



CLIMATE CRISIS AND GREENHOUSE GASES: ISSUES AND CHALLENGES IN NIGERIA

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Abstract

According to the United Nations' Educational Scientific and Cultural Organisation 'World in 2030 Survey Report' 2021, Climate Change and loss of biodiversity is one of the most pressing challenges of the next decade. By the 2023 edition of the emissions gap report by United Nations Environmental Program, emissions must be cut by forty-two percent by 2030 if global warming will be limited to 1.5 degrees above industrial level. The climate crisis as evidenced by extreme weather conditions, rise in sea levels, drought, heavy flooding, desertification and other changes in weather have negative impact on the ecosystem of the environment and affect humans and all other living things that depend on the ecosystem for survival. Ecological jurisprudence advocates for a balance in caring for human aspirations and also for a healthy environment and preservation of the ecosystem. Anthropogenic factors are responsible for the increase in greenhouse gases that warm the climate as humans are mostly concerned with development and their welfare at the detriment of the ecosystem. The paper briefly explained climate change; espoused the issues around environmental degradation, global warming and climate change crisis. It itemized some challenges and impacts of climate change on humans and the environment, with a view to showcasing the need to join hands with government to combat climate change. It reviewed some sections of the Climate Change Act, 2021 of Nigeria and concluded that effective implementation and adequate budgetary provision is required to achieve a reduction in greenhouse gases. The paper recommended an aggressive creation of awareness and environmental education for the goals of the Act to be achieved; and commencement of a robust mitigation and adaptation strategies for curbing the climate crisis.

Keywords: Climate Change, Greenhouse Gases, Emissions, Environmental Degradation.

1.0 Introduction

Climate change has become a popular household catchphrase and a sort of pandemic plaguing the world.¹ This is caused by carbon dioxide emissions which are largely by-products of energy production and use; and unsustainable agricultural practice which accounts for a large share of greenhouse gases that warm the globe.² Global warming remains a huge challenge and a threat to the world as it led to the change in climatic properties. Global warming is the gradual increase in temperature of the atmosphere which is attributed to the greenhouse gas effects resulting from CO₂ and other pollutants. Greenhouse gases absorb and emit radiation within the thermal infrared in the atmosphere. This means the heat that would have been lost to space is trapped in the earth thereby increasing the temperature.

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¹ Ojiaka, C. 'Climate Change Act 2021: An Impetus for Judicial Activism in Climate Litigation in Nigeria' in Essays in honour of Hon. Justice Mary Peter-Odili, vol. II [2022] FIDA Nigeria, 262 – 287.

² The World Bank: Co₂ Emissions Databank World Development Indicators [2017] <<https://data.worldbank.org/indicators>> accessed 29/07/2025; Due to technological advancement, human activity is on the increase, so is pollution, hence the bid to adopt alternative clean energy sources that will protect the environment from harm and catastrophe.



Greenhouse gases act as blanket round the earth that keeps it warmer, for without them the earth may be up to 30 degrees colder than it is today.³

Climate change which is experienced globally has altered the living environment and threatened livelihoods.⁴ Environmental pollution and degradation has led to increase in carbon emissions that have adverse health hazards like cancer, pneumonia, lung infections, mental retardation, cardiovascular and respiratory diseases, chronic pulmonary diseases and others.⁵ It also has dire consequences on the environment, economy and society. If concrete measures are not taken to stop environmental degradation, about 70% increase in carbon dioxide⁶ emissions will increase surface temperature by 3 - 6degrees centigrade by 2050.⁷ Where this happens, the earth will be uninhabitable for mankind. Scientists and the United Nations have been at the fore in finding solutions to the pending catastrophe. A number of conferences were organised to develop a legal framework for a lasting solution to climate change. The present concern is how to mitigate the effect of climate change arising from fossil fuel and use of unsustainable sources of energy to a more reliable clean energy sources that will reduce emission of greenhouse gases.

Nigeria is one of the most climate-vulnerable countries in the world. Nigeria's greenhouse emissions increased from 120 million tonnes in 2020 to 127 million tonnes in 2021; then to 36.6 billion tonnes in 2022.⁸ South Africa is adjudged the highest pollutant in Africa with 436 million metric tonnes of carbon dioxide emissions in 2021.⁹ Research shows that 38.2 per cent of the greenhouse gases in Nigeria came from land-use, energy waste, unsustainable agriculture and forestry sector.¹⁰ Refuse dumps, deforestation arising from illegal logging of woods for fuel without replacement all deplete the biodiversity of the environment. Huge importation of plastic materials and improper disposal of plastic waste contribute to rise in greenhouse gases in the country.¹¹

In 2021, the Climate Change Act of 2021 was signed as a reinforcement of Nigeria's commitment to the Paris agreement on climate change held at the 26th Conference of Parties to the United Nations Framework Convention on climate change in Glasgow. According to President Buhari, "for Nigeria,

³ UNFCCC, 'Understanding Climate Change: A Beginner's Guide to the UN Framework Convention and its Kyoto Protocol,' < <https://www.undpcc.org/undpcc/publications/details.php?id=127&t=1371258016> > accessed 12/3/2025 .

⁴ Sian, A. N., and others 'Towards a Theoretical Framework for Studying Climate Change Policies: Insights from the Case Study of Singapore,' [2017] *Sustainability MDPI*, Switzerland, 1.

⁵ Ojiaka, C., 'Law and Sustainable Development' in *Thematics on the Law of Development*, Nnabue, U.S.F., Applause Multi Sector Ltd, Owerri, (2017) 340 – 357.

⁶ Carbon dioxide is known as CO₂ and will hereinafter be referred to as CO₂.

⁷ Matraeva, L. V. & Goryunova, N. A (eds) 'Methodological Approaches to Estimation of Energy Efficiency within the Framework of the Concept of Green Economy and Sustainable Development', [vol. 7, 2017] *Intl. Journal of Energy Economics and Policy*, 231-239; invariably, this may lead to human extinction from planet.

