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To cite this article: T.E. Olagunju *et al* 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **655** 012072

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# Climate Change Impacts on Environment: Human Displacement and Social Conflicts in Nigeria

T.E. Olagunju <sup>1</sup>, S.O. Adewoye <sup>2</sup>, A.O. Adewoye <sup>3</sup>, O.A. Opasola <sup>4</sup>

<sup>1</sup>Department of Biology and Biotechnology, Alex Ekwueme Federal University, Ndufu-Alike Ikwo, Ebonyi, Nigeria

<sup>2</sup>Department of Pure and Applied Biology, Ladoke Akintola University of Technology, Ogbomoso, Nigeria

<sup>3</sup>Department of Earth Sciences, Ladoke Akintola University of Technology, Ogbomoso, Nigeria

<sup>4</sup>Department of Environmental Health and Toxicology, Kwara State University Malete, Nigeria

Corresponding author: temidayo.olagunju@funai.edu.ng

## Abstract.

In northern Nigeria, drought and desertification have grossly affected water available and land carrying capacity for both pastureland and farmlands. Hence, the northerners, particularly, the youths inevitably migrate to the south for greener pasture for themselves and the animals. Most of these youths are uneducated and not skilled to secure employment, they, therefore, become an instrument in the hands of religious bigotry. This climatic change can also result in a rise in sea level, thereby increasing the flood events especially, in Nigeria's lowlands. These changes have not only caused fierce conflicts but have additionally brought about the death of thousands and rendered many homeless. The Nigeria Middle Belt has been the region most impacted by violent death resulting from land resource scarcity. The conflict has ensued between contrasting groups when essential resources become scarcely limited. Northern Nigeria accounts for 68% of every fierce death due to the issues of land between farmers and pastoralists in 2006 and 2014, a figure not half the reported cases in 2018 alone. The inadequacies in the Nigerian adaptation efforts to its dwindling climate could be attributed to corruption, institutional shortcomings and political will predisposes the country to more dangers of environmental change impacts. Therefore, climate change mitigating and adaptation measures, unbiased and efficient conflict management strategies, as well as the improved condition of living must be ensured by the government stakeholders to safeguard current and future generations of the country from havocs due to climate impacts.

**Keywords:** Climate change; Social conflicts; Human displacement; Drought; Desertification

## 1. Introduction

Climate change is characterized as an adjustment in the state of the climate that can be distinguished by changes in the mean as well as the fluctuation of its properties and that persist for an all-inclusive period regularly decades or more (ICPC 2007). A climatic change is significantly brought about by two fundamental factors which incorporate biogeographical and anthropogenic. In the course of recent decades, researchers have been giving more consideration to the effect of climate change on displacements, relocation and social clash uncovering that the environment should be carefully studied when analysing the breaking down of the main drivers and outcomes of climate change. Conflict, displacement and Forced migration, and have been implicated to arise from land resource scarcity because of the climate change impacts (Boano *et al.*, 2008). One of the environmental issues worldwide is Climate change. This change in the average weather including temperature, precipitation, and wind conditions is not alien to Nigeria's climate. Nigeria is one of the nations of the world that has encountered lingering bouts of social conflict particularly the one that stems from a shortage of appropriate land for agri-business. The war among herders and ranchers goes back to earliest written records, such as that of Cain killing Abel, Chinese emperors delineating Chinese territory from marauding hordes by building the Great Wall. Land conflict in Nigeria is however spectacular and complex as it is usually exacerbated by ethno-religious divergence and extreme poverty, accompanied by a gross lack of social amenities (Odoh and Chilaka, 2012). Nigeria is distributed into six zones geopolitically with a current estimated populace of more than 190



million individuals of in any event 250 diverse ethnic gatherings separated into either Christianity, Islam or customary religion (CIA, 2012; NBS, 2018). This plurality has been a great threat to peaceful coexistence in sustainably utilizing the country's limited land resources; hence making conflict, forced migration and displacement inevitable. Reports has it about Climate change in Nigeria that there has been seeing a sizable modification in precipitation, temperature, sea level rise and storm since the only remaining century (Onyia, 2015). A slow rise in Nigeria's temperature somewhere in the range of 1901 and 2005 was recorded, a mean air temperature of 26.30C was recorded from 1901-1970 and an expansion to 27.80C from 1971 to 2005 evidently more noteworthy than the worldwide normal of 0.740C (Nwafor, 2006; Tercula, 2015).

