrate strong commitment in the enforcement of laws on gas flaring and the ban on importation of over 15 years used vehicles in order to reduce GHGs emissions.
- 4) What proactive measures can be put in place to drastically reduce the adverse effects of climate change and encourage green growth economy in Nigeria?

#### **The General Objective of the study**

The aim of the study is to critically examine and highlight how far the Nigerian Governments Climate Change intervention programmes demonstrated its strong commitments to mitigate the adverse effects of climate change catastrophe in Nigeria; and proffer proactive measures that would effectively mitigate the adverse effects of the emerging climate change crisis in Nigeria. The specific objectives are to:

- 1) Examine the extent the Nigerian governments’ climate change intervention programmes contributed to mitigate the adverse effects of climate change in Nigeria.
- 2) Find out how the absence of climate change policy affected the Nigerian Governments climate change intervention efforts in Nigeria.
- 3) Ascertain the extent the Nigerian Governments enforced the laws on flared gas and on the ban orders on importation of over 15 years used vehicles in order to reduce the GHGs emissions that cause global warming and the climate to change and
- 4) Proffer proactive measures that would effectively contain and/or reduce the emerging adverse effects of climate change and encourage green growth economy in Nigeria

#### **Literature Review**

Climate change is one of the greatest challenges facing the world today. It should be given all the seriousness it deserves by all. Our environment is getting out of balance and our planet Earth is at stake due to climate change. “We can solve climate change crisis. It will be hard, to be sure, but if we choose to solve it, I have no doubt whatsoever that we can and will succeed (Al Gore, 2009:16). This requires a change of action, behavior and thinking to contain climate change crisis. How far did the Nigerian governments’ climate change intervention programmes contribute to solve the climate change catastrophe in Nigeria meditatively?

Or has the governments failed to realize that climate change matter have grown beyond mere environmental issues?

### **Nigeria and Climate Change: Some Arguments**

In Nigeria, like other countries of the world, there has been unusual environmental disaster phenomenon since the recent past and now. These include: Major storms/ flooding, extreme heat, prolonged droughts, unexpected draining of wet lands. Lake Chad once watering four nations in Africa has over a 50-year (1961-2011) period shrunken to an oasis (Akanmu, 2012:20-21). Odey, the then Minister of Environment (2009) who took cognizance of Intergovernmental Panel on Climate Change (IPCC) reports on Nigeria states in Akaeze (2009: 26-7) that:

The climate change scenario variation currently being experienced is likely to increase in scope and intensity. Droughts, desert encroachment, flood and erosion and storms are likely to increase in both frequency and intensity (and) changes in rainfall patterns are also likely to occur thus negatively impacting on our agriculture and food production.

Some of the manifestations of Odey's (2009) statement include: the September 9, 2010 Sokoto flood via Goronyo Dam that ravaged Sokoto and Kebbi States. Tunau (2010) argued that it was due to the unprecedented rainfall that led to parts of the dam's emergency spill ways to collapse (Abimboye, 2010:29-31). The acute erosion menace in the South-Eastern parts of the country by rampaging flood during heavy rain. Egboka (2011) argued authoritatively that though erosion is a natural phenomenon, it can be exacerbated by man, in attempt to level hills gently, and fill valleys that obstruct water ways (Akaeze 2011:18, Feb. 28).

In spite of all these, global warming that causes the climate to change has been described as a fluke aimed at taxing people more to generate revenue for western governments (Aneke, 2012: 158). Corroborating the above, Okputu (2009) in Chigbo (2009:38) adduced that global warming is a conscious agenda by the developed countries to phase out fossil fuel and the determination to improve their renewable energy technologies. That may be why Chapman (2008) in Aneke (2012: 158) had earlier postulated that, people will not subscribe to the fact that the earth is actually cooling when their careers and reputations, government grants/ funding and hopes for social change are all hinged on global warming.

But Walsh (2012 (b):12 (b) agrees that climate change is real, and it's happening now. We can argue about what causes it, how to handle it and how to balance the cost of that action against the risks of doing nothing, but we need to surrender to the basic science. Lomborg (2009: 42), argues that, the West has proposed a solution that would cost more than the problem it meant to solve. It is estimated that its damaging effect would cost the world close to \$3 trillion a year by the end of this century if nothing is done about global warming. Lomborg continues, in an effort to avert this "catastrophe" the industrialized nations have proposed a plan that would mandate cuts in carbon emissions in order to keep average global temperature from rising any higher than 2°C above pre-industrial levels. Tol in Lomborg (2009) argued that in order to cut carbon emissions enough to meet the 2°C goal, the leading industrial nations would have to place a huge tax on carbon emitting fuels. But with the struggling and/or melting of the Western economy, one doubts the feasibility of such proposal. From the International Energy Agency stand point, in order to cut carbon emissions by three-quarters over the rest of the century, while maintaining reasonable economic growth, alternative energy sources capable of providing roughly 20 times the energy they do now would be required (Lomborg 2009). Can the alternative technologies required be provided globally to meet this proposition? It is only time that will tell. Meanwhile, as the climate change melts Arctic sea ice, vast areas of water that were once blocked are now opened for offshore drilling and oil ships (Walsh, 2012:22, April 9).