⁸ NOAA Research : *Global Atmospheric Carbon Dioxide levels continue to rise*. [2022] < <https://climate.gov> > accessed 29/05/2025

⁹ Sasu, D. 'CO₂ Emmissions in Africa 2021, by Country,' *Statista Energy and Environment* [2023] < <https://www.statista.com/statistics/1268395/production-based-Co2-emissions-in-africa-by-country/> > accessed 1/06/2025.

¹⁰ Ode Uduu, 'What are the three everyday sources of Nigeria's Greenhouse emissions?' *Dataphyte* [2022] < www.dataphyte.com > accessed 23/05/2025

¹¹ Ojiaka C., 'The Legal Framework on Plastic Waste Pollution,' Ladan, M. T. *et. al. Waste to Wealth Law, Policy and Practice*, [2022] Nigerian Institute of Advanced Legal Studies, Abuja, 319 - 344



climate change is not about the perils of tomorrow but what is happening today. Nigeria is committed to net zero emission by 2060.”¹² The Act became one of the fastest bills to be accented to by the Buhari’s administration after being passed by the National Assembly.¹³

This work is anchored on Ecological jurisprudence which is advocating for a balance in the protection of humans, a healthy environment and preservation of the ecosystem. The main objective is to awaken consciousness on the need to save the world from climate crisis. Briefly, it will discuss climate change and issues around environmental degradation, global warming, human rights, with a spotlight on Climate Change Act of Nigeria 2021; then challenges militating against reduction of emissions in Nigeria with a view to garner support towards national efforts to combat climate change.

2.0 What is Climate Change?

Climate is the status of the climate system which comprises the atmosphere, hydrosphere, cryosphere, the surface lithosphere and biosphere; which determine the state and dynamics of the earth’s climate.¹⁴ The United Nation’s Framework Convention on Climate Change summed up the definition of climate change thus: “A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.”¹⁵ This definition was adopted by the Climate Change Act 2021 of Nigeria,¹⁶ and means abnormal changes in the atmospheric temperature that causes damage to the ozone layer. It is attributed to human activities that alter the composition of the atmosphere globally.¹⁷ These manifests in diverse forms- extreme weather conditions, excessive flooding, acid rain, tsunamis, hurricane and etcetera. Climate change could be due to natural processes¹⁸ or a change in climate arising from adverse human activities.¹⁹ For Olawuyi, climate change is an increase in the average temperature of the atmosphere at an abnormal rate caused by greenhouse gases²⁰ that trap the sun’s heat.²¹ It is estimated that about two thirds of anthropogenic carbon emissions are from fossil fuel burning while one third is from land use – deforestation and unsustainable agriculture.²² These raises some concerns

¹² Channels Television: COP26: Nigeria to Reach Net-Zero Emissions by 2060, Says Buhari’, *Channels Television News Headlines*, 2 November, 2021, < www.channelstv.com >; Kayode Komolafe, Nigeria at COP 26, *Thisday live*, 17, November, 2021. < www.thisdaylive.com > accessed 23/05/2025.

¹³ The bill was passed by the Senate on the 8th of July, 2021; passed by the House of Representatives on the 13th of October, 2021; and signed by the President on the 17th of November, 2021.

¹⁴ Brian R., Components of the climate System, Lecture Notes ATM 623: *Climate Modeling*, University of Albany [2015]< http://www.github.com/brian-rose/climate modeling_courseware > accessed 9/09/2024.

¹⁵ Article 1, paragraph 2, *The United Nations’ Framework Convention on Climate Change*, 1771 UNTS 107 (Adopted 09 May 1992, came into force 21 March 1994) UN Doc.A/AC. 237/18; This Convention shall hereinafter be referred to as UNFCCC.

¹⁶ See section 35 of the Climate Change Act 2021 of Nigeria, the interpretation section. This Act shall hereinafter be referred to as the CCA 2021.

¹⁷ Ajuzie, O., *Our Common Environment: Understanding the Environment, Law and Policy* (Lagos, University of Lagos Press, 2012) 66.

¹⁸ Lisa Alexander et. al. ‘The Science of Climate Change’ *Newsletter* [2016] Australian Academy of Science < <https://www.science.org.au/learning/general-audience/science-climate-change/1-what-is-climate-change> > accessed 18/10/2025

¹⁹ Rahman, M. I., ‘Climate Change: A Theoretical Review’ [2012] *School of Geography and Environmental Science, Melbourne, Monash University*, 2.

²⁰ Greenhouse gases shall hereinafter be referred to as (GHGs)

²¹ Olawuyi, D. S., *The Principles of Nigerian Environmental Law* (Ekiti, Afe Babalola University Press, 2015) 108.

²² *Ibid*.

about the continual increase of greenhouse gases and the effect of climate change on humans and environment. Climate change is also known as global warming which refers to rising temperature on earth. The greenhouse effect is now an important mechanism within the climate system and is referred to as a process by which radiation from a planet's atmosphere warms the surface to a temperature above what it would be without its atmosphere.²³

3.0 Linking Environmental Degradation to Global Warming and Climate Crisis:

Environment is a word laden with pluralistic definitions depending on the environmentalist's own perception and concept. Environment is derived from the French word *environia* which means surround, encircle or encompass. It is seen as the sum total of all surroundings of a living organism including natural forces and other living things, which provide conditions for development and growth as well as of danger and damage.²⁴ Annan,²⁵ the then Secretary – General of the United Nations, while speaking at the World Summit on Sustainable Development, talked about the need to protect the environment thus: “We look to the environment for food and fuel, and the medicines and materials that our societies depend on. We look to it as a realm of beauty, and of spiritual sustenance.” This suggests that the environment is very important to humanity as it provides all materials necessary for the existence of humans and organisms including aesthetics. It includes water, air, land and all plants and human beings or animals living therein and the inter-relationships which exist among these or any of them.²⁶ It then means that no one group or category of organism should dominate the environment or use it to the detriment of the others. The ecological environment and its resources need to be preserved and protected for the benefit of man and other organisms within planet earth.

