

The Political Economy of Climate Change in Nigeria

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Abstract

Original Research Article

Climate change is one of the world's most serious problems right now. It has impacted negatively on countries, individuals, and societies, resulting in a high level of poverty as a result of its touch on livelihoods. Nigeria, one of the most densely populated countries on the planet, with a population of 180 million people, half of whom live in abject poverty, is considered sensitive to climate change. Government policies have attempted to address this issue; nevertheless, mitigation, adaption, and other attempts have not yielded the needed positive results. This is because the government lacks the political will to do so in light of the state's development concerns. From the Marxian political economy perspective, it is discovered that countries' levels of development have influenced their responses to climate change in a variety of ways. Thus, the paper recommends among others that, to check climate change, all key stakeholders should collaborate to achieve climate change mitigation and adaptation, and that addressing climate change should be multi-sectoral in nature rather than confined to specific departments within the various ministries.

Keywords: Political Economy, Climate Change, Adaptation and mitigation.

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INTRODUCTION

Climate change is wreaking havoc on the economies of several individuals, societies, and countries, including Nigeria. This has detrimental effect on a huge number of farmlands and the means of sustenance of persons, increasing poverty and leading to food insecurity, migration, conflicts and public health concerns. As poverty becomes severe, the poor become more reliant on unsustainable development strategies. Thus, unsustainable development strategies such as fossil fuels add to global warming. Global warming therefore exacerbates problems in underdeveloped countries, particularly in Sub-Saharan Africa, which lacks the capacity to adapt to climate change. As greenhouse gas emissions cover the Earth, they trap the sun's heat, causing it to warm at an unprecedented rate; hence, global warming and climate change occur.

As one of the most pressing environmental challenges and global crises affecting civilization today, climate change is becoming a significant global concern, particularly in Africa and Nigeria, where rain-fed agriculture is used. Our fossil-fuel-based economic system has been altering the world for many years. Sub-

Saharan Africa, in general, and Nigeria in particular, have been recognized as the region most likely to be affected by climate change, including increased heat, erratic rainfall, and natural catastrophes, as a result of global warming. The failure of the international leaders' meeting in Copenhagen to enhance aspirations for a healthy climate saddened the region. The gathering, a worldwide meeting held in December 2009 to assess progress toward the 1997 Kyoto Protocol's aim and design a new direction for addressing climate change challenges, did not yield a satisfactory result (Muller, 2010). CO₂ emissions and the buildup of greenhouse gases in the atmosphere have changed weather and climate patterns; sadly, those responsible for climate change are rarely held accountable. Climate change has been exacerbated by traditional agricultural practices such as deforestation (tree felling for firewood and cooking energy) and bush burning as a farming practice.

Despite the fact that man and nature are closely linked, growing industrialization has accelerated the carbonization of the biosphere, leaving mother Earth with a negative carbon imprint that is redefining our symbiotic relationship with nature. The issue of slow

accumulation of dangerous gases in the atmosphere is central to the issue of anthropogenic carbonization of the biosphere and the biogeophysical interests of world powers, which influence the nature and extent of all socioeconomic and political interactions on climate change (Sadiq, 2013).

Nigeria is vulnerable to climate change. Under the A2 Scenario of the Intergovernmental Panel on Climate Change's (IPCC's) Emissions Report (National Adaptation Strategy and Plan of Action on Climate Change for Nigeria [NASPA-CCN], 2011), it is projected that Nigeria will experience a temperature increase of 0.04°C per year from about 1981/2000 until the 2046/2065 period, rising to 0.08°C per year after 2050. The scenario also projects wetter conditions in the southern part of the country and drier conditions in the northern part. The drier conditions are expected to be most severe in the north-eastern part of the country. For the 2046/2065 period, rainfall is projected to increase by an average of 15 cm annually in the south. It will, however, decrease at an average rate of 7.5 cm annually in the north (NASPA-CCN 2011: 10). Increased climatic risks, notably floods and droughts, are typically the result, wreaking havoc on food supplies and the economy. Climate change and global warming would wreak havoc on Nigerian livelihoods, including crop production, livestock production, fisheries, forests, and post-harvest activities, if they go uncontrolled.

The impact of these changes therefore without adaptation could cost between 6% and 30% of Nigeria's GDP by 2050, amounting to between USD 100 billion the government has put in place to and USD 460 billion (Department for International Development (DFID), 2009:10).

Objective of the study

The main objective of this study is to examine climate change in Nigeria, looking at its impact on the socio-economic development of Nigeria. Others include, examining climate governance and policies as response to climate change in Nigeria.

RESEARCH METHODOLOGY

The research adopted a descriptive research design. It dealt exhaustively on the political economy of climate change in Nigeria.

Method of data collection

The research made extensive use of secondary sources of data from textbooks, internet sources and newspapers.

Conceptual Clarification

Political Economy

The term "political economy" was once only a synonym for "economics," but it is now used to

describe the study of the social or political processes that lead to public economic decisions. In the context of climate change, Tanner and Allouche (2011) define political economy as "the processes by which ideas, power, and resources are understood, negotiated, and implemented by diverse groups at different scales." While there is a large literature on the political economy of environmental policy, which explains why environmental initiatives fail to protect the environment economically and effectively, systematic examination of climate change using the political economy framework is lacking.

Political economy, in its simplest form, is a hybrid concept that establishes the empirical interface between politics and economics. It investigates the development patterns and dynamics of the symmetrical link between economic and political processes from a methodological standpoint. Asogwa (2003:4) therefore asserts that,

The interrelationship between political variables and economic variables becomes apparent when we recognize the fact that problems involving the scarcity of resources which is the domain of economics and the relationships of power, rule and authority which is the area of political science are not disjointed and separate problem but one that cannot be solved without the knowledge and participation of the other.

Political economy, as fascinating as it may appear, is also a methodology or framework for analysis. Invariably, according to Aja (1998:10), "political economy is a tool of analysis, or a framework for analyzing approaches, concepts, theorems, hypothesis, and theories to explain, analyze, and predict the interplay of forces that determine not only the nature of capitalist and socialist economies, but the structure of the current international political economy and direction of change".