### **Nigeria and Climate Change Policy**

A policy is a plan of action adopted by any individual, organization or government to be pursued in order to achieve a desired objective or set goal(s). Dye in Egonmwan (1991:1) states that public policy is whatever government choose to do or not to do. Dror in Egonmwan (1991:1) sees public policy as a major guideline for action. Igbokwe (2012:1) asserts that, a policy is typically a principle or rule to guide decision and achieve rational outcome. He went on to explain that policy merely guides action toward those that are most likely to achieve a desired outcome, while law can compel or prohibit behaviour. He, therefore, concludes that public policy is government action that is commonly embodied in constitution, legislative acts, and judicial decisions. In Nigeria, there is no such policy on climate change. Efforts to having one are being delayed by

the Executives. That may be why the House of Representative Committee Chairman on Climate Change, Ubani (2012 in Terhomba 2012:10) states that:

We have not done enough. I don't see evidence of any effort being made to mainstream efforts to mitigate adverse climatic changes. I do not see that in our budgets. I do not see it in the way we do our physical planning in the urban sphere and in a built up environment.

This is in spite of the fact that climate change is one of the biggest environmental issues of our time, which is already harming us. The Nigerian governments do not appear to understand how degraded and stressed Nigeria's environment has become and that further damage due to uncoordinated intervention efforts would lead most Nigerian communities into environmental unrest; due to the absence of public policy on climate change.

There is need to enact climate change policy. As Climate Change.... is exposing vulnerable people to incremental risks. Enabling people to manage these risks requires public policies that build resilience through investment in infrastructure, social insurance and improved disaster management (UNDP, 2007/2008:167). Regretfully, Nigeria does not have a holistic policy on climate change that is aimed at achieving sustainable development as at 2012. What are obtainable in Nigeria are bits of limited unsustainable rules and regulation guiding different sectors on the environment. Folarin (2012:159-160) in Okpaga and Bako (eds) (2012) asserts that:

Nigeria's policy on climate issues and environmental control is not integrated into a particular comprehensive document and plan of action. It is diffused into different sectors of the larger sense of the "environment". Consequently, there are themes of action plans that determine the totality plan of what constitutes the Nigerian Policy on the environment. These include the National Policy on the Environment, Waste Management Regulations, Ecological Fund, Pollution Abatement in Industries and Facilities Generating Waste Regulation, Niger Delta Development Master Plan, Natural Resources Conservation Action Plan, National Renewable Energy Portfolio Standard (RPS), National Guidelines and Standards for Environmental Pollution Control, National Forestry Action Plan, National Energy Policy, National Procedural and Sectoral Guidelines for EIA for Agricultural and Rural Development and National Action Plan to combat Desertification (NAPCD).

Folarin (2012:162) concludes that, the policies, or action plans, or legislations mentioned do not have much data on them. From all these, it can be seen that Nigeria's policy statements on the sectors of environment are many and clear; however there could have been an integrative approach to it. All of them should have come under a comprehensive policy on the environment. Also, it is very clear that the policies are more of guidelines rather than long term measures to combat growing environmental challenges such as climate change. Of which the absence of such a holistic policy on climate change in Nigeria does appear to have impeded the climate change efforts in Nigeria, as a government without a definite policy is like a traveler without a destination. He may cover many kilometers and yet not been able to say where he is going or how far he has gone (Chijioko (1987) in Egonmwan 1991).

Climate change is already with us. Its effect upon humanity is on the increase; and is getting worse especially upon the developing countries like Nigeria. Some scholars and scientists like Bischof (2002), Chapman (2008) in Aneke (2012) believe that what causes the temperature rising and the consequences of climate change (drought, flooding, heat waves) are being over-hyped, and called for caution. While experts like Paul Crutzen (the originator of the concept of Anthropocene), Sherwood, Rowland and Mario Molina (that highlighted the Chlorofluorocarbons (CFCs) effect in Sachs (2008), Anyadike (2009), Onuoha (2009) strongly assert that global climate change effects are real.