Degradation is the process by which the beauty or quality of something is destroyed or spoiled.²⁷ The phrase environmental degradation covers environmental contamination, pollution and other forms of decline in environmental quality.²⁸ The natural environment is compromised in some way, reducing biological diversity and the general health of the environment which can be natural or accelerated by human activities.²⁹ Environmental degradation is the destruction of the ecosystems, habitat, and extinction of wildlife, depletion of resources such as air, water and soil. Degradation weakens and reduces the capacity of the environment to regenerate itself and could manifest in ecosystem imbalance, forest deterioration, fresh water degradation, soil degradation, air pollution and global warming.³⁰ Naturally, the environment is supposed to regenerate and renew itself and heal from pollution, but problem has arisen because the level of degradation seems to be faster than the rate of regeneration.

²³ Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report: *Climate Change 2007, what is the Greenhouse Effect? The working group 1: The Physical science basis*. < <http://www.ipcc.ch> > assessed 10/9/2025.

²⁴ The Business dictionary < <https://www.businessdictionary.com/definitions> > accessed 11/4/2025.

²⁵ Annan, K., A Speech by United Nations Secretary – General at the World Summit on Sustainable Development in Johannesburg, 2 September, [2002] < <https://www.un.org> > assessed 13/1/2025.

²⁶ Section 37 of the National Environmental Standards Regulatory and Enforcement Agency (Establishment Act of 2007) hereinafter referred to as NESREA Act.

²⁷ Cambridge Advanced Learner's Dictionary and Thesaurus (Cambridge University Press)

²⁸ Usman, A. K., *Environmental Protection Law and Practice* (Nigeria, Malthouse Press, 2017) Revised edn. 47.

²⁹ Environmental degradation concept <<http://www.wisegeek.com/what-is-environmental-degradation.htm>.> accessed 02/03/2025.

³⁰ Ekpui, C. E. and Unufe, J., ‘Effects of Environmental Degradation on Rural Communities Sustainable Development: Niger Delta Communities in Focus.’ [2018] *Journal of Arts and Social Sciences*, vol. 3, No. 2

Fossil fuel combustion emits carbons that degrade the biosphere.³¹ Emissions from energy starts from exploration, drilling, spillage, refining, power production, combustion from vehicles, gas flaring, gas plant, carbon from industrial machines. Degradation increases the greenhouse gases emissions that deplete the ozone layer and cause global warming. Global warming is the gradual increase in temperature of the atmosphere which is attributed to the greenhouse gas effects resulting from CO₂ and other pollutants. These activities alter the equilibrium balance of the natural GHGs and anthropogenic GHGs in the atmosphere thereby contribute to the warming of the oceans and atmosphere.³² Greenhouse gases absorb and emit radiation within the thermal infrared in the atmosphere. This means the heat that would have been lost to space is trapped in the earth thereby increasing the temperature. Greenhouse gases act as blanket round the earth that keeps it warmer, for without them the earth may be up to 30 degrees colder than it is today.³³ The entire scenario is like a web linking environmental degradation, greenhouse emissions, ozone layer depletion, and climate change together.

4.0 Issues Arising from Climate Change:

Insecurity and Alteration of the Ecosystem

Climate change, as a result of global warming and its implication for deforestation, desertification, drought, flooding and other natural disasters, has increased threat to national and regional security.³⁴ The desertification caused by drought,³⁵ unsustainable grazing, and deforestation has led to farmers migration issues and indirectly increased land grabbing and herdsmen/farmers clashes. The herdsmen clashes with farming communities are as a result of inordinate quest for green grass land for rearing cattle. This is a major security concern that has resulted to killing of innocent citizens in some agrarian communities in Nigeria, example Adamawa, Kaduna, Bauchi, Benue, Nasarawa, Plateau, Enugu and Ebonyi states.³⁶

Climate change alters the ecosystem and has such effects as shortage of water, drought, wild fires, and disruption of food production leading to food insecurity, morbidity and mortality, damage to infrastructure and other extreme weather-related changes.³⁷ Drought and flooding has displaced more

³¹ Steffen, W., 'The Trajectory of the Anthropocene: The great Acceleration' [2015] *Anthropogenic – Rev.* 2(1) :81 – 98.

³² Idowu, A. A., Ayoola, S. O., Opele, A. I., and Ikenweawe, N. B., 'Impact of Climate Change in Nigeria' [2011] *Iranica Journal of Energy and Environment*, vol. 2 (2) 145 - 152

³³ UNFCCC, 'Understanding Climate Change: A Beginner's Guide to the UN Framework Convention and its Kyoto Protocol,' < <https://www.undpcc.org/undpcc/publications/details.php?id=127&t=1371258016> > accessed 12/3/2025 .

³⁴ Iroegbu, C. O. 'Environmental Degradation, Threat to Security,' *The Nations Newspaper*, 22, January, 2013 reported on Ogwu, J. the Permanent Representative of Nigeria to the United Nations in her paper titled "Addressing Environment and Conservation: A Development and National Security Imperatives."

³⁵ Shiru, M., Shahid, S., Alias and Chung, E. S., 'Trend, Analysis of Droughts during Crop growing seasons of Nigeria,' [2018] *Sustainability* 10 (871) 1-13; Drought may lead to desertification and damages natural environment and human society.

³⁶ Kwede, F. M., and others, 'Legal Challenges Arising from Continuously Emerging Insecure Environment,' *Law, Security and National Development*, NALT Conference [2017] 120.

³⁷ Field, C. B. *et. al.* Climate Change 2014: Impacts, Adaptation and Vulnerability; Fifth Assessment Report of the Intergovernmental Panel on Climate Change (London, Cambridge University Press, 2014) 8.

than 2 million people in one year.³⁸ East African countries have been battling with drought and lack of drinking water; this has implications for forced migration. This is a confirmation that something strategic must be done to save the world from impending disaster.