"Political economy of climate change therefore, is an approach that applies the political economy thinking concerning social and political processes to study the critical issues surrounding decision-making on climate change (Wikipedia, 2009). The growing awareness and seriousness of climate change has prompted academics to investigate the numerous actors and influencing variables that affect climate change negotiations, as well as to seek more effective climate change solutions. Analyzing these complicated issues from a political economy viewpoint can assist to explain the interactions between many stakeholders in reaction to climate change consequences, as well as providing chances for better climate change policy implementation.

Climate Change

There are many different ways to measure climate change. The International Panel on Climate Change says that it's a "change in the state of the climate" that can be found by looking at how its properties change over time, usually for decades or more. Any change in temperature over time, whether caused by natural variability or human activity, is called climate change. "Climate change is defined as "a change in the climate that is caused by human activity that changes the composition of the global atmosphere and that is in addition to natural climate variability that has occurred over the same time periods" (United Nations Framework Convention on Climate Change UNFCCC, in IPCC, 2007). "A change in the statistical distribution of weather over long periods of time is called "climate change." Wikipedia says that "climate change" is a change in the weather over a long period of time (Wikipedia, 2009). Wikipedia (2009) says that global warming is "the rise in the average temperature of the Earth's surface, air, and oceans since the mid-20th century and its expected continuation." This makes it clear that what is called climate change is actually the result of global warming. Climate change is a problem or phenomenon that has come about because there has been a big rise in the concentration of greenhouse gases (GHGs) made by humans (Spore, 2008). Natural resource depletion, ozone layer depletion, and global warming are some of the most important things about climate change. These traits are more self-reinforcing than other traits. A big problem in Africa when it comes to climate change is how many different stressors, like HIV/AIDS spreading and the effects of economic globalization and resource privatization, work together with climate change to make things worse.

Theoretical Issues

The study employs the Marxian Political Economy approach to examine climate change concerns in Nigeria. It focuses on the material conditions of existence (the economic substructure) and their impact on other aspects of interaction (or superstructures), such as ideological, political, legal, social, cultural, scientific, and religious factors.

The approach lends credence to the primacy of materialism which Marxists argue determines man's survival and development within his social enclave. Thus, man creates and recreates his existence through labor, the most profound of his numerous activities. However, the evolution, organization, and outcome of labor (the sub-structure) exist and are reflected within the context of politics (the superstructure). Thus, the connection between politics and economics is not only conceptual but also empirical and illuminating, as Nnoli (2003) explains, "the state's involvement in economic development reaffirms the fundamental connection between politics and economic life.

Climate change has arisen as a new component, contributing to increased underdevelopment. There's a danger that Nigeria's climate change crisis may be

exacerbated by the lack of a robust emergency and development policy, further complicating problems and increasing dependency and underdevelopment. Thus, the subject of climate change in Nigeria must be viewed in conjunction with developmental challenges, poverty, and unemployment. Nigeria has been seen as a weak, fragile state that has failed to put in place strong systems to help its citizens who have been affected by global economic woes. Every aspect of development in Nigeria is vulnerable to climate –related stressors. Nigeria's natural capital, including land, forests, landscapes, water, and fisheries) and physical capital, including cities, infrastructure, and other kinds of produced capital), as well as its human capital, are highly susceptible to the impact of climate change. Climate change affects the ability of natural capital, which is the main source of income and livelihoods for majority of Nigerians, to deliver its wide range of products and services (including food, timber, and the regulation of water cycles).

It's worth highlighting, for instance, that economic fights are inextricably linked to social and environmental aspects of man's interaction with the climate system (Edeh, Eme and Nnoli, 2014).

Impact of Climate Change on the socio-economic development of Nigeria

The impact of climate change is numerous. The variations in rainfall, temperature, drought, and humidity associated with the science of climate change in Nigeria affect climate dependent sectors. It affects the socioeconomic and political landscapes of countries as well as the relationship across nations as a trans-boundary phenomenon. As a result of its features which are life threatening; the rising sea levels, flooding, starvation, desertification, it is recognized as a threat to human existence. Certain factors such as HIV/AIDS, falling commodity prices, and, in some areas, conflict have significantly weakened the ability of poor Nigerians to withstand shocks from extreme climate events.

Climate change puts our food and waste supplies at risk, as well as our health, security, stability, and property. Different countries' economic conditions and institutional infrastructure have an effect on their vulnerability to climate change. Certain countries, particularly those with affluent economies, exhibit a high degree of resilience, while others, particularly those in Sub-Saharan Africa with less favorable economic and institutional conditions, are more fragile. Indeed, because developing countries are frequently exposed to a variety of climatic and non-climatic stresses, their failure to collect reliable data on the resulting consequences exacerbates the consequences. Although scientific evidence and understanding of climate variability have improved dramatically in recent decades, and quantitative evidence is now available, qualitative projections of the impacts of climate change on any particular system at any particular location are

difficult due to the uncertainty associated with regional-scale climate change projections; and understanding of current critical processes is limited (IPCC, 1995). However, Nigeria is behind other developing countries in the twenty-first century as a result of rapid population growth, rapid urbanization, and largely unsustainable agricultural practices that result in land degradation. Adejuwon (2006) asserts that, it will be exacerbated by the predicted negative consequences of global climate change.

Global warming and extreme weather events have a number of negative consequences for Nigerian society. They cover a range of subjects, including health, food production, the economy, human security, interethnic relations, gender issues, and tourism. Nigeria's economy is still based on primary economic value creation rather than industrial production, thus, any adverse effect of climate change on the biosphere will have a negative effect on the country's economy. Nigeria is a large country, with over 70% of the population residing in rural areas. To this extent, it is reasonable to assume that Nigeria's primary occupation is land-based agriculture. Despite the fact that petroleum accounts for more than 80% of the country's foreign exchange earnings, agriculture is the primary occupation of more than 60% of the population. While commercial crops (primarily cocoa, rubber, palm kernel and palm oil dominate agriculture in the rain forest zone, the guinea savanna zone serves as the country's food basket, producing the majority of the country's root and tuber crops. Much of the cereals consumed by humans and animals (primarily millet and guinea corn) are grown in the Savannah ecosystem. On the other hand, animal grazing is primarily found in the upper Sudan and Sahel. Crop production is concentrated in the wetland areas of this zone (locally referred to as Fadamas). The majority of this zone's wetland areas are irrigated to increase vegetable and cereal crop production (Onyishi and Amobi, 2015).