It is observed that the Nigerian Governments' Intervention efforts to contain and/or reduce greenhouse gases emissions are still insignificant, and it is experiencing international diplomatic politicization on the carbon fossil fuel cuts. All these seem to be militating against the realization of reducing the adverse effects of climate change not to talk of keeping warming below the 2°C set targets by UNFCCC. Some have alleged that the cost of "curing" the problem of reducing/stabilizing of GHGs to 2°C may be worse than the consequences of greenhouse gases emissions that are causing the increasing global warming (Lomborg 2009:42).

From the representative definitions, discussions and the reviewed literature, adaptation and mitigation are two practical approaches to tackling climate change. The Nigerian Governments did embark on various climate change intervention programmes. But it does appear such intervention programmes may

have been characterized with lackadaisical and other unwholesome characters. There seems not to have a comprehensive guideline that could have made the climate change intervention programmes a national one, rather there were pieces of guidelines, and action plans in various agencies of the Nigerian Governments like that of Federal Ministry of Environment. All of which invariably might have impeded the climate change intervention efforts in Nigeria.

So far, many isolated approaches have been posited and embarked upon in piece-meal by the Nigerian governments in order to mitigate the adverse effects of climate change. But it does appear not much efforts have been made by scholars and environmentalists to examine comprehensively as this study has embarked upon, why the Nigerian governments climate change intervention programmes were unable to mitigate effectively the adverse effects of climate change in the context of Kyoto Protocol; as the 2012 flooding that almost ravaged the country exposed the Nigerian Governments' inability to reduce the adverse effects of climate change. It is this gap in literature of seeking effective ways of mitigating the adverse effects of climate change catastrophe in Nigeria that forms our point of departure.

#### **Hypotheses:**

Taking cognizance of what we have examined so far, we set the following hypotheses to guide the study:

- 1) The Nigerian governments' climate change intervention efforts did not contribute significantly to mitigate the adverse effects of climate change risks in Nigeria.
- 2) The absence of climate change policy adversely affected the Nigerian Governments climate change intervention efforts in Nigeria.
- 3) Nigerian governments did not demonstrate strong commitments in the enforcement of laws on gas flaring and ban orders on importation of over 15 years used vehicles in order to reduce CO<sub>2</sub> emissions in the country.

#### **Theoretical Paradigm**

In the quest to come up with mitigative approach that is capable to contribute in maintaining our environment at a steady level without exhausting our natural resources or causing some ecological damage, we adopted Sustainable Development concept approach for the study; so that the future environment and its people would not be put into jeopardy. This is because, the previous global sustainability of humankind is now threatened by the dynamics of technology, economy and population rise, which now accelerate the unsustainable environmental change. Sustainable development as an approach is of great essence in environmental resources management and preservation. That is why Bossel (1991:1) asserts that, the sustainability of the human society becomes an urgent concern.

Sustainable Development (SD) has broad definitions, and different perspectives. Sustainability is a dynamic concept. Bossel (1999:4) argues that:

Societies and their environments change, technologies and cultures change, values and aspirations change, and a sustainable society must allow and sustain such change that is, it must allow continuous, viable and vigorous (sustainable) development, which is what we mean by sustainable development.

Bossel (1994) added that sustainable development of human has environmental, material, ecological, social, economic, legal, cultural, political and psychological dimensions that require attention. Before the popularization of sustainable development by Brundtland Commission (1987), the modern emphasis on sustainable utilization of natural resources was traced by O'Riordan (1988) to a series of African based conferences in the 1960s, and discussions by the World Environment Conference in Stockholm in 1972. It was the World conservative strategy that first brought the concept-Sustainable Development into focus (IUCN, 1988 in Goddey, 2008:15). It was the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, and the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg resolutions that adopted Sustainable Development goals to carry forward a bold green development agenda to 2030 (Uwaegbulam, 2012:56, June 18). Earlier on, it was the Brundtland Commission's Report that highlighted the need to simultaneously address developmental and environmental imperatives (Onuoha and Ozor, 2010:45 in Anyadike et al (eds.) 2010). Therefore, it is the visionary of the World Commission on Environment and Development chaired by the former Prime Minister of Norway, Gro Brundtland in their "*Our Common Future*" published (1981) known as Brundtland Commission that defines sustainable development. It is development that seeks to meet the needs and aspirations of the present without compromising the ability of future generations to meet their own future needs (Bossel 1999; Goddey 2008; World Commission on Environment and Development (WCED) 1987 in Abdullahi 2012:95 in Okpaga

and Bako (eds.) 2012). It means prosperity that is globally shared and environmental sustainable (Sachs 2008:31). But, without better environment stewardship, development will be undermined and without accelerated development in poor countries (like Nigeria) environmental policies will fail (Onuoha, 2009:46, in Eboh, Ozor, Onuoha and Chukwu (eds.) 2009). In order to fast track development amongst the developing countries like Nigeria, Brundtland (2012) advised the use of science as key to the way forward to achieving a more sustainable planet (Ekah, 2012:21). Regrettably, sub-Saharan countries and other poor developing countries have low scientific and technological capabilities to achieving the technical perspectives of sustainable development.