Conversely in southern Nigeria and riverine communities, flood incidence has increased with attendant consequences. As the Nigerian climate continues to shift, the socioeconomic effects cannot be undermined which calls for effective response. For instance, in the mid-1960s, huge low harvest yield and death of livestock which brought about nourishment lack were experienced because of a drop in normal precipitation (Onyia, 2015). In the 1990 forecast of the Intergovernmental Panel on Climate Change (IPCC) that the gravest impacts of climate change might be those on human constrained relocation and dislodging (Boano et al., 2008). Conflict to an ecologist is a phenomenon of competition among organisms in which scarce but essential resources which could be food, space or mate are fought for. To a sociologist, social conflict occurs when people antagonize each other in social interaction so as to attain scarcely limited resources (McDonald *et al.*, 2002). This suggests that conflict would occur as soon as essential resources for better livelihood become scarce and/or limited. This is supported by conflict theory which emphasizes opposing interests over limited but needful resources among different groups of people. Hence, conflict cut across all groups of organisms; from the smallest unicellular planktons in the water bodies to the heavy elephants in the savannah; from the most remote village dwellers of developing countries to the most civilized citizens of the city center of the developed country. Therefore, different groups make every effort to use the "Mathew Effect"; which is an idea that the group with the most resources will exert the highest socio-economic dominance, to their own advantage (Fabusoro *et al.*, 2008). In critical criminology, conflict theory is applied to show that the fundamental cause of crime is the oppression of the minorities, arising from biases of socioeconomic forces manifesting within the society (Stewart and Fitzgerald, 2001). This undoubtedly instigates the aggrieved groups to violently put up efforts for survival.

Forced displacement due to environmental abnormality is not a recent phenomenon. Environmental events are causes of migratory flow and conflicts due to the need to leave disaster-affected locations or contest for the available limited resources as an adaptive mechanism (King, 2006). Although as rightly described by Malthusianism and Neo-Malthusianism, that population growth is a major factor leading to resource scarcity, when the resources can no longer sustain the population demand. Conversely, Quentin *et al.* (2005) argued that this is not always true using the context of Adamawa region, that the enormous assets in Adamawa area have never halted the presence of agro-peaceful clashes in that district. There are other factors affecting the fast removal or the availability of the land resources, one of such is environmental change. This presentation, subsequently, looks to go past the Neo-Malthusian and Malthusian originations, to make expositions on climate change impacts on displacement, social conflict and migration, especially as they are linked by land resources scarcity.

### 1.1 Deforestation and Gas Flaring: Major Contributing Factors to Nigeria Changing Climate

Climate change is caused by complex factors but aggravated by unsustainable human events that end in the release of gases from greenhouse into atmosphere and removal of the natural carbon sinks. In Nigeria particularly, deforestation and gas flaring have been implicated to be major causes of alteration in weather elements (Olagunju, 2015a). Deforestation means the cutting down of trees (usually on large scale) from an area for any reason. FAO (2005) defined deforestation as the change of forest to another land use. Aside from the change of forested territories to non-forested ones that characterize deforestation, it additionally remembers decrease of timberland personality for terms of thickness, the structure of the trees, the natural and other basic administrations provided, biota biomass and species assorted variety (Olagunju, 2015a). Okorie (2012) sees deforestation has the conversion of forest to savannah. Rapid population growth, changes in land use and poor forest governance characterized by illegal logging and trading of forest trees militate against sustainable forest conservation (World Bank, 2006). During the pre-industrial time, forest shielded about 15% of the earth's crust which was reported to drop to 9.4% in 2005 (UNEP, 2005).

