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NIGERIA

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Climate Action in Nigeria: An Analysis

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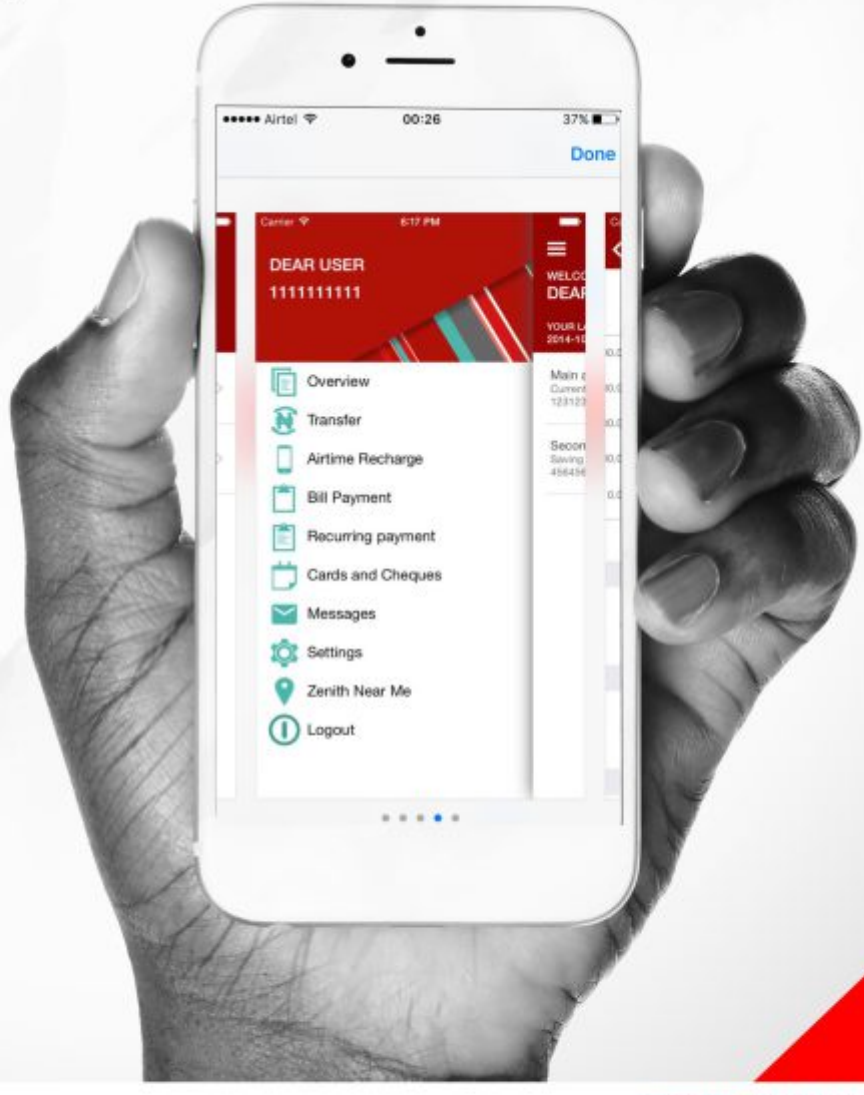

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Evaluating Nigeria's Scorecard On the Climate Action Goal

WITH rising greenhouse gas emissions, climate change is occurring at rates much faster than anticipated and its effects are being clearly felt worldwide.

Nigeria, as a developing country with a population of about 180 million, has been adversely impacted by climate change due to obvious vulnerability and low coping capability. Consequently, on December 12, 2015, during a United Nations-sponsored meeting in Paris, COP21, dubbed 'Paris Agreement', Nigeria joined 194 other countries to make a historic pledge to reduce global greenhouse gas emissions.

To demonstrate Nigeria's commitment to the pledge, on March 28, 2017 President Muhammadu Buhari signed the Instrument of Ratification of the Paris Agreement on Climate Change, which was approved by the United Nations Framework Convention on Climate Change (UNFCCC) on May 16, 2017. The Paris Agreement entered into force on June 15, 2017.

Ranked amongst the top 25 Green-House Gas (GHG) Emitting Countries, Nigeria is required to mobilize its citizens and other stakeholders for the effective implementation of measures to reach the target of a 20 percent unconditional reduction in green-house gas emissions by 2030, and to implement policies that will enable the country to reach the goal of 100 percent renewable energy by 2050.

In this edition of the **SDGs Monitor**, we appraise Nigeria's implementation of goal number 13 of the United Nations' Sustainable Development Goals (SDGs), which is Climate Action (SDG13). Our assessment of Nigeria's efforts to attain the targets of SDG13 shows that the country's emission reduction strategy focuses on such key sectors as Energy, Oil and Gas, Agriculture and Land Use, Power, and Transport. However, based on the fact that the 2016 Climate Change Vulnerability Index (CCVI) classifies Nigeria as one of the ten countries in the world which are most vulnerable to climate change, the country is not on track with respect to achieving SDG 13.

The analysis by our consultant, Daniel A. Omoweh, a Professor of International Relations at Western Delta University, Oghara and former Associate Research Professor at the Nigerian Institute of International Affairs, reveals that the Nigerian government has approached the discourse on climate change with its usual approach, namely limiting consideration of such a critical development issue to ministries and parastatals. The study recommends that since climate change is about the environment, which is an international public good, it requires input from the people, civil society, the private sector and the media to put Nigeria on the path to attaining SDG 13 by 2030.

Happy reading!

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Introduction: **Nigeria's Response to the Climate Change Conundrum**

CLIMATE change is probably the biggest threat facing humanity today. In recent times, the world has been under the threat of several climate change problems such as 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, tsunami, erosion, volcanic activity, hurricanes, pollution, and deforestation.

Climate change and its projected impacts on the environment and the world's socio-economic systems now constitute the most challenging environmental problem that humankind faces in the 21st Century (Ayoade, 2003). As Lee (2019) points out, climate change is a threat multiplier. It amplifies existing threats, exacerbating problems for the economy, the environment and for society.

Climate change is principally a problem caused by the increase in human activities coupled with human mismanagement on the earth. This has led to several direct and indirect impacts on health (Beyioku 2016), with wide-ranging harmful effects, including increase in heat-related mortality, dehydration, spread of infectious diseases, malnutrition, damage to public health infrastructure and human and animal migration.

The Secretary-General of the United Nations, António Guterres says the world is on the verge of "losing the race" to avert climate catastrophe. He adds that based on scientific proof, the greenhouse gas reduction targets are still reachable. According to the United Nations Intergovernmental Panel on Climate Change, the world must cut its carbon dioxide emissions to net zero by 2050 in order to prevent global warming of 1.5°C, or possibly even higher, above pre-industrial levels in this century.

While the activities of the developed nations are mostly responsible for the changing climate, the developing nations are those suffering more of the impacts due to their inability to cope because of poverty and low technological development.

Nigeria, as a developing country with a population of about 180 million, has been adversely impacted by the climate change conundrum due to its vulnerability and low coping capability. It is plagued with many ecological problems of varying magnitude. Indeed, over the past few years, virtually all parts of the country have experienced the adverse impact of climate change. Some four decades ago, Lake Chad covered an area of over 40,000 square kilometres, but now it encompasses a mere 1,300 square kilometres. Advancing desertification has led to massive migration of people from the North East seeking more fertile terrain in the greener plateau and the Middle Belt regions of Nigeria. Growing desertification has forced thousands of Fulani herdsmen to move to the South and Middle Belt: the result has been clashes with crop farmers and the death of hundreds.

Nigeria's Guinea Savannah region is not spared either. Logging and over dependence on firewood for cooking have stripped a greater part of this area of its vegetation cover. The situation is replicated in the South West, where the forest around Oyo has long been reduced to grassland.

The South Eastern part of the country has been struck by gulley-erosion which has devastated many settlement areas and farmlands, causing poverty among local people.

Just as desertification is devastating vast areas of the north, rising sea levels are threatening Nigeria's coastal regions. Although a source of oil wealth, the Niger Delta's low-lying terrain and criss-crossing of waterways make it extremely vulnerable to flooding. And on top of the risk of rising sea level, it also suffers extreme oil pollution.

Reflecting on the negative impact of climate change in Nigeria, Idowu, Ayoola, Opele and Ikenweiwe (2011) note that:

> "Climate change and global warming if left unchecked will cause adverse effects on livelihoods in Nigeria, such as crop production, livestock production, fisheries, forestry and post-harvest

Nigeria, as a developing country with a population of about 180 million, has been adversely impacted by the climate change conundrum due to its vulnerability and low coping capability.

activities, because the rainfall regimes and patterns will be altered, floods which devastate farmlands would occur, increase in temperature and humidity which increases pest and disease would occur and other natural disasters like floods, ocean and storm surges, which not only damage Nigerians' livelihood but also cause harm to lives and property, would occur."

According to experts, Nigeria's agriculture sector which is heavily dependent on rainfall and natural weather conditions will be the worst hit. For a sector that employs more than the two-thirds of the country's workforce and contributes about 42% to its gross domestic product (GDP), a climate change-related crisis could be too much for Nigeria to contend with (Ayinde, Muchie and Olatunji, 2011). They caution that if current climatic conditions worsen, Nigerian farmers could face deepening poverty.

Ranked amongst the top 25 Green-House Gas (GHG) Emitting Countries, Nigeria is required to mobilize its citizens and other stakeholders for the effective implementation of measures to reach the target of a 20 percent unconditional reduction in green-house gas emissions by 2030, and to implement policies that will enable the country to reach the goal of 100 percent renewable energy by 2050.

In order to achieve goal number 13 of the United Nations' Sustainable Development Goals (SDGs), which is Climate Action by 2030, Nigeria will have to strengthen its resilience and adaptive capacity to climate-related hazards and natural disasters.

As the world becomes increasingly concerned about the effects of climate change, Nigeria's dependence on the export of crude oil faces an uncertain future. Consequently, building a climate-resilient and prosperous economy through eco-friendly projects remains critical to reaching the SDG targets.

SDG 13 Targets

The Climate Action goal requires Nigeria and its development partners to collaborate with relevant stakeholders and individuals to urgently undertake planned actions, projects and programmes as captured in the Nationally Determined Contributions (NDCs) to combat climate change and its impact across the country.

To achieve the targets set by the United Nations under Climate Action (SDG 13), Nigeria like other signatories to the Paris Agreement, is expected to:

- Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries;
- Integrate climate change measures into national policies, strategies and planning;
- Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning;
- Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible;
- Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and Small-Island developing States, including focusing on women, youth and local and marginalized communities.

Nigeria's Climate Change Policy Development Framework

Nigeria joined other nations in their efforts to mitigate climate change by becoming a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) in 1992 as a Non-Annex 1 party, and ratifying the Kyoto Protocol of 1997.

The Federal Ministry of Environment was then given the responsibility for the implementation of the UNFCCC and the Kyoto Protocol in the country. A Special Climate Change Unit (SCCU) was created within the Ministry to develop a short to long-term national plan to enable Nigeria to meet its obligations as specified by the UNFCCC and the Kyoto Protocol, and also to coordinate the activities of the Inter-Ministerial Committee on Climate Change (IMCCC) (Federal Republic of Nigeria (FRN), 2008).

Sustainable climate change policies are therefore prerequisites for a strong adaptive capacity, as they will go a long way to reduce the impact of climate change and vulnerability to it in the country.

Nigeria's response to climate change threats in the context of policy development framework remains a major challenge. However, the country has a number of existing policies that could be adapted and implemented to reduce climate change impacts and vulnerability.

National Environment Policy: In 1989, the Nigerian government formulated a National Environmental Policy to meet the challenges of addressing key environmental problems, land degradation (deforestation, desertification and coastal and marine environment erosion), air and water pollution, urban decay and municipal waste, as well as the hazards of drought, coastal surges, floods and erosion.

The policy was revised in 1999 to accommodate new and emerging environmental concerns. The goal of the revised policy was to achieve sustainable development in Nigeria and, in particular to:

(i) Secure a quality of environment adequate for good health and well-being;

(ii) Promote the sustainable use of natural resources;

(iii) Restore and maintain the ecosystem and ecological processes and preserve biodiversity;

(iv) Raise public awareness and promote understanding of linkages between environment and development; and

v) Cooperate with government bodies and other countries and international organizations on environmental matters (FRN, 2010).

According to FRN (2010) document, Nigeria has also enacted a number of specific policies and action plans for the implementation of the National Environment Policy. These policies which can support national climate change mitigation and adaptation response efforts include:

The National Policy on Drought and Desertification: This policy recognizes that climate change could intensify drought and desertification especially in the Northern part of the country that are very vulnerable to these environmental problems. The policy emphasizes the need to equip relevant agencies, institutions and citizens to adequately collect, analyze and use climate data to effectively ameliorate and combat drought and desertification.

The National Forest Policy: This is geared towards ensuring sustainable forest management, promoting participatory process of development, facilitating private sector – forestry development and adopting an integrated approach to forestry development.

The Federal Government has embarked on a number of afforestation programmes, one of which is the "Green Wall Initiative" in which a "green wall" of trees will be planted across the Sudano-Sahelian ecological zone of the country.

National Biodiversity Strategy and Action Plan: This is to develop appropriate framework and programme instruments for the conservation of Nigeria's biological diversity and enhance its sustainable use by integrating biodiversity considerations into national planning, policy and decision-making processes.

National Erosion and Flood Control Policy: This is to ensure coordinated and systematic measures in the management and control of the climate-related hazards and the risks of erosion and floods to reduce their impacts on the people and the environment.

Adaptation Policies, Programmes and Measures to Increase the Resilience to the Impacts of Climate Change in Nigeria

The National Adaptation Strategy and Plan of Action on Climate Change for Nigeria (NASPA-CCN) document which was prepared by Building Nigeria's Response to Climate Change (BNRCC) Project (2011) also recommended policies, programmes, and measures to be undertaken by the Federal, State and Local Governments. By implementing the recommendations, the resilience of local communities and of Nigeria as a whole to the impacts of climate change will be increased.

These recommended policies, programmes and measures, and their goals include:

Agriculture (Crops and Livestock): The goal is to ensure that vulnerable communities and groups alter their agricultural practices to adapt to the changing climate, taking account of predicted temperature and rainfall changes and extreme weather events.

Freshwater and Coastal Water Resources and Fisheries: The goals are to implement Integrated Water Resource Management (IWRM) in watersheds and coastal regions to reduce the impacts of climate change; to plan for and adapt to current and expected impacts of climate change on water resources, coastal resources, and inland and coastal fisheries by addressing water supply, water demand and water management infrastructure; to implement strategies for promoting water body enhancement for inland and coastal fisheries; and to plan for and adapt to the expected impacts of sea level rise and storm surge on coastal resources and fisheries.

Forecasts: The goals are to maintain and restore healthy forest ecosystems through sustainable forest management in order to increase the resilience of human communities in the face of the changing climate; to improve understanding of the impact of climate change on the abundance and composition of "closed" forest resources; and to increase the extent and diversity of forest cover in Savannah and Sahel

In order to achieve goal number 13 of the United Nations' Sustainable Development Goals (SDGs), which is Climate Action by 2030, Nigeria will have to strengthen its resilience and adaptive capacity to climate-related hazards and natural disasters.

Nigeria's response to climate change threats in the context of policy development framework remains a major challenge. However, the country has a number of existing policies that could be adapted and implemented to reduce climate change impacts and vulnerability.

regions in order to address increased aridity caused by higher temperature and greater rainfall variability.