The key principles or characteristic features of sustainable development in this study are that:

- Humanity's well-being and improved quality of life of the people is at the epicentre of sustainable development.
- It incorporates the spirit of intra and inter-generation equity that endeavours to make both the present and future generation to be healthy and productive without exhausting the natural resources or cause some environmental or ecological damage.
- It requires effective participation of both the governments and the public in the implementation of sustainable development programmes.
- It is geared towards innovation and socio-economic prosperity in an efficient and environment friendly manner.
- It incorporates measures to contain, reduce, prevent, control or mitigate the environmental damage being caused by global warming and climate change adverse effects.
- It contains approaches that grow more goods and services, empower the citizenry and still preserve or protect the environment.
- In its precautionary feature, Québec (2002:1) aptly asserts that sustainable development offers alternative action to be taken "when there are threats of serious or irreversible damage (like the current climate change catastrophes being experienced globally), that the lack of full scientific certainty must not be used as a reason for postponing the adoption of effective measures (as being provided by sustainable development approach) to prevent environmental degradation. That is why sustainable development paradigm becomes imperative to this study.

Sustainable Development acknowledges the primacy of country's policy measures that incorporate the economy, ecology and the people's present and future needs. The magnitude of the adverse effects of climate change upon the planet Earth especially among those of the developing countries like Nigeria is getting worrisome. It needs both adaptive and mitigative approaches in order to reduce and stabilize the impact of global warming and to contain the atmospheric GHGs not to go beyond the 2<sup>o</sup> centigrade set targets. This motivated the choice of sustainable development.

The Rio 1992 and Johannesburg 2002 put sustainable development on the map for its application amongst the countries of the world including Nigeria. To apply its tenets to Nigerian environment in order to contribute significantly in maintaining the environment at a steady level without exhausting the natural resource, Adebipe and Adeleke (2008) came up with some advisory comments. These include that, precautionary principle and recognition that each government is responsible for creating condition for sustainable development within its own boarders; that sustainable development encompasses a number of basic political challenges: democratization, respects for human rights, combating corruption and appropriate resources management.

This is because the tenets being applied would significantly make the Nigerian environment to continue to function indefinitely in its quest of producing more goods and services without endangering the welfare needs of the future generation, as it tends to avoid extreme sectoral imbalances that would damage agricultural and industrial sectors. Socially, the tenets would tend to support its people by empowering them with its all inclusive participation of all stakeholders in its socio-economic programmes that endeavour to achieve social mobility and distributional equity and provide adequate social services to its people without jeopardizing the planet Earth in the effort to reducing the adverse effects of climate change. Rather, it would endeavour to maintain the planet Earth through the above measures that tend to improve the ecosystem that conserve the environment in a sustainable manner. This would tend to avoid over exploitation via industrialization and urbanization. That is what the GWSNP and other renewable programme measures are meant to achieve. This would allow continuous, viable and rigorous sustainable environment in Nigeria.

The choice of sustainable development as the paradigm for this study is due to its relevance in the analysis of effects of climate change via mitigative programmes amongst developing countries like Nigeria. It is our contention, that the world (including Nigeria) can certainly save itself, from its current ecological, demographic, and economic trajectory; if the world (developed and poor developing countries) cooperate effectively. Sachs (2008:6) argued that this can be achieved through sustainable system of energy, land, and resource use that (can) avert the most dangerous trends of climate change and destruction of ecosystems.

### **Research Procedure**

The design used for this study was documentary research method cross-sectional survey research. This was conducted through simple observation that reviewed documents and records on climate change and Nigerian Governments efforts up to 2011 and beyond, especially on mitigations more than adaptation strategy documents. This enabled us to assess and suggest that Nigeria, as a developing country, should adopt mitigative approach in tackling the adverse effects of climate change. The study being qualitative in nature used the descriptive method. This enabled us to collect, describe and interpret all the data collected in the course of this study. This enabled us to critically examine our hypotheses with the view to validate or state otherwise through the analysis of all information gathered about the phenomenon under study.

