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Climate Change in Nigeria: The Role of Green Public Administration

NDUKWE, OKO[1](Ph.D), OGBONNAYA, DORCAS[2]
Department Of Business Management, Godfrey Okoye University, Thinkers Corner Campus Enugu State
jamisco2@yahoo.com **08037375157**

Abstract: *Climate change is increasingly recognized as an area of concern calling for determined action, as more components of the society are starting to feel its various consequences and the Government of Nigeria also recognizes the need to accelerate the green transition.This article is on Climate Change in Nigeria and the Role of Green Public Administration. The aim is to examine climate change in Nigeria so as to; determineits causes and impacts, some policy measures adopted by the Government for climate change mitigation and adaptation; and the role public administration in climate change management in Nigeria. Weadopted library studies method wherein secondary data were indeptly reviewed. Relying on the theory of change as the theoretical framework, we found thatpublic administration is ideally positioned to lead the transition to a sustainable development model and low carbon-emission economy that is able to tackle and mitigate the impact of climate change as it has a dual role: as a consumer/user and as a policy- and decision-maker and infrastructure planner. The paper concludes that the set of policy measures for greening should not be limited to the establishment of rules for the rest of the economy, rather the public sector should demonstrate an example of reasonable consumption, using its influence to convince others of the appropriateness of the changes necessary to reduce the anthropogenic impact of climate change on the environment. The paper recommends that public administration should influence the formulation and implementation of policies which will reduce greenhouse gas emissions, improve waste management, reduce water consumption,and improve environmental standards in public procurement system.*

Keywords: *Climate change, Environment, Green Public Administration*

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Introduction

Climate change affects the way humans, animals and ecosystems live, interact and survive in their environment Robert, Wouter,andGailius (2021). Thus, discussions around climate change have gained momentum over the last two decades and even more in recent times**.** The history of the scientific discovery of climate change began in the early 19th century when ice ages and other natural changes in paleoclimate were first suspected and the natural greenhouse effect was first identified (Neumann, 1985). In the late 19th century, scientists first argued that human emissions of greenhouse gases could change Earth's energy balance and climate. In 2020, UN Secretary-General Antonio Guterres announced the world needed to reach net-zero greenhouse gas emissions by 2050 in order to limit global warming to 1.5°C. This statement implies that climate change is a global problem that requires a global response. Over the past three decades, countries have worked together to coordinate this response through international agreements such

as the Kyoto Protocol. Extreme weather events such as heat waves, droughts, and floods are getting worse. It therefore means that, creating new green pathways will require long-term commitment, increased investment, continuous innovation and collaboration between government agencies, the private sector, NGOsand civil society.

There is a growing consensus about the necessary transition to a sustainable development model and low carbon-emission economy in order to be able to tackle and mitigate the impact of climate change on the longer run, including with regard to the prevention of future global and transnational crises of an unprecedented scale.Greening of the public sector is associated with a reduction in the production of plastics; the implementation of "green" public procurement, reduction of non-recyclable waste(New Climate Institute, 2015). Thus, turning public administration green implies formulating a vision to be shared with and by the population and upholding a commitment to find a balance between short-term (economic) and long-term sustainability interests. Ideally, Public administration is positioned to lead this transition process as it has a dual role: as a consumer/user and as a policy- and decision-maker and infrastructure planner. In fact, public administrations in many countries already play a leading role by providing policy incentives to enable the transition and by implementing internal changes to their own modus operandi and activities to minimise their own direct and indirect impact on natural resources, energy capacities and the environment. Public administrators have been very concerned about how policy affects environment issues, from air quality to fracking. The main reason for this has to do with the average citizen. Nigerians are very concerned about the effects policy will have on the environment for themselves and for future generations. While this may appear to show great concern for environment conservation, actually this presents Nigerians' concern toward the government's management of natural resources as well.

The 2021 Intergovernmental Panel on Climate Change (IPCC) report concluded that climate change is widespread, rapid and intensifyingWorld Bank. (2019).The report also highlighted the urgency of taking decisive steps towards the transition to a low carbon economy in order to be able to tackle and mitigate the impact of climate change. It is expected that all sectors of society will have to play a role in the effort towards a green transformation; including the public administration. The impact on the economic hub of the country will be devastating if the impact of climate change is not tackled. Thousands of lives and livelihoods are said to have been lost, property destroyed, as the government battles to cater for the displaced persons. Apart from the likely displacement, virtually all African cropland may become unviable for current species among other devastating consequences. The impacts of climate change are now evident, ranging from wildfires, flooding, and drought. There is also the crisis of extinction of land and ocean species, rising sea levels, and increased drought. For Nigeria, these issues have led to increased food shortage, animal migration, health risks, poverty, and displacements. There are indications that by 2070, a third of the global surface would be unsuitable for human life as the global temperature rises. It is estimated that about 81% of Nigeria's population would suffer from these extreme temperatures. The need to address the above challenges through the contribution of public administration forms the backdrop of this article.