The southern mangrove swamp ecosystem is quite different from the one described above; the ground is constantly flooded, making it unsuitable for agricultural and grain production, which thrive in the guinea savannah and Sahelian ecosystems, respectively. These regions are well-known for their fishing and oil industries. As a result, different climate change events have a range of effects on these diverse ecologies. Global warming is already wreaking havoc on the environment in the two most vulnerable ecological zones. Desert encroachment is gradually but steadily reducing vegetation and grazing resources in the North Sahelian zone, necessitating increased nomadic activity (Ozor, 2009). This has almost certainly exacerbated intercommunal/ethnic tensions while simultaneously reducing agricultural output significantly. Sea level rise is causing flooding in the coastal south, while pollution is degrading the ecosystem and jeopardizing fisheries and subsistence agriculture.

Concerns about climate change intensified since the 1992 Earth Summit in Rio de Janeiro, Brazil. As a natural experiment to test the reinvention of neoliberal economics as Green Economy at Rio+20, the transformation from sustainability to green economy failed to drive industrial civilizations towards more environmentally sustainable behaviour. The search for a post-2015 Kyoto instrument however stagnated as a result of the weak and indefinite Doha agreement, posing a threat to Nigeria's achievement of the Millennium Development Goals. The inefficient land use and increased use of fossil fuels continues however, to discharge greenhouse gases into the atmosphere. This has serious consequences for the environment's long-term survival as well as human health. As a result, climate change has an impact on ecosystems, livelihoods, human security, and socioeconomic development, and has influenced human well-being and development (Edeh, Ene and Nnoli, 2014).

Human Infrastructure and forced migration

With climate change affecting highly populated locations in Nigeria like Lagos state, the number of environmental refugees displaced by natural disaster will increase. Forced migration therefore becomes one of the effects of climate change in human settlements, industries and businesses. Flood catastrophes in 2010 affected about 250,000 people in Nigeria (BNRCC 2011). In 2012, the situation became worse as the country was hit by high incidence of flooding; 1.3 million people were affected and over 400 people killed and in Makurdi, the flood was much that crocodiles were found on the streets of the town. These incidences were blamed on climate change; thus making the Director General of the National Emergency Management Agency (NEMA), Muhammad Sani-Sidi, to say that; "We are now living witnesses to the reality of climate change and global warming where areas considered dry land in the Northern part of the country witnessed excessive and torrential rainfall while some communities in the South were also submerged" (Ezigbo 2012). Rainfall patterns across the country have changed dramatically over the years, with most regions now seeing late onset rainfall, as opposed to only a few areas in the northeast, northwest, and southeast (BNRCC 2011). Early rain cessation, which was previously only observed in few regions in the southwest, is now observed across the country. "In most parts of the country, this combination of late beginning and early cessation has reduced the length of the rainy season" (BNRCC 2011, 11). There is also growing concern over desert encroachment in the north, with over 800 kilometers of the country's coastline vulnerable to rising sea levels and storm surges. Furthermore, the country's population is quickly growing without equivalent infrastructure improvements, decreasing infrastructure resilience to climate change impacts. Given that these threats "may degrade the quality of life and result in unstable

livelihoods, economies, and governments" (Lozet and Edou 2013: 30), it is critical that climate change be recognized as a pressing issue.

Human Health

Climate change affects human health and survival creating a major concern as well as the health and survival of other species of flora and fauna, and the environment. The World Health Organization (WHO) estimated that at least 150,000 deaths each year could be traced to the outcome of climate change. Moreover, this figure is expected to double by 2030 with connections to flooding and water-related diseases (WHO, 2021). Studies have claimed that climate change-related torrential flooding has led to disease outbreaks in various regions of the globe (Lisle, 1995; Rose *et al.*, 2000). Consequently, the Nigerian population could be exposed to such threats.

Since 2005 according to USAID (2019) Nigeria's human health indicators have been improving (its Human Development Index value increased to 13.1 percent), but challenges remain, and a changing climate could reverse recent gains. By 2070, projections suggest that approximately 550,000 people could be affected by flooding each year due to sea level rise. Inland river floods are also likely to increase, placing an additional 800,000 people at risk each year by 2030. Flooding has both direct and indirect effects on health, ranging from loss of life resulting from extreme weather events, to disruptions to food production, water contamination, and increased risk of vector- and/or waterborne diseases. In 2017 a cholera outbreak in Lagos was linked to floodwaters contaminated by septic overflows entering water supplies. Nigeria's water and sanitation infrastructure are not well prepared to handle the projected increase in intense precipitation. In rural areas, only 44 percent have good sanitation and 39 percent access to potable water. There is also danger of increased malnutrition, increased deaths, diseases, and injury due to extreme weather events; increased burden of diarrhea diseases, increased frequency of cardio-respiratory diseases due to higher ground-level ozone concentrations in urban areas as a result of climate change (IPCC, 1995).

The proportion of diarrheal deaths attributed to climate change according to IPCC (1995) is projected to rise to 14 percent by 2050. With climate change, air pollution worsens with rising temperature. Almost 130,000 deaths per year are attributed to household air pollution from indoor burning of cooking fuel. Extreme heat intensifies ground-level ozone, which combines with fine particulate pollutants (soot and dirt from coal combustion, diesel engines, or fires) and chemicals like carbon monoxide or sulfur dioxide to reduce air quality, especially in urban areas. In Nigeria, certain diseases, such as malaria, are known to be climate-sensitive. Malaria, the number one cause of death for children under five (5) years in Nigeria, is spread by the

Anopheles mosquito, which is sensitive to changes in temperature and rainfall (IPCC, 1995).

Livelihood

Livelihood is a means of securing the necessities of life. The effect of climate change threatens the means of sustenance of people. With the increased threats to productivity, farmers' income will diminish and their ability to meet household needs (food, income etc) will be difficult (Ozor, 2009). Oceanic acidification and increase in surface water temperature especially around the coast affects fish stocks and as a result, threaten the livelihood of small-scale fishing communities in the area (IPCC 2007). This eventually will further deepen the vulnerability of the poor.

