**Wilberforce Island Review Volume 21, N0 1, March, 2023**

# Impact of Climate Change on Security and Sustainable Development in Nigeria

**Augustine ENENCHE, Sarkinnoma Yahaya SABO** & **Ojo Emmanuel AROGBOKUN**

**Abstract**
This study is on climate change and its implications on security and sustainable development in Nigeria. In Nigeria, there has been massive movement of cattle breeders from the north to the southern parts of the country. In several instances these movements have recorded stiff resistance by host communities, hence security challenges. The objective of this study is to: find out the phenomenon of climate change; find out how climate change affects security and sustainable development in Nigeria, and proffer possible suggestions. The study adopted the explanatory research method. Secondary data were used in tables to show the relationship between climate change and security in Nigeria. Furthermore, this study utilized the General Strain Theory (GST) and the Dependency Theory as the theoretical framework. The study found out that climate change induces migration of farmers and herders, hence open confrontation between the migrants and the inhabitants of the place. Therefore, climate change is a trigger to insecurity in Nigeria. The study recommends that the Federal Government of Nigeria should implement the national cattle ranching plan which will reduce the incessant herders' migration and curtail conflict of farmer – herder.
**Keywords**: climate change, global warming, security, sustainable development, strain

* A paper presented at the 1st Annual Ibadan International Social Science Conference (AIISSC) @ University of Ibadan, Nigeria. 3rd – 7th March, 2024.

## Introduction

Climate change is a global phenomenon and it not until recently gained more attention (White 2012; Lynch &Stretesky 2010; Agnew 2012). The incidence of climate change has great impacts on humans and the environment which are beyond imaginations (Patchen, 2010). According to Ogbo et al., (2013, p.221), climate change refers to any change in climate over time, whether due to natural variability or as a result of human activities… with reference to sub-Saharan Africa, there is a growing interest on the impacts of climate change on agriculture, economic growth, security and sustainable development.

The alteration in climate is largely attributed to the impact of human activities on the environment. This influence of man on the earth leading to climate

change is known as anthropogenic climate change. It is a very complex process which results to climate change. However, the effect of climate change results to migration, food security challenges, clashes of people for scarce natural resources and general security issues (McMichael, 2001; Perkins, 2010)

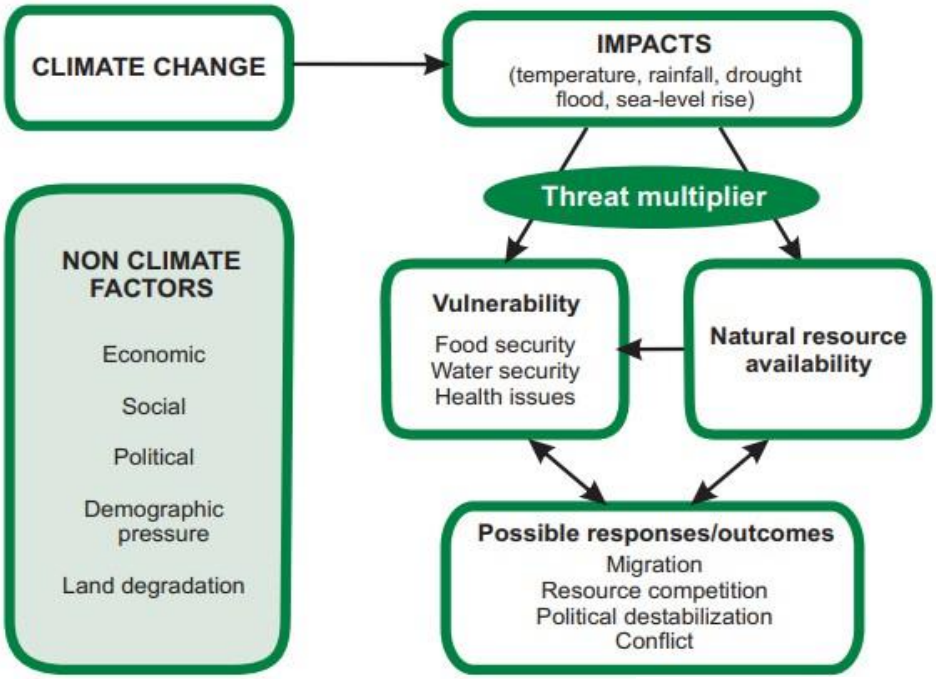
The phenomenon of climate change has in recent times created serious concerns and has spurred a plethora of studies. Corroborating this postulation, Obazeet al., (2022, p.2) states that "the phenomenon of climate change is an existential reality and a threat to the global system… There has been an increase in research amongst scholars on the nexus between climate change and insecurity and climate change as threat multiplier". Though, the impact of climate change differs from one continent to another, the effect is still felt globally. In Americas and Europe, the result of climate change was frequent occurrence of wildfire, cyclones and flooding. These have claimed lives and properties, and has caused hunger and other existential threats (Agnew, 2012). In 2015 in the United States, Hurricane Katrina rendered thousands homeless and more than 1,500 deaths with over $200 billion dollars, worth of property damaged. This is recorded as the worst of natural disasters in the history of the United States (Robertson et al., 2010). However, the case with Africa, climate change has multiplier effects as it induced mass migration in search of food, water and other existential needs, also there is the farmer-herder clashes, banditry and other criminal activities/insecurity (Borel 2012; Wodon et al., 2014). Furthermore, this scenario it is aptly stated that:

> Nomadic and semi-nomadic herders such as the Fulbe have a long history of migrating and also of building relationships with various sedentary farming populations in West Africa. These contacts can take various forms, from coexistence to cooperation or competition and even to conflicts over shared natural renewable resources, namely referred to common-pool resources (CPRs)… Climate change is thus putting a strain on delicate relationship between farmers and herders because of its effects on CPRs (Cabot 2017, p.11

There are other non-climatic factors (such as economic, social, political, demographic pressure and land degradation) that stimulate insecurity globally. However, the impact of climate change which is resulted in extreme temperature, unprecedented rainfall, drought, flood and rise of sea-level has several multiplier effects. These effects include limiting the resources for survival then lead to food,

water and health securities. These phenomena are clearly presented in figure 1 below:

Fig. 1 Security threats heightenedbyclimatechange in Nigeriaandthe Sahel




Source: Obaze et al., (2022, p.6).

**Theoretical Framework**

**a). The General Strain Theory (GST)**

The General strain theory was developed from the anomie strain theory of R.K. Merton (1910-2003). According to Merton (1968), crime was as a result of certain strenuous rules between cultural goals and societal means, hence, crime is a deviation from the societal means. However, Robert Agnew (1953-till date) developed further, a theory known as the General Strain Theory in 1992. The GST argues that strain intensifies the magnitude of negative emotions like aggression and

frustration (Agnew & Kaufman, 2010). Strain is also referred to as stressor. The emotions created by stressors require curative actions and crime may seem as an available option for response (Agnew 2015). According to (Agnew 2012), the GST is applicable to climate change influences insecurity and crime in the following ways:

**(i) Extreme rise in temperature.** Several studies have shown the relationship between atmospheric condition and crime (Anderson 2001, Cheatwood 2009, Rotton & Cohn 2003). A high temperature makes people to be more tensed also serve as a stressor on people. A little provocation could lead to violence. As a result of climate change and extreme weather in Nigeria especially the northern part, a slight provocation between Farmers and herders could easily result to severe conflict. According to Agnew (2012, p. 27) several studies "as a whole suggests that crime rates are generally higher in warmer cities and regions... [even] laboratory studies find that high temperatures increase aggression". This could explain better which violent crimes like Boko Haram and Banditry in the Northern part of Nigeria with the highest levels of temperature in the country.

(ii**) An increase in the occurrence and depth of extreme weather experienced such as floods, droughts, hurricanes and related events, such as forest fires etc.** These phenomena are very huge strains which could lead to physical injury, the death of a relation, loss of home and property, loss of livelihood and displacement. It is established that disasters heightened posttraumatic stress disorder (PTSD) which would lead to unpleasant emotions such as anger and depression (Wutich& Ragsdale, 2008). When "there are pre-existing social divisions or resentments among those in the affected area" (Agnew 2012), it becomes an opportunity to benefit from crime. This is even so when the government is not able to meet up with the responsibility of providing certain basic amenities to the victims such as food, shelter and clothing. Several places which experienced similar climate change disasters in Nigeria have also experienced a surge in criminal activities in their post-disaster period.

**(iii) Shortage of food and water.** Flood and drought could lead to shortage of food. In Nigeria, effect of climate change has leads to desert encouragement and flood experienced in Benue, Taraba, Niger states and others where foods are mostly cultivated has contributed to food shortage in the early part of 2024. The anger and frustration have also contributed to several protests in Nigeria in January and February, 2024.

**(iv) Forced migration.** People are forced out of their homes, loss of farm land, livelihood as a result of natural disasters such as flood and drought. Since migration increases competition for scarce resources, violence and crime are likely to occur in the new found places. The herders migrate downwards from the north as a result of desert encroachment in search for vegetation for their cattle and this has resulted into several clashes where emotions and aggression were stimulated, hence farmer-herder conflicts in different parts of Nigeria.

