

Effects of Climate Change On Nigerian Economy: A Review

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ABSTRACT

The negligence and failure to tackle the issue of climate change by the past and successive governments has contributed great impediment to Nigerian economy. Climate change has also affected other indicators such as agriculture, security, health and commerce. The study examined various policies formulated on climate change as they affected Nigerian economy. The study adopted exploratory method in which the data for this paper were drawn mainly from secondary sources and content analysis of The paper reviewed various submissions on climate change from textbook, journals, and internet; and examined how it affects the nation's economy. Finding showed that government has formulated various policies to tackle the effects of climate. It is also discovered that some of these policies aimed at addressing some climate change challenges at various points in time. The paper however concluded that, government at all levels should proactively take steps in addressing environmental problems by aggressively implementing policies and international agreements on climate change. These include: effective management of waste, flood and coastal erosion. It is recommended that advocacy programmes should be encourage through workshops, seminars, public lectures, media campaign against climate change. The paper also recommended that appropriate policy step should be taken against desertification through the desert warriors, control of land, water, noise and air pollution. It is finally recommended that, funds should be made available in the university to carry out innovative research that can help stem the tide of climate change.

Keywords: Climate Change Policy, Economic Development, Agricultural System, Institution.

iSTEAMS Proceedings Reference Format

Hassan, I.K., Sanusi, O.S., Adedamola A. M. & Ashade, O.K. (2019): Effects of Climate Change On Nigerian Economy: A Review Proceedings of the 17th iSTEAMS Multidisciplinary Research Conference, D.S. Adegbenro ICT Polytechnic, Itori-Ewekoro, Ogun State, Nigeria, 21st – 23rd July, 2019. Pp 169-176. www.isteam.net - DOI Affix - <https://doi.org/10.22624/AIMS/iSTEAMS-2019/V17N1P15>

1. INTRODUCTION

In the contemporary time, environmental issues are receiving attention at the global level; and the global communities are continuously making efforts towards ensuring that the world is a better place for human habitation. Nigeria like other countries of the world has its own experience of climate change disasters. The North-Eastern region of the country (especially the Southern part of Lake chad) is drying up, (Bello 2017). Farmlands and surrounding villages became barren and were swallowed up by advancing desertification, which led to massive migration of people in search of more fertile terrain from the north east towards the greener plateau and middle belt regions, (Ekpe, 2012). The situation is similar in the south, where the forest around Oyo has long been reduced to grassland, (Odunayo 2015). The South – Eastern part of the country has been struck by gully-erosion that has devastated many settlement areas and farmlands while the Niger Delta's low-lying terrain and criss-cross of waterways make it extremely vulnerable to flooding, (Ogbonaya 2016).

Climate change is principally a major problem caused by the increase of human activities and mismanagement of the earth. These human activities have led to several direct and indirect impacts on health, (Akinoso 2017). Climatic changes have wide-range of harmful effects including increase in earth related mortality, dehydration, spread of infectious diseases, malnutrition, damage to public health infrastructure, migration of both man and animals, (Odunayo 2015). Man depends on his environment for existence and sustenance and this underscores the need for the protection of the environment from all forms of degradation, especially those brought about by the activities of man, (Ogbonaya 2016). Realizing the significance and inevitability of the environment for survival of man, environmental experts such as Majekodunmi (2015), Mabogunje (1991) et al have been brainstorming and vociferously on continuous existence of man through containing those activities that are inimical to the sustenance of the good environment, (Arnold 2016). Many countries of the world including Nigeria have continues to be under the threat of climate change. Problems like global warming, greenhouse gas effects, flooding, acid rain typhoons, rising sea levels, rising sea temperatures resulting in depletion of marine organisms, earthquakes, wind storms, land and mud slides, desertification, tsunamis, erosion, volcanic activities, hurricanes, pollution, deforestation have constituted great impediment on our environment, (Ekpe 2012).

Most parts of Nigeria countries have been bedevilled with wind storms, land and mud slides, desertification, erosion, pollution, deforestation, sandy storms and other disruptive occurrences that threatened lives and survival of both people; and these have called for attention. Furthermore, scientists have established a greater relationship between increased levels of carbon - dioxide emission into the environment by human beings and the intensity of global warming. They have argued that given the ongoing trends in global usage of energy, increased demand for development and global population growth, the world should expect corresponding terrible effects of climate change, (Ojo 2014). It is on this note that this study examines the effects of climate change on the economic development of Nigeria and various government policies on climate in Nigeria. It was in line with these challenges that this study sets out to review the trends of climate change in Nigeria as it affect the economy and intends to proffer suggest solutions. The primary objective of the paper is to examine how climate change has affect Nigeria economy especially in the area of growth and development. The secondary objective is to recommend how climate change can be beneficial and also enhance agricultural activities in Nigeria.