Resource Conflicts

In Nigeria, resource conflicts worsen given climate change as a result of the scarcity of resources. Population growth and the resulting increases in supply and demand for resources increase competition for scarce food, water, oil, and other resources. For instance, the Fulani herdsmen and farmers in Nigeria compete for grassland and water resources thereby engaging in conflicts.

Aside from the effects of climate change visible in the nature of glaciers, vegetation, the core, and other exotic indicators, sea level variations are especially important in our assessments of Nigeria's political economy of climate change. Some Nigerian observers have pointed out, with some justification, that Nigeria is doubly vulnerable to climate change: heavy rainfall, flooding, soil erosion, and submergence of land in coastal areas, as well as loss of wetlands (Ekott, 2009). Climate change in the South-South zone of Nigeria manifests primarily in increased precipitation, widespread flooding risk, ocean encroachment, increased deforestation, Psychosomatic illnesses caused by the excessive heat of gas flaring and sea-level rise.

However, it should be pointed out that while developing countries are concerned about the effects of climate change on their population, developed countries are concerned that climate change will limit their unique habits and lifestyle. This is the irony of life.

Climate change impacts are moderated by the level of socioeconomic development of a given community, and Nigeria's rather weak socioeconomic development is heightening the severity of the impact, further limiting the country's capacity to respond to emerging challenges (Adesina & Odekunle, 2011). Without serious interventions, including adaptation, the impact of climate change could be greater as the century progresses. This makes it crucial for Nigeria to focus on those activities and programs that would strengthen its resilience and adaptive capacity in terms of socioeconomic development and effective

management of ecosystems (Raffaello *et al.*, 2013; United States Agency for International Development (USAID, 2018).

Climate Governance and Policies as Response to Climate Change in Nigeria

Awareness creation on the impact of climate change involves the effort of everyone; thus, climate change governance involves broad public participation in decision – making which is a critical condition for achieving climate – resilient development. In Nigeria, various stakeholders (government, non-governmental organizations, the academia and private organisations) collaborate to achieve positive results in climate change management and governance, disseminating information to every local community stating the impact of climate change on the people especially those into agriculture. With the recognition of the impact of climate change on the socio-economic development of the country and the well-being of the populace by the federal government and other non-governmental organizations, efforts are made to manage climate – related development challenges with appropriate policy and institutional arrangements that will encourage the implementation of mitigation and adaptation actions at all levels of governance for climate compatible sustainable development. Such efforts include; in 2012, the Federal Executive Council approved a comprehensive strategy policy on climate change: the Nigeria Climate Change Policy Response and Strategy (NCCPRS), a document which is an output of a national participatory and stakeholders consultative approach to put in place a well-defined national climate change response framework and implementation plan that incorporates critical elements of mitigation and adaptation, contains policy elements and short, medium and long term national strategies that will enable the country to mainstream mitigation and adaptation into its national development efforts. This is to enable Nigeria respond effectively to the impact of climate change to reduce its vulnerability and enhance its resilience so that the national priorities of rapid economic growth, energy sufficiency, job creation, food security, transparent and accountable climate change governance will be properly addressed.

The objective of the policy is to promote low-carbon, high-growth economic development and build a climate-resilient society through the achievement of the following targets:

- i. Implementation of mitigation measures that will promote low carbon as well as sustainable and high economic growth;
- ii. Enhancement of national capacity to adapt to climate change;
- iii. Raising climate change related science, technology and R&D to a new level that will enable the country to better participate in international scientific and technological cooperation on climate change;

- iv. Significantly increase public awareness and involve private sector participation in addressing the challenges of climate change; and
- v. Strengthen national institutions and mechanisms (policy, legislative and economic) to establish a suitable and functional framework for climate change governance. Through the 2012 Policy, Nigeria intends to foster sustainable development by means of national initiatives that strengthen the country's strategies on climate change preparedness, adaptation and mitigation across all segments of society including vulnerable groups (Federal Ministry of Environment, 2021).

The Policy has been guiding policy decisions and led to actions in responding to climate change in the country. With the development of the NCCPRS, the global discourse on climate change has led to the adoption of new initiatives that have been domesticated to guide national response to reducing the impact and adapting to the challenge. In particular, a major basis for Nigeria's effective response to the challenge of climate change is the implementation of the 2015 Paris Agreement to which the country ratified in March 2017. This Agreement constitutes an important milestone in promoting the transition to a low carbon economy. Thus, the purpose of this National Policy on Climate Change is to define a new holistic framework to guide the country's response to the development challenge of climate change. As a framework document, it prescribes sectoral and cross-sectoral strategic policy statements and actions for the management of climate change within the country's pursuit for climate resilient sustainable development (Federal Ministry of Environment, 2021)

Also, the government of Nigeria mapped out other steps to address the challenges of climate change and they include the establishment of the Department of Climate Change (DCC) in the Federal Ministry of Environment which is the focal point to the United Nations Framework Convention on Climate Change (UNFCCC), and also the Designated National Authority (DNA) for the Clean Development Mechanism. The DCC works with other Ministries through the Inter-Ministerial Committee on Climate Change. Also taken as a measure are some development policies with clear implications for climate change adaptation: (i) Vision 20:2020; (ii) the Transformation Agenda (2011 – 2015); and (iii) Economic Recovery and Growth Programme (ERGP) (2017 – 2020). There is also the Nationally Determined Contribution (NDC) which was developed in 2015 towards the ratification of the Paris Agreement on Climate Change. Its aim is to reduce greenhouse gas (GHG) emissions intensity of GDP by 20% by 2030 relative to the emissions intensity of GDP in the base period 2010 to 2014 on an unconditional basis as well

as a further 45% on a conditional basis consequent upon receiving climate finance, technology transfer and capacity building from the developed countries. If delivered upon, the NDC will improve standards of living, promote clean energy access and food and water security for all and make the country more resilient to climate impact. There is also Climate Change Financing which Nigeria recognizes that to respond effectively to climate change mitigation and adaptation challenges, the country will require a critical mass of financial resources beyond what government at all levels can provide. To this end, the government of Nigeria launched and issued Green Bonds as innovative means and alternative way of raising climate finance, and released the guidelines for the Green Bonds that target about \$250 million in climate finance to support national projects in key areas that include environment, agriculture, power and energy efficiency-transportation. It will also continue to mobilize national, regional and global climate finance resources to tackle the challenge of climate change (Federal Ministry of Environment, 2021).