Conceptual Clarification

Climate change: Climatechange refers to a significant change in the statistical measures, such as changes in surface and ocean temperature, precipitation, storm, drought and wind patterns, and

other phenomena over a period of decades, centuries, or millennia. Changes in the climate are caused by solar radiation, volcanic eruptions, and plate tectonics (Weiss, 1995).Thus, the term climate change is associated with global warming, which is an increase in global surface temperatures. In the public debate, the term climate change may be used interchangeably with the theory that human activity contributes to and/or is responsible for global warming and subsequent changes in the climate since the Industrial Revolution. Greenhouse gases such as carbon dioxide, absorb infrared radiation in the atmosphere. Without greenhouse gases, Earth would be inhospitable for life, and scientists debate the extent to which higher greenhouse gas concentrations in the atmosphere contribute to climate change. Fossil fuels – coal, oil and gas – are by far the largest contributor to global climate change, accounting for over 75 per cent of global greenhouse gas emissions and nearly 90 per cent of all carbon dioxide emissions. As greenhouse gas emissions blanket the Earth, they trap the sun's heat. This leads to global warming and climate change. The world is now warming faster than at any point in recorded history (Weiss, 1995). Warmer temperatures over time are changing weather patterns and disrupting the usual balance of nature. This poses many risks to human beings and all other forms of life on Earth.

Green Public Administration

Through the instrumentality of public policy the national government of any country, in the spirit of the "social contract", is duty bound to address all areas of human concern, e.g. health, food, shelter, education, security (territorial and human) (Denis and Anthony, 2015).Greening of public Administration refers to the practice of public administration in which the government develops and approves a set of regulations to improve the efficiency of the use of resources in the public sector. It is associated with a reduction in the production of plastics, the implementation of "green" public procurement, and reduction of non-recyclable waste (Pogodina, Baranova and Avdeev, 2019). It goes without saying that public authorities in modern conditions should adopt economic policy in the context of sustainable development. However, in green public administration, the set of measures for greening should not be limited to the establishment of rules for the rest of the economy; the public sector should demonstrate an example of reasonable consumption, using its influence to convince others of the appropriateness of the changes necessary to reduce the anthropogenic impact on the environment. Thus, the state limits consumption and, as a consequence, reduces the amount of resources associated with the production, transportation, utilization or processing of new goods. To achieve this, public procurement legislation should include requirements for public authorities to purchase goods, works and services with minimal impact on the environment. Public administration in Nigeria should reduce greenhouse gas emissions, improve waste management, reduce water consumption, implement environmental standards in the public procurement system and implement a policy of openness and transparency in the framework of greening. The idea is to design a plan to; facilitate the acquisition of goods, works and services by public authorities with minimal impact on the environment (Pogodina, et al 2019)..

Methodology

Taking into consideration the purpose of the research, the methodology is qualitative. It provides the use of the method of content analysis of scientific literature in order to identify the main concepts that are integrated into the climate change and public administration.

Contextual Review

Historical Perspective of Climate Change

The United Nations (UN) Conference on Human Environment held in 1972 represents the turning point in the environmental thinking of the global community. This conference, which subsequently led to the establishment of the United Nations Environment Programme (UNEP), for the first time recognized the importance of environmental management and the use of environmental assessment as a management tool. At the conference, there were clear indications that the form of economic development would have to be altered. Around the same period, a group of eminent scientists and concerned citizens gathered in Rome to look at the global environmental crisis that was expanding at an alarming rate. This group, later to be known as the Club of Rome, produced a comprehensive report on the state of the natural environment. This report emphasized that the industrial society was going to exceed most of the ecological limits within a matter of decades, if it continued to promote the kind of economic growth witnessed in the 1960s and 1970s. The fact that environment and development could not for long remain in a state of conflict gradually became apparent after the 1972 UN Conference on the Human Environment (UNEP, 1972). In the following years, terms such as environment and development, development without destruction, and environmentally sound development evolved. The term ecodevelopment appeared in the UNEP review in 1978. By this time, it was recognized internationally that environmental and developmental ideas needed to be considered concurrently.