Agricultural Productivity and Food Security

Agricultural production and yield are affected directly and indirectly by heat waves, heavy down pour, unpredictable rainfall and dry season, flooding, landslides, severe cycloids, tropical storm, tornadoes, drought, wild fires, desertification, extreme precipitations, and change in seasonal timing.³⁹ The intensity, frequency and unpredictability of these phenomenal changes have negative impact on food security. Agricultural yield for crops turns out to be very poor with myriads of diseases for seedlings and vegetables. The heat makes fruits and vegetables to overripe and decay fast thereby causing economic losses to farmers. Global farming productivity is 21% lower than it could have been without climate change;⁴⁰ while about ten (10.5) billion Naira is lost due to these environmental challenges in Nigeria.⁴¹ Alteration in the ecosystem causes reduced photosynthesis, high sensitivity to diseases and slower growth for crops and plants. These contribute to very high cost of food and increase the number of people affected by hunger. It also exacerbates poverty and affects the gross domestic product of Nigeria.

Climate Change and Public Health

Climate change has been described as a public health emergency.⁴² Scientific evidence led to the conclusion that climate change is the biggest global health threat of the 21st century.⁴³ The high frequency and intensity of heat waves, droughts, floods, storm, wild fire, and heavy rainfall increases risk of vector-borne diseases, illness and injury. The quality of air is decreased by climate change which increases the risk of infectious diseases, mental stress and disorders. According to the World Health Organisation database update on air quality 2022, GHG emissions cause potential harm and contribute to outdoor air pollution with estimated 4.2 million deaths annually.⁴⁴ Impact on food security also causes poor nutrition and lead to anaemia and other nutritional deficiency complications. Increased

³⁸ According to NEMA, about 2.4 million people were displaced by flood in 2022; 662 persons lost their lives, while 3,174 had injuries. Matthew Ogune, 'Over 2 million Nigerians displaced by flood in 2022, says NEMA, Guardian Newspaper, 24 January, 2023. <https://www.guardian.ng-news> accessed 26/05/2025.

³⁹ Gowda, P. et. al., Agriculture and Rural Communities, in *Impacts, Risks and Adaptation in the United States, Fourth National Climate Assessment* vol. II, (U.S. Global Change Research Program, Washington, D. C [2018] 405. < nca2018.globalchange.gov/chapter/10/ > accessed 26/05/2025.

⁴⁰ Blaine Friedlander and Cornell Chronicles, Seven years of Agricultural Productivity Growth Lost Due to Climate Change, [2021] Stanford Woods Institute for the Environment < <https://woods.stanford.edu/news/seven-years-agricultural-productivity-growth-lost-due-climate-change...> > accessed 23/05/2025.

⁴¹ Unah, L., 'Climate Change and Food Security,' *The Nigerian Humanitarian*, 14th November, 2017.< www.newhumanitarian.org > accessed 2/5/2025

⁴² Achakulwisut, P., 'Climate Change is a Public Health Emergency [2019] UNICEF.

⁴³ Bevy, B. and Patz, J., 'Climate Change and Public Health' (Oxford University Press, Cambridge and New York, 2015) ; Watts, N., Adger, W. N. (eds) 'Health and Climate Change: Policy Responses to Protect Public Health [2015] The Lancet Commission, vol. 386 (10006)

⁴⁴ World Health Organisation: WHO ambient air quality database 2022 update, status report, 1 June, 2022 < www.who.int/publications/i/item/... > accessed 2/06/2025

respiratory and cardiovascular diseases, premature deaths, water borne diseases are threats to mental health.⁴⁵

A UNFCCC report and findings stated that climate change is expected to exacerbate health problems that already pose a major burden to vulnerable population. It also extends the length of transmission season and expands geographical range of many diseases like malaria.⁴⁶ Air pollution is arising from unsustainable oil exploration and production, oil spillage and gas flaring; and often leads to prevalence of lung cancers, asthma, tuberculosis, cerebrospinal meningitis, bronchitis, upper respiratory tract infection and other diseases.⁴⁷ The black soot or black carbons have damaging effects on health as it causes millions of premature deaths.⁴⁸ This soot absorbs solar energy which leads to more warming of the atmosphere and alters precipitation.⁴⁹

Climate Change and Human Rights

Protection of citizens from climate change effect is a basic human right which government at all levels have the responsibility to protect. Life is threatened as climate change poses a threat to food security, water, energy, housing, health and development.⁵⁰ The Paris agreement to the United Nations Framework Convention on Climate Change, in its preamble made it clear that human rights obligations must be respected while addressing climate change.⁵¹ The United Nations Human Rights Council resolution⁵² adopted a consensus on human rights and climate change. It recognised that climate change poses an immediate and far-reaching threat to people and communities. The international community made efforts to curtail carbon emissions through negotiations, binding and nonbinding agreements.⁵³ The Vienna Convention on the Protection of Ozone Layer 1985,⁵⁴ a multilateral environmental

⁴⁵ Centre for Disease Control and Prevention, *Climate Change and Public Health: Effects on Health*, [2018] < <https://www.cdc.gov-effects> > accessed 1/6/2025.

⁴⁶ UNFCCC Annual Report presented at Climate Negotiation Conference held in Bonn in May 2017 and the United Nations Annual Report 2018. < <https://www.unfccc.int> > accessed 5/4/2025.

⁴⁷ Yakubu, O. H., 'Particle (Soot) Pollution in Port Harcourt Rivers State, Nigeria-Double Air Pollution Burden? Understanding and Tackling Potential Environmental Public Health Impacts.' [2018] *Environments* vol.5 (2) < <https://www.mdpi.com/journal/environments> > accessed 5/4/2025.

⁴⁸ Renee, C., 'The Damaging Effects of Black Carbon: State of the Planet [2016] *Earth Institute, Columbia University*. < <https://news.climate.columbia.edu/2016/03/22/the-damaging-effects-of-black-carbon/> > accessed 1/6/2025

⁴⁹ Akindejoye, F., 'The Impact of Soot to Human Health: An Environmental Analysis of Niger Delta' [2018] < <https://akindejoyefunmi27.medium.com/the-impact-of-soot-to-human-health-an-environmental-analysis-of-the-niger-delta...> > accessed 21/2 /2025

⁵⁰ United Nations Human Rights: OHCHR AND Climate Change [2023] < <https://www.ohchr.org> > accessed 20/01/2025.