Others Include:

- a. National Adaptation Strategy and Plan of Action on Climate Change for Nigeria (NASPA-CCN) (2011)
- b. National Renewable Energy and Energy Efficiency Policy (NREEEP) 2015;
- c. National Gas Policy (2017)
- d. National Biodiversity Strategy and Action Plan (NBSAP) 2016
- e. National Forest Policy (NFP) 2010
- f. National Forestry Action Plan (NFAP) 1996
- g. National Policy on the Environment (2016)
- h. Nigeria Agricultural Policy (2001)
- i. Agricultural Promotion Policy (APP) (2016 – 2020)
- j. National Policy on Drought and Desertification (NPDD) (2007)
- k. Great Green Wall for the Sahara and Sahel Initiative (GGWSSI) - National Strategic Action Plan (2012)
- l. National Agricultural Resilience Framework (NARF) (2013)
- m. National Health Policy (2016)
- n. National Water Policy (2012)
- o. National Transport Policy (2016)
- p. Nigeria Industrial Revolution Plan (2014)
- q. National Gender Policy (2006),
- r. National REDD+ Strategy (2019) (Federal Ministry of Environment, 2021)
- s. National adaptation plan (NAP) — which aims to build a framework for climate change adaptation, planning, and governance, as well as an adaptation communication that would highlight adaptation activities and efforts in the country.

The review of the policy was necessary to checkmate the economic consequences of climate change and the need for concrete initiatives to reduce its impact. The Policy will assist the country in achieving its goal of meaningfully contributing to the reduction of greenhouse gas emissions as espoused in the NDC (2015) and reduce the socio-economic impact of climatic change (Federal Ministry of Environment, 2021).

The medium-term outcome however, is to achieve a resilient socio-economic environment that promotes sustainable development and reduces emissions of GHGs. In addition, the Policy will act as a mechanism for coordinating development planning, financing and monitoring of climate change initiatives and programmes in the country. It articulates the goals and objectives for climate change management in Nigeria, as well as principles and strategies to guide implementation of activities aimed at reducing the potential adverse effects of climate change on the country's development (Federal Ministry of Environment, 2021).

Also, Nigeria participates in international, regional, and sub-regional plans and protocols aimed at effectively addressing climate change. According to a KAS document, Nigeria signed the Kyoto Protocol on Climate Change Adaptation (Nigeria is a non-Annex I economy, so it is not required to take measures), but IPPA (Institute for Public Policy Analysis), a co-founder of the "Global Coalition on Climate Change," which consists of twenty five (25) Non-Governmental Organizations (NGOs) from 23 countries, believes Nigeria would be better off taking her own initiative. Nigeria has already committed to the following regional networks in order to participate in a shared agenda on climate change adaptation and mitigation: the Nairobi Declaration adopted by the African Ministerial Conference on the Environment (AMCON) in May 2009 and the Convention of African Heads of State on Climate Change (CAHOSCC) established in July 2009. In 2010, Nigeria hosted an African legislature research group that developed recommendations on tangible initiatives that parliaments could take to combat the effects of climate change. Furthermore, in 2010, the Economic Community of West African States (ECOWAS) developed a framework of strategic recommendations on vulnerability reduction and climate change adaptation in West Africa. This agreement aimed to improve member countries' scientific and technical capacity in order to reduce climate change vulnerability, integrate climate change into national and regional development plans, and implement climate change adaptation programs (Boko *et al.*, 2007).

On November 18, 2021, President Muhammadu Buhari signed into law the climate change bill passed by a member of the National Assembly. This implies that Nigeria has joined a group of countries that have enacted emissions-target legislation aimed at

eliminating carbon emissions. This is ideal for a country dependent on oil and ranked as one of the most vulnerable countries to climate change in the world. Its main objective is to provide a comprehensive legal framework for achieving Nigeria's long-term climate goals including a net-zero carbon emission target, national climate resilience, an adequate volume of climate finance, and the mainstreaming of climate change actions into national development priorities. The law places climate change action in the broader context of efforts to achieve inclusive green and sustainable economic development for Nigeria (Okereke and Sam, 2021)

The law therefore, seeks to facilitate the intensive and complex cross-ministerial coordination of climate change action as well as the involvement of businesses and the civil society needed to achieve long-term climate objectives while also promoting climate-resilient social-economic development in the country. It also sets out to establish a systematic approach for the country to identify the major climate risks and vulnerabilities facing the country and how to strengthen existing capacities to adapt to the impacts of climate change. With this present development of enacting the climate change act, Nigeria is trying to avert the

dangers of climate change. Nonetheless, individuals should also on their own help in projecting this campaign by abstaining from activities that cause environmental exploitation, especially illegal cutting down of trees, which ultimately trigger climate change (Okereke and Sam, 2021)..

The stakeholders have in their different ways worked to tackle climate change in Nigeria. For instance, in October 2019, a milestone was made in the mobilization of stakeholders committed to pushing back climate change as the Niger Delta Climate conference and regional Pre-COP25 meeting was held. This was organized by the African Centre Climate Actions and Rural Development (ACCARD) with the Federal University of Petroleum Resources, Effurun. The participants agreed on the need for a broad stakeholder's engagement to formulate common solutions and mobilize resources and other support towards climate management especially in the Niger Delta (<http://accard.org/stakeholders-adopt-niger-delta-approach-to-tackle-climate-change/>). Also, the country used its first sovereign green bond to fund some environmental projects that are relevant to climate change management. These projects include:

Table 1

| S/N | Project | Actors | Activities |
|-----|--|--|---|
| 1 | Renewable Energy Micro Utilities in 45 communities | Federal Ministry of Power, Works and Housing | An initiative to provide access to electricity to 45 communities across the country employing mini – grids with distributed loads of between 33-50KW per community. |
| 2 | Energizing Education | Federal Ministry of Power, Works and Housing | A rural electrification initiative that seeks to develop clean off grid Independent Power Plant |
| 3 | Afforestation Programme | Ministry of Environment | Afforestation program to increase forest coverage through the plantation of seedlings to cover 131,000 hectares of land |

Source: Federal Ministry of Environment, 2020

However, Nigeria's primary policy responses to climate change are mitigation and adaptation. Mitigation encompasses measures to address or avoid greenhouse emissions, whereas climate change

adaptation refers to the entire process of adapting to current or anticipated climate change and its consequences.