To generate data for this study we made extensive use of documentary research method otherwise referred to as secondary sources. This includes written material documents which have been produced for other purposes rather than the area under study. The sources from where we generated data for this study include official documents from the United Nations-United Nations Framework Conventions on Climate Change (UNFCCC), UNDP-Environment and Energy Group, and Official documents from Ministry of Environment and other government agencies like the Nigerian Meteorological Agency (NIMET). We made extensive use of relevant documents and data from journals, books, periodicals, seminars and conference papers, magazines, newspapers and internet materials that relate to the area under study.

What is more, we opted to use secondary data for this study because we agreed with Hyman (1987) in Nachmais and Nachmais (1992:292) which states that, in research on more contemporary issues (like climate change), the investigator researches through a wide range of materials covering different areas and eras which may result in greater scope and depth than is possible with a single primary data projects. Nachmais (1993:293) added that with such secondary analysis, we can better understand the historical context, and by analyzing data collected in different times on similar issues, we can also describe and explain change (like that of climate).

To achieve high validity and reliable work that is coherent, the data collected were thoroughly analyzed and synthesized. The research work being qualitative in nature, we processed the data through the inductive logical method. That made us to conduct our analysis and presentation of data to emanate from particular to general. As one of the functions of science is to establish via inductive explanation a particular or general impression or law about a given society like Nigeria and its environment, we therefore used the inductive logical method to convert our simple observations and secondary data in order to make a climate change statement in a scientific manner.

The secondary data collected were analyzed through qualitative descriptive statistics, by drawing out the relationship from the variables. This made us to make logical arguments. In the course of analyzing the data, we separated the data and grouped them hypothesis by hypothesis. The findings and discussions were done around the three hypotheses, which we have earlier on posited.

### **Findings**

This part is divided into three sub-themes according to the guiding hypotheses stated earlier on. That is, **The Nigerian Governments Climate Change Intervention Programme Efforts did not Contribute Significantly to Mitigate the Adverse Effects of Climate Change Risks in Nigeria**

Prior to UNFCCC Kyoto Protocol (KP) assigned mitigative responsibilities, Nigerian governments had embarked on various intervention programmes that had the capability to reduce the adverse effects of climate change risks in Nigeria. KP can be met within Nigeria's determined domestic approach methods. The Nigerian governments did not express strong commitment to mitigation outcome, but rather to the implementation of its assigned responsibilities for its own sake Nigerian governments were superficial in most of the intervention programme measures it embarked upon, even before the Kyoto Protocol assigned responsibilities. For instance, most dams were either haphazardly constructed or abandoned half-way. There were no significant embankment projects around Rivers Niger and Benue or along low-lying coast areas that should have been strategic to containing any eventual over-flooding experience that is likened to the one the



Southern America country of Guyana embarked upon in 2007. The programmes embarked upon and/or abandoned halfway include: the channelisation efforts on the flood plain area along River Benue in Yok and Hausa Dasin in Adawama State, and its dam proposal that was abandoned in 1982 (Ajide, 2012, October 26); the non implementation by the Federal Government over the years (in the eighties) to all the proposals and entreaties to embark on essential mitigation programmes like the building of dams to store excess storm water, and the dredging of rivers, especially Niger and Benue rivers to create cavity for capacity to hold water, (Banire in Adegboye and Sessou 2012: 45); Of specific instance was the non implementation by the then federal government to build a dam that could have checked any excesses from the Cameroon, as experienced from the Lagdo dam that caused 2012 flood disaster. Nigeria was to have built her counterpart dam for water retention since the eighties, but due to the non construction of the said dam even when Cameroon built hers in 1982 (Banire in Adegboye and Sessou 2012:45) contributed to the 2012 flooding disaster.

The natural drainage/draining channels of Kainji dam that was built in 1968 with an inbuilt discharge sluices that helps to regulate the volume of water without its mounting to a disastrous levels have been blocked for five years now and no action was taken by the Ministry of Power to reopen them which account for over 80 percent of the flood being experienced today at the lower River Niger (Bassey, 2012:51). The 47 dams that were built in Northern Nigeria with seaways and embankment are (almost) broken down due to lack of maintenance (Madlion in Uweunonye 2012:38); the dredging of River Niger project that has for over 40 years remained on the drawing table, which was contracted out during Late President Yar'Adua's administration was abandoned half way (Akaze and Abimboye 2009:10); there were very insignificant embankment and/or dyke construction programmes along the low-lying areas along the Atlantic coast areas that could have checkmated the rising sea level occasioned by climate change catastrophe.