At a worldwide scale, deforestation is currently most prominent in Africa with Comoros, Togo, Nigeria, Mauritania, and Uganda having Africa with maximum rate of forest loss (Chakravarty *et al.*, 2011). According to FAO (2006), Nigeria has the highest rate loss of primary forest with an already total loss of 55.7% and lost rate of 409,700 hectares per year. Forests are sinks for carbon dioxide – a major greenhouse gas that aggravates the high level of atmospheric temperature. Therefore, when forests are removed, more carbon dioxide is left in the atmosphere resulting in the heating-up of the earth (global warming). These phenomena have been linked to

altered rainfall patterns, flood incidence and sea levels (Bradshaw *et al.*, 2007; Costa *et al.*, 2003; Spracklen *et al.*, 2012). Bradshaw *et al.*, 2007 models indicate 10% decrease in a forest which would result in flood frequency increase between 4% - 28%. In addition, gas flaring and venting lead to the emission of a huge quantity of carbon dioxide and methane respectively. It was documented that these two processes contributed about 80% of global warming (Global Gas Flaring Initiative, 2002). In 1994 alone, over 58.1 million tonnes of CO<sub>2</sub> were emitted from the Nigerian energy sector which is not up to the present and MN expected quantity of over 70 million per year in the late 2010s. This value would put Nigeria atmospheric condition into the 42nd world's biggest emitter of CO<sub>2</sub> (UNFCC, 2003; World Resources Institute, 2003).

## 1.2 Drought and Desertification: Threat to Land Resources in Nigeria

One of the world-wide environmental hitches ever known are the drought and desertification resulting from a synergy between unfavorable climatic variability and unsustainable anthropogenic activities (Olagunju, 2015b). Climatic conditions have led to a reduction in the total amount of rainfall resulting in loss of vegetation in some parts of Africa, especially in northern Nigeria. As documented by Luning *et al.* (2018), variability of seasonal rainfall in Africa is one of the key factors that are limiting the agricultural yield in this region. According to a report by Abahussain *et al.* (2002), decrease in productivity of the land; depletion of groundwater and surface resources are outcomes of these droughts and desertification. Onyeausi and Otegbeye (2012) reported an average decrease in rainfall of an average of 81 mm and of 1.1<sup>0</sup>C increase in temperature between 1901 and 2005 in the northern Nigeria. Omotosho *et al.* (2017) and Benson *et al.* (2019) recorded changes from the established facts of temperature and precipitation in some areas within Nigeria. The deviated results from their studies were linked to the effect of climate change. The fifteen northernmost states of Nigeria are particularly affected by drought and desertification (figure 1) due to unfavorable rainfall pattern that has recently greeted the region. This has made animal and cropping farming challenging. Desertification frontline Nigeria states as reviewed by Olagunju (2015b) include; Gombe, Katsina, Sokoto, Jigawa, Zamfara, Kaduna, Kaduna, Kano, Kebbi, Borno, Yobe, Bauchi, Adamawa, Taraba, Niger, and Plateau. Although the rate of desertification in these northern states defers it is severe in Sokoto, Zamfara, Katsina, Jigawa, Kebbi, Borno and Yobe which account for 29.54% of the total Nigeria land area (figure 2). This figure displays that over 60% of Nigeria's land would be facing the consequences of aridity, if climate change is not proactively checked ..