⁵¹ Paris Agreement to the United Nations Framework Convention on Climate Change 1995 < <https://www.unfccc.int-the-paris-agreement> > accessed 18/2/2025.

⁵² United Nations Human Rights Council Resolution 7/23 adopted in March 2008.

⁵³ Article 10 of the Kyoto Protocol enlisted some of the commitments as follows: preparing national climate change mitigation and adaptation programmes; taking steps to improve the quality of emission data; co-operating in scientific research and international climate observation networks; promoting environmentally- friendly technology transfer; supporting climate change education, training, public awareness and capacity building initiatives.

⁵⁴ Vienna Convention for the Protection of the Ozone Layer (Adopted March 22, 1985) entered into force on 22 September 1988 in accordance with Article 17(1), 1513 UNTS 323; The Convention was adopted by the Conference on the Protection of the Ozone Layer and open for signature at Vienna from 22 March 1985 to 21 September 1985, and at the United Nations Headquarters in New York from 22 September 1985 until 21 March 1986; Nigeria acceded to the Convention on 31 October 1988, United Nations Treaty Collection < <https://www.treaties.un.org> > accessed 12/11/2025.

agreement to protect the ozone layer from modifications due to human activities; sought to engage international co-operation and action based on relevant scientific and technical research.⁵⁵ Though it is a non-binding instrument, it serves as a framework for international community to reduce the production of chlorofluorocarbons that deplete the ozone layer. The Montreal Protocol on Substances that Deplete the Ozone Layer 1987,⁵⁶ metamorphosed into a pure climate change agreement. It protects the stratospheric ozone layer by phasing out the production of ozone depleting substances⁵⁷ found in refrigerators, air conditioners, aerosol products, fire-fighting equipment's; and is harmful to the ozone layer.⁵⁸ The Protocol has a legally binding reduction obligations and the agreement contains financial provisions to assist in phase-outs. Nigeria as a party enforced the ban on importation of chlorofluorocarbons under the 'National CFC Phase-out Plan' of the federal government in collaboration with UNDP, in 2004.⁵⁹ The country became a dumping 'junk yard' for all sorts of used refrigerators before the ban.

United Nations Framework Convention on Climate Change 1992⁶⁰ is a major legal instrument for stabilizing Green-house gases. Its Kyoto protocol imposes emissions reduction limitation and obligations on industrialised parties.⁶¹ Parties were saddled with the responsibility to protect the climate system in accordance with their common but differentiated responsibilities and respective capabilities.⁶² The 'common but differentiated responsibilities' is a pointer that though climate change has a global effect, the industrialized countries contribute more to the impact than the developing countries, therefore more responsibility is placed on them to do more towards combating climate change.

5.0 A Spotlight on the Nigerian Climate Change Act 2021

At the local scene, in Nigeria, Climate Change Act 2021⁶³ provides a framework for mainstreaming of climate change actions, established the National Council on Climate Change, and for related matters. *Section 1* of the CCA enumerates a number of objectives aimed to provide a framework for achieving low greenhouse gas emissions that factors in green growth and sustainable economic development. The objectives are to formulate programs for achieving climate mitigation and adaptation, while facilitating

⁵⁵ The Preamble to the Vienna Convention, *ibid*.

⁵⁶ Adopted 26 August 1987, entered into force 26 August 1989, 26 ILM 1541, referred to as Montreal Protocol. Nigeria acceded to the Protocol on 31st of October 1988 < <https://treaties.un.org-pages-view> > accessed 7/1/2025. Nigeria signed this protocol on the 31st of October 1988

⁵⁷ Article 2 Annex I and II the Montreal Protocol.

⁵⁸ Annex I and II.

⁵⁹ *This Day Newspaper*, 'Legally Binding Agreement Reached to Curb Ozone Depleting Substances' *This Day*, October 25, 2016. < <https://www.thisdaylive.com/index.php/2016/10/25/legally-binding-agreement-reached-to-curb-ozone-depleting-substances/> > accessed 10/2/2025.

⁶⁰ United Nations Framework Convention on Climate Change, (adopted 9 May 1992, entered into force 21 March 1994) 1771 UNTS 107; this shall hereinafter be referred to as UNFCCC. The United Nations in its Resolution 45/212 set up an Intergovernmental Negotiating Committee to commence negotiations on a framework convention on climate change. On the 9th of May 1992, the international community adopted the UNFCCC as a legal and governance framework for climate change while noting that climate change is real which was ascertained from scientific evidence. The document was opened for signature on the 4th of June 1992 at the United Nations Conference on Environment and Development popularly known as the Earth Summit in Rio de Janeiro, Brazil. Nigeria signed on the 13th of June, 1992 and ratified on 29 August, 1994.

⁶¹ Article 2 UNFCCC.

⁶² Article 3 (1) UNFCCC

⁶³ The Climate Change Act 2021 was accented to by President Muhammadu Buhari on the 17th of November, 2021.

the coordination of a climate action.⁶⁴ It aims at mainstreaming climate change actions with national development priorities; and envisaged the integration of climate change policies with socio-economic development and environmental integrity.⁶⁵ This is a welcome development as all government agencies and private entities must key into low green gas emissions for target to be achieved. It is also important to embrace a sustainable development mantra of development that meets the social, economic and environmental equilibrium. The Rio Declaration on Environment and Development 1992⁶⁶ affirms that long term economic progress can be assured with the protection of the environment.⁶⁷ Human beings are at the epicentre of concerns for sustainable development and are entitled to a healthy and productive life in harmony with nature.⁶⁸

Mobilization of finance and resources is very critical for an effective climate change action.⁶⁹ This is in line with *Article 4 (8)* of the UNFCCC which encouraged parties to consider necessary actions including funding and transfer of technology, to meet the needs of the vulnerable countries and implementation of response measures. The Act set a target of attaining net-zero GHG emissions for year 2050 – 2070, in line with Nigeria's international climate obligations arising from the Paris Agreement of 2015.⁷⁰ It is believed that this vision will transform Nigeria into a low-carbon, climate- resilient economy with a 50 per cent emissions reduction in its development sectors in a gender responsive manner.⁷¹

The Kyoto Protocol to the UN Framework Convention on Climate Change 1997⁷² has elements of commitment to a legally binding emissions target that were definite, part of which was to prepare a national climate change mitigation, adaptation programmes and improvement of emissions data. The C. C. A. aims at implementing mitigation measures that promote low carbon economy and sustainable living. The Council will work out the modalities for doing this in the work plan. It hopes to mobilize private and public entities to comply with climate change strategies, targets and National Climate Change Action Plans. This is a very important provision and all-encompassing as a collective action and commitment is required to meet the low-carbon emissions target. If only governmental agencies key into the emissions reduction strategy, it may not work because a collective change in policy, living lifestyle and change in actions are required for a hitch free transition to low carbon.