Throughout the 1980s, there had been a number of initiatives that focused on understanding the linkages between environment and development. The most significant of these undertakings Sustainable Development Policy and Administration was the work done by the World Commission on Environment and Development (WCED), which was established by the UN. The work of WCED culminated in the publication of its 1987 report, Our Common Future, better known as the "Brundtland Report." This report provided a major political turning point that gave the concept of sustainable development great geopolitical significance and transformed it into a catchphrase of global policy making. The United Nations Conference on Environment and Development that was held in 1992 provided the basic framework for the promotion of sustainable development through the adoption of Agenda 21 and a number of declarations that provided the basis for global environmental governance (World Bank, 2019). The thousands of community-based, government-led and private sector initiatives that were undertaken in the 1990s in the context of Agenda 21 made significant contribution to the promotion of sustainable development objectives. The World Summit on Sustainable Development (WSSD) held in 2002 provided a new impetus to the global movement for sustainable development. Despite the significant progress that has been made since the UN Conference on Human Environment, the global community is still facing huge challenges in terms of global sustainability.

Causes and Impacts of climate change in Nigeria

Although natural hazards like volcanic eruptions contribute to climate change, scientists have now discovered that certain human activities are also responsible. Environmental scientists associate climate change effects with the depletion of the ozone layer in the atmosphere (Ogbuabor and Egwuchukwu, 2017). The ozone layer prevents the heat from the sun from reaching the earth at high intensity. The ozone layer is depleted when certain gases are released into the atmosphere from human and natural factors. These gases are: carbon monoxide, Sulphur dioxide,

chlorofluorocarbon, and similar. It is said that these greenhouse gases contribute to global warming, where the heat from the sun is trapped on the earth's surface. This gradually leads to excess heat depending on depletion level and quantity of the gases emitted over time. Human activities that cause climate change in Nigeria according to Otufodunrin (2022) include; emission of greenhouse gases from vehicles, burning of hydrocarbon products, deforestation, industrial emissions. Onoja, Dibua and Enete (2011) identify the natural causes of climate change in Nigeria to include; Ocean current, volcanic activities, earth's orbital changes, solar variation. Similarly, U.N (2020) lists the causes of climate change to include; generating power, manufacturing goods, cutting down forests, using transportation, producing food, powering buildings, and consuming too much.

Although Tol (2009) points out that the chief benefits of climate change include; fewer winter deaths, lower energy costs, better agricultural yields, probably fewer droughts, and maybe richer biodiversity, that climate change has disastrous consequences of which Nigeria has began to experience is not in doubt. Undoubtedly, the world continues to be under the threat of climate change problems like global warming, greenhouse gas effects, flooding, acid rain typhoons, rising sea levels, rising sea temperatures resulting in depletion of marine organisms, earthquakes, wind storms, land and mud slides, desertification, tsunami, erosion, volcanic activities, hurricanes, pollution, deforestation among several others. Climate change is principally a major problem caused by the increase of human activities leading to several direct and indirect impacts on health. Tol (2009) and Nordhaus (2018) agree that these climatic changes have wide-range harmful effects including increase in heat-related mortality, dehydration, spread of infectious diseases, malnutrition, damage to public health infrastructure, migration of both man and animals among others.

Nigeria like other countries of the world has its own experience of climate change disasters. Nigeria's Guinea Savannah region is not spared as desertification is devastating vast areas of the north. Logging and over dependence on firewood for cooking have stripped a greater part of this area of its vegetation cover. The situation is similarly replicated in the south west, where for example the forest around Oyo has long been reduced to grassland. Moreover, in the southern Nigeria, climate change is also reflected in the massive flood experienced in 2012, when houses, farms, farm products, properties and even human beings were swept away Olaleye, Ayodele and Ariyo (2021. Also the statistics released by the southwest zonal office of the National Emergency Management Agency (NEMA) in 2020 show that no fewer than 5000 persons were affected and 60 houses destroyed in a windstorm which occurred in four states in the south -west region. The south – eastern part of the country has been struck by a different ill. There, gulley-erosion has devastated many settlement areas and farmlands, leading to poverty among local populations. Rising sea levels are threatening the coastal regions. Although a source of oil wealth, the Niger Delta's low-lying terrain and crisscross of waterways makes it extremely vulnerable to flooding. Apart from being at the risk of rising sea level, it has fallen victim of extreme oil pollution Olaleye etal (2021).Climate change reflects the variations in the average daily weather conditions such as temperature, humidity, rainfall and sunshine of a location over an extended period. Climate change in Nigeria threatens economic growth in sectors dependent on climatic conditions. Economic sectors such as agriculture, fishery and forestry are more predisposed to the adverse effects of climate change. The Nigerian climate has been irregular over the years, alternating between periods of extreme dry or rainy seasons. Climate change in Nigeria has leads to seasons of drought and excess flood, which affects agricultural activities and causes loss of shelter. In 2019, the