**b). Dependency theory**

Dependency theory emerged in the 1950s as a response to earlier Europocentric theories of development. proponents of this theory include Gunnar Myrdal, Andrea Gunder Frank, Samir Amin etc. Though, this theory focused so much on Latin America, it still has its relevance in Nigeria and other underdeveloped countries. While earlier development theories postulated that every country must undergo certain stages of development, the dependency theory stipulated that underdeveloped countries are perpetually kept in such a state because of their unholy integration into the global capitalist system. According to Seers (1969), development should not be seen in the prism of economic growth (GDP) rather it should answer these, thus:

> What has been happening to poverty? What has been happening to unemployment? What has been happening to inequality? If all three of these have become less severe, then beyond doubt this has been a period of development for the country concerned. If one or two of these central problems have been growing worse, especially if all three have, it would be strange to call the result development even if per capita income has soared (Seers 1969, p. 3-4).

However, the dependency theory explains the phenomenon of climate change as it posits that developed economies continue to plunder the ozone layer with their technology and advancing their economies at the expense of the underdeveloped nations. The adverse effects of climate change are mostly manifested in the Third World countries like Nigeria. These countries do not have the technological know-how to mitigate the harmful effects of climate change and this has constantly appeared to prevent the countries from achieving the Sustainable Development Goals (SDGs).

**Methodology**

This study utilized explanatory research method. This method involves literature review and the use of theories. The data used for illustration were secondary data and were sought for from the internet, textbooks, journals and periodic newspapers. Tables and diagram were used as means to show the relationship between climate change and security in Nigeria.

**Literature review**

In a survey study, Wodon and Liverani (2014), used focus group discussion in Algeria, Egypt, Morocco, Syria and Yemen. According to Wodon and Liverani (2014, p. xxiii) "climate changes have led to a range of negative consequences for agriculture and livestock production, and extreme weather events have been associated with losses in incomes, crops, and livestock. The study discovered that climate change affected households as it led to losses in income, crops and livestock. The study also found that household experienced weather shocks with most of them not able to recover from the negative effects of the shocks. However, the study did not explain climate change as a driver of insecurity rather it explained that climate change brought about shocks which encompasses the economic condition or livelihood of the people.

Similarly, the German Advisory Council on Global Change (WBGU, 2008), on a large-scale study found that the global effect of climate change has multiple negative impacts on different regions of the world. Notwithstanding, the Sahel region which has the northern part of Nigeria, the study revealed that climate change causes environmental stress and social catastrophe such as drought, poor harvest and shortage of water. Even with that, the study did not explain the impact of climate change in the Sahel region to result to open confrontation such as the farmer-herder conflicts in Nigeria.

In another study, Kaddo (2016) explains how some gaseous elements react to facilitate the depletion of the Ozone layer, and as a result, "greenhouse gases are thought to be the main contributor to climate change (The Greenhouse Effect). They are very efficient in trapping heat into the atmosphere; therefore, it results in the greenhouse effect" (Kaddo, 2016 p. 2). The study did not explain the effect of climate change on security rather, it focused on how climate change exacerbates heat wave, hurricanes and flood. In addition, Obaze, Kwaja, Onuoha, Adejoh, Suleiman and Ugwu (2022), discovered that climate change affects livelihood and environmental degradation. It also explained the influence of climate change on insecurity in Nigeria, thus "conflicts in Nigeria such as the farmers-pastoralist conflict, the Niger Delta conflict, energy crisis, banditry and cattle rustling are

further worsened by climate change (Obaze et al., 2022, p. 3), but it did not explain the impact of climate change on sustainable development in Nigeria.

**Conceptual Clarification: The Concept of Security**

Security is a term that has been over-politicised. This means that the concept is very fluid and makes it a herculean task in getting a generally accepted definition of the concept (Daguat, 2016). However, Enenche (2019, p.128) states that "security from a generic sense of view is the safety from danger or attack. Therefore, security involves the freedom from fear and this is alluded to either physical or emotional attributes. Hence security could be constructed as when a person or a group of people are posed with threats, vulnerabilities and challenges. (Brauch, 2011; Enenche, 2019). According to Enenche (2019). Security is grouped into two basic paradigms, thus:

i. **The conventional paradigm** which is better explained from the military perspective this involves the use of force. This paradigm expounds both the realist and neo-realist theories. It opines that the state is saddled with the responsibility to safeguard its sovereignty and the citizens. This concept is tight to the proposition of Hobbesian school. Any threat to the state or the citizens is meted out with the military might (Waltz, 2000).

ii. **Non-Conventional paradigm**: This school is vehemently contrasting with the use of military force to provide security the proposition of this school is that security is not just a threat of force but it is of potential threat to human daily survival. Such threats could be hunger, environmental degradation, denial of unalienable human rights etc. Several components make up this school amongst them are; human security, post-structuralist perspective, feminist perspective, the Copenhagen school etc. Proponents of this paradigm include Barry Buzzan.

**The Concept of Climate Change**

Climate change is any alteration in the atmospheric condition in a place or a global effect over a long period of time and it is as a result of natural alteration or human activities (Ogbo et al., 2013; McCarthy et al., 2001).