The Green Wall Nigeria Programme Initiative which was established in 2006 to tackle perennial droughts and desertification around the arid zones, rendered some tree planting afforestation programme service that was not holistic nor did it embark on multi-sectorally integrated programme up till 2012 (Oghifo 2012:34). About 22 million assorted tree seedlings were approved but haphazardly distributed across the entire nation to communities and institutions, in order to establish woodlots, forest reserve and greening of premises (Uwaegbulam 2012:48, May 28 ) under the afforestation programme. Federal Ministry of Environment (FME) Lagos Zonal office thus far distributed 800,000 seedlings to Lagos State Government out of the 22 million seedlings which have been distributed nationwide (Adefule in Fodeke 2012:49). In the Federal Ministry of Environment, (FME) Enugu field office, there was a record of on-going distribution of seedlings under the Presidential Initiative on Afforestation of 2010 in 2012. (See appendix). The seedlings include oil palm (Elias Guinnesse), Ogbono (Irvingia Gabonensis) Apple (Gristo Philum Albidum), Breadfruit (Teerculia Africana), pear (Dycrodes Edullts), cashew (Anakadum pulu mariaalba), Teak (Tickonia Gradis), Gemelina (Aboria), Jatropa (Jatropha Indica) (Distribution sheet of seedlings under Presidential Initiative in Afforestation in Enugu state: year 2012). The quantity so distributed as at the time of this research was not established.

What is more, despite global outcry over the continued depletion of the ozone layer and deforestation, illegal tree felling appears to be on the increase, particularly in the sub-Saharan Africa (Fanimo and Olorunlomu, 2013:10, August 1). They assert that, at independence, it was estimated that at least 30 percent of Nigeria's land surface was under forest cover; overtime either through national neglect reckless Nigeria lost about 4.9 percent of our forest by 2003. The situation, at present, is much worse and alarming. Nigeria, with a net loss of 1,013,127 acres of forest per year, is amongst the world top 10 deforesting countries, with the largest net loss of forest per year from 2000-2005. Others include Brazil, Zambia, Democratic Republic of Congo, Zimbabwe and Indonesia (The United Nations Food and Agriculture Organization (2007) in Al Gore, 2009:174). What is worse, "the CO<sub>2</sub> emission from deforestation are second to only to the burning of fossil fuels for the production of electricity and heat as the largest source of global warming pollution on the planet (Al Gore, 2009:172). It is sad that while Indonesia, Brazil and some other developing nations with sustainable forest management policy are protecting their forests; Nigeria, (mostly) a rain forest country without protective laws, has been invaded by crude exploitation at a scale never witnessed before in the history of exploitation in the country (Fanimo and Olorunlomu, 2013:10, August 1) There were low infrastructural investment in the renewable energy sector of solar and wind. The study found out that in 2008, 46.8 percent Nigerians had access to electricity (Onyeji 2009:11). If the remaining demand of those without electricity are met by establishing electricity of fossil fuels via oil, coal and gas

(which Nigeria is currently pursuing) rather than pursuing clean energy sources of wind and solar, more and more carbon dioxide will hit the atmosphere causing more global warming (IEA 2009a and World Bank 2008a in Onyeji, 2009:11).

The SCCU organized workshops at the Federal level and in each of the Nigerian six ecological zones. It was targeted to build education, informational tools and capacity. The target participants included staff of the Federal Ministry of Environment (FME), State MOEs, Zonal environmental NGOs, the media, tertiary level institutions. In the course of building education, informational tools and capacity, they supported environmental NGOs with funds for small studies, supported the establishment of various climate change websites, developed comprehensive proposal for regional and/or Nigeria specific climate change documentary videos and radio programme for use as introductory learning tool, without recourse to extending such programmes to the rural communities throughout the country (FGN/FME: Nigeria and climate change, 2009:31). Some international agencies like the Canadian International Development Agency (CIDA) assisted in funding the Building Nigeria's Response to Climate Change (BNRCC) project, which partnered with the SCCU in developing a National Adaptation Strategy and Plan of Action for Nigeria. But instead of concentrating efforts mainly on mitigative programmes they (BNRCC/SCCU) anchored on four technically advanced adaptive approaches to climate issues of temperature, rainfall, extreme weather events and rising sea levels (Nwajiuba 2011:49), of which Nigeria at present does not have the technological capacity to delve into.

There were limited concerted efforts by the three tiers of governments to massively engage in tree planting exercise programme, as a people that has been befallen with climate change catastrophe. The Nigerian public administration involvement in enlightenment/education about the inherent dangers about climate change was conducted mainly at Federal level and in each Nigeria's six ecological zones alone. In short, Nigeria did not seem to see climate change as a development challenge in the likes of debt crisis or the Structural Adjustment Programme of the 1980s; as there were less intervention actions toward climate change crisis. What is more, there was no concerted effort to encourage the local ethno scientific knowledge, likened to that of India that incorporated the local knowledge of its people to tackle effectively the challenges of climate change.