Biodiversity: The goal is to intensify efforts to conserve biodiversity in Nigeria, in order to reduce the threatened impact of climate change on biodiversity.

Health and Sanitation: The goals are to strengthen and improve public health, disease prevention, and environmental sanitation under the framework of the Primary Health Care Programme; to reduce human exposure to climate change-related health risks; and to better understand the implications of increasing temperature for human and animal health.

Human Settlements and Housing: The goal is to develop housing and settlement patterns/practices that enhance climate change adaptation and are resilient to climate change.

Energy: The goal is to take pre-emptive measures to reduce the vulnerability of critical energy infrastructure to climate change impacts.

Transportation and Communications: The goal is to take pre-emptive measures to reduce vulnerability of critical transportation and communication infrastructure to climate change impacts.

Industry and Commerce: The goals are to protect Nigeria's industrial & commercial sectors from the adverse effects of climate change; to explore new markets and opportunities arising from climate change; and to enhance Nigeria's competiveness in this era of global green economy.

Disaster, Migration and Security: The goals are to strengthen the capacity of the government and people of Nigeria to carry out disaster risk and vulnerability assessments; to prepare for and respond to climate change hazards; to anticipate and prepare for climate change induced migrations, and ensure security of lives, and public and private property in the face of climate change impacts.

Livelihoods: The goal is to reduce the vulnerability of people and increase their adaptive capacity to climate change impacts through the development of improved livelihoods.

Vulnerable Groups: The goals are to develop programmes that support and assist the adaptation to climate change by vulnerable groups; and to harness opportunities arising from their differentiated roles, responsibilities, representation and experiences of vulnerable groups for climate change adaptation.

Education: The goals are to develop a good public understanding of the impacts of climate change and the need for people of all ages to learn about and contribute to environmental protection in general and climate change adaptation in particular; to reduce the exposure of school children to the impacts of climate change, including extreme weather events; and to increase the resilience of educational infrastructure to the impacts of climate change.

Nigeria's past efforts to meet the Climate Change Challenge

Nigeria's efforts to tackle climate change started with the establishment of the Federal Environmental Agency (FEPA) through Decree 59 in 1992. Administration of climate change issues in Nigeria was first identified and situated in the Department of Planning and Evaluation under the Federal Environmental Protection Agency (FEPA). As part of the Agency's mandate, FEPA led the Nigerian delegation to the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil in 1992 and signed the UNFCCC which was opened for signature at that conference.

After the ratification of the Convention in 1994, the Agency was the National Focal Point for its implementation. FEPA also led the Nigerian delegation to the First Conference of Parties to the Convention (COP-1) held in Berlin, Germany in 1995 and all through to the negotiations that culminated into the adoption of the Kyoto Protocol in 1997.

To further demonstrate its serious commitment to the issue of environmental protection and conservation of natural resources, the Nigerian government established the Federal Ministry of Environment when the country returned to civilian rule in 1999. The Ministry assumed the overall mandate for protecting Nigeria's environment and the conservation of its natural resources, while the Climate Change Unit was relocated to the Department of Environmental Assessment. Nigeria ratified the Kyoto Protocol in December, 2004 with its attendant expanded activities as a party to both the Convention and the Protocol. Consequently, the need to holistically coordinate the two treaties arose. In recognition of the expanded functions of the Unit and to ensure consistency and co-ordination in the implementation of the Convention and the Protocol in 2006, the Special Climate Change Unit was established within the office of the Permanent Secretary of the Federal Ministry of Environment. It fused the functions of the Presidential Implementation Committee on Clean Development Mechanism (PIC-CDM) and the former Climate Change Unit of the Environmental Assessment Department.

A major activity of this Unit was the coordination of activities towards national implementation of the Climate Change Convention and the Kyoto Protocol. The Ministry carried out these activities through the Unit by working in collaboration with other relevant government and, non-governmental organizations, the academia and the private sector under a Committee known as the Inter-Ministerial Committee on Climate Change (ICCC). The ICCC forms a policy advisory organ for government and is chaired by the Federal Ministry of Environment. The Committee meets quarterly and on an ad-hoc basis to review polices on climate change, advise government on appropriate actions, and present Nigeria's position at meetings where climate change issues are being discussed or negotiated.

Due to the increased importance attached to the issues of climate change and global warming, and in view of the enormity of activities required for the implementation of the climate change treaties to which Nigeria is a party, in 2013, the Nigerian government established the Department of Climate Change in the Federal Ministry of Environment to serve as the vehicle for driving National Climate Action efforts and actions.

Basically, the Department of Climate Change, which is the 'Gateway to National Action on Climate Change', is also the official information hub on climate change in Nigeria. The Department of Climate Change is driving the practical fulfilment of the Nigerian government's vision for mitigating and adapting to the impacts of climate change. It is providing leadership in promoting the machinery necessary to establish the right conditions for Nigerians to adapt: supporting quality research, education, awareness and outreach efforts, enforcing industry regulations that will guide businesses and communities in mitigating and adapting to the effects of climate change, and providing national policy direction in combating climate change and moving the country to a Low-carbon Development trajectory.

Nigeria's NDCs Implementation Plan

As the largest economy, leading oil producer and most populous country in Sub-Saharan Africa, Nigeria faces the unique challenge of having to diversify its economy away from fossil fuels while responding to the unmet energy needs of its growing population. Nonetheless, Nigeria wants to turn this challenge into an opportunity by increasing its use of renewable energy, reducing its carbon footprint, and eliminating gas flaring.

Nigeria is committed to a 20 per cent reduction in emissions by 2030, with a focus on the power, oil and gas, agriculture and land use, transport, and industry sectors. Nigeria adopted the National Adaptation Strategy and Plan of Action on Climate Change in 2011, and the Nigerian Climate Change Policy Response Strategy 2012. These documents form the building blocks of Nigeria's Nationally Determined Contributions (NDCs), which was further developed into an NDC Sectoral Action Plan for the five priority sectors. The five the key priority sectors are Energy, Oil & Gas, Agriculture & Land use, Power and Transport.

Figure 1: Nigeria's NDCs targets

Source: Ministry of Environment, Federal Republic of Nigeria. (2015). http://www.climatechange.gov.ng

The NDCs Support Programme will enhance the capacities of key institutions to mobilize finance for the Action Plan; increase private sector participation to catalyze the necessary investments; catalogue climate-related actions undertaken by various parties to measure progress towards the achievement of NDCs targets; and help Nigeria inform and raise awareness on the Action Plan among the public and private sector actors.

The Buhari Administration and Implementation of SDG 13

Since September 2015 when President Muhammadu of Nigeria joined other world leaders to endorse the 17 SDGs, his administration has been taking strategic steps to reverse the negative effects of climate change in Nigeria in order to reach the targets of SDG 13 by 2030.

On December 12, 2015 during a United Nations-sponsored meeting of the Paris Agreement under the United Nations Framework Convention on Climate Change (COP21) international treaty, Nigeria joined 194 other countries to make a historic pledge to reduce global greenhouse gas emissions. What was later dubbed the 'Paris Agreement' provides a comprehensive framework for stabilizing Planet Earth's climate and preventing the atmosphere from heating above a global warming tipping-point of two degrees Celsius.

To demonstrate Nigeria's commitment to the pledge, on March 28, 2017, President Buhari signed the Instrument of Ratification of the Paris Agreement on Climate Change. The Paris Agreement was approved by the UNFCCC on May 16, 2017 and it entered into force on June 15, 2017.

President Buhari laid out his administration's plan for tackling climate change and meeting the targets of SDG 13 in his address to the 2019 United Nations Climate Action Summit with the theme: "A Race We Can Win. A Race We Must Win."

While sharing the concerns expressed by the UN Secretary-General that the world is on the verge of climate catastrophe, President Buhari said that "undeniably, climate change is a human-induced phenomenon." He said that it has therefore become imperative for member states to step-up their collective climate actions in line with the request of the Secretary-General. He reaffirmed that Nigeria stands resolutely with the international community in observing agreed carbon emission targets:

> "It is in this regard that I wish to reiterate Nigeria's commitment to its obligations under the Paris Agreement, the aspirations enshrined in our Nationally Determined Contributions and to ensure a resilient future that mainstreams climate risks in our decision making"

President Buhari promised that his administration would develop a more robust sectoral action plan, and expand the scope of its Sovereign Green Bonds in line with an intended upward review of Nigeria's NDCs to include the water and waste sectors by 2020.

On the water sector, President Buhari revealed that Nigeria would issue a Green Bond for irrigation and construct multi-purpose dams for power, irrigation and water supply.

He also announced his government's intention to take concrete steps to harness climate innovative ideas by including youths in decision-making processes as part of its over-all climate governance architecture. "We will mobilise Nigerian youths towards planting 25 million trees to enhance Nigeria's carbon sink."

In the energy sector, he said that Nigeria is presently diversifying its energy sources from dependence on gas-powered systems to hydro, solar, wind, biomass and nuclear sources. Continuing, President Buhari said:

> "Specifically, Nigeria is progressively working to realise 30 per cent energy efficiency and renewable energy mix by 2030. This is envisaged to lead to 179 million tons of carbon dioxide reduction per annum by 2030.
>
> "In addition, our Administration intends to develop a shelter belt across 11 States of the Federation spanning a distance of 1,500 km and 15km across through the Great Green Wall initiative.
>
> "Furthermore, the Federal Government has commenced the implementation of the Hydrocarbon Pollution Remediation Programme in Ogoniland, to recover the carbon sink potential of the mangrove ecosystem of the one thousand square kilometers (1,000 KM2) polluted site in the affected area.
>
> "I should also inform the summit that our government has introduced climate smart agricultural practices to unlock 74 million tons of carbon dioxide per annum, through relevant technologies, advocacy and best practices.
>
> "As you are aware, the Lake Chad Basin, which used to be a region of productivity, food security and wealth for an estimated 40 million citizens living around the Chad Basin, has shrunk significantly from its original size due to climate change."

To address the problem, President Buhari said the Nigerian government will continue to lead in efforts to have solid partnerships for the ecological restoration and recharge of the Lake. He said that he was confident that this would improve the living conditions of the diverse nationals living in the area, promote inter-state cooperation, strengthen community resilience, as well as assist in addressing the environmental and security crises that threaten the region, its resources and inhabitants.

Basically, the Department of Climate Change, which is the 'Gateway to National Action on Climate Change', is also the official information hub on climate change in Nigeria. The Department of Climate Change is driving the practical fulfilment of the Nigerian government's vision for mitigating and adapting to the impacts of climate change.

Supporting institutions to Nigeria's Climate Action drive

Nigeria's Climate Action drive has attracted the support of international and national development institutions, non-governmental organizations and corporate bodies. Key institutions such as the United Nations Development Programme (UNDP) and the World Bank are already supporting some projects designed to address the negative impact of climate change across Nigeria.

The Global Change Strategies International Inc (GCSI) of Canada is involved in efforts to tackle climate change in Nigeria, and is partnering with the Nigerian Environmental Study Action Team (NEST) on a wide range of climate change capacity development projects. Nigeria has also received financial support from the Global Environmental Facility (GEF) for the development of its Biennial Update Report (BUR) on climate change efforts.

Of all these institutions, it is the UNDP's support that has been outstanding. For instance, recently, it launched the NDC Global Outlook Report – *The Heat Is On: Taking Stock of Global Climate Ambition,* which

focuses on the UNDP's promise to help 100 countries to step up their NDCs. The report offers a comprehensive review of how nations are stepping up climate action and how they are linking these policies to the SDGs. The UNDP-NDC Support Programme is fully operational, with the clear target of increased engagement with government and the private sector. According to Yahya (2019), the UNDP has remained steadfast in its commitment to the government and people of Nigeria on this path.

He notes, however, that what makes Nigeria's climate change issues worrisome is the recent prediction by the Nigeria Meteorological Agency (NiMet) that the country will be subject to consistent changes in rainfall and temperatures in the not-too-distant future. He cautions that hotter and drier conditions are likely to exacerbate floods, droughts and heat waves and to hamper agricultural production, particularly rain-fed agriculture, on which many Nigerians rely for their livelihoods. Yahya notes that unless the Nigerian government takes action, these trends are likely to jeopardize any hard-won progress:

> "Already climate-induced conflicts are exacerbating fragile security situations, with flashpoints mainly in the middle belt of the country. Climate change therefore, poses a significant threat to Nigeria's development ambitions of meeting the Sustainable Development Goals (SDGs) and could stunt and even reverse the progress that's already been made."

Yahya believes, however, that the Nationally Determined Contributions (NDCs) made by Nigeria under the Paris Agreement embody the country's efforts to reduce national emissions and to adapt to the effects of climate change. He submits that:

> "If fully implemented, these efforts will pave way for a low carbon economy and result in about 50 per cent reduction in emissions. At the same time, the economy will grow at an average annual rate of five per cent by 2030. This represents an important milestone in tackling the challenges of climate change."

Nigeria's Climate Change Mitigation and Adaptation Strategies

The 2016 Climate Change Vulnerability Index (CCVI) classified Nigeria as one of the ten most vulnerable countries in the world. Published by the UK-based risk company, Maplecroft, the report described Nigeria as a country with 'high risk in the southern part and extreme risk in the north'. According to the report, almost 6 per cent of Nigeria's land mass was estimated to be severely degraded, at a time when the population was increasing at over 2 per cent per year and numerous sectors depend on the integrity of land resources to deliver on key sector objectives. The report projected that climate change could result in a loss in GDP of between 6 per cent and 30 per cent by 2050, an estimated US$ 100 to 460 billion dollars. It forecasts that if no adaptation was implemented, Nigeria could lose an estimated 2-11 per cent of its

Table 1: Vulnerability to Climate Change by states in Nigeria

S/no	State	Geo-political Zone	Vulnerability Index
	Sokoto	North west	2.11
	Kebbi	North west	2.27
	Bauchi	North east	2.87
	Kaduna	North west	3.06
	Gombe	North east	3.08
	Kano	North west	3.08
	Jigawa	North west	3.12
	Yobe	North east	3.14
	Katsina	North west	3.2
	Borno	North east	3.25
	Zamfara	North west	3.54
	Plateau	North central	3.87
	Niger	North central	4.03
	Taraba	North east	4.7
	Adamawa	North east	5.22
	Ebonyi	South east	5.33
	Nassarawa	North central	5.5
	Cross River	South south	5.54
	Kwara	North central	6.76
	Akwa Ibom	South south	7.16
	Kogi	North central	7.34
	Ekiti	South west	7.7
	Bayelsa	South south	7.79
	Delta	South south	8.21
	Edo	South south	8.65
	Benue	North central	8.86
	Osun	South west	9.17
	Ogun	South west	9.68
	Ondo	South west	9.71
	Abia	South east	9.79
	Oyo	South west	10.29
	Imo	South east	11.26
	Anambra	South east	11.33
	Rivers	South south	11.64
	Enugu	South east	12.68
	FCT	North central	16.51
	Lagos	South west	24.75

NB: Lower value indicates more vulnerability

GDP by 2020, thereby hampering the national development goal of becoming one of the top 20 economies in the world by 2020.