In addition, Parry et al., (2007, p.9) state that "a change of climate which is attributed directly or indirectly to human activities that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods". The concept of climate change has become one of the most debatable concepts in the 21st century (Rahman, 2012). Climate change affects several aspects of man's life and its source is mainly attached with anthropogenic activities (human activities). Climate change affects health, farming,

water and the ecosystem, Ministry of Environment of the Federal Republic of Nigeria (MoEFRN, 2003).

Climate change is brought about as a result of the depletion of the Ozone layer, intergovernmental panel on climate change (IPCC, 2007a). The Ozone layer is made up of gaseous elements in the atmosphere. It performs a very vital part of preventing ultraviolet (UV) radiation from harming the Earth's ecosystem (Onoja et al., 2011). The Ozone is highly concentrated in the stratosphere which is about 25 to 40 kilometers above the Earth's surface. The depletion of the Ozone layer is strongly as a result of industrial activities which release huge qualities of greenhouse emissions (GHGs) which include carbon (IV) oxide ($CO_2$) methane ($CH_2$) and nitrous oxide ($N_2O$). These gaseous elements are released from the burning of petroleum products. They deplete the Ozone layer and cause climate change which results to extreme weather of cold or hot. In a study, Spore (2008) states that climate change results to global warming and this means that the earth is getting hotter than before. Global warming has brought about desertification in Northern Nigeria hence the migration of herders downward south hence, conflict and insecurity.

According to Ogbo et al., (2013, p.221), climate change manifests in Nigeria as increase in rainfall in the humid regions of Southern Nigeria… similarly, the Savannah areas of northern Nigeria were protected to experience less rainfall, which coupled with temperature increases, reduce soil moisture availability".

**The Concept of Sustainable Development**

According to Kumar (n.d), the United Nations in 1983, set up a commission known as the World Commission on Environment and Development (WCED) otherwise called the Brundtland Commission with the aim of evaluating the challenges to global environment and development. In the commission's report in 1987 titled "our common future", the concept of sustainable development was first introduced into the global scene as socio-politico and economic variables of immerse significance. Sustainable development is aimed at improving the quality of the environment, protecting and maintaining aquatic and forest habitats for the sustainability of the world (Cooper & Vargas, 2004). In addition, sustainable development is a platform that engages the interactions of the society and the environment in order to avoid the risk of future destruction of scarce available resources. Hence, it is a socio-economic concept that re-echoes the need for improving the standards of living while adhering to certain cautions on the earths ecosystems in order to protect the earth's vegetation and reduce water and air pollution that may lead to global challenges such as climate change and species extinction (Mensah 2019, Browning

&Rigolon 2019). Sustainable development is premised on four domains which are built around the three components of sustainable development, thus:

1. Conservation and management of resources. This includes poverty alleviation and improving urbanization.
2. Conservation and management of resources. This is the protection of aquatic lives and vegetation.
3. Major groups promoting the significant role of women, grassroots political organizations and non-governmental organizations (NGOs)
4. Enhancing environmentally friendly technology.

However, Enenche (2024) encapsulates some indicators of Sustainable Development Goals and Nigeria's status as threatened by insecurity in the country. This is shown below:

**Table 1: Some selected Sustainable Development Goals (SDGs) directly affected by internal security threats in Nigeria**

| Goals and Targets | Indicators | Nigeria's Status |
|---|---|---|
| **Goal 1**. End poverty in all its forms everywhere | | |
| **Target 1.1** By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day | 1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural) | Sixty-three percent or 133 million Nigerians are multidimensionally poor. These people either cook with dung, wood or charcoal. They lack basic healthcare, live in poor sanitary environment and are faced with acute food security and housing, National Bureau of Statistics (NBS, 2022) |
| **Goal 2**. End hunger, achieve food security and improved nutrition and promote sustainable agriculture | | |
| **Target 2.1** By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round | 2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) | Between 2020 and 2022, on average 21.3 percent of population in Nigeria experienced hunger. People in severe food insecurity would go for entire days without food, due to lack of money or other resources (Statista, 2023) |
| **Goal 16**. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels | | |

| | | |
|---|---|---|
| **Target 16.1** Significantly reduce all forms of violence and related death rates everywhere | 16.1.1 Number of victims of intentional homicide per 100,000 population, by sex and age | 2021-2022 Incidents of Banditry is 554 and 4,016 deaths in one and a half of the years in North west and North Central alone. Incidents of terrorism is 125 and 1,040 deaths in North East alone for one and a half of the years. Extra-judicial killings by security forces, 13,241 Nigerians were killed between 2011 and 2021 (Nextier, 2022). |

Source: Enenche, (2024, p.150)