#### **The Absence of Climate Change Policy Adversely Affected the Nigerian Governments Climate Change Intervention Efforts in Nigeria.**

Policy is like a light and guiding compass to achieving a specific goal. There is no other way of lightening our present environmental concern that is threatening to engulf us than the enactment of a holistic climate change policy. The study found out that, due to the high cost of adaptation response, which was estimated at USD 85 billion for Nigeria alone, Nigeria made appropriate decision to reduce its vulnerability to climate change. Such decisions include reducing its vulnerability to climate change for sustainable development and putting in place appropriate policy, legal and institutional framework, mainstreaming climate change into development planning... (FGN/FME: Nigeria and Climate Change Road to Cop 15 2009:56), which Nigeria has not upto 2012. To mitigate the adverse effects of climate change effectively, climate change policy is imperative.

The study found out that Nigeria had no operational climate change policy as at 2012. The National Assembly in 2010 passed a Bill on creation of Climate Change Policy. The Climate Change Policy was adopted by President Goodluck Jonathan on September 13, 2012, but has not been assented into law (Okali in Muanya, 2012:30).

Igbokwe (2012: 7 in Enete and Uguru (eds 2012) corroborates this by stating that:

To the build up to the seventeenth conference of parties (COP 17) to the United Nations framework convention for climate change scheduled to hold in Durban, South Africa from Nov. 28 – Dec 9 May (2011) have reached an appreciable level for many participating countries at the conference. It is, however, disturbing that Nigeria one of the participating countries at the conference is yet to establish a climate change commission...

On March 2013 the Federal Government inaugurated an Inter-ministerial Committee on National Framework of Application of Climate Services (NFACS) to come up with a short, medium and long term report actions in order to tackle adequately environmental concerns of climate change in the country (Abubakar, 2013:48-49). The Committee according to the Vice President-Sambo in Abubakar (2013) is to come up with a national framework for application of climate services that will provide accurate, relevant

and user-focused climate services, in order to enable better management of the risks of climate variability and adaptation to climate change in the country. What is more, Nigeria did not make frantic effort to heed to international policy measures to address climate challenges. As she still rely heavily on petroleum exports which still account for over 80% of the government's expenditure and over 90% of its foreign earnings come from export of crude oil (FGN/FME: Nigeria and Climate charge, 2009: 16)

**The Nigerian Governments did not Demonstrate Strong Commitments in the Enforcement of Laws to Reduce CO<sub>2</sub> Sources: Gas Flaring and Ban Orders of Over 15 Years Old Imported Used Vehicles.**

Gas flares and the continued use of over 15 years imported used vehicles are the major sources of CO<sub>2</sub> being implicated to contribute in impeding the intervention efforts in Nigeria. The study found out that in 1969 President Yakubu Gowon ordered the oil companies to cease flaring within five years from the above date. This was ignored. Ten years after, the federal government via the Associated Gas Re-injection Act Number 99 of 1979 required oil corporations operating in Nigeria to guarantee zero flares by January 1, 1984. Regretfully, the oil companies continued to flare gas. They merely paid the nominal fines of USD 3.50 for every 1000 standard cubic feet of gas flared from January 2008 to government for breaking the law (which has continued up till 2011 and beyond) (Uwaegbulam, Okere and Oyebade, 2013:21). The World Bank estimated that Nigeria flares about 75 percent of the gas it produces due to lack of markets and infrastructure (Niger Delta Human Development Report, 2006:78).

The Nigerian Governments have outwardly expressed being unhappy with the pace of decline on gas flaring. Nigeria currently routinely flared between 1.3 and 1.4 billion cubic feet (bcf) of gas a day and down from roughly 2.5 bcf about one and a half years ago (Olorunsola 2012:15). Gas flaring, the burning off of the natural gas that is associated with the extraction of crude oil is done by oil companies where and when there is no infrastructure to convert it into useable form. And this happens in Nigeria where the jurisdictions allow it due to weak legislation, corrupt leadership and a lack of political will to enforce globally-accepted best practice (The Guardian Editorial, 2012:14, October 22).