Through a climate change vulnerability analysis across the 36 states in Nigeria, Madu (2016) found that states in the north were experiencing higher degrees of vulnerability than those in the south. Table 1 and Figure 2 below show that the 13 states which experience the highest vulnerability are all located in the northern geo-political zones. The pattern confirms Maplecroft's (2016) report which showed the northern Nigeria as an area at extreme risk from climate change. A closer look at the pattern of vulnerability according to geo-political zones in Nigeria shows that the North West zone with an average index of 2.91 is the most vulnerable followed by North East (3.71) and North Central (7.55). On the other hand, the South West geo-political zone with an index of 11.89 is the least vulnerable followed by the South East (10.08) and the South South (8.17) (Figure 2).

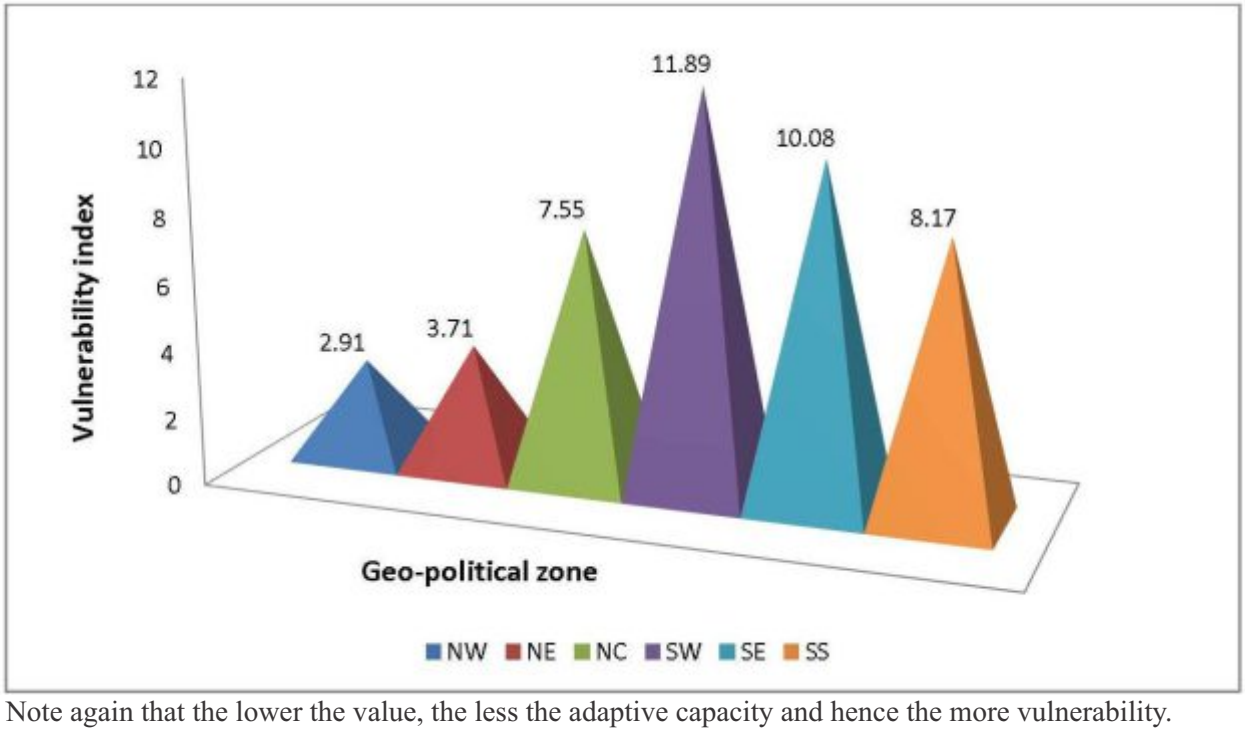
Overcoming the development challenge of climate change requires that the Federal, State and Local governments as well as the private sector take part in extensive adaptation and mitigation measures to reduce vulnerability to future climate change. However, Onafeso (2019) notes that although mitigation has traditionally been the essential approach in meeting the challenge of climate change, adaptation to its effects is now acknowledged as necessary for responding effectively and equitably to the impacts of both climate change and climate variability. In recent years, adaptation has become a key focus of the scientific and policy-making communities and is now a major area of discussion in the multilateral climate change process.

Under the UN Framework Convention on Climate Change (UNFCCC), adaptation appears as a cross-cutting theme (United Nations, 1992). While the first Conference of the Parties (COP 1) in 1995 addressed funding for adaptation, it was not until the adoption of the "Marrakesh Accords" in 2001 that adaptation began to be more widely seen as a prominent area for action.

The National Adaptation Strategy and Plan of Action on Climate Change for Nigeria (NASPA-CCN), which was established in December 2011, acknowledged the adverse effects of climate change in Nigeria. To prepare for and respond effectively to the impacts of climate change, adaptation is the key. Accordingly, the Government of Nigeria and a number of civil society organizations embarked upon the development of the National Adaptation Strategy and Plan of Action on Climate Change for Nigeria (NASPA-CNN).

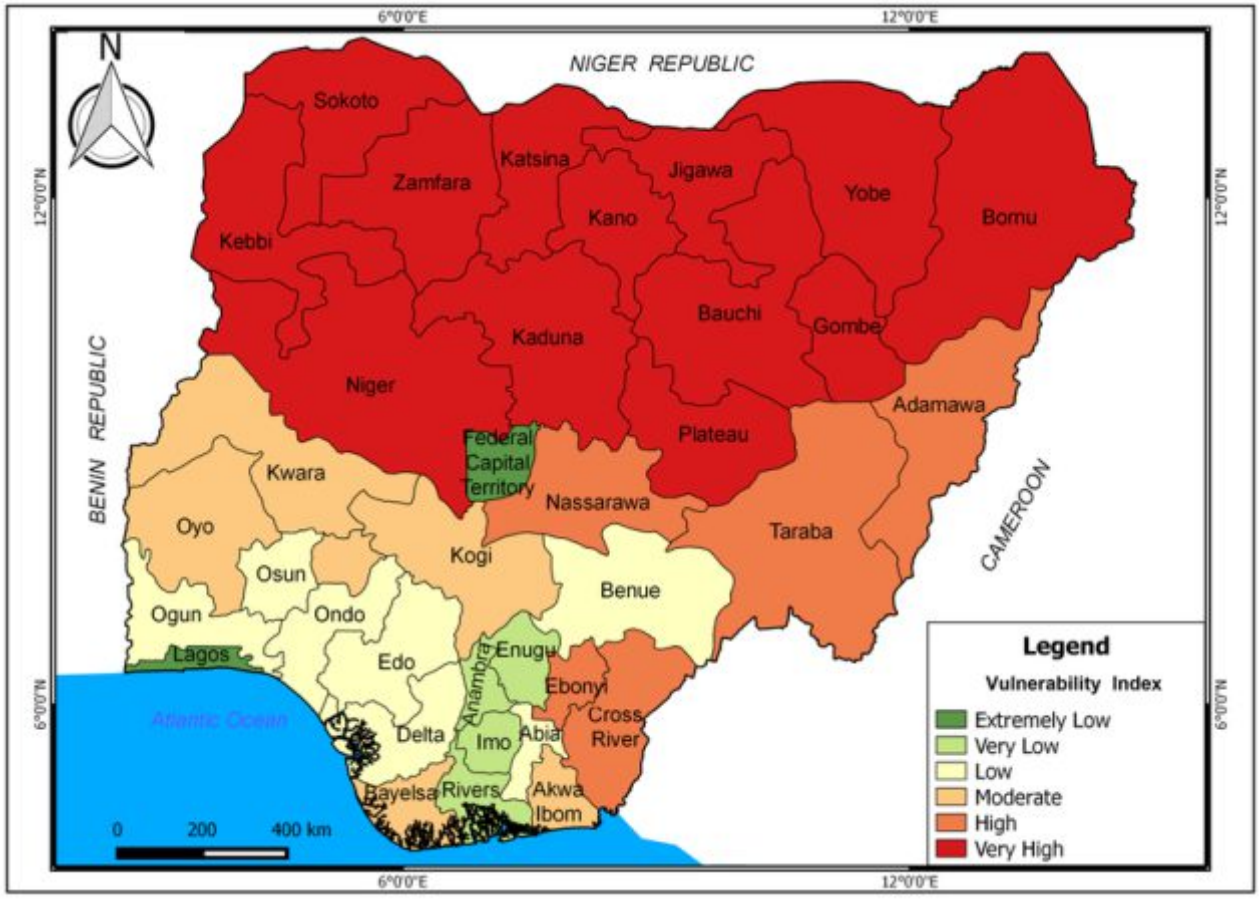
Climate change adaptation is being coordinated through the "Building Nigeria's Response to Climate Change" (BNRCC) Project, which was established to assist the Nigerian people to organize and have a systematic approach, on a national scale, to address adaptation requirements recognized as necessary to deal with climate change impacts and reduce vulnerability at various levels, especially the local level, closest to people's lives. The project was intended to help build informed responses by enhancing capacity

Figure 2: **Climate change vulnerability by Geo-political Zones in Nigeria.**



Note again that the lower the value, the less the adaptive capacity and hence the more vulnerability.

Patterns of Climate Change vulnerability in Nigeria



Source: https://www.researcgate.net

at the community, state and national levels to implement effective climate change adaptation strategies, policies and actions.

BNRCC is also expected to help Nigeria meet its obligations under the UN Framework Convention on Climate Change. The project is funded by the Canadian International Development Agency (CIDA) and is being managed and implemented by a consortium of CUSO and Marbek Resource Consultants in partnership with the Nigerian Environmental Study/Action Team (NEST).

Factors Militating against Nigeria's mitigation efforts

Some of the factors militating against Nigeria's efforts to effectively use mitigation to tackle the challenge of climate change are as follows:

Poor management of natural resources: Nigeria is yet to find ways to tackle such environment-unfriendly practices as large-scale deforestation and land clearing, inappropriate and illegal mining, excessive irrigation, poor water supply, inappropriate use of agrochemicals and inorganic fertilizers, uncontrolled and poor livestock farming practices, and gas flaring.

These harmful practices continue across the country unabated, acerbating the problems of soil degradation, drainage system damages, loss of biodiversity, alteration in vegetation cover, overgrazing and disruption of ecological systems, pollution, increased incidence of disease vectors and the like in many parts of the country, among other harmful effects.

Lack of environmentally friendly technology: One of the major challenges facing Nigeria as a developing country remains its poor attitude towards the adoption and use of environmentally sound (friendly) technologies (ESTs) in its development policies, programmes and projects. The country's natural resources exploitation, energy consumption, production processes, infrastructural development and transport systems still rely heavily on technologies that contribute to environmental pollution, solid and electronic wastes and degradation. Environmentally sound technologies will contribute significantly to improved productivity and the sustainability of resources through renewable-energy generation, pollution control, and waste reduction.

Not much progress has been recorded in this area in Nigeria so far. Although, government says it will develop and implement an environmental-friendly National Infrastructural Development Strategies & Actions Plan and initiate and sustain modern and environment-friendly transport, ICTs and housing policies with an emphasis on efficiency and effectiveness, at present there are no signs of

imminent or serious efforts to actualize them. **Land degradation and desertification:** Severe land degradation continues to ravage the country, resulting in a drastic reduction in the productivity of land resources. Reducing the rate and severity of desertification and reversing land degradation remain a key challenge for environmental sustainability and sustainable development in Nigeria.

Waste management: Poor waste management, which is still prevalent across the cities, towns and villages in Nigeria, is inimical to the sustenance of the environment as well as the overall economic development of the country. Controlling indiscriminate dumping of household and industrial wastes on land, water and air remains a major environmental challenge.

Pollution: Pollution continues to be a major environmental challenge in the country, with significant impact on the well-being of the country's environment and the health of its people.

Environmental hazards and disasters: Despite their devastating impacts on many sectors of the economy and the livelihoods of the people, the management of environmental hazards and disasters remains a major challenge, due to inadequate capacity for their effective prediction, mitigation and management (Madu, 2016).

Urban decay: Nigeria ranks among the most urbanized countries in the world with the rate about 56 per cent in 2015. The pace of urbanization increase has been such that the maintenance of modest environmental standards has inevitably lagged behind. The functionality of most urban areas is thus reduced in addition to exerting adverse impacts on households, on macro-economic performance and on social well-being. This situation poses a major challenge to economic growth and sustainable development.

Coastal management: Nigeria's coastal region suffers degradation from diverse human activities, particularly oil exploration and exploitation, and agricultural and industrial development. Efforts to address critical environmental problems, especially in the country's coastal areas and marine environment have been mainly lethargic.

Weak environmental governance: Weak and fragmented environmental governance remains a major bane of environmental sustainability in the country. Many of the institutions dealing with environmental issues have weak capacity and adopt a sectoral, rather than an integrated approach. They are generally too under-funded and ineffective in their core functions to have any meaningful impact on environmental sustainability. The weak enforcement of laws and weak implementation of policies remains a major issue of concern in Nigeria's environment sector.

Poor attention to environment matters: There are strong indications that environmental issues and challenges are still underrated in national priorities despite the severity of climate change impacts on the country. Besides lack of political will to enact and implement environmental laws and right policies that could help address climate change, governments at all levels still invest few resources and little manpower to the issue.

Low private sector participation: Nigeria's efforts to address climate change are still beset with low participation of the private sector, which as a major player in the market must be adequately involved in environmental management. Improving the level of private sector participation in environmental management to take economic responsibility for damages done to the environment is critical.

Conservation of shared natural resources: Conflicts over the control and management of shared resources are very common in many parts of Nigeria. For example, the Lake Chad region experiences perennial conflicts concerning access to its water and fisheries resources.

Already climate-induced conflicts are exacerbating fragile security situations, with flashpoints mainly in the middle belt of the country. Climate change therefore, poses a significant threat to Nigeria's development ambitions of meeting the Sustainable Development Goals (SDGs) and could stunt and even reverse the progress that's already been made.

The way forward

Tackling climate change remains a key development challenge in Nigeria because the country is vulnerable to the ravages of the conundrum. As Dutse and Ibrahim pointed out in 2013, many sectors of the Nigerian economy such as manufacturing, insurance, transportation, offshore oil and gas, and thermal and hydro power generation and transmission appeared to be directly vulnerable to the impacts of climate change. Other vulnerable sectors they identified were those dependent on climate-sensitive resources like agriculture, fishing, forestry, renewable energy and eco-tourism. These cumulative effects will impact the GDP negatively.

This is why scholars have canvassed certain strategic approaches that government, policy formulators, regulatory agencies, the private sectors and all stakeholders must adopt in order to provide the country the required focused response to its climate change concerns. The measures Dutse and Ibrahim outlined in 2013 as necessary to tackle climate change in Nigeria remain relevant today:

- Enacting policies toward its mitigation and developing technology that can improve productivity and are environmentally friendly.
- Increasing agricultural production through irrigation as a source of constant water supply, which will have positive impact on the environment. Hence, efforts and policies should be focus towards encouraging and providing effective irrigation facilities
- Agricultural innovations that increase soil nutrient and do not contribute to change in climate should be encouraged.
- Governments, non-governmental organizations, and community based organizations should work together to raise and increase awareness among the communities and people on the impact of climate change and how to cope with such changes when they occur.
- Seasonal climate forecasting should be encouraged so that farmers can adapt to current year-to-year variability through the use of advanced information, and also communities will be in the position to adapt to longer term climate change. The Nigerian Metrological Agency (NIMET) has an important role to play in this direction.
- Afforestation and re-forestation programme should be reactivated and strengthened for the protection of the environment.
- Government should equip and update the equipment of NIMET to collect appropriate weather data necessary for developing drought early warning system for the country.