**Impact of Climate Change on Security in Nigeria**

**i). Climate change and farmer-herder conflicts in Nigeria**

In Africa, farmers and herders' communities have coexisted for several decades. However, the conflicts between them are recent phenomena (Amnesty International, 2018). These conflicts between farmers and herders are not restricted to Nigeria alone. In Rwanda, the conflict between the Hutu and Tutsi would not be solely attributed ethnicity but also to the scrambling for scarce natural resources (Cabot, 2017). According to Ejigu (2009, p.891) Hutu and Tutsi mean "people who farm and people who own cattle" respectively. The effects of climate change have induced migration of people from their original homes to areas where they could find resources for their livelihood (Amnesty International, 2018). In addition, Wodon et al., (2014) state that:

> Agriculture employs about half of the entire population in many countries, especially among the poor… Extreme climatic conditions, such as weather shocks like severe floods or droughts, can lead to temporary migration and displacement. Climate and subsequent environmental degradation decrease agricultural crop production, livestock or water availability… (p.4).

As a result of the search for pasture and water by nomadic herders, they migrate downward from the north to the southern parts of Nigeria where there are streams, rivers and ponds as well as grass/plants. It is this form of interaction that ignites violence and war leading to destruction of lives and properties in Nigeria (Amnesty International 2018). Moreso, Obaze et al., (2022, p.3) state that disappearing arable lands and water bodies has gradually increased conflicts between farmers and pastoralist with respect to access to depleted or disappearing natural resources. This

interplay is quite frequent in the north. Though, farmer-herder conflicts in Nigeria have been an age long phenomenon, but the conflict is further escalated as a result of the impact of climate change leading to stiff competition for scarce agricultural resources (existential resources). According to Mambe and Ebonyi (2019, p.261). Climate change in Northeastern Nigeria has forced migration of Fulani herdsmen from up North to down South, where they could access fresh water bodies and other Resources needed to sustain their cattle. The migration out of their habitual residence or grazing area to other parts of Nigeria has often led to violent conflict and the death of thousands of people in its wake. Table 2, below encapsulates the conflict between farmer-herder in Nigeria, thus:

**Table 2. Violent Confrontations between Fulani Herders and Farmers/Farming Settlements in Nigeria**

| Date | Places | Causalities |
|---|---|---|
| April 5, 2014 | Galadima village, Kaduna State | Community leaders and over 200 residents were killed with unknown numbers of seriously injured |
| 19th February, 2017 | Kanikon Village, Jemaa LGA in Kaduna State | Eight Villagers and a policeman were killed |
| March 5, 2016 | Alla, Akwu, Adagbo, Okokolo, Odubgento, Ogaulu, Egba and Obagaji Communities in Agatu LGA of Benue State | About 500 persons killed, many people injured and properties worth millions of naira destroyed |
| May 2, 2018 | Katibu village in Bang, Adamawa State | 33 people were killed |
| April 12, 2017 | Two villages in Gashaka LGA of Taraba State | In protest of earlier killings of about 23 persons by Fulani herdsmen |
| 20th February, 2017 | Zilian Village in Kaduna State | At least 5 people were killed |
| 17 - 20 June, 2017 | Fulani communities in Sarduna LGA of Taraba State | 14 people were killed several others went missing |
| April 21, 2017 | Lagun village in Iyana Offa, Atagb, Lapata and urroundings in Lagelu LGA of Oyo State | One night guard killed, villages ransacked at night and valuables carted away |
| 2013 | Zilian Village in Kaduna State | 16 people were killed. |
| April 25,2018 | Seven villages in Nimbo in Uzo-Uwani Local Govt Area of Enugu State | About 40 persons killed and properties destroyed |
| June 16, 2018 | Ossisa community in Ndokwa East Local Govt. in Area of Delta state | A 45-years old farmer was shot dead. |
| June 20, 2018 | Ugondo, Turan and Gabo-Nenzev in Logo Local Govt Area of Benue State | 59 persons were killed |
| January, 2018 to 11th May 2018 | Birnin Gwari LGA of Kaduna State | 152 people were killed in various attacks by gunmen |

| | | |
|---|---|---|
| January, 2018 to 11th May 2019 | Some Fulani villages in Mayo-Belwa LGA of Adamawa State | 27 persons were killed |
| January, 2018 to 11th May 2020 | Six villages (Nkiedowro, Hukke, Kpachudu, NzhweruvoTaagbe and Rotsu) in Bassa LGA of Plateau State | 50 persons were killed |
| 24th April, 2018 | Mbalom Village in Gwer East LGA, Benue State | 50 persons were killed incuding two Priests |
| 1st January, 2018 | Guma and Logo LGAs of Benue State | 80 persons were killed |
| 7th and 12th July, 2018 | Jarkuka Village in Anka LGA of Zamfara State | 26 persons were killed |
| 24th May, 2018 | Malikawa Village under Gidan Goga District | 5 farmers were killed |