Attempts at Adaptation in Nigeria

Table 2

| S/N | Sector | Actors (MDAS) | Relevant Links |
|-----|---|---|---|
| 1 | <p>Environment</p> <p>The Great Green Wall Project Action Against Desertification Project</p> <p>Sovereign Green Bond which provides much needed financing for several adaptation projects</p> <ul style="list-style-type: none"> • Coastal zone management: Shoreline protection projects • Adaptive water harvesting program • Flood Early Warning Systems (FEWS) • Afforestation projects • Creation of green jobs: (Sand) dune fixation, Establishment of | <ul style="list-style-type: none"> – Min. of Environment. – Min. of Industry, Trade and Investment. – National Agency for the Great Green Wall. – National Emergency Management Agency. – National Oil Spill Detection and Response Agency (NOSDRA). | <p>https://doi.org/10.1080/1523908X.2020.1832883</p> <p>https://www.ncfnigeria.org/programmes/climate-change</p> <p>https://www.fidelitybank.ng/documents/Sustainable%20Banking%20Report%202018.pdf</p> <p>https://sterling.ng/wp-content/uploads/2020/02/2017-Stand-Alone-</p> |

| S/N | Sector | Actors (MDAS) | Relevant Links |
|-----|---|--|---|
| | trees nurseries Training and capacity building on climate change adaptation Ecosystem Restoration Project. Advocacy campaign Provision of funding and support for adaptation actions. Climate resilience building activities Managing atmospheric pollution Flood and erosion control: Construction of Climate-smart Drainage systems, land/gully reclamation across all the States of the Federation Space Programme and Climate Resilience Solid Waste Management projects Hospital Waste Intervention Scheme. Material Recovery facilities. Integrated Waste Management Facilities. Briquetting Plants. Scrap Metal Recycling Plants. National Plastic Recycling programme | <ul style="list-style-type: none"> - National Orientation Agency (NOA) - Nigerian Conservation Foundation (NCF). - Bank industry. - NIMASA - NARSDA - Min. of Agriculture. - Nigerian Meteorological Agency. - Gender and Environmental Risk Reduction Initiative (GERI) - Women Environment Programme (WEP). - OXFAM.UK Embassy/UKAID (DFID)/BritishCouncil | <p>Sustainability-Report.pdf https://www.vanguardngr.com/2010/01/nimasa-partners-oau-on-climate-observation/ https://www.researchgate.net/publication/330559390_Climate_Change_Space_Technology_and_Climate-resilient_Development_in_Nigeria</p> <p>https://www.adaptation-undp.org/sites/default/files/resources/17_nimet_sabubakar.pdf https://wepnigeria.net/index.php/brief-about-wep https://docs.google.com/document/d/1wkCh</p> <p>Oo1Qnhp9NTD-d1jyfg6mSkc_6W8I/edit?usp=drivesdk&oid=104389650528718855020&rtpof=true&sd=true https://nigeria.oxfam.org/policy_paper/climate-change-on-small-scale-farmers https://nigeria.oxfam.org/what-we-do/sustainable-livelihood https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/14761/675_Climate_Change_in_Nigeria.pdf?sequence=1&isAllowed=y</p> |
| 2 | Agriculture Establishment of Automatic Weather Stations. Run-off Water Harvesting Structures. Climate Change Adaptation and Agric. Business Support Programme. CSA related programme in livestock, crop and fisheries. CSA related NEWMAP activities. | <ul style="list-style-type: none"> - Min. of Agriculture. - Nigerian Meteorological Agency. - Gender and Environmental Risk Reduction Initiative (GERI) - Women Environment Programme (WEP). - OXFAM. | <p>https://www.adaptation-undp.org/sites/default/files/resources/17_nimet_sabubakar.pdf https://wepnigeria.net/index.php/brief-about-wep/ https://docs.google.com/document/d/1wkCh</p> |
| | Water Meteorological services in operational hydrology and water resource activities. Capacity building on sustainable water management. Advocacy campaign Flood early warning and vulnerability assessment. Seasonal Rainfall Prediction | <ul style="list-style-type: none"> Min. of water Resources - Nigerian Meteorological Agency. - NOA - Nigerian Hydrological Service Agency | <p>https://www.adaptation-undp.org/sites/default/files/resources/17_nimet_sabubakar.pdf https://nihsa.gov.ng/functions-of-the-agency/</p> |
| | Health Training of staff on climate change adaptation. Waste reduction and generation. Use of clean cook stove | | |
| | Energy and Transport Policy on renewable energy in the manufacturing sector. Low carbon technology/carbon capture technology | <ul style="list-style-type: none"> - Ministry of Industry, Trade and Investment. - NOSDRA. - Rural Electrification Agency - NIMASA | <p>https://rea.gov.ng/wp-content/uploads/2021/06/SPOTLIGHT-ON-REA.pdf</p> <p>https://www.vanguardngr.com/2010/01/nimasa-partners-oau-on-climate-observation/</p> |
| | Human settlement and tourism Works and housing Urban resilience and sustainability Plans and policy for physical and urban development. Urban renewal and slum upgrading projects | Min. of Works & Housing | |

Source: Federal Ministry of Environment (2021).