For Beyioku in (2016), it had become imperative for Nigeria to mainstream climate change into national, regional and state development plans, adapt necessary policies to be an integral part of government initiatives, given the cross-cutting nature of the impact of climate change, and to provide an important intersection between development and climate change adaptation and remediation in that both aim to reduce the root causes of vulnerability.

> "Others include raising awareness on issues of climate change which is presently at low ebb especially amongst vulnerable groups like women, children, even at the grassroots, especially rural dwellers, as well as revive the tree planting programme by raising awareness for individuals to plant trees."

Beyond creating awareness on the issue, Beyioku believes that as part of the science of climate change, the curriculum planners should ensure that they put in place core knowledge of, and information about, climate change as part of 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.

Although the Nigerian government has expressed its commitment to the Paris Agreement on Climate Change in terms of reducing national emissions, successful implementation of SDG 13 requires more proactive actions from both the public and private sectors.

> Additionally, University lecturers 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.
>
> Furthermore, it is presently being argued that there is paucity of data for mainstreaming of climate change in development issues, and there is an urgent need to reverse this trend by generating abundant data and statistics that will enhance the application of key performance indicators for the purpose of effective monitoring and evaluation."

In their own submission, Ati, Agubamah and Abaje (2018) recommend that successful handling of the climate change issue will require a multi-national, multi-sectorial and multi-dimensional approach. They noted that although President Buhari had signed the National Policy on Climate Change, he was yet to sign the Bill to establish the National Climate Change Commission which was passed by the National Assembly. The 8th National Assembly came to an end without the President having signed the Bill into law.

Conclusion

There is no doubt that climate change is one of the greatest threats to Nigeria's development and economy. Particular threats are posed to the country's competitiveness in agriculture from consistent changes in rainfall patterns and temperatures and the resultant increased desertification in the North and flooding in the South. Other threats include the impact on power generation and distribution due to the effects of river levels on major dams, transport infrastructure vital for trading, and possibly oil and gas production and investment.

Although the Nigerian government has expressed its commitment to the Paris Agreement on Climate Change in terms of reducing national emissions, successful implementation of SDG 13 requires more proactive actions from both the public and private sectors. Succinctly put, the government must turn words into climate action. This would help to change the country's current trajectory of climate change vulnerability and put it on the path towards achieving the targets of SDG 13 by 2030. ■

References

Ati, O.F., Agubamah,E. &, Abaje, I.B. (2018). Global Climate Change Policies and Politics: Nigeria's Response *FUJOPIA* , A Journal Publication of the Department of Political Science, Federal University Dutsin-Ma, Katsina-Nigeria ,Volume 1 Number 1 December 2018.

Ayinde, O.E, Muchie, M., & Olatunji, G.B. (2011). Effects of Climate Change on Agricultural Productivity in Nigeria: A Co-Integration Model Approach. *Journal of Human Ecology*, Volume 35, Issue 3.

Ayoade, J.O. (2003), Climate Change: A Synopsis of its nature, causes, effects and management. Vantage Publishers, Ibadan.

Beiyioke, J. (2016), Climate Change in Nigeria: A brief review of causes, effects and solutions. *https: www.fmic.gov.ng.*

Building Nigeria's Response to Climate Change (BNRCC) Project (2011). National Adaptation Strategy and Plan of Action on Climate Change for Nigeria (NASPA-CCN). Federal Ministry of Environment Special Climate Change Unit.

Department of Climate Change, Federal Ministry of Environment: *http://www.climatechange.gov.ng/index.php/the-special-climate-change-unit/about-us).*

Dutse, U.Y., and, Ibrahim, D.B. (2013). Potential Challenges of Climate Change to the Nigerian Economy. IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT).

Idowu, A.A., Ayoola, S.O., Opele, A.I., & Ikenweiwe, N.B. (2011). Impact of Climate Change on Nigeria. *Iranica Journal of Energy & Environment.*

Intergovernmental Panel on Climate Change (IPCC) 2007b). Climate Change Impact, Adaptation and Vulnerability: Contribution of Working Group II to the Fourth Assessment Reports of the IPCC. Cambridge University Press, Cambridge.

Lee, H. (2019). Climate Action and Sustainable Development are Inseparable. A keynote speech delivered during the opening of the High-Level Segment of ECOSOC, in the General Assembly Hall at UN Headquarters in New York, on 16 July 2019.

Madu, I.A. (2016). Rurality and Climate Change Vulnerability in Nigeria: An Assessment Towards Evidence Based Rural Development Policy. Paper presented at the 2016 Berlin Conference on Global Environmental Change held from May 23 – 24, 2016 at Freie Universitat Berlin.

Ministry of Environment, Federal Republic of Nigeria. (2015). Nigeria's Intended Nationally Determined Contribution. Abuja.

Mogo, F.C. (2014). Environmental Laws and Regulations for Environmental Impact Assessment in Nigeria.

Retrieved from http://www.slideshare.net/felichimogo/environmental-laws-and-regulations-for-environmental-impact-assessment-in-nigeria.

Onafeso, O.D. (2019). Appraisal of Climate Change Adaptation in Nigeria. https://www.researcgate.net.

Yahya, M. (2019).Nigeria must lead on climate change. *https://www.undp.org.*

Climate Action in Nigeria: An Analysis

1. Introduction: Overview of Climate Change in Nigeria

IN NIGERIA, the challenges of climate change have affected the country's capacity to overcome the basic development problems of its population, which is estimated at 190million. The country's northern region, in particular, has been faced with severe drought which has hit peasant agricultural activity badly. The indiscriminate use of fertilizers across the middle-belt and northern region of the country have been identified as a major cause of the release of nitrogen and methane whose oxides have had a very pronounced negative impact on the environment. In the Lake Chad Basin, an estimated 50 percent of its water and other natural resources have been destroyed by persistent drought and desertification, while government has been unable to resuscitate the economic fortunes of the over 5 million population who live in the region.

In the oil-producing parts of the Niger Delta region, international oil companies such as Shell Petroleum Development Company, Chevron and Mobil have, in conjunction with the Nigerian state, represented by the Nigerian National Petroleum Corporation (NNPC) continued to flare gas day and night for the past six decades, emitting carbon dioxide into the atmosphere and polluting rivers and wetlands that have been rendered biologically dead, destroying the region's huge biodiversity and rural livelihoods. What is more, the rise in global temperature has resulted in ocean surges and over-flooding of the coastal communities. In 2012, massive flooding caused a major decline in not only oil and gas production, but also local economic activities such as fishing and agriculture.

Nigeria became a Party to the United Nations Framework Convention on Climate Change in 1994, ratified the Kyoto Protocol in 2004 and submitted its First National Communications (FNC) in 2003 with a second FNC in February 2004.With financing from UNFCCC's Adaptation Fund, Nigeria hosted the Clean Development Mechanism Projects. In September 2012, the government approved the *Nigeria Climate Change Policy Response and Strategy*.

The Paris Agreement required all member-countries, developed and developing, to ratify the document, and to formulate and implement appropriate policies, programmes and projects as their Action Plans i.e. to develop a Climate Action Plan as envisaged in the Sustainable Development

Goal (SDG) #13.The Climate Action Plan is largely derived from the internally nationally determined contributions (NDCs) of a member-country and aims to reverse the negative impact of climate change for example, by reducing carbon emission and improving the resilience of the environment at the national and global levels. Thus, the Paris Agreement is part of the efforts to achieve one of the SDGs, namely, to reduce carbon emission and lower global temperature.

According to the Department of Climate Change in the Federal Ministry of Environment, Abuja, the data generated in the period, 2010-2014, informed the

This paper examines Nigeria's government Climate Action and its policies, programmes and projects as encapsulated in the nationally determined contributions (NDCs) to reduce carbon emission, and to promote environmental resilience and economic growth as enshrined in the Paris Agreement signed by the government.

In 2012, Nigeria adopted the Nigeria Climate Change Policy Response and Strategy. The goal of the policy is to foster low-carbon, high growth economic development and to build a climate resilient society.

country's NDCs. These were approved on November 26, 2015 and submitted to the UNFCCC in 2017. The government also constituted an Inter-Ministerial Committee on Climate Change to govern its implementation.

Specifically, the objectives of the NDCs are: to reduce carbon emission, to mitigate adverse effects of the climate and strategies, to promote the resilience of the environment, to evaluate disaster and risk-measures, to promote sustainable resource governance, human/environmental security, investment and use of appropriate technologies to reduce global temperature and to mainstream environmental education. Finally, the NDCs are embedded as critical components of the national development policies and programmes for real assessment.

This paper examines Nigeria's government Climate Action and its policies, programmes and projects as encapsulated in the nationally determined contributions (NDCs) to reduce carbon emission, and to promote environmental resilience and economic growth as enshrined in the Paris Agreement signed by the government. Within this context, it analyses the country's NDCs, paying attention to its targets and the effectiveness or otherwise of the strategies formulated to actualize the set goals of reversing the adverse environmental crisis necessitated by climate change in the country. The paper concludes with recommendations.

2. Nigeria's Nationally Determined Contributions (NDCs) and Climate Change

ON November 26, 2015, Nigeria approved its NDCs and submitted the same to the UNFCCC, thereby making Nigeria a Party to the Paris Agreement. The key aspects of the country's NDCs are structured as follows: National Development Strategy and Planning; National Development Strategy and Planning; Climate Change Policy Framework; Adaptation and Policy Framework; and Mitigation Framework. They are elaborated in Table 1 and other sub-sections below.

2.1 National Development Strategy and Planning

Three major development strategy documents have been formulated since the Nigerian military handed over political power to an elected President on May 29, 1999, namely, the Olusegun Obasanjo administration. They were: **Vision 20:2020**; and the **Transformation Agenda** of **2011-2015** during the administration of President Umaru Yar'Adua and was continued with his death by President Goodluck Jonathan; and the third plan is the current administration's **Economic Recovery and Growth Policy (ERGP) of 2017.** This places a high premium on growth and expects the individual to key into the process with government gradually delinking from the economy. An elaboration on these development strategy and plan is ideal.

2.2 Vision 20: 2020:

Vision 20:2020 was the Federal Government's economic blueprint for growth formulated in 2009. It recognized the threat posed to development in Nigeria and globally by climate change. The plan raised the alarm on the irreparable effects of climate change on the environment, food scarcity and water scarcity and stressed that these factors were partly responsible for persistent resource conflicts and insecurity in the oil-rich Niger Delta. It identified the necessity for policies, programmes and actions aimed at mitigating the adverse impact of climate change on the environment such as climate resilience. But despite this, the government was unable to arrest the worsening trend of the release of CO_2 into the atmosphere generally or the pollution of the environment of Nigeria's oil-producing areas by the international oil companies such as Shell Petroleum Development Company, Chevron and Agip which continued to operate with a reckless disregard of the impact of their activities.

Of course, the 2012 Paris Agreement and Nigeria's 2017 Climate Action Plan could not have been on the 2009 **Vision 20:2020,** but even modest climate change ambitions could hardly be realized because the Nigerian government's dependence on income from oil and gas reduced its capacity to sanction the erring international oil industry.

2.3 Transformation Agenda: The agenda of this 2011-2015 development plan was to select priority projects and formulate appropriate policies that would transform them into national development projects. It identified 1,613 projects across 20 Ministries. But not only was none of them really able to achieve its objective, none of them addressed climate change issues in concrete terms either.

2.4 Economic Recovery and Growth Plan (ERGP): The 2017 ERGP is the agenda of the administration of President Muhammadu Buhari. It was formulated as the economy was beginning to recover from recession and places high premium on economic

Table 1: Summary of key aspects of Nigeria's NDC

Aspect	Detail
Type of objective	Reduction from Business as Usual (BAU)
Target year	2030
Implementation Period	2015-2030
Base data period	2010-2014
Summary of Objective	economy 5% per year, improve standard of
Unconditional and conditional mitigation objectives	20% unconditional, 45% conditional
Key measures	• Work towards ending gas flaring by 2030 (13,000MW) • Efficient gas generators 2030) • Transport shift car to bus • Improve electricity grid • Climate smart agriculture and reforestation
Emissions per US$ (real) GDP	0.873 kg CO_2e (2015) [0.491 kg CO_2e (2030)]
GDP per capita (US$)	2,950 (2014) 3,964 (2030; real 2015 US$)
Estimated emissions per capita	Current: around 2 tonnes CO_2e 2030 BAU: around 3.4 tonnes CO_2e 2030 Conditional: around 2 tonnes CO_2e
Global Warming Potentials used	IPCC Fourth Assessment Report
Cost Estimate Data	$304b Development Opportunities for Nigeria"
Gases covered	CO_2, N_2O, CH_4
Emissions as % of global total	<1% (2010)
Historical emissions (1850-2010)	2,564.02 million tones

Source: *Federal Ministry of Environment, Department of Climate Change, Abuja 2015*

The impact of vulnerability to climate change in Nigeria varies in degree depending on the geographical location of the region. Overall, some fundamental sectors of the country's economy are at very great risks and will require adaptation policies to mitigate the adverse impact of climate change.

growth against the background where the Bretton Woods Institutions, particularly the International Monetary Fund (IMF) made it clear that development of such a plan was a prerequisite for Nigeria to access their facilities. Under the ERGP, the government is expected to key into a process whereby it gradually delinks from the economy. But such delinking does not mean that it can ignore the climate change issues.

3. Climate Change Policy Framework

In 2012, Nigeria adopted the *Nigeria Climate Change Policy Response and Strategy*. The goal of the policy is to foster low-carbon, high growth economic development and to build a climate resilient society. Specifically, it seeks to:

- Implement mitigation measures that will promote low carbon and sustainable high economic growth;
- Enhance national capacity to adapt to climate change;
- Raise climate change-related science, technology and research and development to a new level that will enable the country to participate in international scientific and technological cooperation on climate change;
- Significantly increase public awareness and involve private participation in addressing the challenge of climate change and;
- Strengthen national institutions and mechanism to establish sustainable and functional framework for the governance of climate change.

One of the major problems encountered by Nigeria in signing international conventions such as the UNFCCC is the lack of political, economic or technological capacity to implement the programmes which enable it to meet its obligations under such treaties. In effect, the managers of the Nigerian state have, on account of meeting their narrow interests, been unable to compel foreign capital to abide by the environmental safety rules particularly in the oil and gas industry. The colonial era Mineral Act of 1908, which has been refurbished as the 1967 and 2001 Petroleum Acts and the Land Use Act of 1978 have a common thread, namely, ultimate power over land and its contents such as oil, gas, and solid minerals is vested in the Nigerian state. But because access to political power in the Nigerian state is coterminous with wealth, which holds political power, the tiny faction within the state cannot undermine the process that sustains its members. This issue will be further discussed later.

4. Climate Change Adaptation

The impact of vulnerability to climate change in Nigeria varies in degree depending on the geographical location of the region. Overall, some fundamental sectors of the country's economy are at very great risks and will require adaptation policies to mitigate the adverse impact of climate change. Areas of risk are agriculture and food security, water, floods and drought, soil erosion, sea surges, tourism and eco-systems.