**Source:** Amnesty International (2018)

**ii). Climate change and terrorism in Nigeria**

The main occupation of people in Nigeria is Agriculture. This field of endeavour provides about 70% jobs to the population of mostly youths and women (Okafor et al., 2021). Climate change has brought about fast desert encroachment, flooding and dryness of water areas previously used for dry season farming in the north. This has made many people to be unemployed. This unemployed youths have formed battalion. Now serve as ready forces for terrorist groups such as Boko Haram. According to Carlesi (2022, p.70), "As climate change increases the power of Boko Haram is enhanced, since the organization exploits local grievances and peoples' desperation to thrive. Mainly the governmental inability to respond to… unemployment and hunger, caused by land and water degradation, creates a suitable ground for the organization to rise". Climate change is an existential threat multiplier as frequent changes in weather, fast desert encroachment and less availability of water for farming and consumption has worsen the situation of hunger and increased the rate of malnutrition all leading to more impoverishment of the people. These conditions have rendered so many people unemployed in Nigeria and have propelled many into terrorist activities and organized crime as these may serve as an alternative to unemployment and poverty (Wakdok, &Bleishwitz, 2021).

The issue of armed banditry in Nigeria has claimed lives and destroyed properties worth millions of naira. So many people have been displaced as a result of these criminal elements activities. The activities of armed bandits are common place in states like Benue, Plateau, Zamfara, Taraba, and Kaduna. There are several

factors that are attributed to the phenomenon of armed banditry. In a study, the Goodluck Jonathan Foundation (GJF 2021, p.9) states one of the factors that causes banditry in Nigeria is "… environmental degradation caused by pressures of climate change (which) has aggravated resources competition...." The criminal activities of these bandits have taken more lives than terrorist activities in Nigeria. For example, in 2020 alone, bandits killed about 1527 people while in same year, 1508 people were killed in terrorist attacks in the northeastern part of Nigeria (GJF, 2021). Furthermore, in 2021, January to march alone, about 323 people were killed in Kaduna state as compared to 628 killed in 2020 in same state. In addition, GJF (2021) observes that in three states (Sokoto, Zamfara and Katsina) more than 279,000 people were internally displaced in 2020 due to the activities of armed banditry, and in 2021, about 2.6 million people suffered from hunger in the three states.

**Conclusion**

Climate change is the alteration brought about by the depletion of the Ozone layer which serves as a protective shield from the harmful ultraviolet ray of the Sun. Human activities through industrial machines and automobiles, burn fossil fuel which depletes the Ozone layer. Greenhouse emissions have continued on the rise heavily contributed by industrialized nations. Climate change has resulted in global warming which is extreme heat and less rain period but heavy down pour leading to flooding in most times. Global warming has also contributed immensely to desertification in the northern part of Nigeria. This has facilitated mass migration of herders in search of greener pastures for their cattle. This form of migration encounters confrontation in the midst of scarce resources. This type of scene often resulted to security challenges as scores of lives and property worth millions of naira were destroyed. There is both physical security challenges and food insecurity as a result of climate change.

**Recommendations**

From the foregoing, the following are hereby recommended:

i) Government is usually in the forefront of policy direction and implementation. Therefore, the government should implement the international treaties on climate change in order to reduce greenhouse emission and preserve the Ozone layer

ii) The International Community should place stiffer sanctions on defaulting nations who has refused to reduce greenhouse emission

iii) The Federal Government of Nigeria should implement the national cattle ranching plan which will reduce the incessant herders' migration and curtail conflict of farmer-herder

iv) The Federal Government should be very proactive in the distribution of relieve materials in times of natural disasters like flooding etc. This will reduce the frustration-aggression of victims in committing crime

v) Finally, the National Assembly should pass the law to allow rural communities to establish rural security guards within certain framework of operation. These guards should be allowed to carry arms within the framework of their operations just like the Police and the armed forces. This will help to provide security against frequent terrorist attacks by marauding bandits and will provide employment to the rural dwellers.

**References**

Agnew, R. & Kaufman, J.M. (2010). Anomie, strain and subcultural theories of crime. Surrey, England: Ashgate

Agnew, R. (2015). Strain, economic status and crime. In A. R. Piquero (Ed). *The Handbook of Criminological Theory*, 209-229. First Edition 2016. John Wiley & Sons, Inc. Sussex, UK.