⁶⁴ Section 1 (a) & (b), C.C.A. 2021

⁶⁵ Section 1 . (c) & (e) *ibid.*

⁶⁶ United Nations Doc. A/Conf. 151/26; The Conference held in Rio de Janerio in 1992 and shall hereinafter be referred to as the Rio Declaration.

⁶⁷ Wealth, L., ' The Rio Declaration on Environment and Development,' *Sustainable Environment* [2018] < <https://www.sustainable-environment.org.uk> > accessed 30/1/2025.

⁶⁸ *Principle 1* of the Rio Declaration.

⁶⁹ Section 1 (d) *ibid.*

⁷⁰ Article 4 (19) of the Paris Agreement which mandated Parties to strive to formulate and communicate LT- LEDS, based on the common but differentiated responsibilities and respective capabilities in the light of different circumstances.

⁷¹ Department of Climate Change, Federal Ministry of Environment: Towards the Development of Nigeria's Long – Term Low Emissions Development Strategy (LT-LEDS) 2021,

⁷² The UNFCCC was adopted in Kyoto Japan on December 11, 1997, entered into force on 16 February 2005. 192 parties are currently parties to the agreement. Nigeria ratified the Kyoto Protocol on 10th December 2004, United Nations Climate Change < <http://www.unfccc.int> > accessed 8/3/2025; The protocol entered into force in accordance with Article 23, on the ninetieth day after the date on which not less than fifty-five parties to the convention had deposited their instruments of ratification, acceptance, approval or accession.



The C. C. A. exercises jurisdiction over ministries, departments and agencies of the federal government, including public and private entities within the territorial boundaries of Nigeria for the development and implementation of mechanisms for fostering low carbon emissions.⁷³ A national Council on Climate Change was established to make policies and decisions on all matters concerning climate change in Nigeria.⁷⁴ The Council has enormous powers and functions some of which are: to coordinate the guidelines and sectoral targets for the regulation of GHG emissions and other anthropogenic causes of climate change. The Council will approve and oversee the Action Plan implementation; and administer the climate change fund under the Act.⁷⁵ The act empowered the Council to mainstream climate change into national development plans and programmes.⁷⁶ This is in line with *Article 3 (5)* of the UNFCCC which provides that measures to protect the climate should be integrated with national development⁷⁷ as it is not only an environmental problem but also a developmental problem.⁷⁸

They are to formulate policies and programmes for research, monitoring and development;⁷⁹ and guidelines for the determination of vulnerability to climate change impact and facilitate technical assistance for implementation and monitoring of adaptation processes.⁸⁰ It behoves on the Council to make legislative, policy and appropriation recommendations for climate change adaptation, mitigation and related activities.⁸¹ They also have the onerous task of mobilizing financial resources to support climate change actions.⁸² They will explore all funding opportunities in addition to the \$413 million new funding for least developed countries fund raised at the COP 26 summit held in Glasgow.⁸³ Climate change adaptation financing and the least developed countries fund were part of the outcomes of the COP 26. The fund is very important for cushioning the effects of climate change on vulnerable communities, but the major priority is the measures taken by countries of the world to reduce emissions.

Another important function of the council is developing mechanisms for carbon taxation⁸⁴ and carbon emissions trading,⁸⁵ which will be with the collaboration of the Federal Inland Revenue Services and Federal Ministry of Environment and Trade. Application of carbon taxation is a strategy for applying the 'polluter pays principle' of environmental law. *Principle 15* of the Rio Declaration provided for the polluter pays principle.⁸⁶ This principle is applied through carbon tax or emissions trading system which imposes a charge on the emission of greenhouse gases that are equivalent to the corresponding potential

⁷³ Section 2 of the C. C. A. 2021.

⁷⁴ Section 3, *ibid.*

⁷⁵ Section 4 (c) *ibid.*

⁷⁶ Section 4 (d) *ibid.*

⁷⁷ *Article 3 (5)* UNFCCC

⁷⁸ *Article 4 (1)* UNFCCC

⁷⁹ Section 4 (e) C. C. A. 2021

⁸⁰ Section 4 (f) *ibid.*

⁸¹ Section 4 (g) *ibid.*

⁸² Section 4 (h) *ibid.*

⁸³ UNFCCC: US\$ 413 Million Pledged for Most Vulnerable Countries at COP26, *UNFCCC News*

9, November, 2021 < <https://unfccc.int/news> > accessed 28/05/2025.

⁸⁴ Section 4 (f) C. C. A. 2021

⁸⁵ Section 4 (j) *ibid.*

⁸⁶ *Principle 16* of the Rio Declaration on Environment and Development which emerged at the Earth Summit that held in Rio de Janeiro, Brazil from 3rd to 14th June 1992.

social cost of pollution.⁸⁷ The carbon tax is argued to be additional burden to tax payers. However, the Petroleum Industry Act of 2021 reduced taxes on petroleum activities. This is a contradiction, considering that fossil fuel emits high greenhouse gases. Carbon taxes are desirable where the proceeds are used to address climate impacts arising from fossil fuel impact. The basis is to act as a deterrent to intending polluters and to ameliorate the sufferings of those affected by climate change.