1.1 Climate Change

Climate change refers to some observable variations in the climatic system that are attributable to human activities, especially those that change the atmospheric composition of the earth and ultimately lead to global warming, (Ojo 2014). Climate change is an adverse environmental phenomenon that is causing enormous concern all over the world. It refers to some anomalies in the climate system as a result of human activities. These anomalies include increase in the concentration of green house gases (GHGs) in the atmosphere of the earth which will ultimately lead to global warming, (Bello 2017). Global warming is closely associated with climate change. It is the term used to describe the gradual increase in the average temperature of earth's atmosphere and its oceans; and it is a change that is permanently changing earth's climate. Global warming is caused by increase in the emission of GHGs through the burning of fossil fuels (oils, natural gas and coal), burning of wood, wood products and solid waste, raising of livestock and the decomposition of organic wastes in solid wastes landfills; combustion of solid wastes and fossil fuels in industrial and agricultural activities; bush burning and deforestation.

Recently, a new study by IPCC predicts more deadly heat from climate change. The research further stated that by 2050, more than 350 million people living in 'megacities' would be hit with deadly heat waves every year. Already, Ogbonnaya (2016), have established that environmental disruption is contributing to health threats in Nigeria. With evidence, they posit that the combination of high heat and humidity poses serious risks to many people, especially infants, children, the elderly, those with pre - existing health conditions, poor urban residents and coastal residents.

2. CLIMATE CHANGE AND NIGERIAN ECONOMY

Majority of Nigeria population engaged in agriculture activities as their primary occupation and means of livelihood. Small-scale farmers operating in 0.1 to 5 hectares with low-level traditional technologies dominate this large population, (Okon 2016). The Nigerian's agricultural activities are rain-fed and the farmers are engaged in crop production. The crops planted include; annual crops such as cassava, melon, yam, rice, groundnuts, peppers, onion, plantain, vegetables, while the cash crops are cocoa, oil palm, cashew, mango, coconut rubber, cotton and other fruit crops like pineapple, guava and pawpaw. Also, livestock rearing form parts of the GDP. Other means of livelihood include; hunting, blacksmithing, tailoring, carpentry and trading, (Ogbonaya 2016). Climate change affects both the livelihoods activities of the farmers as well as the sustaining support activities (crop production, coconut harvests, fishing and trading, etc). It has influenced the labour investments and occupational health, (Akinoso 2017). The impacts of climate changes on the population and livelihoods of Nigeria's farming communities include crops production, livestock production and fisheries.

Climate change affects crop production in a number of ways, for example, uncertainties and variation in the pattern of rainfall, floods and devastated farmlands, cause pest and diseases migrate in response to climate change while high temperatures smother crops, (Bello 2017). Meanwhile, unpredictable and irregular rainfall and sunshine hours continue to take the toll on hitherto low-level harvests of rice, maize, cassava, melon, sorghum and yam with at least 2.5% decline of harvests per annum, (IPCC, 2015). Climatic variations between the Northern and Southern parts contribute to the distribution of animals in the country. Generally, the availability of natural grasses for grazing is very limited and highly dependent on rainfall which is low in most parts of the North. The Southern parts of the country which have more rainfall and more grazing are wetter more parasites and endemic diseases. This is because high temperature and high humidity increase the rate of growth of parasites. Climatic stress reduces feed, water intake, grazing time and hence the rate of growth and productivity. High temperatures have hindered livestock production through retarded reproductive cycles. It has also reduced the production of meat and milk. Livestock mortalities (stock losses) have increased to about 15% per annum, (IPCC, 2015).

Fisheries activities in Nigeria take place in marine, brackish water, lakes and rivers. That, account for the varied fisheries locations countrywide. The fisheries in Nigeria involve the livelihoods of the resource poor fishers with a population of about 40 million spread across the seven (7) maritime states, (Ogundele, 2013). The most noticeable impact of climate change is seen in Nigeria's coastal areas, such as erosion of coastline beachfront in Lagos State, the deposition of beach sands in Ogun State coastline and mud deposition in the coastal areas of Ondo, Bayelsa, Rivers, Akwa Ibom and Cross River States.

2.1 Climate Change Policies in Nigeria

To combat the challenges of climate change in Nigeria, government has formulated several policies that are aimed primarily at reviving the agricultural sector and optimally to drive the economy. The policies include; National Adaptation Strategy and Plan of Action on Climate Change for Nigeria (NASPA-CCN), The New National Policy on Environment and The Agricultural Promotion Policy (APP). NASPA-CCN was formulated in 2011. The policy envisions a nation in which climate change adaptation is an integrated component of sustainable development. Its objectives include, reducing the vulnerability to the effects of climate change, enhancing the resilience and adaptive capacity of all economic sectors and populace particularly women and children to the adverse impacts of climate change and also capturing the opportunities that arise as a result of climate change. Some of NASPA-CCN strategies for the agricultural sector includes: Increase access to drought-resistant crops and livestock feeds; adopt better soil management practices; provide early warning/meteorological forecasts and related information; increase planting of native vegetation cover and promotion of re-greening efforts, (Ekpe, 2012).