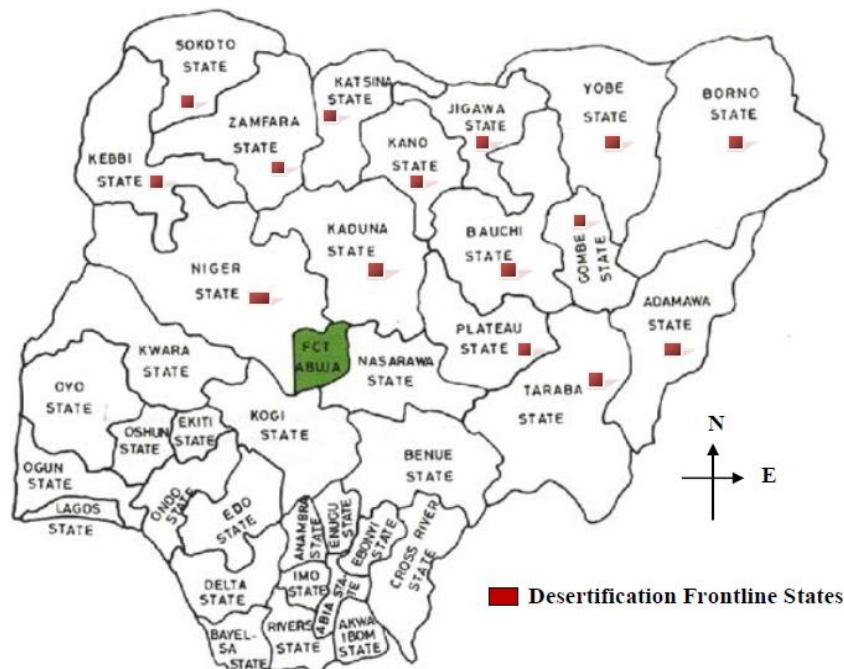


Figure 1: Desertification frontline states in Nigeria (Olagunju, 2015b)

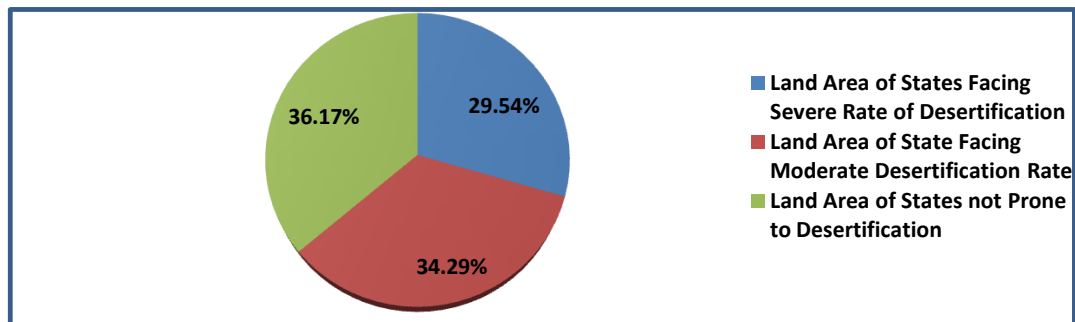


Figure 2: Land Area of Desertification Frontline States (Adapted from Olagunju, 2015b)

### 1.3 Climate Change Linked to Forced Migration, Displacement, and Conflict

Over 75% of northern Nigerians subsist on agriculture but since the 1970s, there has been a successive reduction in crop yield with high mortality in animals due to climate change (Moretimore and Adams, 2001; Onyia, 2015). The increase in the average temperature between the 1970s and now is higher than the one experienced earlier between 1901 and 1970s (Onyia, 2015). The major concern is that the Nigeria climate may bring about greater change in temperature, rainfall, storms and sea levels which will make land and water resources to be in short supply if not checked as pointed out by a report of the USIP, (2011). The effect of changes in climate in the northern Nigeria have led into migration in two ways: firstly, the rural to urban migration in search of greener pastures by the vibrant youth farmers, whose farm productivity has drastically reduced to a point that it can no longer sustain their livelihood especially in the current inflationary economy, and secondly, but more importantly to national security, is the migration to the south by the Fulani herdsmen, their animals in search of pasturelands and water (United Nation, 2007).

Climate change increases natural disasters, drought, desertification, a rise in sea level, shortage of fresh water and increased resource scarcity (Odoh and Chilaka, 2012). These situations would, in turn, result in loss of means of subsistence, and the later causing displacement of people, migration in search of greener pasture, herdsmen migration and increased risks of armed conflict (figure 3). The north-south migration is cardinal to many reported conflicts in Nigeria as well as the emergence of the Boko Haram Sect (Abdulkadiret *et al.*, 2013). The northern youths majorly lack formal education and requisite skills that could serve as leverage for getting them employed in urban areas. They are therefore subjected to more impoverished conditions exacerbated by lack of social amenities in the cities. Eventually, religious groups provide succor for these helpless youths and many at times, these youths are at the mercy of groups with religious bigotry inculcating in them unhealthy indoctrinations. This way, an army of dedicated terrorists are unleashed into communities, killing innocent people and burning their properties. As a result, people in these life-threatening communities are displaced. In a related way, the land cannot sustain natural pastureland adequate for the extensive animal rearing by the Fulani herdsmen, and as such, they move their cattle down south. While on transit, the desperate Fulani herdsmen who by all means would not allow their animals to die of hunger; shepherd these animals into farmlands, eating and damaging crops in these transiting communities. In the bid for the farmers to revenge, violent conflict is ensued (IEP, 2014). The United States Institute of Peace (USIP) (2011) has shown that the interconnectedness between changes in climate and conflict in Nigeria is as a result of poor response at all levels (figure 4). However, it is primarily a response of poor response to the Nigerian climatic shift. Corroborating Odoh and Chilaka (2012), United States Institute of Peace identified that primary impact of climate change fuels conflict