National Emergency Management Agency revealed floods had displaced approximately 1.9 million Nigerians. Rural communities suffer most from the negative impact of flooding. Some houses in rural communities collapse during heavy floods because they don't have a solid structural strength (NEMA, 2019). Also, rural dwellers can't commute during flooding because water obliterates the road networks.
Also in Nigeria, crop production depends on location and climatic conditions. Crops that need rainfall to grow are abundant in the south, while those that don't need rainfall grow more in the north. Excess rain and drought associated with climate change affects this natural distribution of crops in Nigeria and reduces their production in large quantities to meet the population's demand. For instance, climate change may cause stunted growth of crops grown in Northern Nigeria because these crops don't thrive in soils flooded with water from excess rain. Likewise, some crops cultivated in southern Nigeria may wither during prolonged drought periods because these crops need rainfall to growOnyeneke, Igberi, Uwadoka, and Aligbe (2017).

Onyeneke etal (2017) also add that food scarcity is a consequence of low crop yield, which is characterized by inferior quality and quantity of food crops because of harsh climate conditions. Therefore, food crops are poorly distributed to other geopolitical zones where such crops don't grow. For instance, tomatoes are produced in large quantities in the north and if this declines due to unfavourable climatic conditions, other locations in Nigeria will experience reduced supply. Livestock animals like goats and cows feed on grass to grow, and their products such as beef or milk are affected when these animals don't feed well. Irregular climatic conditions destroy farmlands on which these animals graze on. Also, flooding promotes the growth of pests that attack these farm animals and further depreciate their overall commercial value.

Agriculture is one of the major contributors to the Nigerian economy and source of income for some Nigerians. Those engaged in agriculture are either rural dwellers who are full-time farmers or urban dwellers who are part-time farmers (Eme and Okolie, 2016). Climate change destroys farmlands and hinders income generation from agriculture and livestock farming at national and personal levels. Climate change increases the burden and number of diseases and causes preventable deaths among Nigerians if left unchecked. For example, mosquitoes breed in stagnant waters and they spread to cause malaria. Life-threatening malaria complications are common among the extremes of age individuals-young and old people. This can put a strain on areas such as public health and nursing. Also, wildfires and dust storms occur during drought, and these environmental hazards cause respiratory illnesses in some individuals.

Nigeria generates a significant amount of power from its hydroelectric dam- Kainji Dam (Idowu, 2011). Climate change causes unpredictable rainfall and drought patterns that reduce the water level in Kainji Dam and other smaller ones. Consequently, the amount of hydroelectric power generated declines and affects power distribution nationwide. This affects industrial activities which depend on constant power supply to run their plants.

Summarizing the causes and effects of climate change, Elizabeth (2018) has this to say on the effects of climate change in Nigeria

‘‘Stable, predictable rainy seasons no longer exists, so in areas where there are no irrigation systems, food production is greatly reduced. Besides a food shortage, drought causes excessive

heat which increases disease and death. Increased pollution in the air causes people to suffer from asthma, nasal problems, sore throat, eye problems and birth defects. Activities like bush burning, emission of gases from vehicles, quarrying, smelting, blasting, waste from factories and coal mining are some of the human activities responsible for this. People block drainage and gutters with waste. This has caused contaminated water, flood, loss of properties and lives. Industries, hospitals and factories dispose of their wastes in sea, rivers and oceans which are also not good for our health. Oil spillage in the southern part of Nigeria has rendered their water unsafe for consumption. Global warming affects the carbon cycle which reduces the availability of water resources for drinking, energy and agricultural production. This occurs as polar ice caps melts; carbon dioxide pollution increases the acidification of the oceans affecting the marine food chain. Melting polar icecaps also cause a rise in the sea level which is a big danger when one considers that more than a quarter of the world's population lives on coast or near an ocean. Improper waste disposal, mono-cropping, use of chemical fertilizers, oil spillage, over grazing, cutting down of trees and not re-planting has led to contamination and deforestation. In turn, we witness erosion and loss of properties as we don't have windbreakers and shelter belts to protect our roofs and buildings from oncoming wind. Many houses collapse because the soil is depleted and foundations are weakened. Many good trees meant for herbs have been cut down. Many animals and plants that are useful like fungi have gradually gone into extinction. Earthworms have disappeared, butterflies are gradually decreasing. Some mammals and birds have gone into extinction or migrated to other regions. Most of the depletion has occurred from building mega-cities and many shopping malls. Yes they are all good things but our life is at risk here''.
In all, one can rightly infer that the effects of climate change include, hotter temperatures, more severe storms, increased drought, a warming, rising ocean, loss of species, not enough food, more health risks, poverty and displacement.