Following the 2012 flood that ravaged the country, the Post-Disaster Need Assessment Report put the total cost of the flood at US$16.9billion, an amount equivalent to 1.4 percent of the GDP growth of that year. This highlights that climate change poses a major challenge to economic growth, the environment and sustainable development. Agriculture which accounts for 60 percent of the country's GDP remains the largest employer of labour and the main source of food security. Agricultural productivity could decline due to flood, drought and desertification. In some parts of northern Nigeria such as Borno State, the decline in rain-fed agriculture has resulted in a decline in yields. The same negative impact on agricultural activities is being experienced in the coastal communities in the Niger Delta which suffers from excessive rainfall. Water stress is a major issue in Nigeria; where the effect of climate change has been faced with a prolonged dry seasons. The country is witnessing increasing variation in both surface and underground water and its aquifers. For example, the shrinking of the Lake Chad from about 45,000 km^2 to 3000km^2 in 2007 was caused mainly by prolonged dry seasons. The reduced water flow has badly affected power generating capacity of the hydro-power stations in the country, especially those at the Kainji and Shiroro dams. The consequences of all this for the people, food security and economy have been huge.

Floods caused by ocean surge have also had disastrous impact on the economy. The 2012 flood is reported to have destroyed physical and durable assets valued at N1.48trillion (US$9.5billion). Another consequence of climate change, is that already stressed ecosystems are exposed, needing only a trigger to wreck monumental damage. For example, the regeneration of the vegetation and the biodiversity of Nigeria's oil-producing areas is already under stress that further seismic activities by the oil companies has been exacerbated by ocean surge and its own severe environmental problems. The flora and fauna that enriched the biodiversity of the Niger Delta have been

virtually destroyed. Persistent heat and drought in the northern region have reduced surface water as evident at the Argungu Lake which hitherto boasted of huge catches of fishes at the community's traditional festivals.

It is clear from the foregoing that Nigeria is highly vulnerable to climate change. Indeed, the *World Climate Change Vulnerability Index of 2014* classified Nigeria as one of the ten most vulnerable countries in the world. A study on the relative vulnerability of the six geo-political zones showed that the three northern zones showed higher vulnerability than those of the South. Due to the coastal flooding and erosion, and impact of petroleum exploration and production in the region, the South-South has the highest vulnerability among the three geopolitical zones in the South, while the incidence of land slide and erosion puts the South East as the next in spite of the foregoing crises, yet the government is not responding with appropriate strategies formulated to mitigate the worsening trend of the environmental and climate change challenges.

4.1 The Adaptation Policy Framework

The basic task of Nigeria's nationally determined contributions, (NDCs) is to formulate mitigating strategies to restore the climate in the hope of promoting activities that will make the environment resilient to climate shock. In sectors where there are existing policy frameworks such as *The National Adaptation Strategy and Plan of Action for Climate Change* (NASPA-CCN) which was formulated in 2011), the NDCs will examine the resilience of the environment and manage the unavoidable impacts of climate change. The Climate Action Plan is framed as an integral component of sustainable development that reduces vulnerability and enhances resilience and adaptive capacity of the different economic sectors of the people, especially women, children and the resource-poor men. In this context, thirteen (13) sector-strategic policies, programmes and measures have been prepared for the implementation of the NCDs at the Federal, State and Local Government Levels involving civil society, the private sector, communities and individuals. Their role is to improve awareness and preparedness for climate change impacts, mobilize communities for climate change, reduce the impact of climate change on key sectors and vulnerable communities and to integrate climate issues into all national plans, the universities, research and educational institutions and to ensure the full participation of civil society organizations, the private sector and the media.

The key sectors are agriculture and livestock, forests, energy, transport and communications, and industry and commerce. Under agriculture for instance, it is necessary to adopt improved agricultural systems and to diversify both crops and livestock; increase the use of irrigation and to introduce national and community-based forest resources management programmes.

In the agricultural sector, the emphasis is on crops and livestock as set out in the NDCs. The *National Agricultural Resilience Framework* (NARF) formulated in 2014 is to drive the NDCs. The NARF is based on the principles of adaptive management and participatory engagement as the central tenets of the overall implementation strategy and its objectives are:

- To strengthen the overall policy for improving resilience and adaptation to climate variability and change in the agricultural sector;
- To adapt improved agricultural systems for both crops and livestock; for example, by diversifying crops and livestock, increasing access to drought resistant crops and livestock feeds and providing early warning/meteorological forecasts;
- To evaluate and introduce risk transfer and management using insurance-based risk management strategies, and supporting the implementation of climate-friendly agriculture.
- To improve resource governance and management of natural resources, for example, by increasing the use of irrigation, harvesting groundwater use for agriculture,

The basic task of Nigeria's nationally determined contributions, (NDCs) is to formulate mitigating strategies to restore the climate in the hope of promoting activities that will make the environment resilient to climate shock.

The Climate Action Plan is framed as an integral component of sustainable development that reduces vulnerability and enhances resilience and adaptive capacity of the different economic sectors of the people, especially women, children and the resource-poor men.

It is misleading for the Government to claim monopoly of formulating national policies and strategies for development without inputs from those whose lives are expected to be impacted. For instance, the private sector actors were hardly consulted much more involved in articulating such development policy, programmes and projects.

- To increase the planting of native vegetables and promote re-greening instead of slash and burn and ;
- To assess the impacts of agriculture in the savanna zones, especially the Sahel and other areas most likely to be affected by climate change.

Strategies for Forest areas include:

- Increased strengthening of the implementation of the national Community-Based Forest Resource and Management Programme;
- Reviewing and supporting the implementation of the National Forest Policy;
- Develop and maintain a frequent forestry inventory and monitoring its status and initiating research programmes on climate-related impact on the forest;
- Providing extension services to civil society organizations, communities and the private sector to help restore private natural forests, plantations and nurseries; and
- Improving the governance and natural resource management of forest reserves.

Strategies for Energy include:

- Increased protective margins in the construction and placement of energy infrastructure-higher standard and specifications;
- Undertaking risk assessment and risk reduction measures to increase the resilience of the energy sector;
- Strengthening existing energy infrastructure in order to forestall possible break-down;
- Developing and diversifying secure energy backup to ensure that individuals, civil societies and the security forces have access to emergency energy supplies and;
- Expanding sustainable energy sources and decentralizing transmission in order to reduce the vulnerability of energy infrastructure to climate change.

Strategies for Transportation and Communications include, among others:

- Increased protective margins in the construction and placement of transportation and communications infrastructure-higher standards and specifications required;
- Undertake risk assessment and risk-reduction measures to increase the resilience of the transportation and communications sector;
- Strengthen existing transportation and communication infrastructures early enough to detect and implement all possibilities of 'no regrets' actions; and
- Develop diversity backup systems to ensure the populace, the civil society and security forces have access to emergency communication methods.

Strategies for Industry and Commerce include

- Increasing knowledge and awareness of climate change;
- Undertaking and implementing risk assessments and risk reduction measures;
- Incorporating climate change into ongoing business planning;
- Reviewing and enforcing land use plans in industrial areas in the light of climate change;
- Encouraging relocation of high risk industries facilities and markets;
- Promoting and marketing emerging opportunities from climate change; and
- Encouraging informal savings and insurance schemes and arranging for the availability of medium term credit, especially for industry in crisis.

Strategies for the Vulnerable Groups include:

- Adapting the World Meteorological Organization-Global Framework for Climate Services (WMO-GFCS) to Nigeria's needs- (the National Framework for Application of Climate Services-NFACS) to reduce vulnerability of communities through enhanced advocacy and implementation of the five pillars of the framework.

The strategies formulated by the government to implement the NDCs are not fundamentally new, but abstracted from the various policy frameworks on sustainable development over the years as displayed above. One of the major contentions of this kind approach to development is the yawning gap between policy and strategy and the actual results and the lived impact on the people and the country as a whole. This is a misplaced approach to development planning; that is, dusting up previous policies and strategies that have not really been experimented and recycle into the process as new. This amounts to developing against the people.

Perhaps much more worrisome is the attitude of government agencies to formulating development policy and plans. It is misleading for the Government to claim monopoly of formulating national policies and strategies for development without inputs from those whose lives are expected to be impacted. For

instance, the private sector actors were hardly consulted much more involved in articulating such development policy, programmes and projects; nor were they involved in charting the strategies for implementation of climate change. Yet, the same government would expect them to help implement the programmes and projects of such policy

The same misgivings apply in the non-involvement of the community-based organizations and other civil society actors in the discourse on climate change and agriculture. If the experiences of the local farmer living in the north eastern region of Nigeria are discounted from the onset, it will be futile to expect such a critical stakeholder to understand the policy framework and the strategies for coping with climate change events such as the drying of Lake Chad and the impact of that on its resources and the rural livelihoods of the people who live there.

Development is about the people and they must be carried along in critical discourses such as resilience and mitigation strategies for climate change. The environment or climate is an international public good that concerns all. In the course of researching this paper, the author was shocked to learn that apart from the few actually employed in its Department of Climate Change, many of the senior officers in the Federal Ministry of Environment have hardly heard about the NDCs, let alone possess useful knowledge of how to realize them. A rethink of this kind of approach to policy making process, which will recognize the need for a pro-poor and ground-up strategy to development, is essential.

Development is about the people and they must be carried along in critical discourses such as resilience and mitigation strategies for climate change.

5. Mitigating Emission Policy

Nigeria's NDCs have approached the mitigation policy on climate change, from the perspective of the need to address the emissions of GHG because of the negative environmental consequences on the economy and the people. The contention within the government is whether Nigeria should continue with the Business as Usual Approach (BUA) that favours the major culprits in climate pollution, not the least, international oil mining companies collaborating with the Nigerian state to continue to ravage the environment and raise global temperature. In this context, the question about the BUA is the relevance of

Table 2: Key Mitigation Measures

Measure	Potential GHG reduction (million tonnes per year in 2030)
Economy-wide energy efficiency	1,179
Efficient gas power stations	102
Work toward ending of gas flaring	64
Climate smart agriculture	74
Reduce transmission losses	26
Renewable energy	31

Source: *NDCs document, 2017*

Nigeria's NDCs have approached the mitigation policy on climate change, from the perspective of the need to address the emissions of GHG because of the negative environmental consequences on the economy and the people.

a Mitigation Policy Action that still promotes the kind of reckless exploitation of the environmental resources which destroys the lives of the people and, the flora and fauna.

That said; it is still necessary to formulate an emission policy to reduce GHG to save the climate from further destruction. The mitigation actions included in Nigeria's NDCs were guided by relevant criteria but could hardly be quantified. Such criteria include cost-effectiveness, poverty alleviation, the feasibility of implementation, gender and social inclusion, land in the context of degradation, water quality and deforestation.

The mitigation actions which informed the NDCs assessed a bottom-up that took note of the challenges facing the individual as against the policy already in place. The mitigation strategy that could bring the largest development benefits are the reduction of air pollution with enormous health and social benefits, is the reduction of air pollution. Innovations in clean technologies in energy will bring resource efficiency and produce more knowledge than dirty energy. Such innovations will drive fiscal reform, fuel growth and create more jobs. It is anticipated that with international finance, foreign investment and capacity building, Nigeria can make significant contribution to reversing climate change. But, the major issue is the attitude of the policy makers to mitigating climate change.

Measures that should be deployed to achieve results in the suggested strategic sectors are stated as follows:

- ***Energy***: Renewable energy, use of natural gas instead of liquid fuels, enforced energy efficiency;
- ***Oil and Gas***: Improved enforcement of gas flaring restrictions, development of gas-to-power plant located at Gas Flare Sites;
- ***Blending of fuels***: 10 percent by volume of Fuel-Ethanol with Gasoline (E10) and 20 percent by volume of Biodiesel (B20) for Transportation Fuels;
- ***Agriculture and Land Use***: Climate Smart Agriculture and Stopping the use of charcoal;
- ***Industry:*** Benchmarking against international best practices for industrial energy usage, Adoption of green technology;

  Transport: Modal shift from air to high speed rail, moving freight to rail, upgrading road, urban transit, road pricing, reform petrol/diesel prices.

5.1 Sectorial Analysis

Agriculture: It is important at this point to analyse key sectors of Nigeria's NDCs, beginning with agriculture. Agriculture is a key sector of Nigeria's economy. Nigeria is already food insecure as evidenced in the introduction of school children feeding programme by the Federal and some state governments. That the governments have chosen to feed secondary and primary school pupils indicates the failure of the agricultural sector. As noted, the life of the farmers and rural population in the north eastern region of the country are largely at the risk of increased human mortality as a result of the shrinking water of the Lake Chad. With no significant effort made to redress the concomitant effect on rural livelihood patterns of the people, it will continue to worsen. *The Agricultural Transformation Agenda* cannot redress nor deliver; while the Climate Smart Agriculture (CSA) as enshrined in the NDCs which seeks to address the combined challenges of food security and climate change is already constrained financially. The widespread use of fertilizers (MPK) across the northern region and temporary increase in the output of agricultural yield is causing severe damage to the restoration of resilience of land and agriculture.

It is order to discourage the use of charcoal because it encourages afforestation. But, is it the rural population which is faced with persistent drought arising across the northern region of the country that will stop the indiscriminate cutting down of trees as fuel wood? Even the guinea savannah is gradually disappearing under the effects of climate change, agribusiness, solid mineral exploitation and rural farmers. The question that policy makers and researchers have been unable to answer is whether an aggrieved local farmer will be interested in growing the forest when he/she lacks alternative energy resources for cooking or the means to acquire them?

Gas Flaring: The flaring of gas is illegal under the Gas Reinjection Act of 1980 as amended. However, there is very limited infrastructure for the utilization of gas and household and the industrial levels. The penalties prescribed for offenders are too low to discourage the flaring of gas; nor are the incentives high enough to encourage the actors in the industry to desist from the practice. Globally, gas flaring accounted for the emission of an average of 48million tones of CO_2 in 2010. Nigeria is the sixth largest gas

flaring country. As set out in the NDCs, emission of CO_2 through gas flaring must be unconditionally reduced to 20 percent by 2030. The international oil companies and the Nigerian state (NNPC) are the main culprits here. The flaring of natural gas usually at petroleum refineries has to be reduced by 40 percent on the condition that effective uses for the natural gas must be found such as natural gas-fired electricity generation to replace diesel generators.

That said, the feasibility of partial gas re-injection as proposed under the 1980 Gas Act as amended, has never been implemented by the foreign oil companies or even the NNPC which represents the Nigerian state

The mitigation strategy that could bring the largest development benefits are the reduction of air pollution with enormous health and social benefits, is the reduction of air pollution.

Table 3: Major Nigerian oil production ventures

Operator (% interest)	Other partners (% interest)	NNPC (% interest)	Major producing fields	Production BPD (EST.2003)
Shell (30%)	TotalfinaElf(10%)	55%	Bonny or Eastern Division-Nembe, Cawthorn Channel, Ekulama, Imo River, kolo Creek, Adibawa & Etelelbou	950,000
	Agip (5%)		Forcados or Western Division-Forcados Yorki, Jones Creek, Olomoro, Otumara, Sapele, Egwa and Odidi	
ExxonMobil (40%)	None	60%	Edop, zubit, Oso, Unam & Asasa	500,000
ChevronTexaco (40%)	None	60%	Meren, Okan, Benin River, Delta/Delta South, Inda, Meji and Robertkiri	485,000
			Funiwa, Middleton, North Apoi, Pennington & Sengana	
Agip (20%)	Philips (20%)	60%	Obama, Obiafu, M'Bede, Abgara &Oshi	150,000
TotalFinaElf (40%)	None	60%	Obagi, Aghigo, Okpoko, Upomami, Afia and Obodo-Jatumi	150,000

Source: *Ministry of Petroleum Resources, Abuja.*

It is anticipated that with international finance, foreign investment and capacity building, Nigeria can make significant contribution to reversing climate change. But, the major issue is the attitude of the policy makers to mitigating climate change.

in the oil and gas industry. The case of SPDC which accounts for more than 50 percent of the total oil produced in Nigeria is instructive. The oil giant has never demonstrated any interest in re-injecting gas as requested by the Act. On the contrary, the company has preferred to pay penalties for operating as usual. SPDC was the Technical Partner and Operator of the NNPC/Shell BP joint venture in 1973; but when the Nigerian government nationalized the shares of BP because it was doing business with apartheid South Africa, Shell invited Agip and Elf to take over the 20 percent that hitherto, belonged to BP. The current joint venture ratio is NNPC/Shell/Elf/Agip; 55/30/10/5.