Aside from drought and desertification caused by climate change in the aridity prone lands, climate change also causes flood in Nigeria riverine lowlands. About one-third of Nigeria's land is at an elevation less than 8m above the sea level which by estimation puts about 30% of the country's land to flood risk (Akinola and Ikwoyatum, 2012). The Niger Delta area particularly experiences the highest number of flooding annually with many other lowland areas of Sokoto, Benue, Niger, Lagos and Ogun amongst others not left out. In table 1, few case studies of flood events in Nigeria show that flood has rendered thousands homeless with the destruction of lives and properties.

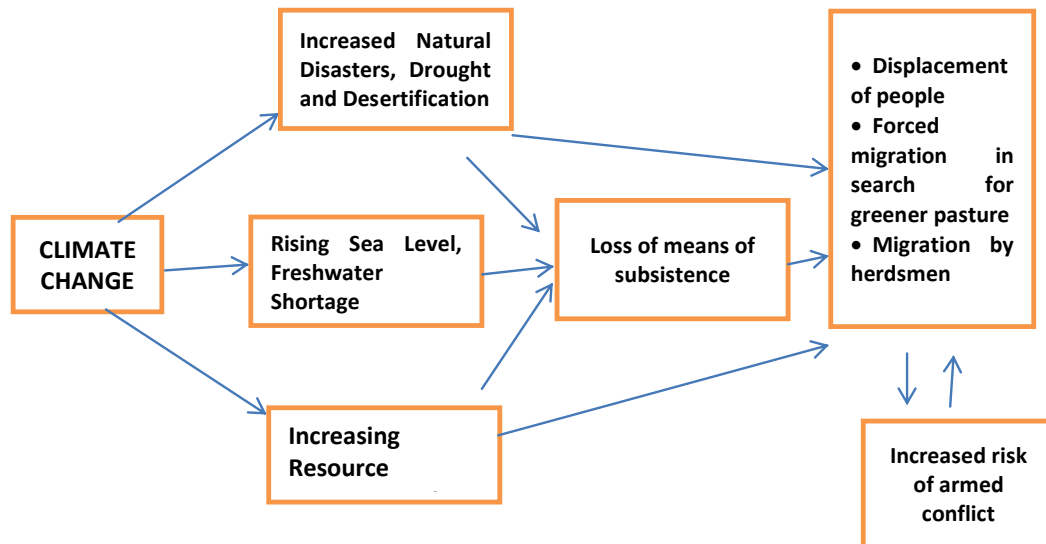


Figure 3: The link between climate change, conflict, displacement and forced migration (adopted and modified from Odoh, 2012).