Agnew, R. (2012). Its the End of the World as We Know It: The Advance of Climate Change from a Criminological Perspective. In R. White (Ed.), *Climate Change from a Criminological Perspective*, Springer Science Business Media, New York, p. 13-25

Amnesty International. (2018). Harvest of death: Three years of bloody clashes between farmers and herders in Nigeria. https://www.amnesty.org/en/wp-content/uploads/2021/05/AFR4495032018ENGLISH.pdf

Anderson, C.A. (2001). Heat and violence. *Current Directions in Psychological Science* 10(1): 33–38. https://psycnet.apa.org/doi/10.1111/1467-8721.00109

Borel, R. (2012). Climate change-induced migrations A research and capacity-building agenda from a human security perspective. In M. R. van der Valk & P. Keenan. *Climate change, water stress, conflict and migration.*https://www.hydrology.nl/images/docs/ihp/nl/2011.09.21/Climate_change_water_conflict_migration.pdf

Brauch, H. G. (2011). Concepts of security threats, challenges, vulnerabilities and risks. In H.G. Brauch, et al (eds.). *Coping with Global Environment Change, Disasters and Security: Threats, Challenges, Vulnerabilities and Risks*. Springer-Verlag Berlin Heidelberg, p. 61-106. http://dx.doi.org/10.1007/978-3-642-17776-7

Browning, M., &Rigolon, A. (2019). School green space and its impact on academic performance: A systematic literature review. *International Journal of*

*Environmental Research and Public Health*. 16(3), 1-22. doi:10.3390/ijerph16030429

Cabot, C. (2017). Climate change, security risks and conflict reduction in Africa: A case study of farmer-herder conflicts over natural resources in Côte d'Ivoire, Ghana and Burkina Faso 1960–2000. Springer-Verlag Berlin Heidelberg. https://link.springer.com/book/10.1007/978-3-642-29237-8

Carlesi, C. (2022). Understanding the relationship between terrorism and climate change: The case of Boko Haram activities and the environmental degradation of the Lake Chad Basin. GTLA Winning Paper. https://iftrip.org/wp-content/uploads/2022/06/COH_J013126-GTLA-Winning-Paper-2022-C3.pdf

Cheatwood, D. (2009). Weather and crime. In J.M. Miller, (Ed.). *21st Century Criminology*. Los Angeles, CA: SAGE, 51–58. https://journals.sagepub.com/doi/abs/10.1177/1362480611416843

Cooper, P. J., & Vargas, M. (2004). Implementing sustainable development: From global policy to local action. Lanham, MD: Rowman and Littlefield Publishers, Inc.

Daguat, M. (2016). What is security? https://www.academia.edu/29958099/WHAT_IS_SECURITY

Ejigu, M. (2009). Environmental scarcity, insecurity and conflict: The cases of Uganda, Rwanda, Ethiopia and Burundi. In H.G, Brauch; S.U. Oswald; J. Grin; C. Mesjasz; P. Kameri-Mbote; N.C. Behera; B. Chourou; & H. Krummenacher. (Eds.). *Facing Global Environmental Change: Environmental, Human, Energy, Food, Health and Water Security Concepts. Hexagon Series on Human and Environmental Security and Peace*, vol. 4. Berlin Heidelberg New York: Springer, p. 885–893.

Enenche, A. (2019). National security and security challenges: The Nigeria's conundrum. *International Journal of Modern Sociology and Security Studies*. 3(2), 128-135

Enenche, A. (2024). Internal security threats: Challenges to sustainable development in Nigeria. *Polac Economic and Management Science Journal* 4(1) 145-155 .https://www.pemsj.com/papers.php?q=#

German Advisory Council on Global Change. (2008). Climate change as a security risk. https://www.wbgu.de/fileadmin/user_upload/wbgu/publikationen/hauptgutachten/hg2007/pdf/wbgu_hg2007_engl.pdf

Goodluck Jonathan Foundation. (2021). Terrorism and banditry in Nigeria: The nexus.https://www.gejfoundation.org/wp content/uploads/2021/09/Terrorism-and-Banditry-GJF-Doc.pdf

IPCC. (2007a). Front Matter. In M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden, & C.E. Hanson, (Eds.). *Climate Change 2007: Impacts, Adaptation and Vulnerability*: Contribution of working group II to the fourth assessment report of the Intergovernmental Panel on Climate

Change (SAR). Cambridge–New York: Cambridge University Press. http://www.ipcc.ch/publications_and_data/ar4/wg2/en/contents.html

Kaddo, J.R. (2016). Climate change: Causes, effects, and solutions. *Core.*https://core.ac.uk/download/pdf/71818866.pdf

Kumar, S.V. (n.d). Sustainable development and its dimensions. https://www.academia.edu/34361941/SUSTAINABLE_DEVELOPMENT_AND_ITS_DIMENSIONS

Lynch, M., &Stretesky, P. (2010). Global warming, global crime: a green criminological perspective. In R. White (Ed.), *Global environmental harm: Criminological perspectives*. Devon: Willan Publishing.

Mambe, D.A. & Ebonyi, A.A. (2019). The nexus between climate change and criminality: The Nigerian experience. *International Journal of Research and Innovation in Social Science*, III (X), 258-264. https://www.rsisinternational.org/journals/ijriss/Digital-Library/volume-3-issue-10/258-264.pdf

McCarthy J.J, Canziani O.F, Leary N.A, Dokken D.J, White, K.S. (Eds.) (2001). *Climate change: Impacts, adaptation and vulnerability.* Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Cambridge: Cambridge University press.