The operation of the joint venture has imposed on Shell the duty of prospecting and producing oil. Shell's argument was and remains, that there is a subsidiary of the Shell Group in Europe with the expertise in gas

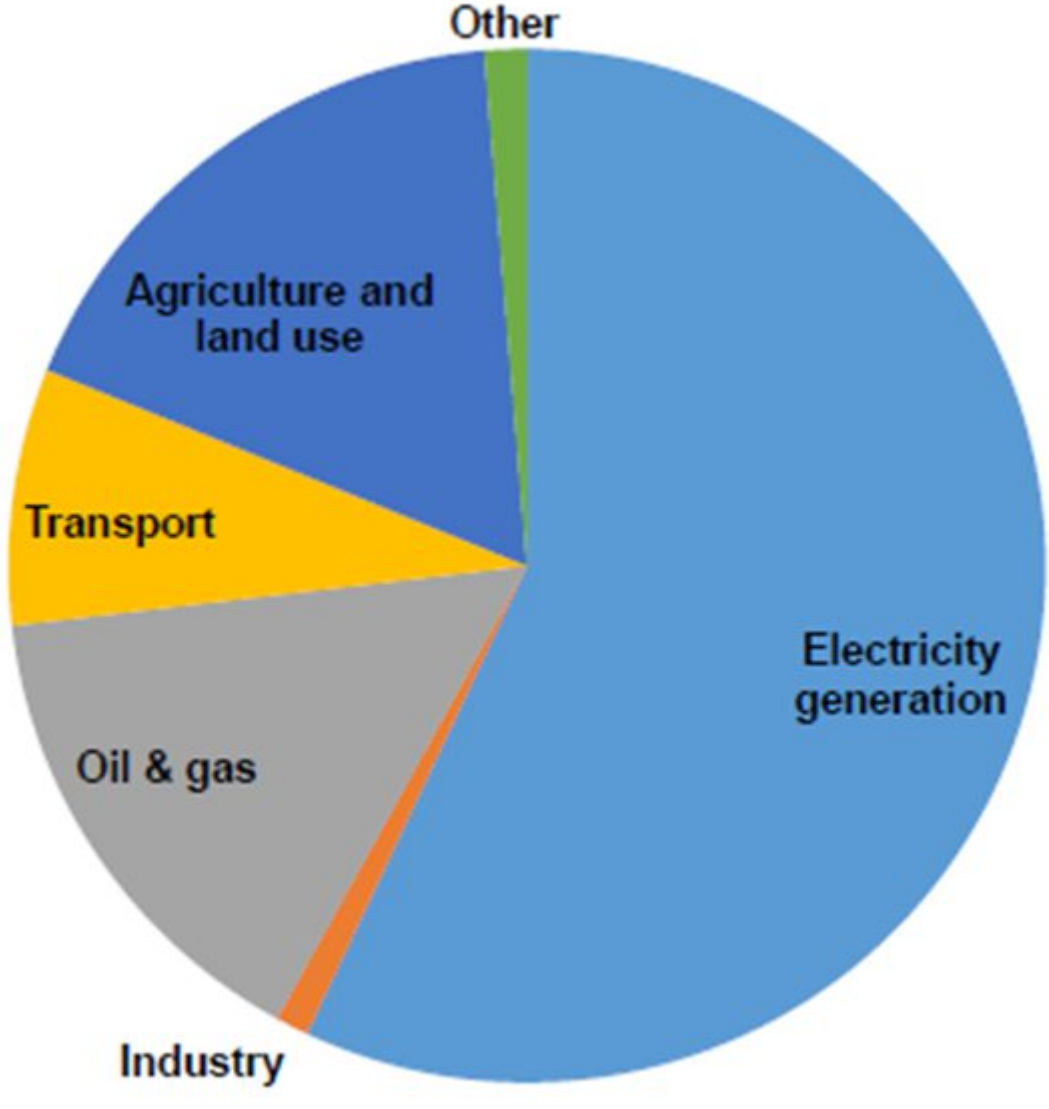


Figure 1: *Source of 2030 emission reductions by sector*

exploration and exploitation which should be invited to re-inject the gas and that the funding arrangement of the gas-reinjection should be borne in the ratio of the partners in the agreement. This meant that the Nigerian state would have to pay the largest share which the NNPC kicked against. The alternative was for the NNPC, Shell, Agip and Elf to pay a fine of 20k/10,000 cubic feet of gas in 1980 a sum which since had increased to about N30/10, 000 cubic feet of gas flared. The environment of the oil-producing areas is further comprised because oil exploration and production is moving to the deep water sites with more suspended gas flaring platforms.

Technically, the penalties paid by Shell, Agip and Elf were charged back to the joint venture where Nigeria shoulders the largest share of the cost. However, the managers of the Nigerian state remain disposed to the country's deepening technological dependence on the international oil companies in the upstream sector because Nigerians with access, whether or not they are in power or government (or both), have leveraged on their connections to acquire oil blocks. About 176 flare sites dot the climate over the Niger Delta that anyone who takes Lagos-Warri or Port Harcourt flight at night, will be confronted with an aerial view of an environment on fire.

One of the implications of this arrangement is the deepening trend of resources conflicts and vandalization of pipelines, making the environment even worse. These unhealthy trends in country's climate action already question the credibility of some aspects of the NDCs.

Energy: Nigeria is a paradox; it is a country richly endowed with various energy resources –natural gas, water, solar, biogas and petroleum, yet the country wallows in darkness. Delta State alone accounts for 40 percent of Nigeria's gas resources and has the largest natural gas reserve. It powers the West African Gas Pipeline linking Nigeria-Benin-Togo-Ghana and sustains the West African Power Pool with headquarters in Benin Republic. Yet, 60 percent of the country's population lack electricity. The recourse by the population and industrial concerns to the importation of diesel and petrol-powered generators has also impacted negatively on the pollution of the environment and the rise in climatic temperature.

The political economy of climate change must be examined in order to gain insight into another Nigerian state's 'false starts' in an attempt to recover from the climate trap. This will frame the analysis of the importance of the NDCs.

The energy sector is still monopolized by the state, and this has thrown up contradictions such as the inability to have reliable gas-powered generation using oil-extraction associated gas that is being currently wasted; lack of cost-effective renewable energy, and little provision of rural electrification. The action of past governments in inviting foreign companies into and paying bills for negligible amounts of power only heightened the crisis.

At present, Nigerians, the poor and the wealthy, who are living in semi and urban communities pay in advance an estimated N2.50 for a kilowatt of power. In this context, there is little prospect of rural electrification. The mitigation strategy of the energy crisis requires a framework that strikes an appropriate balance between energy demand and energy supply. *Nigeria's National Renewable Energy and Energy Efficiency Action Plan* proposed a 40 percent energy efficiency target for the country which would amount to 2.5 percent annual improvement, but it has not been adopted. The feasibility of abandoning the grid system and providing renewable energy for the rural communities has not been well received by the government despite its capacity to promote rural development. Renewable energy in the rural areas holds great promise for assisting the rural poor, but the necessary support from the government is lacking.

Nigeria is the sixth largest gas flaring country. As set out in the NDCs, emission of CO^2 through gas flaring must be unconditionally reduced to 20 percent by 2030.

Transport and Infrastructure: One of the clear indicators of development is the state of transportation infrastructure in the country. In the recently industrializing countries in Asia such as South Korea, transportation is highly diversified such that the majority of the people use the public transportation infrastructure such as trains that connect all parts of the country. By contrast, Nigeria's road network is narrow,

Climate change, the most critical scourge facing the world today, is the result of the past and present unmitigated exploitation of environmental resources starting since the industrial revolution in Europe led by Britain and other countries such as France, Germany and USA.

poorly built and badly maintained. Majority of the cars are purchased as fairly used with only short life span particularly on the Nigerian roads.

Urban system can hardly deliver mass transport, partly because of the huge cost of importing fairly used cars and buses. Previously established assembly plants such as Peugeot in Kaduna, Anamco in Enugu and Volkswagon in Lagos failed due largely to the huge cost of imported completely knocked down parts and lack of well-articulated industrial policy. Worse still, the Delta Steel Plant, one of the public integrated steel plants established in Warri and the other at Ajaokuta, had no facilities for rolling flat steel but could produce only round profiles meant mainly for construction of building and bridges. The second integrated steel plant, Ajaokuta Steel Company Limited had the same product profile from the light section and also had no section for producing flat steel. It has not been completed for almost 30 years after it was flagged off.

One of the implications of the mono-product profile of the steel plants, which are currently not in operation, is that the transport infrastructure that can promote climate change is not in place. In essence, measures to improve the existing transport system are constrained because of the prohibitive cost of importing new vehicles and the high cost of establishing a rail system. However, efforts to mainstream the use of liquefied natural gas and compressed natural gas to replace diesel and reduce the emission of carbon dioxide (CO_2) into the atmosphere still awaits the appropriate legislation for implementation.

Climate Smart Cities: Lagos, Kano and Abuja are among the fastest growing cities in Nigeria, Africa and even globally. Providing some of the basic infrastructure such as portable water, waste and sewage rage services, affordable housing, electricity, roads, transit and security have huge budgetary implications. Although some efforts are being made to revive the rail system, the network and connectivity remain inadequate to promote regular and functional public transportation. So far, efforts to develop the waterways have recorded little success. Lagos is already heavily impacted by flooding and the city has been identified as one of the world's sinking cities. Bus Rapid Transit (BRT), toll gates and highway expansion have proved to be mere palliatives as they have had little impact on the lives of the people and the city is far from being improved. All these have affected social inclusion status of the highly congested city.

6. The Contradictions

The political economy of climate change must be examined in order to gain insight into another Nigerian state's 'false starts' in an attempt to recover from the climate trap. This will frame the analysis of the importance of the NDCs.

Tendentially, the majority of the critics of failed development efforts in Nigeria, indeed in Africa, have always identified poorly articulated governance policies and programmes. At issue, is not so much about the government but the state. It is the nature of the state and its policies that actually shape the government and the outcome of its policies and programmes. Contrary to the misconstruction of many a liberal and neoliberal scholar, the state is not the government. Critical scholars have identified two distinct groups, namely, the propertied class and the non-propertied class with the former dominating the latter and wielding the economic and political power with which it shapes the policies that govern society. This is the state: it transforms itself into an institution and mediates the type of surplus extraction and capitalist development in the society. Its business orientation shapes the thinking processes of the people. Its capitalism fosters the exploitation of labour across the world with the government, acting as its instrument of furthering global imperialism.

By its very nature, capitalism as represented by the forces of imperialism cannot resist the rapacious exploitation of natural resources, but it lacks the capacity to resolve the crisis its exploitation has

Today's climate challenges arise from the inability of the forces of industrial capitalism to strike a balance between the stability of natural resource exploitation and capital's unbridled quest for profit.

engendered as evidenced in the acrimony between labour and capital, and resource extraction and environmental degradation. To remain in business and enjoy increasing returns on investment, capital must guarantee a steady supply of raw materials, a ready world-wide market and a steady price regime.

Located within this context, therefore, climate change, the most critical scourge facing the world today, is the result of the past and present unmitigated exploitation of environmental resources starting since the industrial revolution in Europe led by Britain and other countries such as France, Germany and USA. Today's climate challenges arise from the inability of the forces of industrial capitalism to strike a balance between the stability of natural resource exploitation and capital's unbridled quest for profit.

It is not likely that the pre-industrial period could have suffered from the kind of climate change facing the world due to human activity of today's magnitude partly because the needs of national economies were largely limited to the immediate concerns of the population which determined the level and scope of the market. With industrialization, imperial capitalist forces as part of transnational capitalism, not only overthrew basic factors of production such as land but also turned human beings into tool for the unlimited exploitation of its labour and the despoliation of the environment. The ideology of international capitalism is to exploit the natural resources of the world without reward to the dire consequences for their inability to be led or the sustainability of the resources.

That is not all. European colonialism had also facilitated the enthronement of international capitalism in Africa, East Asia and Latin America by the domestic political class particularly the bourgeoisie which lacked the power to rule but relied on the surplus accruing from its collaboration with the forces of colonial exploitations to survive.

At issue, therefore, is not so much the cause of climate change but the orientation of the political class towards resource extraction in Nigeria and other African countries. In Nigeria, for instance, the political class has, on account of its narrow interests, merely managed the exploitation of natural resources such as coal, oil, gas, and bitumen since it fosters capitalist accumulation. Resource governance is different from in resource management because the former has in-built resource rights struggle. Worse still, the membership and character of the political class is not limited to any particular government but cuts across any government in power and across the ethnic divide, but united with the common agenda to use political power to accumulate surplus.

At the time of this research, there was no information on whether Nigeria had applied for financial assistance; rather, the country's President has appealed to the international community for financial aid. Who will fund Nigeria's NDCs?

Consequently, the internal and internecine struggles going on between and among the various classes/groups that make the State a reality are to capture the political power of the state because it is coterminous with wealth. That also shapes the extent and direction of the kind of development and underdevelopment taking place not only in the extraction of the environmental resources but the economy generally. On account of its selfish interest, the tiny faction within the state structure that controls its political power is an intricate part of the forces of Euro-American imperialism. The Nigerian state, therefore, is a modality of institutional domination of the society that pretends to be pursuing the interest of the public whereas its real intention is to promote narrow social, political and economic interests that make it a reality. All this has huge implications for the implementation of the NDCs.

In Nigeria, one of the major challenges facing development policy, plans and strategies is the implementation. For a country whose major source of income is oil exports, fluctuations in the global crude oil prices and the poor pricing of oil has frustrated the implementation of development plans. Even when the price of oil is favourable in the global market as it

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The Nigerian government has approached the discourse on climate change in its usual approach of limiting such critical development issue to the ministries and parastatals. It must be noted that climate change is about the environment which is an international public good that requires input from the people, civil society, the private sector and the media among others.

was recorded in the 1970s, the challenge of government was how to spend the money. What are the strategies for implementing the NDCs?

7. Implementation of the NDCs

The implementation of the NDCs falls under the functions of the *Nigeria Climate Change Policy Response and Strategy (NCCPRS)* adopted in 2012 in line with the strategic goal fostering low-carbon, high growth economic development and building a climate resilient society. The actual implementation will be undertaken by the existing government arrangement under the NCCPRS with the coordination being managed by the Department of Climate Change of the Federal Ministry of Environment. The appropriate line Ministries and agencies will carry out specific implementation activities.