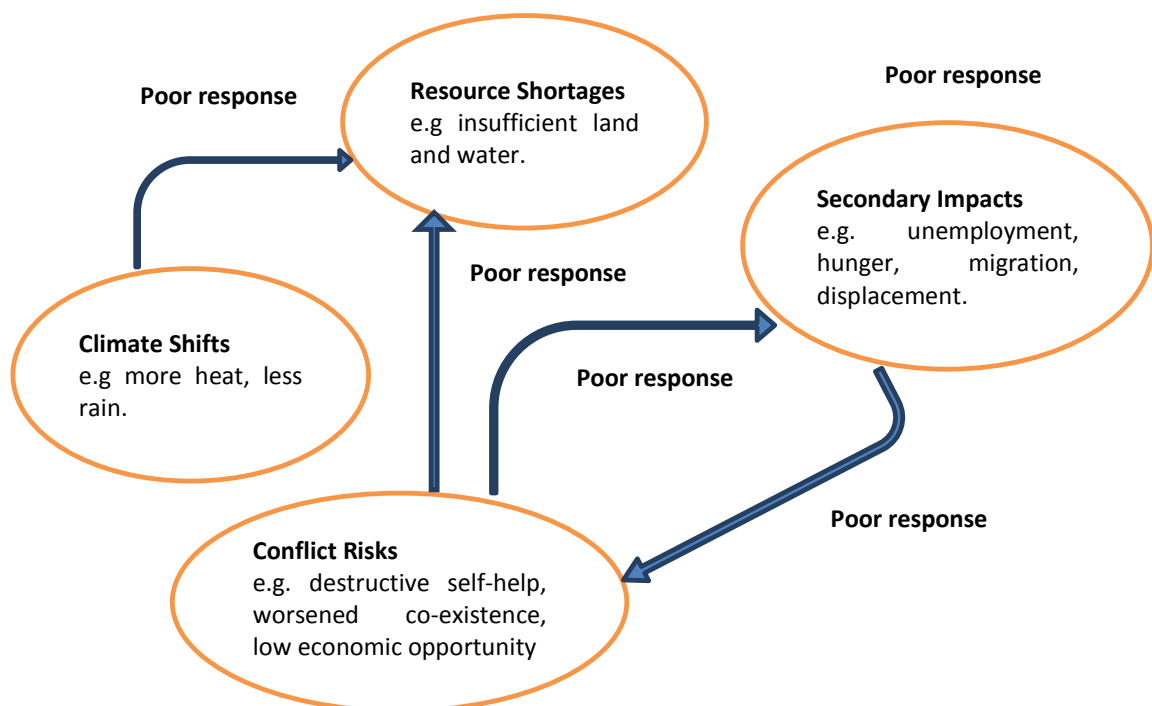


Figure 4: Interconnectedness of climate change and social conflict (USIP, 2011)

Table 1: Some Flood Events in Nigeria (Akinola and Ikwoyatum, 2012)

/N	Location	Date	Damage
	Ibadan	1953	Houses destroyed and thousands rendered homeless.
	Sokoto State	1988	74 villages were damaged by the flood.
	Kano State	1992	15 houses destroyed, 162 rendered homeless and 6 hectares of farmland destroyed.
	Niger State	September 1994	15 deaths and 50 hectares of farmland destroyed
	Jos, Plateau State	August, 1995	24 deaths, 50 houses destroyed with an estimated loss of properties worth #2 million.
	Niger State	October, 1998	100,000 people displaced and loss of #300 million worth of sugarcane farm
	Imo State	1999	50 death, submerged farmland, and destruction of oil installations
	Jalingo, Taraba State	August, 2005	Over 100 deaths, 50,000 displaced and 490 houses damaged.
	Plateau, Nasarawa, Bauchi, Yobe and Borno States	August, 2007	46 deaths and over 2,500 families displaced
0	Lagos State	September, 2010	Over 1000 people displaced

#### 1.4 Conflict Scenario in Nigeria: A Case Study of Farmers and Pastoralist

Fulani pastoralists and farmers represent a major conflict in Nigeria especially in the last few decades (Roger, 2010). Prior to the 19th century, Fulani pastoralists are more confined to northern Nigeria probably due to the ability of the available pastureland to sustain their animals and/or the fear of the presence of trypanosomiasis and other diseases in the south. However, a 1979 report of a study by Fricke showed a gross southward migration of the Fulani herdsmen which continues until today (Conroy, 2015). Roger (2010) pointed out four major causes of conflicts among Herdsmen and farmers; he however, categorized three of them as land issues. These factors are the discontinuation of the conventional *alburti* system of routes, ignorance or poor attention attached to migration effects, poor sales of dairy production in the north and intensification of *fadama* cultivation. Unfortunately, it is becoming increasingly difficult for the Fulani pastoralist due to restriction to the land in the onset of degrading grazing resources (Fabusoro and Sodiya, 2011). Fulani pastoralists depend solely on their cattle as a source of income, and as such, they put up every effort to secure the lives of their cattle; their means of subsistence. On the part of the opposing farmers, the case is similar as many complained that pastoralist does migrate only in the dry season until recently that has turned to all-year-round chore (Odoh and Chilaka, 2012).