Policies put in Place for Climate Change Mitigation and Adaptation in Nigeria
There is the existence of the climate change law, the main objective of which is to provide an overarching legal framework for achieving Nigeria's long-term climate goals including a net-zero carbon emission target, national climate resilience, an adequate volume of climate finance, in addition to the mainstreaming of climate change actions into national development priorities. To this end, in 2019, Nigeria adopted a National Action Plan on Short-lived Climate Pollutants, with 22 measures to reduce emissions, including reducing methane from fugitive emissions and leakages from oil production and processing and natural gas transportation and distribution (Federal Republic of Nigeria, 2019).In November 2021, Nigeria passed the Climate Change Act that seeks to achieve low greenhouse gas emission, green and sustainable growth by providing the framework to set a target to reach net zero between 2050 and 2070 (Okereke & Onuigbo, 2021).

In June 2021, the government of Nigeria approved a revised National Climate Change Policy (NCCP) and National Climate Change Programmes for Nigeria for the period 2021-2030 (Department of Climate Change, 2021, David, 2022).).The NCCP outlines mitigation and adaptation policy measures, enabling conditions and means of implementation necessary to achieve Nigeria's climate objectives. While the NCCP is meant to align with the updated NDC, it presents historical emissions more than double the historical emissions for the same year in the NDC. Nigeria adopted the Economic Sustainability Plan (ESP) to stimulate the economy in response to the COVID-19 pandemic (Economic Sustainability Committee, 2020). The ESP

includes climate-related programmes, including the installation of five million solar homes and a national gas expansion programme to reduce reliance on oil.

In August 2022, Nigeria released its Energy Transition Plan (ETP) to serve as the pathway towards achieving this target (Federal Republic of Nigeria, 2022). The plan targets significant long-term action through sectoral targets; however, it relies heavily on action after 2030, declared the "Decade of Gas" by the government. Equally, Nigeria is developing a 2050 Long-Term Vision on climate change with support from the 2050 Pathways Platform and a long-term development plan, Agenda 2050 (Akinola, 2020; The Premium Times, 2020).

There exists also National Youth Climate Innovation Hub to harness climate innovation ideas from young Nigerians as well as include them in decision-making processes. The country has also approved the national action plan on gender and climate change to ensure climate change efforts mainstream women, men, youth, and other vulnerable groups to optimally benefit from climate change initiatives, programmes, policies, and funds. Nigeria has also developed a national adaptation plan (NAP) — which aims to build a framework for climate change adaptation, planning, and governance, as well as an adaptation communication that would highlight adaptation activities and efforts in the country (The Premium Times, 2020).There is Climate Change law in Nigeria which has made Nigeria join an elite group of countries that have enacted emissions-target legislation aiming to eliminate carbon emissions. This is a big deal for an oil-dependent nation that is also ranked as one of the most vulnerable countries to climate change in the world.

There are moves to mainstream climate change into national, regional and state development plans, adapt policies needed to be an integral part of government initiatives, give the cross-cutting nature of the impact of climate change, as well as provide an important intersection between development and climate change adaptation and remediation in that they both aim to reduce the root causes of vulnerability. As part of the efforts to mainstream the climate change, the Federal government has proactively taken steps in addressing environmental problems. These include effective management of waste, flood and coastal erosion. The government has also built up advocacy programmes through workshops, seminars, public lectures, media campaign, climate change and waste water summits, tree planting land reclamation, landscaping and beautification, campaign against desertification through the desert warriors, and control of land, water, noises and air pollution (Alam, Alam, Mushtaq, and Filho, 2018).

Government is also 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 reviving the tree planting program by raising awareness for individuals to plant trees. Part of the Clean Air Act is expected to reduce carbon dioxide (CO_2) emissions from oil-fired power plants (known as fossil fuel-fired) and natural gas-fired power plants. This is because human-caused CO_2 was the primary cause of global warming (Elum and Momodu, 2017)

Allied to the above is the Great Green Wall of the Sahara and the Sahel Initiative which is a planned project to plant a wall of trees across Africa at the southern edge of the Sahara desert as a means to prevent desertification. It is being implemented in Nigeria in eleven frontline States of Adamawa, Bauchi, Gombe, Kebbi, Sokoto, Zamfara, Katsina, Kano, Jigawa, Yobe and Borno (Abdulkadir, 2017). It is expected to cover 43 LGAs in the frontline states. It involves

establishment of green wall or shelterbelt, Community Sensitization &Mobilization, Promotion of alternative sources of energy, promotion of alternative means of livelihoods, Promotion of dry land agricultural technology and promoting alternative water source for human, plant and animal use through solar powered boreholes, with over 300 functional boreholes in operation as at early September 2016.