The council has the powers to review international agreements relating to climate change and make necessary recommendations for ratification and compliance.⁸⁸ The enforceability of such ratified agreement may still pose a challenge because of the provisions of *Section 12* of the Constitution of the Federal Republic of Nigeria, 1999 (as amended) which requires that all international treaties must be 'domesticated' by legislation before they can form part of Nigerian laws and made enforceable. They are to disseminate information on climate change, local vulnerabilities and risk; relevant laws and adaptation and mitigation measures.⁸⁹ Part of this is to embark on awareness creation about climate change and climate education which could be formulated as part of school curriculum. Early warning mechanism should be adopted to give early information to vulnerable communities to either prepare for impending disaster or evacuate from imminent danger to a safe place. The early warning system has the capacity to monitor, forecast, predict, and make disaster risk assessment and communicate same using an integrated communication system to enable adequate preparation for disaster impact reduction.⁹⁰ Artificial Intelligence models and algorithms are deployed to dictate and store such information.

Section 19 of the C.C.A. 2021 empowers the Ministry of Environment and National Planning to set a carbon budget for Nigeria. The budget will keep average increase in global temperature within 2 degrees and then plan to limit the temperature increase to 1.5 degrees centigrade above pre-industrial levels. The carbon budget must be revised periodically according to the country's international obligations. A national Climate Change Action Plan to be reviewed every five years shall be formulated.⁹¹ The Action plan will articulate the activities that will ensure the national emissions profile is consistent with the carbon budget goals. The plan will set out the measures and mechanisms for achieving the objectives of the act with a set time frame for achievement. *Section 26 (1) of the C. C. A, 2021*, approved the establishment of a climate educational curriculum to be integrated into various disciplines at different educational levels. This will go a long way to create environmental awareness for the younger generation.

Section 34 of the C. C. A. 2021, created an offence against any person, or entity whether private or public, that militates against mitigation and adaptation measures. Criminalisation of this nature will create problems since such offenders may not be individuals. Criminal liability of entities and punishment is in question. Payment of fines or damages should be more appropriate. The ecological

⁸⁷ LSE: What is the Polluter pays principle? *London School of Economics and Political Science and Grantham Research Institute* [2022]< <https://www.lse.ac.uk-explainers>> accessed 28/05/2025.

⁸⁸ *Section 4 (k) C. C. A. 2021*;

⁸⁹ *Section 4 (l) ibid*; The Special Climate Change Unit is designated for cooperation with the UNFCCC body by the federal government. They coordinate and articulate all communications- country reports, with the climate change treaty bodies that Nigeria signed and adopted.

⁹⁰ Global Disaster Preparedness Centre: *Early Warning System* < <https://preparecenter.org> > accessed 29/05/2025

⁹¹ *Section 20, C. C. A. 2021*.

philosophy and movement,⁹² born out of a concern to help the earth heal from the aggravated harm done to it by humans in their quest for unsustainable economic and human development supports a robust environmental regulation connecting earth justice and social justice.⁹³ Polluters of the environment must be held accountable as a deterrent to others. The priority has shifted from not only concerns for humans but also to the ecological integrity of the earth.

Apart from the provision in *section 5 (1) (i)* of the C. C. A. which provides for the inclusion of one representative of women groups in the membership composition of the council, there is no visible gender mainstreaming in the provisions of the Act as required by International development models.⁹⁴ *Article 7 (5)* of the Paris agreement 2015 acknowledged that a gender responsive approach must be adopted by adaptation actions. This is because vulnerabilities to climate change affect men and women differently; therefore, laws and policies ought to be gender sensitive to cater for such peculiarities.⁹⁵ Overall, the C.C. A. 2021 provides a legal and institutional framework for the achievement of a net-zero carbon emissions. It provides impetus for climate change litigation in Nigeria. It is also the first stand-alone climate change legislation in West Africa,⁹⁶ what is remaining is an effective implementation of the Act.

6.0 Challenges to Achieving GHG Emission Reduction

Accountability is very important for greenhouse gas reduction in Nigeria. This can happen through strong legal frameworks in line with global best practices in addressing climate change.⁹⁷ A full implementation of the C. C. A 2021 and litigating efforts will be helpful. So many factors made it impossible for litigation to be a veritable option before. The issue of locus standi posed an obstacle to environmental litigation. Cases like *Nigerian National Petroleum Corporation v Sele*,⁹⁸ were dismissed based on that. The right to a satisfactory environment under the African Charter is concluded as a People's right which must be claimed collectively and not an individual right.⁹⁹ The Fundamental Rights (Enforcement Procedure) Rules of 2009 enjoined the courts to encourage Public Interest Litigation¹⁰⁰

⁹² Bosselman, K., 'When Two Worlds Collide: Society and Ecology [1995] <http://www.globalecointergrity.net> accessed 10/01/2025.

⁹³ Mugisha, R., 'An Introduction to Earth Jurisprudence in the African Context,' being a presentation at the Regional Symposium on Public Interest Environmental Litigation titled, 'Earth Jurisprudence: Emerging Trends in Earth Law and Advocacy', [2007] *Green watch Uganda* < <http://www.greenwatch.or.ug.files> > accessed 2/03/2025.

⁹⁴ Ojiaka C., 'Impact of Climate Change in Nigeria: From a Gender Lens' in Okene O. V. C. et. al., Legal Essays in honour of Justice Mary Odili vol. I, [2022] *Princeton & Associates, Lagos*, 935 – 960.

⁹⁵ Ibid., 938.

⁹⁶ Ladan, M. T. 'A Review of Nigeria's 2021 Climate Change Act: Potential for increased climate change litigation' *International Union for Conservation of Nature* [2022] < <https://www.iucn.org/news/commission-environmental-economic-and-social-policy> > accessed 12/04/2025.

⁹⁷ Brown, C. T., Kokpan, B. S. and Onubo-Pepple, S. A. 'Litigating Climate Change in Nigeria: Navigating legal Avenues and Overcoming Challenges for Environmental Justice in a Developing Nation [2023] *JJIL&CLI*, Rivers State University, Vol. 12(3) 11.