Another major government policy with direct bearing on climate change is the New National Policy on Environment. This policy was adopted in Nigeria in 1991, revised in 1999 and finally adopted as a policy document in 2017. The policy document intended to look at all the different inter-sectoral issues relating to water, health, power and agriculture; and subject them to a multi-sectoral response, (Muhammed 2017). APP was launched by the administration of President Muhammadu Buhari. The thrust of the policy relevant to climate change includes, boosting public awareness through propagating the importance of climate-smart agriculture and strengthening institutional linkages and partnerships for ensuring climate smart agricultural governance, legislations and financial mechanisms. It also aimed at environmental impact assessment on major agricultural projects; the use of renewable energy, involvement of private sector; broad public and stakeholder awareness on climate smart agriculture and adoption of global best practices on climate change, including the aspects of adaptation, mitigation and carbon credit (Akinoso, 2017).

2.3 Theoretical Framework

Institutional Theory: Governments operate in an institutional environment which influences their actions. In this environment, the main goal of organizations is to survive not only economically, but they need to establish acceptability within the society they operate. Institutional theory analyzes how structures including procedures, rules and routines become established as guiding principles for social behavior through processes. Institutions determine how different elements are developed, diffused, adopted, and adapted over space and time (Scott, 2008). An important element of institutional theory is conformity. The institutional environment shapes political processes and the rules of the political game and vice versa. There is a link between how political institutions shape political incentives, how political behavior influences policy making processes and their capabilities. In the case of climate change, governments are responsible for the establishment of policy and programs. The way a government shapes the environment for development of climate change will depend on the institutional context where such policy take place. The policy interventions will have an impact on the institutional capabilities of the environment to foster development of climate change in order to provide an enabling environment (Jooste et al., 2011). Institutional theory is used to analyze the influence of the institutional environment on climate change policies with the intention of refining it and proposing it for further research to study the interplay between the institutional and policy outcomes. The categorization proposed by Mahalingam et al. (2011) serves as a means to delimit the institutional environment and characterize the institutional capabilities needed for development of climate change then we can compare different institutional environments. The influence of the institutional environment on policy outcomes and context shape the evolution of the institutional environment in different ways in different arenas, thereby leading to diverse policy outcomes over time, even when the initial set of institutional logics surrounding climate change are the same across these arenas.

3. METHODOLOGY

The aim of the paper is to examine climate change and economic development in Nigeria. The data for this paper were drawn mainly from secondary sources. While the paper is exploratory in nature and it meant to investigate the challenges and also proffer solution through recommendations. Based on this, the study maintains the qualitative paradigm of social research such as textbooks, journals, articles, newspapers and other publications. To improve on the reliability and validity of the study, multiple secondary sources were used to minimize the risk of error.

3.1 Issues Contributing to Effects of Climate Change

Nigeria thrives on two major sectors. Petroleum and agriculture, making the country highly vulnerable to the effects of climate change. Nigeria is also a thriving market for fairly used or old vehicles from other countries and these vehicles emit huge volumes of carbon into the atmosphere, making automobiles a major source of air pollution in the urban areas, (Odunayo 2015). Also, motorcycle riders mix the fuel of their motorcycles with lubricants and thus turn the fuel to gasoline which emits more carbons, (Bello, 2017).

Bush burning, indiscriminately felling of trees that expose the soil to direct harshness of the sun, uncoordinated disposal of refuse and other activities that expose farmlands, residential areas and the atmosphere to degradation also contribute to climate change, (Ekpe, 2012). Other issues include ocean surges that occur as a result of periodic spilling and plunging sea waves extremes that rapidly inundate the seashores. Ocean surges cause erosion of farmlands, landslides (between 250-750 m/year), sand deposition, mud-accumulation, salination of irrigated farmlands and damage to general soil fertility. Flood that often cause road damages, collapse of houses, public health hazards and losses of potable water owing to saltwater intrusions into wells and seaside beels (with losses of 0.1mt/fisher/annually), farmland losses, population displacements and ultimate livestock mortalities. Issues relating to climate change also have their effects on public health. The attendant impact of climate change on the public health spread of respiratory diseases due to increases in the level of pollutants, malaria, skin ailments, heat stroke, etc

4. CONCLUSION

Based on various submissions reviewed in this work, the paper concludes that, it is possible to promote and actualize the strategies for limiting and adapting to the impacts of climate change in Nigeria. It is also concluded that there is a need for government to speed up optimisation of the industrial structure, including improvements in energy consumption and use of high quality and alternative energy. In pursuit of this, government is expected to promote technological processes and scientific research for energy efficiency. There is also a need to develop new tools and mechanism such as energy efficiency labeling and energy and water conservation product certification to guide and provide sustainable consumption choices.