There is the National environmental policy which aims to create an environment that has low levels of air pollutants, reduced deforestation and other human activities that worsen the effects of climate change (Achike, (2019).Restoration of coastal wetlands like mangroves is a natural climate solution that allows carbon to be stored in sediments and plants. Restoring and conserving such places as peat lands and coastal wetlands serves mainly to prevent greenhouse gas emissions; the practice of restoring and expanding marine ecosystems to help tackle climate change. This is being achieved through practices that seek to restore seagrass meadows which traps carbon around their roots, leaves, stems, and underwater sediments Achike, (2019).Also worthy of note is that shellfish farming is adopted because **research** shows that the shell of shellfish absorbs carbon as it grows.

There is also the National Drought and Desertification policy whose major goal is to create solutions by collecting and analyzing environmental data from drought and areas prone to desertification. Additionally, The Nigerian government enacted National Forest policy to encourage the growth of trees so that trees will provide the protective barrier against the sun's heat. In the NDCs, the country listed its top three nature-based solutions to include: agroforestry, improved forest management, and forest restoration. These are said to collectively have a mitigation potential of 89 metric tons of carbon dioxide equivalent per year. There is reforestation and afforestation where forests are planted, replanted, or allowed to regrow naturally David (2022). They also have to do with improving forest management, protecting forests, and limiting deforestation. Forests help in addressing climate change by serving as carbon removal or sinks. They naturally absorb carbon from the atmosphere and isolate it inside trees (sequestration). This means that carbon sequestered in these trees does not get emitted into the atmosphere, thereby limiting the impact such carbon would have had in worsening global warming and climate change. There is also regenerative agriculture whereby lands are managed in a way that soils absorb and hold more carbon. It involves practices that build soil carbon, such as cover crop rotation, farming without tilling the ground (no-till farming), agroforestry (mixing tree planting and agricultural land use), and improved livestock management. Regenerative agriculture contributes to the reversal of global warming by increasing the capacity of the soil to capture carbon (David, 2022).

The National Erosion and Flood Control policy addresses issues related to erosion and flooding because they wash away the nutrients in the soil and reduce its quality for growing crops (Dennis and Tony, 2015; Achike, 2019). The Government imposes fines on private and public entities who flout their climate change mitigation and adaptation obligations. The government has equally adopted carbon taxation and emissions trading, which is expected to limit the emissions of polluting industries and require them to pay a fee for every ton of carbon dioxide they emit. The government equally addresses climate change "using nature-based solutions such as REDD+ (Reducing Emissions from Deforestation and Forest Degradation and environmental economic accounting". The government has also played a pivotal role in the creation of natural habitats throughout the country. In Nigeria, there are several national parks, all accessible by the public and protected under government law and each of the national parks has their own historical value.

The Place of Public Administration in Climate Change Management

The fight against climate change must involve everyone. Yet despite the growing societal and political discussion about climate resilience, the role of bureaucracies has been mostly overlooked. Robert, Wouter and Gailius (2021) identify three reasons why it is crucial to involve public administration in the fight against climate change to include; the large scale of employment of public administrators implying that the environmental effect of its operations is significant, and as Funder and Mweemba (2019) call them, "interface bureaucrats," who have to manage a complicated network of actors, address unexpected issues and forge compromises to implement official rules. Cutter (2019) observe that several factors, such as their knowledge, motivation, and their own stance on environmental issues, go a long way to determine how climate-friendly the outcome of these efforts will be.