Farmers from Sokoto State were reported to complain about the huge loss they experience yearly. Especially, during planting season when the Fulani herdsmen and their cattle match the seed planted thus preventing them from germinating. This has made it a yearly battle between the Fulani pastoralists and the Sokoto farmers (Odoh and Chilaka, 2012). A study between 1991 and 2005 by Fasona and Omojola (2005), reported 35% conflicts between farmers and Fulani herdsmen between 1991 and 2005 in Nigeria. Between 2005 and 2014, the Nigeria Watch database attributed 3.79% of all violent deaths in Nigeria to conflicts on land issues between Fulani herdsmen and the farmers (Nigeria Watch, 2015). The Nigerian Middle Belt states; Plateau, Benue, and Taraba are the most violent-impacted states in Nigeria as a result of the conflict between the Fulani pastoralists and the farmers (Dung-Gwomet *et al.*, 2009). According to IEP, (2014), Fulani Herdsmen militant were ranked as the fourth noxious terrorist group in the world with a death record of over 1,200 people in 2014 compared to about 80 killings from 2010 and 2013. A total of 847 deaths in a year were recorded in Benue, Kaduna, Nasarawa, Plateau, and Taraba. While 229 deaths were recorded in Zamfara state. In June 2018, about 86 people died and 50 houses were burnt in clashes between farmers and Fulani herdsmen in Plateau State (Inform Newspaper, 2018). Clashes between herdsmen and farmers in Adamawa, Benue, Taraba, Ondo, and Kaduna resulted in 168 deaths (Daily Post Newspaper, 2018). The newspaper also accrued 549 deaths across 14 states while thousands were displaced. From January 2018 to October 2018, over 2000 deaths were reported in Nigeria due to Fulani herdsmen-farmer clashes, with over 1300 death in just 10 weeks across the nation (Inform Newspaper, 2018).



### 1.5 Mapping Effects of Violent Land Conflict in Nigeria

Land issues have been implicated to be the main cause of violent dispute in Nigeria (USIP, 2011). Based on the geopolitical region; major part of the northern states of Nigeria are responsible for 68% death caused land issue violence among farmers and pastoralist between 2006 and 2014, with Plateau state alone accounting for 29% of violent death during this period (Nigeria Watch, 2015). Between 2006 and 2014, 2010 recorded the highest number of death (figure 5) which is sadly not half of what has occurred from January 2018 to October 2018. Figure 6 revealed that the Middle Belt States, particularly Plateau, are the most vulnerable and conflict-prone states in Nigeria.

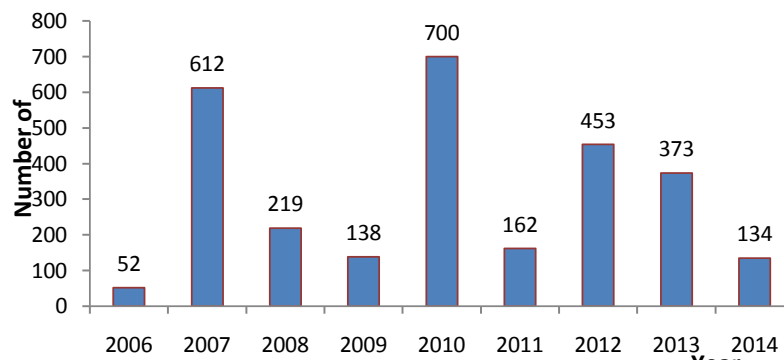


Figure 5: Number of Deaths due to Violent Land Conflict between 2006 and 2014 in Nigeria (Nigeria Watch, 2015).