State Government

The governments in various states of Nigeria are carrying out certain adaptation activities given their

closeness to the people although they face lack of coordination of adaptation, corruption. These activities are given below in a table:

Table 3

| S/N | Adaptation Actions | Actors (State Government) | Relevant Links |
|-----|--|---|--|
| | Development and execution of land restoration projects including afforestation Flood and erosion control projects Promotion of irrigation farming (especially drip irrigation) Promotion of the adoption of renewable energy such as solar and wind Advocacy and sensitization on climate change mitigation and adaptation. Review of environmental laws Agricultural diversification initiatives to reduce shocks and stresses from climate change Provision of energy efficient stoves Methane harvest and bio-gas production. Establishment of drainage systems to reduce people vulnerability to flooding | Ebonyi, Kaduna, Gombe, Bauchi, Delta, Lagos | https://gombenewmap.org/2018/05/20/desilting-storm-drains-to-save-lives/ https://csdevnet.org/wp-content/uploads/Towards-a-Lagos-Adaptation-Strategy.pdf |

Source: Federal Ministry of Environment (2021).

CSOs and NGOs

These organizations play active roles in adaptation especially at the grassroot levels and target local communities while some operate at strategic

levels forming a think tank on environmental policy advocacy, research and capacity building. Although they play major parts in the adaptation process, most times their efforts are not documented.

Table 4

| S/N | Adaptation Action | CSOs/NGOs | Relevant Links |
|-----|--|--|--|
| | <ul style="list-style-type: none"> • Development and launch of National Action Plan on Gender and Climate Change • Promotion of Organic Farming • Establishment of Mini ranches • Training of local women in sustainable farming and agricultural practices • Training on coping mechanisms to climate change induced shocks and stresses • Training on raising of tree seedlings for tree planting activities • Training on animal feed production • Training on compost production • Training on production of fuel-efficient stoves • Skills acquisition training to diversify livelihood of rural communities (e.g. production of soaps, beads etc) • Public awareness campaigns on the impacts of climate change and community adaptation actions across the country • Research and policy advocacy | <ul style="list-style-type: none"> • Women Environment Programme (WEP) • The Nigerian Environmental Study/Action Team (NEST) • Nigerian Conservation Foundation (NCF) • African Climate Research Center (ACCRC) • Climate Change Network of Nigeria (CCN) • Climate Action Network (CAN) • African Centre for Climate Actions and Rural Development (ACCARD) Initiative | https://wepnigeria.net/ https://ncfnigeria.org/index.html https://www.nestinteractive.org/ http://www.ccnigeria.org/ https://climatenetwork.org/ http://accard.org/ |

| | | |
|---|--|--|
| <ul style="list-style-type: none"> • Production of sensitization materials on climate change • Establishment and support of schools environmental conservation clubs <p>Research on regional climate downscaling activities</p> | | |
|---|--|--|

Source: Federal Ministry of Environment (2021).

The Academia

Universities in Nigeria are engaged in research to find sustainable and adaptable solution to climate change challenges. Below are some of their activities:

Table 5

| S/N | Research and Innovations Adaptations | Actors (Federal, State and Private Universities) | Relevant links |
|-----|--|--|--|
| | <p>Climate change, agriculture and environment interactions</p> <p>Fast Tracking Climate Change Mitigation Strategies.</p> <p>Desert research, monitoring and control project</p> <p>Deep Decarbonization Pathways Project.</p> <p>Sustainable Development of Farm Agro-forestry and Fuel Wood Conservation in North-West Katsina sponsored by the European Union.</p> <p>Establishment of Tree Nurseries</p> <p>Training on Non-Wood Tree Product processing techniques</p> <p>Efficient cook stove/meat roaster and Bread Oven.</p> <p>Development of framework for controlled harvest of fuel wood</p> <p>Training on climate change adaptation</p> <p>Research on energy and carbon sequestration.</p> <p>Research on green technology and clean energy Conference, symposiums and workshops on climate change adaptation</p> <p>Research on Arid Zone Ecology, Agroforestry, Hydrology, and Geomorphology</p> <p>Research on carbon sequestration soils</p> <p>Research on sustainable fuelwood and charcoal production and utilization</p> <p>Research on climate change adaptation strategies in the policies of different countries of the world</p> <p>Research on development of strategies of combating climate change by fostering adaptation in Nigeria</p> <p>Research and Project on Building Nigeria's Response to Climate Change Symposium on Climate Change Adaptation in Africa</p> <p>Research Project on Mainstreaming Gender Concerns into Climate Change Adaptation</p> <p>Research on Adapting Agricultural Practices to Climate Change</p> <p>Development of localized 'clean energy' models for off-grid applications in rural communities</p> | <p>– University of Nigeria Nsukka.</p> <p>– University of Lagos.</p> <p>– Obafemi Awolowo University.</p> <p>– University of Ibadan</p> <p>– University of Port Harcourt Nigerian Environmental Study Action Team (NEST).</p> <p>– ABU Zaria</p> <p>– Yobe State University</p> <p>– Alex Ekwueme Federal University</p> <p>– Umaru Musa Yaradua University.</p> <p>– Bayero University Kano.</p> <p>– University of Maiduguri</p> <p>– Abubakar Tafawa Balewa University.</p> <p>– Modibbo Adama University</p> <p>– Nasarawa State University.</p> | <p>(http://www.nestinteractive.org/index.php).</p> <p>https://naerls.gov.ng/programmes/</p> <p>https://yobestateuniversity.academia.edu/</p> <p>https://cccd.funai.edu.ng/nigerian-deep-decarbonization-pathways-project/</p> <p>https://www.isscerer-umyu-euproject.org/https://ace.aau.org/ace-1-centers/cda/</p> <p>http://www.ijrhss.org/papers/v7-i8/1.pdf</p> <p>https://www.atbu.edu.ng/zeri-center</p> <p>https://mautech.edu.ng/new/index.php/en/component/content/article/2-uncategorised/287-cetres</p> <p>https://nsuk.edu.ng/center/centre-environmental-studies-ces</p> <p>https://www.unn.edu.ng/climate-change-policies/</p> <p>https://unilag.edu.ng/?p=8716</p> <p>https://oauife.edu.ng/component/k2/itemlist/tag/climate%20change</p> <p>https://cpeel.ui.edu.ng/course/energy-and-climate-change-law-policy-ii</p> <p>https://www.uniport.edu.ng/news/featured/1841-stakeholders-gather-for-change-adaptation-gender-inclusion-in-climate.html</p> |

Source: Federal Ministry of Environment (2021).