Robert, Wouter and Gailius (2021) have outlined ways to make public administrations work for citizens and the climate to include; measuring the environmental attitudes and practices of public officials, reforming human resources management to reduce the climate impacts of public institutions by introducing green policies at all levels of Human Resources Management (HRM), **t**ransforming public administration processes to improve climate consciousness, and incorporating climate change resilience into daily public administration operations**.** Under environmental management, public administrators are responsible for natural resources management. The public sector works with the private sector, nonprofits and state and local governments to administer proper judgments and sustainable measures for natural resources management through its employees (Banwell, Gesche, Vilches and Hostettler, 2020)

In most countries, the public administration is the single largest employer. The public administration leads by example. As public administrators implement policy to reduce the effects of climate change, they show practices that will be adopted by society at large. Local level civil servants are often the de-facto implementers of climate change resilience policy. They are, as Funder and Mweemba (2019) call them, "interface bureaucrats," who have to manage a complicated network of actors, address unexpected issues and forge compromises to implement official rules. Several factors, such as their knowledge, motivation, and their own stance on environmental issues, determine how climate-friendly the outcome of these efforts will be. Climate change policy can only be effective if the individuals responsible for its implementation are aware of rising challenges and motivated to respond to them. For example, civil servants skeptical of climate change might prioritize other work tasks, be less stringent when conducting environmental audits or lack the motivation to reduce the ecological footprint in their workplace.

Public administrations carry out climate change budget tagging and green procurements. There are steps public administrators take to "green" government and its operations. Examples include moving to a smaller vehicle fleet or adopting electric vehicles, as well as efficient building heating and waste recycling, recycling and reusing, adding insulation and energy-saving windows, etc. Technologies provide risk management based on data analytics in order to develop actions for eliminating or reducing risks. Thus, the combination of the concept of digital government and administration, network governance and anti-crisis management ensures the measurement of global risks, their distribution among public administration entities for sharing responsibilities, control of resources and interaction at different levels of government, transparency and accountability (James, (2013). As a result, innovative practice is formed by public administrators

on the basis of experiments and the application of interdisciplinary methods by public authorities. Summers, Smith, Harwell and Buck (2017) have maintained that institutionalized bureaucratic structures of public administration have a proven ability to absorb environmental turbulence without succumbing to radical reforms. However, in the context of a crisis, institutionalized structures can often be strained, requiring more extreme forms of adaptation. This pressure is particularly pronounced in the context of crises and global risks due to the urgency of solving problems and the uncertainty of the environment. Uncertainty requires circumspect rules, constructions and specific forms of procedure from public authorities. However, the rapid dynamics of the crisis need to be addressed through flexible responses to crisis phenomena. Achieving a balance between structure and adaptive behavior in this sense is a classic challenge for organizational theory and a fundamental challenge for a crisis manager in public administration (Summers, Smith, Harwell and Buck, 2017)

It is therefore worthy of note that Public administration is increasingly plays a leading role by providing the right policy incentives and by implementing internal policy changes which minimizes carbon footprint that may have direct and indirect impacts on the environment. Public administrators formulate shared vision with and by the population and uphold a commitment to sacrifice short-term (economic) interests to ensure long-term sustainability.

1.5 Theoretical Framework

Theory of change is adopted as the theoretical framework of the study. Theory of Change (ToC) is a criterion for planning, participation, adaptive management, and evaluation that is used in companies, philanthropy, not-for-profit, international development, research, and government sectors to promote social change. Theory of Change defines long-term goals and then maps backward to identify necessary preconditions (Brest, 2010).The term “theory of change” was popularized by Weiss, through the work of the Aspen Institute and the Roundtable on Community Change (Anderson, 2005; Weiss, 1995).The Theory explains the process of change by outlining causal linkages in an initiative, i.e., its shorter-term, intermediate, and longer-term outcomes. The identified changes are mapped – as the "outcomes pathway" – showing each outcome in logical relationship to all the others, as well as chronological flow and feedback loops. The links between outcomes are explained by "rationales" or statements of why one outcome is thought to be a prerequisite for another (Taplin, 2012). Theory of change (Weiss, 1995) is an explicit process of thinking through and documenting how a program or intervention is supposed to work, why it will work, who it will benefit and the conditions required for success.

The idea behind Theory of Change lies in making the distinction between desired and actual outcomes, and in requiring stakeholders to model their desired outcomes before they decide on forms of intervention to achieve those outcomes. Theory of Change can begin at any stage of an initiative, depending on the intended use. A Theory of Change developed at the outset is best at informing the planning of an initiative. Having worked out a change model, practitioners can make more informed decisions about strategy and tactics. A Theory of Change can be developed retrospectively by reading program documents, talking to stakeholders, and analyzing data. This is often done during evaluations reflecting what has worked or not in order to understand the past and plan for the future. This theory becomes suitable due to its focus on change and climate change requires that stakeholders especially the government plans, participates, adopts some adaptive measurements to cope with climate change, and stay focused when unexpected events emerge.