The actual implementation of the full NDCs is conditioned on the availability of adequate financing for investment in the mitigation actions contained therein. The NDCs can provide public and private sector investors with a roadmap for Nigeria's development. Nigeria welcomes support for mitigation policies and measures in the form of direct investment and loans. Finance and investment can come from both public and private sources, including the Green Climate Fund and international financial institutions such as the World Bank, International Finance Corporation (IFC) and African Development Bank (AfDB) and international bilateral agencies such as Overseas Development Assistance (ODA) and the carbon market mechanism.

The Green Climate Fund (GCF) was established in 2010: it is focused mainly on mitigation projects. Between 2015 and 2018, the GCF funded 28 projects in 41 different countries 11 of which were African with 3 active and 8 closed. In Namibia, the project is integrated land and water management to support the NDC partnership plan. Rwanda's project is strategic support to advance NDC implementation and in Uganda, it is institutional mainstreaming and accelerating climate action to support NDC implementation. In Sao Tome and Principe, a closed project was targeted support towards building climate resilience.

At the time of this research, there was no information on whether Nigeria had applied for financial assistance; rather, the country's President has appealed to the international community for financial aid. Who will fund Nigeria's NDCs? The thinking in the international circle is the reluctance to partly fund projects to mitigate climate change and environmental degradation given the recklessness with which the state and foreign oil capital operate and the attendant resource rights struggles and conflicts in Nigeria's oil-producing communities. The United States of America is one of the major culprits in gas flaring and there are no major plans to minimize that. Yet, the USA signed the Paris Agreement.

8. Concluding remarks

The Nigerian government has approached the discourse on climate change in its usual approach of limiting such critical development issue to the ministries and parastatals. It must be noted that climate change is about the environment which is an international public good that requires input from the people, civil society, the private sector and the media among others. The state should be pro-people in its policy. A periodic public audit on climate change across all sectors is necessary. Should the government continue to exclude public participation in policy making, it may find itself faced with mass action against any actor undermining environmental security. ■

References

1. Nigeria's Intended Nationally Determined Contributions, Federal Ministry of Environment, 2015.
2. The Paris Agreement and the NDCs by World Resource Institute (WRI)
3. Energy Security and Sustainable Development in Nigeria: The Way Forward, Society of Petroleum Engineers, 2015.
4. Eman A. Eman, *Gas Flaring in Industry: An Overview*, Petroleum and Coal Journal, 2015.

Daniel A. Omoweh, *The State, Shell Petroleum Development Company and Underdevelopment of Nigeria's Niger Delta: A Study in Environmental Degradation*, 2010, Trenton, NJ; African World Press.

The Uninhabitable Earth

Title: The Uninhabitable Earth: Life After Warming

Author: David Wallace-Wells

Publisher: Tim Duggan Books

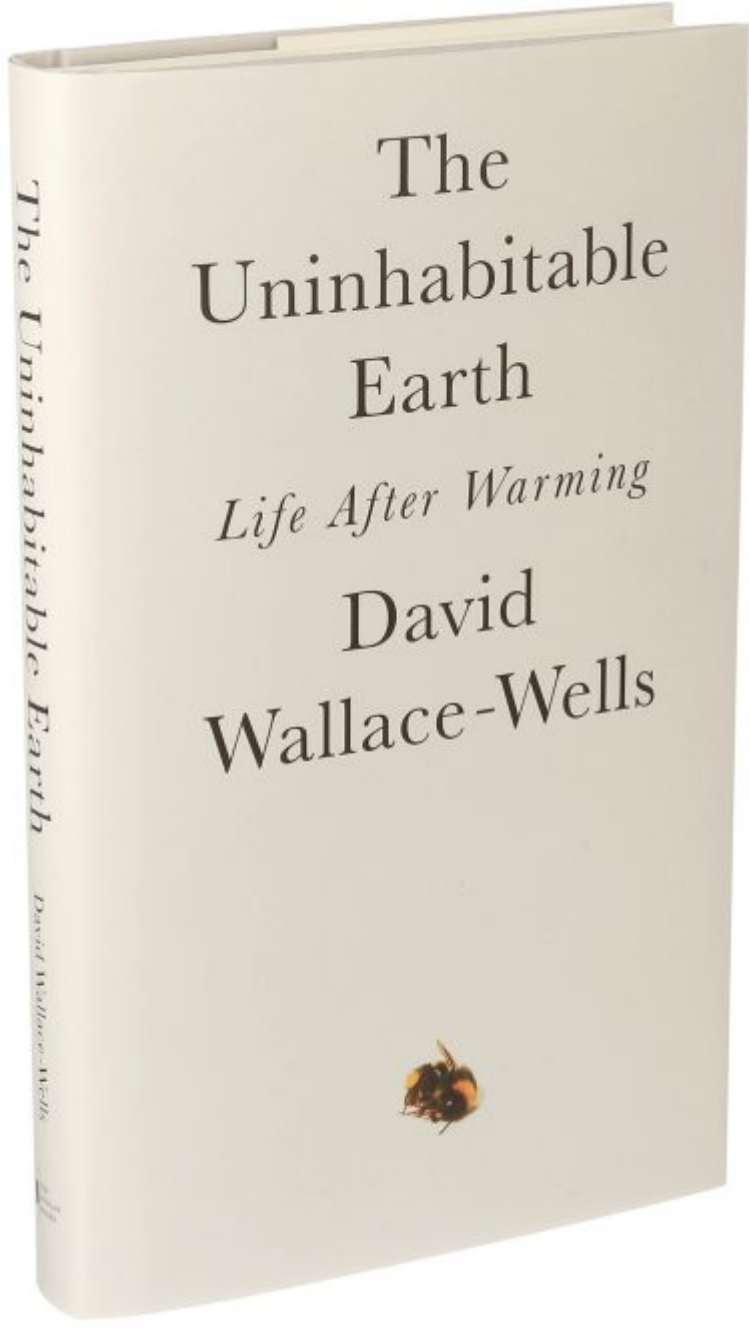
Reviewer: Mark O'Connell

YOU already know it's bad. You already know the weather has gone weird, the ice caps are melting; the insects are disappearing from the Earth. You already know that your children, and your children's children, if they are reckless or brave enough to reproduce, face a vista of rising seas, vanishing coastal cities, storms, wildfires, biblical floods. As someone who reads the news and is sensitive to the general mood of the times, you have a general sense of what we're looking at. But do you truly understand the scale of the tribulations we face? David Wallace-Wells, author of the distressingly titled *The Uninhabitable Earth*, is here to tell you that you do not. "It is," as he puts it in the book's first line, "worse, much worse, than you think."

The book expands on a viral article, also titled *The Uninhabitable Earth*, which Wallace-Wells published in New York in the summer of 2017, and which frightened the life out of everyone who read it. Writing at length, he is even more remorseless in his delineation of what the not nearly distant enough future probably holds for us. The book's longest section, entitled Elements of Chaos, is composed of 12 short and brutal chapters, each of which foretells a specific dimension of our forecast doom, and whose titles alone – Heat Death; Dying Oceans; Unbreathable Air; Plagues of Warming – are enough to induce an honest-to-God panic attack.

Wallace-Wells identifies a tendency, even among those of us who think we are already sufficiently terrified of the future, to be strangely complacent about the figures. Yes, we know that climate change will cause sea level rises of between four to eight feet before the end of this century, but then again what's a few feet if you happen to live a couple of miles inland? "That so many feel already acclimated to the prospect of a near-future world with dramatically higher oceans," he writes, "should be as dispiriting and disconcerting as if we'd already come to accept the inevitability of extended nuclear war – because that is the scale of devastation the rising oceans will bring."

The book is extremely effective in shaking the reader out of that complacency. Some things I did not want to learn, but learned anyway: every return flight from London to New York costs the Arctic three square metres of ice; for every half degree of warming, societies see between a 10 and 20% increase in the



The book's longest section, entitled Elements of Chaos, is composed of 12 short and brutal chapters, each of which foretells a specific dimension of our forecast doom, and whose titles alone – Heat Death; Dying Oceans; Unbreathable Air; Plagues of Warming – are enough to induce an honest-to-God panic attack.

likelihood of armed conflict; global plastic production is expected to triple by 2050, by which point there will be more plastic than fish in the planet's oceans. The margins of my review copy of the book are scrawled with expressions of terror and despair, declining in articulacy as the pages proceed, until it's all just cartoon sad faces and swear words.

There is a widespread inclination to think of climate change as a form of compound payback for two centuries of industrial capitalism. But among Wallace-Wells's most bracing revelations is how recent the bulk of the destruction has been, how sickeningly fast its results. Most of the real damage, in fact, has taken place in the time since the reality of climate change became known. And we are not slowing down. One of the sentences I found most upsetting in this book composed almost exclusively of upsetting sentences: "We are now burning 80% more coal than we were just in the year 2000."

There's also a temptation, when thinking about climate change, to focus on denialism as the villain of the piece. The bigger problem, Wallace-Wells points out, is the much vaster number of people (and governments) who acknowledge the true scale of the problem, and still act as if it's not happening. Outright climate denialism afor only 15% of the world's emissions. "To believe the fault for global warming lies exclusively with the Republican Party or its fossil-fuel backers is a form of American narcissism." (I'm not sure I've ever heard anyone make quite so simplistic a case, but the point about denialism as largely a red herring is an important one.)

There is a widespread inclination to think of climate change as a form of compound payback for two centuries of industrial capitalism. But among Wallace-Wells's most bracing revelations is how recent the bulk of the destruction has been, how sickeningly fast its results.

This all makes for relentlessly grim reading, particularly in that first section. As is generally the case in any sustained exposure to the subject of climate change – a subject that can seem increasingly like the only subject – a kind of apocalyptic glaze descends over even the most conscientious eyes, a peculiarly contemporary compound of boredom and horror. ("Human kind," as the bird in TS Eliot's Four Quartets sagely points out, "cannot bear very much reality.") It's a problem of which Wallace-Wells is clearly aware. "If you have made it this far, you are a brave reader," as he puts it, somewhere past the halfway point, acknowledging the likelihood of the material he's sifting through causing despondency in anyone considering it. "But you are not merely considering it," he clarifies, "you are about to embark on living it. In many cases, in many places, we already are."

That last point turns out to be one of the most crucial of the book's warnings. Because as dire as the projections are, if you are surveying the topic from a privileged western vantage, it's easy to overlook how bad things have already got, to accept the hurricanes and the heatstroke deaths as simply the unfortunate nature of things. In this way, Wallace-Wells raises the disquieting spectre of future normalisation – the prospect that we might raise, incrementally but inexorably, our baseline of acceptable human suffering. (This phenomenon is not without precedent. See, for example, the whole of human history.)

For a relatively short book, *The Uninhabitable Earth* covers a great deal of cursed ground – drought, floods, wildfires, economic crises, political instability, the collapse of the myth of progress – and reading it can feel like taking a hop-on hop-off tour of the future's sprawling hellscape. It's not without its hopeful notes: in a sense, none of this would even be worth talking about if there were nothing we could do about it. As Wallace-Wells points out, we already have all the tools we need to avoid the worst of what is to come: "a carbon tax and the political apparatus to aggressively phase out dirty energy; a new approach to agricultural practices and a shift away from beef and dairy in the global diet; and public investment in green energy and carbon capture". The fact that the route out of this hell is straightforward does not mean, of course, that it won't be incredibly arduous, or that we should be confident of making it.

The book, however, is less focused on solutions than on clarifying the scale of the problem, the horror of its effects. You could call it alarmist, and you would not be wrong. (In the closing pages, Wallace-Wells himself accepts the charge as "fair enough, because I am alarmed".) But to read *The Uninhabitable Earth* – or to consider in any serious way the scale of the crisis we

face – is to understand the collapse of the distinction between alarmism and plain realism. To fail to be alarmed is to fail to think about the problem, and to fail to think about the problem is to relinquish all hope of its solution.

About the Author

David Wallace-Wells is a columnist and deputy editor at *New York* magazine. He has been a national fellow at the New America Foundation and was previously the deputy editor of *The Paris Review*. He lives in New York City.

On the Marble –The Uninhabitable Earth

"Potent and evocative. . . . Wallace-Wells has resolved to offer something other than the standard narrative of climate change. . . . He avoids the 'eerily banal language of climatology' in favour of lush, rolling prose." —Jennifer Szalai, *The New York Times*

"The book has potential to be this generation's Silent Spring." — *The Washington Post*

"*The Uninhabitable Earth*, which has become a best seller, taps into the underlying emotion of the day: fear. . . . I encourage people to read this book."— *Alan Weisman, The New York Review of Books*

"Most of us know the gist, if not the details, of the climate change crisis. And yet it is almost impossible to sustain strong feelings about it. David Wallace-Wells has now provided the details, and with writing that is not only cs a political force, he argues, is essentially a US phenomenon – which is to say, essentially, a phenomenon of the Republican Party – and the US is responsible lear and forceful, but often imaginative and even funny, he has found a way to make the information deeply felt." — *Jonathan Safran Foer, author of Everything is Illuminated*

"A brilliant new book. .... a remorseless, near-unbearable account of what we are doing to our planet."— *John Lanchester, The New York Times Book Review*

"David Wallace-Wells argues that the impacts of climate change will be much graver than most people realize, and he's right. *The Uninhabitable Earth* is a timely and provocative work." — *Elizabeth Kolbert, author of The Sixth Extinction*

"An excellent book. . . . Not since Bill McKibben's *The End of Nature* thirty years ago have we been told what climate change will mean in such vivid terms." — *Fred Pearce, The Washington Post*

"One of the very few books about our climate change emergency that doesn't sugarcoat the horror." — *William T. Vollmann, author of No Immediate Danger*

For a relatively short book, The Uninhabitable Earth covers a great deal of cursed ground – drought, floods, wildfires, economic crises, political instability, the collapse of the myth of progress – and reading it can feel like taking a hop-on hop-off tour of the future's sprawling hellscape.