The Private Sector

Most private sectors in Nigeria see climate change as affecting their businesses. Private sector led climate change adaptation investment in agriculture leveraging climate smart- technology open up avenues for de-risking green investment in agricultural ventures, utilizing field mapping, satellite imaging and improved

seed to build agri-business integrated value chains and achieve higher yields (Okon *et al.*, 2021). A study conducted by Ogbo *et al.*, (2017), has it that almost half of the manufacturing companies have adopted climate change adaptation strategies and nearly half of these companies have implemented formal strategy. Most of the companies see climate change as hurting their

businesses, and also 97% of the subjects perceive that climate change harms health. In addition, 46% of companies adopted proactive strategies, while 65% employed reactive approach. About 52% of companies have only recently seen the need to adapt to climate change (less than five years). Only a few of the companies implemented climate change strategies for the past 16 years and above. This shows that Nigerian

companies have only recently begun to appreciate the climate change effect in their company strategy.

International Donors and Development Agencies

These agencies have supported in financing climate action initiatives in Nigeria. Some of their interventions are listed below:

Table 6

| S/N | Activities | Donor Agencies | Relevant Links |
|-----|---|---|---|
| | Funding for policy formulation and reviews, preparation of action plans and national communications (including Nigeria's Adaptation Plans). E.g. ADCOM preparation funded by UK Government in collaboration with NAP Global Network/IISD <ul style="list-style-type: none"> • Climate Smart Agriculture • Providing adaptation strategies through various agricultural initiatives, insurance and other financial tools, infrastructure, skills and knowledge, information and awareness, and building institution capacity • Provision of improved seeds to 1 million smallholder farmers • Support for improved management in over 21,000 hectares of farmland • Rural Resilience Activity: Promotion of inclusive and sustainable agriculturally-led economic growth • Water for Agriculture Activity project • Funding of high-level research and training on climate change mitigation and adaptation. • Funding of Nigeria Erosion and Watershed Management Project (NEWMAP). The project seeks to control gully erosion, develop catchment management plans, diversify and improve livelihoods | UK Embassy/UKAID (DFID)/British Council <ul style="list-style-type: none"> – USAID – French embassy. – World Bank. – NAP – Global Network/International Institute for Sustainable Development – UN Agencies (UNDP/UNEP/UNESCO). | https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/14761/675_Climate_Change_in_Nigeria.pdf?sequence=1&isAllowed=y/ https://www.usaid.gov/sites/default/files/documents/Climate_Change_Fact_Sheet_-_NIGERIA_FINAL_FORMAT2.pdf https://thechronicleofeducation.net/2019/10/31/france-pledges-700000-euros-on-climate-change-adaptation-in-nigeria/ https://www.worldbank.org/en/results/2019/04/18/building-climate-resilience-experience-from-nigeria https://www.adaptation-undp.org/explore/africa/nigeria |

Source: Federal Ministry of Environment (2021).

It should be borne in mind that the cost of adaptation is yet to be estimated. However, estimates exist for the top priority sectors (agriculture, water resources, health and transport) are at USD 3.06 billion per year from 2020 which is expected to rise to about USD 5.50 billion in 2050. For the health sector, estimate is expected to rise from USD 3.06 billion projected for 2020 to about USD 5.50 billion by 2050. The transport sector incremental cost for adaptation is equally estimated to rise from USD 5.33 billion for 2020 to USD 9.69 billion for 2050 (Akinola *et al.*, 2020). There is therefore the need to leverage funding for adaptation. Presently, the country has identified its financial needs, technical needs, technological needs and sectoral needs since her adaptation support needs come from international and national sources. The international sources come from multilateral and bilateral donors while the national sources include, among others: Development of Natural Resources Fund (DNRF), Ecological Funds, Clean Technology Investment Fund (CTF) and the Sovereign Green Bond (Akinola *et al.*, 2020).

Problems and Challenges

The mitigation and adaptation policy of Nigeria has its problems and challenges despite efforts to mainstream climate change adaptation into its developmental agenda and policies. It does not have a clear strong central body to keep an eye on it. This is also acknowledged by the government, that national and regional environmental agencies are not always able to enforce codes, regulations, and laws, especially when it comes to urban planning, infrastructure development, mineral exploration, industrial standards that must be met, and the installation of facilities in ecologically sensitive areas (Onyishi and Amobi, 2015). This is a big problem. Climate change policies in Nigeria are hindered by poor technical skills, political instability, corruption, inadequate funding, inadequate investment in critical areas of climate change adaptation, lack of coordination and collaboration by stakeholders and legislative coordination among others. These also affect the activities of Civil Based Organisations and Non-

governmental organizations. In the country, policy implementation is usually problematic.

It should be emphasized that, there are numerous policies and strategic initiatives that when executed effectively, can act as both adaptation and mitigation measures for climate change. Such policies like rehabilitating oases as part of the National Action to combat desertification and the National Policy on Drought and Desertification (Federal Ministry of Agriculture, 2001) can be viewed as anticipatory adaptation measures and plans that can be fine-tuned into policy options for the country's climate change response. The policy on drought and desertification is meant to obtain and analyse environmental data from drought and desertification area thereby finding solutions to them.

CONCLUSION/RECOMMENDATION

Climate change is a problem in Nigeria, resulting in poverty, public health problems, forced migration, and a variety of other social and economic problems. From the viewpoint of the Marxist political economy framework, this is due to Nigeria's level of development, which affects everyone especially given the fact that man's material needs are affected by climate change. As such, the following recommendations are made to address Nigeria's serious climate change challenges:

- All stakeholders involved in climate change should collaborate to achieve mitigation and adaptation, and their financing should be properly managed to avoid fund diversion and misappropriation.
- Climate governance in Nigeria should be a unified multi-sectoral strategy, rather than separate ministries establishing inefficient departments.
- Energy is a viable sector for mitigating climate change; as such the government should offer tax incentives to encourage investment in renewable energy resources.
- In addition, there is the need to invest in agricultural science research so that scientists can produce crops or foods that are resistant to harsh climate conditions and construct drought-resistant hydroelectric dams.

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