1.6 Empirical Review

Author & Year	Title	Objective	Methodology	Findings	Conclusion	Recommendations
James, M. (2013)	Climate Change Governance	Toexamine long-term climate governance, particularly in relation to overcoming "institutional inertia" that hampers the development of an effective and timely response.	case study	Conflicts of power and interest are inevitable in relation to climate change policy	Climate change governance requires governments to take an active role in bringing about shifts in interest perceptions so that stable societal majorities in favor of deploying an active mitigation and adaptation policy regime can be maintained	Measures to help effect such change include: building coalitions for change, buying off opponents, establishing new centers of economic power, creating new institutional actors, adjusting legal rights and responsibilities, and changing ideas and accepted norms and expectations.
Dennis, A. and Tony, O. (2015)	Governance and Climate Change in Nigeria: A Public Policy Perspective.	To critically examine the character of state-centric governance in Nigeria, with reference to the prevalent concern generated by global warming.	Descriptive	there is a direct relationship between the characters of the state and governance system on the one hand and Nigeria's response to climate change on the other	The sustainability of human life is largely dependent on the integrity of the world's vegetation.	It recommends that environment friendly public policies should lie at the root of any effective measures against adverse climate change in Nigeria
Eme, O. I. and Okolie, I.E. (2016)	Climate Change and Nigerian Government's Intervention Efforts, 2000 – 2012.	To examine all the climate change intervention programmes implemented by the Nigerian-state and its public administration up to 2012.	Content analysis of secondary data	Poor climate change intervention programmes implementation significantly contributed to Nigerian governments' inability to mitigate the adverse effects of climate change in Nigeria.	Mitigation approach of which Nigeria was assigned to by KP is capable of contributing to sustaining and/or maintaining our environment at a steady level without exhausting our natural resources or causing some ecological damage.	Government should mobilise its public administration to embark on extensive public enlightenment about the dangers of climate change risks, and to demonstrate the political will by subsidizing all renewable related goods and services programmes to the Nigerian people, etc
David, V. O (2022)	Achieving sustainable environmental governance in Nigeria: A review for policy consideration	To provide policy recommendations through a broader review of existing literature on Nigeria's existing institutional, legal, and policy frameworks of environmental governance.	Content analysis of secondary data	The environmental system in Nigeria is beset with ineffectiveness, lack of public participation, unenforceable and non-implementable laws and policies, and a weak and uncoordinated institutional framework.	Nigeria's environmental governance frameworks are completely inadequate to deal with the magnitude of the country's environmental challenges	There is need for comprehensible, enforceable environmental enactment and the strengthening of the institutional framework of environmental governance in Nigeria.
OLaleye, Y.L.; Ayodele, K. O. and Ariyo, E. A. (2021)	Effect of climate change on social development programmes in Kosofe Local Government Area, Lagos State, Nigeria	To assess the climate change effect and social development programmes in Kosofe Local Government Area, Lagos State, Nigeria.	Descriptive survey research design using a proportional simple random sample	Significant influence of climate change has effect on social development programmes, economic support programmes, and self-help project support	The challenges of climate have paved ways to various economic and social development programmes in order to alleviate the problem created as a result of climate change.	There is the need to prevent the effects of climate change in our community through conscientious efforts and serious adaptation measures.

Concluding Remarks

Economies can only grow sustainably if they concurrently manage the growing urgency of environmental degradation and climate change. Nigeria must adopt climate action as fast as possible, because scientists keep telling us that the planet is burning. There are steps public administration can take to "green" government and its operations. Good examples include moving to a smaller vehicle fleet or adopting electric vehicles, as well as efficient building heating and waste recycling. People can also take greening steps such as recycling and reusing, adding insulation and energy-saving windows, etc.The digitalization of government work is not only convenient for citizens, but also drastically cuts down on paper waste and travel needs.

To adapt to climate change, it is high time the government invested in agricultural science research so that scientists can produce crops that are resistant to the harsh climatic conditions and construct

drought-resistant hydroelectric dams. There is the need tointensify efforts towards enforcing the Nigerian climate change policy and to enact laws that prohibit the release of toxic gases from industrial areas, especially by petroleum companies in the oil producing areas of Nigeria. Since a majority of the Nigeria's energy comes from fossil fuels such as petroleum, natural gas, and coal, government can begin investing in low-emission alternatives to fossil fuels called renewable energy technologies, which harnesses energy generated by natural resources including wind and the sun. There should be public awareness campaigns through mass media channels to educate Nigerians on the negative impact of their activities on the environment and inculcate in them a strategy called "value for the environment". This combines measures aimed at fostering value for the environment through the implementation of actions related to the control and responsible consumption of natural resources, minimizing the impact on the environment and promoting environmental technologies.

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