The study also found out that used compressors, used Air Conditioners and Used Fridge/Freezers; and used Motor Vehicles above fifteen (15) years from the year of manufacture and used were among the litany of goods importations which are absolutely prohibited by federal government via the Nigerians Customs Service (NCS) (<https://www.customs.gov.n/prohibitionlist/import>). This is due to its harmful effects to Nigerian environment. The study found out that Nigerian governments have not demonstrated genuine interest in tackling climate change concern or in delivering sustainability programmes. For instance, there were no serious action on carrying out ban orders on second-hand vehicles of over 15 years of use, or second hand used air-conditioning that has been implicated to be emitting much CO<sub>2</sub> and CFCs. According to undisclosed sources from the Enugu Area Office of the Nigerian Custom Service, defaulters of above ban orders were either given inconsequential punishment of not more than three (3) months jail term or a fine of two thousand naira N2000.00 which were readily paid when convicted by the law court, or most often such vehicles were usually seized and later auctioned to close members of the 'public associates'. Unlike Ghana, in 2012 that finally banned and discouraged the import of second-hand used fridges in order to reduce energy consumption and the harm it causes to the environment due to its emitting out much CFCs (Ofosu-Ahenkora in Isaac 2013). All these have made Nigeria to be among the 25 world leading emitters of greenhouse gases (Wikipedia World Population, 2012).

**Recommendations**

Arising from this study, we recommend that the Federal Government of Nigeria should:

- commence the immediate construction of dykes and/or embankments at all the strategic, vulnerable, low plain areas, especially around Rivers Niger and Benue, Kainji/ other dams, and other coastal areas of the country.
- restart the dredging of River Niger and other vulnerable rivers and the opening up of all strategic drainage systems around the dams and other water way channels across the country.
- fast-track the implementation of the Green Wall Nigeria Sahara Programme holistically.
- re-enact and synergize the tree planting campaign among the three tiers of government: where the local governments are made to establish native economic tree nurseries and encourage wide range of tree planting schemes among the various communities and school children. While the state and federal governments should vigorously pursue the GWNSP, and other tree/forest planting programmes by planting trees along all vulnerable but strategic flood and other areas, with the

assistance of the employed youths via the SURE-P recruitment, instead of engaging them on frivolous activities of clearing bushes along the main roads like the on-going one around Ogbede-Igbo-Etiti LGA along Enugu-Nsukka express road.

- reinvigorate the enforcement with stiff penalties on all environmental degradation laws, especially that of gas flaring and the ban of over 15 years used of imported vehicles.
- Mobilise its public administration to embark on extensive public enlightenment about the dangers of climate change risks, and to demonstrate the political will by subsidizing all renewable related goods and services programmes to the Nigerian people.
- establish an integrated efficient public-rail and mass-transit system which would help the environment in a host of ways: less fossil energy, less pollution and less noise
- as a matter of urgency assent the Climate Change Bill, and endeavour to lead the on-going clamour for good governance, as it is the panacea to synergize and co-ordinate the line ministries, departments and agencies to reducing significantly the adverse effects of climate change risks in Nigeria in the context of UNFCCC Kyoto Protocol's prescription.
- urgently form electoral ward/community based proactive Climate Change Mitigative Intervention Committee (CCMIC) throughout the country; that will integrate the traditional knowledge of the people with other scientific method of mitigation in order to assist in achieving climate change solutions

This study is aimed at determining the extent of measures taken to contribute in reducing the adverse effects of climate change risks in the context of the UNFCCC-Kyoto Protocol. Our findings based on the literature reviewed demonstrated that Nigeria's intervention responses to environmental challenges occasioned by climate change were grossly inadequate. Some of these challenges include droughts to desertification, erosions, flooding, and pollutions of all sorts. The poor climate change intervention responses that led to lack of full implementation of the UNFCCC-Kyoto Protocol was mainly due to the character of the State via its public administration especially those in the leadership positions that expressed various degrees of dishonesty in executing climate change intervention programmes and projects prior and during the period of study.

### **Conclusion**

It takes two to tangle. In the fight against climate change risks both the developed and the developing countries must co-operate, each contributing according to ones country's comparative advantage in either adaptive or mitigative contribution in the "war" against climate change. This is with the view to contain and/or reduce the ravaging adverse effects of the climate change catastrophe. The study concludes that, though Nigeria alone cannot succeed in the fight to reduce the adverse effects of climate change risks in its environment without the prompt release of international financial and technological assistance promised them. She can significantly reduce the adverse effect of climate change risks from her within, if there is the political will. This can be achieved by being transparent and accountable that would make her abhor her previous unwholesome character to public projects/programmes. This would re-invigorate to propel her into "seeking ye the tenets" of good governance in its public administration and all other things including the full implementation of the UNFCCC Kyoto Protocol will be added to Nigeria by 2030. The world according to Roosevelt (2002:43) has gradually moved away towards cleaner fuels: from wood to coal, from coal to oil and from oil to natural gas. Renewables are the next. Nigeria has not moved away from any of the above, due to its inability to enforce various environmental laws amongst others.

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