McMichael, A.G. (2001). Impact on climate and other environmental on food production and population health in the coming decades. *Proc. Nutr Soc*. 60: pp195 – 201.

Merton, R. (1968). *Social Theory and social structure*. Enlarged edition. New York: Free Press.

MoEFRN. (2003). Nigeria's first national communication under the United Nations framework convention on climate change. Abuja, Nigeria. https://unfccc.int/resource/docs/natc/nignc1.pdf

Obaze, O.H., Kwaja, C.M.A., Onuoha, F.C., Adejoh, S., Sulaimon, A., & Ugwu, C. (2022). Climate change as a security threat in Nigeria and the Sahel. *Nigeria Policy Brief:* Friedrich-Ebert-Stiftung. https://library.fes.de/pdf-files/bueros/nigeria/19957.pdf

Ogbo, A., Ndubisi, E.L., &Ukpere, W. (2013). Risk management and challenges of climate change in Nigeria. *Journal of Human Ecology*, 41(3): 221-235. https://doi.org/10.1080/09709274.2013.11906570

Okafor, C.A., Ukah, F.O., & Egbe, E.O. (2021). Climate change and terrorism in Nigeria. *Sapientia Global Journal of Arts, Humanities and Development Studies*, 4(2). 471 – 478. https://www.sgojahds.com/index.php/SGOJAHDS/article/view/241/249

Onoja, U. S., Dibua, U.M.E., &Enete, A. A. (2011). Climate change: Causes, effects and mitigation measures-a review. *Global Journal of Pure and Applied Sciences* 17(4), 469-479. http://www.globaljournalseries.com

Parry, M.L., Canzian, O.F., Palutikof, J.P., van der Linden, P.J., & Hanson, C.E. (Eds.). (2007). Climate Change: Impacts, Adaptations and Vulnerability: Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Cambridge: University Press Cambridge.

Patchen, M. (2010). What shapes public reactions to climate change? Overview of research and policy implications. *Analyses of Social Issues and Public Policy* 10(1): 47–68. https://doi.org/10.1111/j.1530-2415.2009.01201.x

Perkins, S. (2010). Atmospheric science: Clouds' contribution. *Nature Climate Change*. Doi: 10. 1038/nclimate 1026.

Rahman, M.I. (2013). Climate change: A theoretical review. *Interdisciplinary Description of Complex Systems* 11(1), 1-13. http://dx.doi.org/10.7906/indecs.11.1.1

Robertson, A.R., Stein, J.A., & Schaefer-Rohleder, L. (2010). Effects of Hurricane Katrina and other adverse life events on adolescent female offenders: A test of General Strain Theory. *Journal of Research in Crime and Delinquency* 47(4): 469–495. https://link.springer.com/referenceworkentry/10.1007/978-1-4419-1695-2_656

Rotton, J. & Cohn, E.G. (2003). Global warming and U.S. crime rates. *Environment and Behavior* 35(6): 802825. https://psycnet.apa.org/doi/10.1177/0013916503255565

Seers, D. (1969). The meaning of development. *International Development Review* 11(4): 3-4. https://www.scirp.org/reference/referencespapers?referenceid=1966303

SPORE (2008). 1 Global trends: Time is running out. *Spore Special Issue*. http://archive.spore.cta.int/images/stories/pdf/old/Spore-HS-2008-EN.pdf

Wakdok, S.S. &Bleischwitz, R., (2021). Climate change, security, and the resource nexus: Case study of Northern Nigeria and Lake Chad. *Sustainability*, 13(19). https://www.mdpi.com/2071-1050/13/19/10734

White, R. (2012). The criminology of climate change. In R. White (Ed.), *Climate Change from a Criminological Perspective*, Springer Science+Business Media, New York, p. 1-12

Wodon, Q. & Liverani, A. (2014). Overview. In Q. Wodon, A. Liverani, G. Joseph, and N. Bougnoux. *Climate Change and Migration: Evidence from the Middle East and North Africa*. International Bank for Reconstruction and Development / The World Bank. Washinton DC. http://dx.doi.org/10.1596/978-0-8213-9971-2

Wodon, Q., Burger, N., Grant, A., & Liverani, A. (2014). Climate change, migration, and adaptation in the MENA region. In Q. Wodon, A. Liverani, G. Joseph, and N. Bougnoux. *Climate Change and Migration:*

*Evidence from the Middle East and North Africa*. International Bank for Reconstruction and Development / The World Bank. Washinton DC. http://dx.doi.org/10.1596/978-0-8213-9971-2

Wutich, A. & Ragsdale, K. (2008). Water insecurity and emotional distress: Coping with supply, access, and seasonal variability of water in a Bolivian squatter settlement. *Social Science & Medicine* 67(12): 2116-25. DOI: 10.1016/j.socscimed.2008.09.042