5. RECOMMENDATIONS

This paper posits that the conclusion of the work can be actualised with the following recommendations

1. There is the need to mainstream climate change into national, state and local development plans. As part of the efforts to mainstream the climate change, the government at all levels should proactively take steps in addressing environmental problems, which includes effective management of waste, flood and coastal erosion. They have to built up an advocacy programmes through workshops, seminars, public lectures, media campaign, climate change and waste water summits, tree planting land reclamation, landscaping and beautification, campaign against desertification through the desert warriors, and control of land, water, noise and air pollution.
2. Apart from the above recommendation, there is also the need to adopt appropriate technologies to mitigate the scourge at all levels, while there should be strengthening of human capacity building and infrastructure for mainstreaming climate change in national development.
3. Furthermore, policy makers, school administrators, teachers, parents, and students should embark on raising awareness of climate change in Nigeria especially amongst vulnerable groups like women, children, even at the grassroots, especially rural dwellers, as well as revive the tree planting program by raising awareness for individuals to plant trees.
4. Also, university lecturers and researchers should be financially motivated to carry out research in various fields of knowledge related to climate change, so that innovative research can contribute to practical solutions. Hence, these solutions can be included in the curriculum by the curriculum planners and it will be part of the core knowledge and also part of the compulsory education for students at all levels. Students should learn about the potential impacts of unmanaged climate change, as well as options for adaptation and mitigation, in order to enable a complete and robust understanding.
5. Finally, Federal Ministry of Environment and other relevant agencies should work to 'rescue' the environment through promoting sustainable use of energy, consumption preferences and environmental protection. People must eat more vegetables and drink water while architectural designs of homes should ensure good ventilation.

REFERENCES

1. Akinoso, A. S. (2017). Adaptation to Climate Change and Economic Growth in Developing Countries. Centre for Climate Change Economics and Policy, Working Paper, No. 49.
2. Arnold, J.W. (2017). Global environmental politics: Dilemmas in world politics. Colorado: Washington Press.
3. Ayansanwo, T. O. (2003). Fisheries development in Nigeria with reference to Ogun State. Report submitted to TCDC International Training Center in Jiangsu (Wuxi city) China, pp: 1-30.
4. Bello, M. (2017). Temperature, rainfall and economic growth in Africa. Empirical Economics, DOI 10.1007/s00181-012-0664-3.
5. Ekpe, T. R. (2012). Implication of climate change on social well-being. In Publication of Centre for Development, Environment and Policy School of Oriental & African Studies, University of London. 5, 53–74.
6. IPCC. (2015). Global warming; Early signs on climate change. Retrieved online (<http://www.climatehotmap.org>.)
7. Mendelsohn, R. (2011). Climate change and Economic Growth. Commission on Growth and Development Working Paper, No 60, World Bank, Washington DC.
8. Odunayo, J. (2015). Economic impact of climate change in Nigeria. Environmental and Resource Economics. 21, 135-160.
9. Odusola, A. F. and Abidoeye, B. O. (2012). Climate Change and Economic Growth in Africa: An Econometric Analysis, African Economic Conference. Available at <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Knowledge/AEC2012%20Climate%20Change%20and%20Economic%20Growth%20in%20Africa%20An%20Econometric%20Analysis.pdf>
10. Ogbonaya, J. G. (2016). The costs of climate change to Nigeria economy: Implications and challenges. Pennsylvania Academy of Science, Easton, 384–409.
11. Ogun State Agricultural Development Programme - OGADEP (2009). Report of the national fish frame catch assessment survey in Ogun State (2004-2008). Abeokuta: OGADEP.
12. Ogundele, R. J. (2013). Climate change and economic growth. Resource and Energy Economics, 27, 1-17.
13. Okon, B. E. (2016). Climate Shocks and Exports, NBER Working Paper No. 1721.
14. Scott, W. R. (2008). Institutional theory: Contributing to a theoretical research program great minds in management” The Process of Theory Development: Oxford University Press.
15. UNDP (2017). Climate change: Impacts, adaptation and mitigation of climate change in SSA. Cambridge: Cambridge University Press.
16. World Bank (2011). African development indicators. Washington DC: World Bank. Available at <http://data.worldbank.org/data-catalog/africa-development-indicators>.

APPENDIX



CLIMATE CHANGE AS A RESULT OF DEFORESTATION



NIGERIA MAP: The coastal and other desertification areas affected by climate change