⁹⁸ *Nigerian National Petroleum Corporation v Sele* [2004]CA, All FWLR (pt. 223) 1859

⁹⁹ Wondalem, H. A., 'The Right to Environment under African Charter on Human and Peoples' Right,' *International Journal of International Law*, vol. 2 (1) Universal Multidisciplinary Research Institute Ltd, 208; The European Union Court of Justice has shown its preparedness to grant access to justice in many cases, see Jendroska, J. and Reese, M., *The Courts as Guardians of the Environment – New Developments in Access to Justice and Environmental Litigation: Environmental and Climate Change Law 2019*, (Global Legal Group, London, 2019)

¹⁰⁰ Public interest Litigation shall hereinafter be referred to as PIL.



and demanded that no action shall be dismissed on the ground of *locus standi*.¹⁰¹ Flowing from this, the Supreme court dismantled this barrier in the case of *Centre for Oil Pollution Watch v Nigerian National Petroleum Corporation*¹⁰² and expanded the frontiers of Public Interest Litigation and *locus standi* concerning environmental litigation.

There are other militating factors that pose a barrier to the attainment of the set target for reducing GHG emissions and curbing climate change impact in Nigeria. Dependence on fossil fuel as an energy source for driving production of goods and services. Removal of subsidy on petroleum products is a way of reducing dependence on fuel products. However, alternatives are not readily made accessible. Limited supply of electricity has elicited individual provision of electricity generation for private and industry use through diesel and fuel powered generators. This increases level of air pollution from fossil fuel and affect greenhouse gases. The electricity crisis discourages the promotion of electric vehicles, trains and other rechargeable bikes. High cost of renewable energy components - the solar panels and storage batteries are all too expensive. Gas flaring within the oil producing communities, bush burning for agricultural cultivation, illegal logging of wood, charcoal for cooking and roasting, all constitute barriers to achieving GHG emission reduction. Absence of environmental education and awareness makes it more difficult to reduce ignorance on environmental matters. These issues need to be addressed to facilitate the reduction of GHG emissions.

Comparatively, South Africa's reliance on coal for energy generation poses a greater threat to their environment. The 1996 Constitution of South Africa protects its citizens rights to a healthy environment, and Section 38 of the Constitution supports public interest litigation, unlike Nigeria. The case of *Earthlife Africa Johannesburg v. Minister of Environmental Affairs*,¹⁰³ where the applicant challenged the Minister's approval of a new coal fired Thabametsi power project because of its climate impact, is an example. In *Sustaining the Wild Coast NPC & Ors v. Minister of Mineral Resources and Energy*,¹⁰⁴ decision to grant exploration right was reviewed based on climate change impact. Climate litigation is more pronounced in South Africa than in Nigeria¹⁰⁵ based on express constitutional provisions in the Bill of Rights. However, the C.C.A 2021, has provided additional impetus to climate litigation as the courts are empowered to prevent, stop or discontinue any act that is harmful to the environment; compel public officers from performance of harmful acts; and compensate victims affected by such harmful acts to the environment.

7.0 Conclusion

The C. C. A. 2021 has added an additional impetus for curbing climate change crisis if fully implemented. However, there is need for a gender responsive and sensitive model while preparing the

¹⁰¹ See Adesomaju, A. 'Falana Criticizes Fines on Public Interest Litigants, Lawyers,' Punch Newspaper, June, 3. 2019; where Falana criticized the courts for exorbitant fines ranging between N5 million – N10 million slammed on Public Interest litigants and their lawyers, whose cases were truck out for lack of locus standi.

¹⁰² *Center for Oil Pollution Watch v. N.N.P.C* [2019] 5NWLR (Pt. 1666) 518 at 580.

¹⁰³ *Earthlife Africa Johannesburg v. Minister of Environmental Affairs* [2016] Case No. 65662/16

¹⁰⁴ *Sustaining the Wild Coast NPC v. Minister of Mineral Resources and Energy*, [2021] case no. (3491/2021)

¹⁰⁵ See Padi Obadina, 'Climate Litigation in South Africa and Nigeria: Legal Opportunities and Gender Perspectives' [2024] *Bristol University Press*, 291-312; Etemire, U., 'The Future of Climate Change Litigation in Nigeria: COPW v NNPC in Spotlight' [2021] *Carbon and Climate Law Review*, vol. 15 (2), 158- 170.< Doi:<https://doi.org/10.21552/cccs/2021/2/7>, accessed 25/01/2025.



action plan for the inclusion of the special needs of men, women and persons with disabilities in the climate action. All barriers to emissions reduction in Nigeria must be dismantled using the C. C. A 2021 and through a human rights approach. Mitigation and adaptation strategies must be intensified.

8.0 Recommendations

1. Clean energy, electric vehicles and reduction of unsustainable consumptions of energy is the best way to mitigate. Alternative sources of energy like renewable heat and power, and improved cooking stoves should be introduced, while the high cost of renewable components is reduced through import tariffs and taxes reduction.
2. Reforestation protects the natural carbon sinks and acts as a mitigating factor. It has been revealed in a study that adding 2.2 trillion acres of tree will capture two-third of carbon emissions;¹⁰⁶ there is need for replanting of forests and creation of new ones.¹⁰⁷
3. An improved sustainable waste management that reduces the impact of decaying organic matters and non-degradable chemicals like plastic is required. Private sector businesses should take over waste management while government provides incentives to drive the industry.
4. Public awareness and education are required to create awareness on mitigation and adaptation strategies while publicising the law C. C. A. 2021. Engagement of different stakeholders within the government and private sectors must begin.
5. Environmental litigation must be enhanced and sustained. The courts are expected to be more prepared to save the planet and humans from climatic devastation.

¹⁰⁶ Bastin, J., Finegold, Y. and Garcia, C., 'The Global Tree Restoration Potential Report,' [2019] vol. 365, 76 - 79 < <https://www.sciencemag.org/about/science-licenses-journal-article-reuse> > accessed 21/5/2025; also Chazdon, R. et. al, 'Restoring forests as a means to Many Ends' [2019] Science < <https://www.science.sciencemag.org> > accessed 21/7/2025.

¹⁰⁷ Irfam, U., 'Restoring Forests may be our most powerful weapon in Fighting Climate Change,' [2019] Vox News < <https://www.voxnews.com> > accessed 20/5/2025.