"Clearly and engagingly written, widely informed, with references supplied in extensive and detailed endnotes, this overview of the present status of the climate emergency and our response to it is completely captivating: it is our own story, happening here and now."— *Lydia Davis, Times Literary Supplement*

"This gripping, terrifying, furiously readable book is possibly the most wide-ranging account yet written of the ways in which climate change will transform every aspect of our lives, ranging from where we live to what we eat and the stories we tell. Essential reading for our ever-more-unfamiliar and unpredictable world." — *Amitav Ghosh, author of Flood of Fire*

"If we don't want our grandchildren to curse us, we had better read this book." — *Timothy Snyder, author of Black Earth*

"Wallace-Wells has a gorgeous command of the English language, and knows how to lay down prose that moves the reader at such a clip that one feels like a Kentucky Derby–exhausted mare at the end of each chapter.... Wallace-Wells sets himself and his analysis of climate change apart from the predominant voices of leadership in the field." — *Laurie Garrett, The Lancet*

"Beautifully written. . . . As climate change encroaches, things will get worse. Much worse. And David Wallace-Wells spares no detail in explaining how." — *Kate Aronoff, Bookforum*

"A lucid and thorough description of our unprecedented crisis, and of the mechanisms of denial with which we seek to avoid its fullest recognition." — *William Gibson, author of Neuromancer*

Losing Earth: A Recent History

Title: Losing Earth: A Recent History

Author: Nathaniel Rich

Publisher: Farrar, Straus and Giroux

Reviewer: Peter Lewis

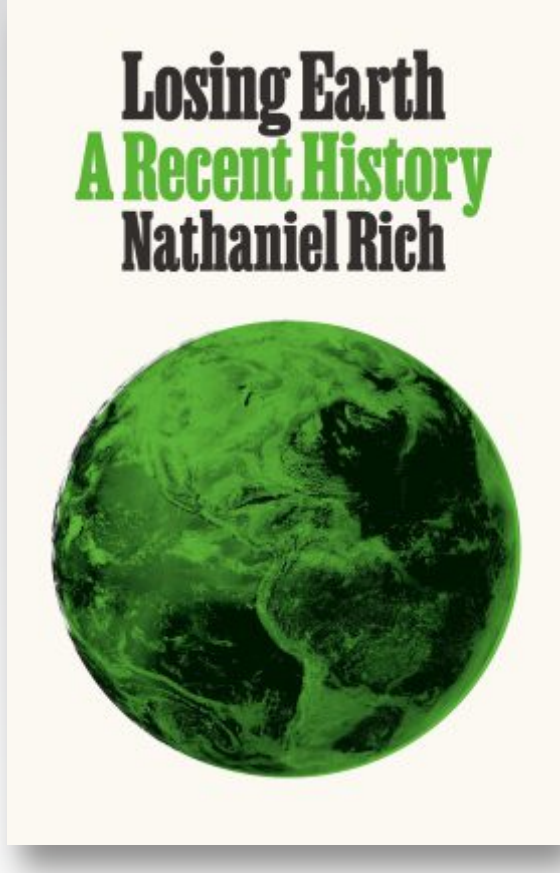
OUR boots-on-the-ground response, or lack thereof, to the stakes of climate change—the coming of the four modern horsemen of the apocalypse: flood, pestilence, famine, and wildfire—takes shape amidst perfect economic disorder, writes Nathaniel Rich in his shimmering recent history of global warming, Losing Earth. That disorder can be summed up in one word: mañana. The benefit of a short-term gain—the continued reliance on fossil fuel for our energy needs—dwarfs the cost of a long-term risk: climate catastrophe.

This lack of response is also an existential disorder, Rich suggests: "If human beings really were able to take the long view…we would be forced to grapple with the transience of all we know and love in the great sweep of time." In other words, we don't like to think about our death. Which in turn makes the lack of response a moral disorder. We care more about our own immediate convenience and comfort than we do of future generations.

These failings of the human project have been known to us for years. "Nearly everything we understand about global warming was understood in 1979." The main point was clear: human beings had altered the global climate through the indiscriminate burning of fossil fuels. The more carbon dioxide pumped into the atmosphere, the warmer the atmosphere grows. By the turn of the twentieth century it even had a name: the greenhouse effect.

And monsters live in that greenhouse, which Rich draws with verve. Climate scientist James Hansen, director of NASA's Goddard Institute for Space Studies, calls a 2-degree Celsius increase in global warming "a prescription for long-term disaster" — Rich reminds us that we are now at the point where long-term disaster is the "best case scenario." A 3-degree warming will find the abandonment of coastal cities and mass starvation; 4 degrees and we can expect permanent drought and massive desertification; 5 degrees brings the "fall of human civilization."

This is the background to Rich's story, which reads at times like Richard Preston's Hot Zone, except here we are talking about the weather and not the Ebola virus. Still, climate science can be just as thrilling and/or terrifying. But in the forefront of Losing Earth are all the lost opportunities to do something about



climate change. Particularly from 1979 to 1989, the years of primary focus in the book, there were so many moments when something hard might have been established, instead of—at best—paper promises.

As a spur to action, "the major missing issue in all this," said Rafe Pomerance, an environmental lobbyist and one of the protagonists who help move the story along, "is leadership. It needs to come from the political community." He bearded Senator Al Gore: "You are the ones who are going to have to make that decision"—to shape political policy around the climate juggernaut. "Don't rely on the scientists. It's not their job."

There were plenty of members of Congress lining up to express concern about global warming, and no shortage of congressional hearings were held to discuss the matter—often featuring the aforementioned Hansen, the book's other protagonist. Yet U.S. legislators failed to pass any policy measures to address the problem. They were too busy thinking in two year, four year, and six year bites to tie their political capital up in an issue that had to be thought of in decades, and numerous decades at that.

Even when climate change was on a roll, writes Rich, when it was in the headlines, or at the convening of international panels, or at environmental summits, there was never a sense of political urgency. "Though the U.S. delegation endorsed the Kyoto Protocol—committing its parties to reduce greenhouse gas emissions in about two decades by an average of 5 percent—it was never submitted to Congress for ratification." The energy lobby is just too poisonously effective; indeed, since Kyoto in 1997, "there has not been another serious effort to negotiate a binding global climate agreement." Twenty-two years — a period of time in which we have jacked more carbon into the atmosphere than in all the years proceeding.

Rich delivers this failure of imagination and political will with a sharp stick. "From a technology and economics standpoint, Jim Hansen told me, it is still readily possible to stay under two degrees Celsius." The problem is human behavior. "We have trained ourselves, whether culturally or evolutionarily, to obsess over the present, fret about the medium term, and cast the long term out of our minds." But human behavior, rather than political, or economic or legal considerations, is also the answer, writes Rich. When popular movements have managed to transform public opinion, they have done so on the strength of a moral claim that persuades enough voters to see the issue in human terms. That will come "only at the moment of moral repugnance that follows a clear-eyed reckoning with what we have done and what we continue to do."

About the Author

Nathaniel Rich is the author of the novels *King Zeno*, *Odds Against Tomorrow*, and *The Mayor's Tongue*. He is a writer at large for *The New York Times* Magazine and a regular contributor to *The Atlantic* and *The New York Review of Books*. He lives in New Orleans.

The main point was clear: human beings had altered the global climate through the indiscriminate burning of fossil fuels. The more carbon dioxide pumped into the atmosphere, the warmer the atmosphere grows.

On the Marble –Losing Earth

"An eloquent science history; and an urgent eleventh-hour call to save what can be saved." — *Barbara Kiser, Nature*

"Reading like a Greek tragedy, *Losing Earth* shows how close we came to making the right choices — if it weren't for our darker angels." — *Adam Frank, NPR.org*

"Exceedingly well-written . . . a must-read handbook for everyone concerned about our planet's future . . . *Losing Earth* is eloquent, devastating, and crucial." — *Booklist (starred review)*

"A maddening book full of what-ifs and the haunting suspicion that if treated as a political problem and not as a matter of life and death, climate change will cook everyone's geese."

— *Kirkus Reviews*

But in the forefront of Losing Earth are all the lost opportunities to do something about climate change. Particularly from 1979 to 1989, the years of primary focus in the book, there were so many moments when something hard might have been established, instead of—at best—paper promises.

"This deeply researched, deeply felt book is an essential addition to the canon of climate change literature. Others have documented where we are, and speculated about where we might be headed, but the story of how we got here is perhaps the most important one to be told, because it is both a cautionary tale and an unfinished one. Reading this book, I could not help but imagine my children one day reading a future edition, which will include the story of my generation's response to what we knew."

— Jonathan Safran Foer, author of Extremely Loud and Incredibly Close

"How to explain the mess we're in? Nathaniel Rich recounts how a crucial decade was squandered. *Losing Earth* is an important contribution to the record of our heedless age."

— Elizabeth Kolbert, author of The Sixth Extinction

"Combining the dramatic immediacy of a police procedural with the urgency of prophecy, Nathaniel Rich's provocative book chronicles the failure of our scientific and political leaders to act to halt the climate apocalypse when they appeared on the verge of doing so, and casts the triumph of denial as the defining moral crisis for humankind."

— Philip Gourevitch, author of We Wish to Inform You That Tomorrow We Will be Killed With Our Families

"In this book, Nathaniel Rich demonstrates exquisitely how shallow debate of a deep problem—the planetary scale and civilizational consequences of climate change—exacerbates the problem. We are still a long way from thinking about climate change in the multi-century frame we need to deal with it realistically. Getting there will be a new skill for humanity, if we get there."

— Stewart Brand, author of Whole Earth Discipline

Tit bits on SDGs

Concerns over Nigeria's Lack of Climate Change Mitigation Plan

EXCEPT the Nigerian government rises up to its responsibility of tackling environmental challenges in the country through the workable plan, bequeathing a sustainable environment for future generations, might be a mirage.

This was the submission of environmentalists on the unsystematic government's approach in tackling challenges in the sector, which they said, worsened the impact of climate change on the people in 2019.

Nigerian environment is still faced with the debacle of oil spills in the Niger/Delta, unending desertification, losses of natural habitat and flooding.

Nigerians were warned of impending floods, but neither the government nor the people did something substantial to mitigate the impacts. Unfortunately, floods displaced hundreds of Nigerians.

According to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), there were reports of such instances in Lagos, Abuja, Ondo, and Kogi. Arising from high-water levels in rivers Niger and Benue and heavy rainfall, Cross River, Kogi, Niger, and the Taraba states also experienced flooding. The floods were widespread with the worst impact on some specific states within the six geo-political zones in Nigeria; North West (five states), North Central (seven states), North East (five states), South East (five states), South-South (five states) in South West (four states) totaling 32 states severely affected out of 36 states of Nigeria and FCT.

An environmental expert, Dr. Ahovi Michael lamented that the flooding of many parts of Nigeria in 2019, which

was attributed to climate change, was partly caused by human shortcomings. He said: "The other wing is human shortcomings as Africans. It is because the nation has not planned properly. We talk about climate change due to the heavy rains that fell throughout 2019 and our dams were also filled and had overflowed. That is the reason for the disaster that took place. But there is one human aspect that we failed, that is not planning to release water gradually. People in government have not been listening to forecast especially, by Nigerian Meteorological Agency (NIMET). We must learn to release the water in dams, in Cameroun and Nigeria. We shouldn't wait for the dams to be endangered before releasing water in order not to release disaster."

EU ramps up support for €1m Africa adaptation initiative

WITH climate change impacts threatening economic and development gains across Africa, the European Union (EU) has announced EUR 1 million in new funding to the Africa Adaptation Initiative (AAI) to address the pressing needs of this crisis.

The grant will be implemented by the United Nations Development Programme (UNDP) and looks to expand the knowledge base and engender more effective climate change adaptation initiatives in African countries.

As AAI scales-up its support for climate change adaptation across the continent, the new grant will work to expand the capacity to utilize climate risk information and assess and implement risk transfer mechanisms, strengthen the knowledge and capacity to develop effective climate change adaptation actions, and facilitate the formulation of a report on the State of Adaptation in Africa.

This supports the overall efforts of AAI to enhance climate information and services, advance risk transfer, facilitate knowledge management for adaptation and strengthen the adaptive capacity of African actors in dealing with climate change.

The activities to support this objective will be undertaken in collaboration with AAI partners such as the African Risk Capacity, African Development Bank (AfDB), African Union Commission, UNDP, UNEP, and others.

"The EU and Africa are long-term allies in the fight against climate change. We welcome the Africa Adaptation Initiative as an Africa-owned initiative to leverage action and partnership for climate change adaptation. Our support is part of the EU's continued effort to enhance adaptation in, particularly vulnerable countries. It will further deepen our partnership, and strengthen the continent's response to the climate change challenge for sustainable development," said Miguel Arias Cañete, European Commissioner for Climate Action and Energy, in a recent statement on expanded coordination between the EU and AAI.

In the last decade, African economies have been growing at an average rate of 4.7 per cent, but the challenge of climate change threatens further economic growth and impedes progress towards achieving the Sustainable Development Goals (SDGs). The devastating effects of climate change, which include severe droughts, floods, reduced agricultural yields, sea-level rise, and other climate-related disasters are on the rise. By 2050, based on the current trends in global emissions, Africa's adaptation costs could reach $100 billion annually.

"Through Africa-led initiatives such as AAI, we have the potential to accelerate the ambition of Nationally Determined Contributions to the Paris Agreement across the continent. This will empower nations to adapt economies and societies to the new risks posed by climate change and support us in ending poverty and hunger and creating climate-resilient pathways for economic development as we enter a decade of action to reach the SDGs," said Ambassador Seyni Nafo, AAI Coordinator.

According to a 2018 report from UNDP on Adaptation in Africa, "Africa is at a tipping point. Given that temperatures in Africa are rising – and are set to rise faster than the global average during the 21st Century – it is time to mainstream, scale-up and accelerates support for climate change adaptation across the continent."

AAI aims to enhance action on adaptation, with the aim of addressing the adaptation financing gap, sharing best practices and lessons learned, enabling high-level political advocacy, and implementing measures to strengthen climate resilience in Africa.

The devastating effects of climate change, which include severe droughts, floods, reduced agricultural yields, sea-level rise, and other climate-related disasters are on the rise.

Climate change is the world's Biggest risk, says WEF

ENVIRONMENTAL disasters are by far the biggest risks facing the world over the next ten years, posing a significant threat to social and economic stability, according to a survey by the World Economic Forum (WEF).

For the first time in the history of the survey, environmental catastrophes make up the top five risks that some of the world's most influential people and companies believe are most likely to happen, the WEF's annual Global Risk Report for 2020 said.

The WEF survey, now in its 15th year, interviewed 750 global experts and decision-makers, who sounded the alarm on the devastating impacts of climate change.

Most of the stakeholders interviewed for the survey said economic divisions and geopolitical disorder are their greatest concerns. But younger respondents said they were most concerned about environmental issues, both in the short and long terms.

Extreme heatwaves, the destruction of ecosystems and deteriorating health due to pollution are the top short-term risks, according to WEF's respondents born after 1980.

They also believe that the effects from environmental risks by 2030 will be more catastrophic and more likely than they are today.

"The good news is that the window for action is still open, if not for much longer," said WEF President Borge Brende.

"Unless stakeholders adapt multilateral mechanisms for this turbulent period, the risks that were once on the horizon will continue to arrive," he said.

The severity of environmental risks could be made worse by additional economic and political disruptions. Of the respondents, 78 percent said they expect "economic confrontations" and "domestic political polarisation" to rise in 2020.

Pension funds may face catastrophic shortfalls - and in areas vulnerable to extreme weather conditions such as Florida, the mortgage market may suffer mass defaults if homes become uninsurable over time

Although large countries will experience the highest economic costs, the WEF said smaller and poorer countries face a higher risk of "exposure, death and non-economic costs".

The benefits of biologically diverse ecosystems, which capture vast amounts of carbon and provide significant economic benefits, are estimated at $33 trillion per year, the equivalent to the gross domestic product of the United States and China combined, said the WEF.

But these ecosystems are at increasing risk, especially as human activity has already caused the loss of 83 percent of all wild mammals and half of all plants, which are key components of our food and health systems.

Economic deadlock could spell further trouble for the environment. Although there are financing roadmaps for green energy, there are serious funding gaps for overall plans to mitigate and adapt to climate change, according to the WEF.

Moreover, investments in climate-related activities largely stay within wealthy nations' borders, with only 49 developing countries having quantifiable climate-financing targets.

"Climate and corresponding economic risks threaten a 2008-style systemic collapse, unless net human-caused carbon dioxide emissions fall by 50 percent by 2030 relative to 2010, and to net zero by 2050," the WEF said.

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- **MSMEDF** - Micro, Small and Medium Scale Enterprises Development Fund
- **NIRSAL** - Nigeria Incentive Based Risk Sharing for Agricultural Lending
- **RSSF** - Real Sector Support Fund
- **AABP** - Accelerated Anchor Borrowers Programme
- **CACS** - Commercial Agriculture Credit Scheme
- **ACGSF** - Agriculture Credit Guarantee Scheme Fund

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