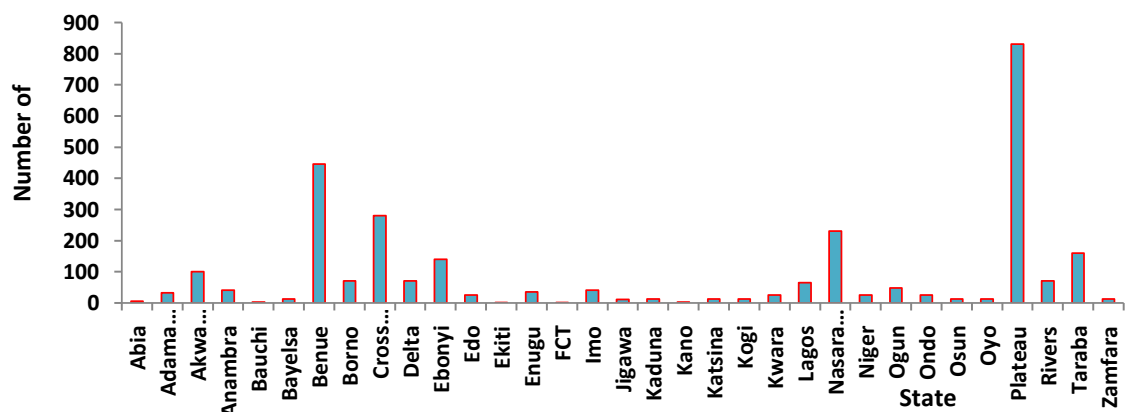


Figure 6: Number of Deaths per the Nigeria States due to Land Conflicts between 2006 and 2014 (Nigeria Watch, 2015)

### 1.6 Nigeria Adaptation Efforts to Climate Change and its Inadequacies

Nigeria is an oil boom country with the largest population and economy in Africa, it covers an area of about 923,200km<sup>2</sup> (National Bureau of Statistics, 2010). It is situated between 4° latitudes and 14° N and 2°2' longitudes and 14°30' of Greenwich Meridian, surrounded by Cameroun, Niger, Chad, Benin and the Atlantic Ocean of 1100km in length (National Bureau of Statistics, 2010). Nigerian enjoys tropical climates, although microclimates vary from one region to the other within the country. The northern region which comprises about



two-thirds of the county's land area is majorly savannah as against the southern region which is a tropical rainforest and mangrove/swamp. The agricultural sector provides the highest employment; employing 70% of the northerners and it is the second-largest contribution to GDP after crude oil. (Onyia, 2015).

In an effort to combat climate change and its consequences in Nigeria, Nigeria government has enacted laws and programs and has been given support by international partners such as World Bank, UNDP, and CIDA in finance, technical assistance, loans and capacity buildings (Olagunju, 2015b). Nigeria has also signed various decrees of the United Nations on environmental sustainability. Unfortunately, none of these efforts has resulted in a significant fight against climate change due to a gross dearth of political will, institutional defects and profiteering. There is also poor documentation and response to climate variability and its impacts in Nigeria. However, these would require substantial resources including finance, technical know-how, solid administrative structures, and unwavering legal frameworks; all of which are not provided by the Nigerian government.

## 1.7 Way Forward

All aspects of climate change, including its causes and impacts, must be holistically addressed to be able to win the war against it in Nigeria. Mitigating climate change has to do with all measures taken to lessen the rate, magnitude, and consequences of climate change especially anthropogenic motivating factors of the menace. This includes reduction of gas flaring, burning of fossil fuel and deforestation but rather, encouraging reforestation and afforestation; adoption of green energy and; greenhouse gas cleaning technology (IPCC, 2007).

**1.7.1 Adaptation:** These involve measures that assist in mitigating the effects of climate change while simultaneously improving peoples' surviving capability. These include sustainable agricultural practices, stopping the encroachment of wetlands and floodplains, development of drought and heat resistant crops, construction of storm and flood barriers and strengthening public health (Holdren, 2010).

**1.7.2 Conflict management:** The understanding and documentation of the cause of dispute in Nigeria would help to develop action plan in managing current conflict fares and prevent a future one. For instance, fare sharing of land resources among concerned groups would undoubtedly prevent conflict. The assistance should be given to pastoralists to engage in sustainable intensive animal husbandry, as seen in many developed countries as against the prevalent extensive pastoral system in Nigeria.

**1.7.3 Improved livelihood:** Poverty reduction, employment, and provision of social amenities both in the cities and rural areas would to a great extent enhance the standard of living in the community. There should be establishment of technical schools for indigent youth, to study on loan, as seen in the developed countries to cater to skill acquisition of the uneducated and unskilled youths.

## 2. Conclusion

It was revealed in this article that migration, displacement, and social conflict are consequences of resource scarcity caused by drought, desertification and flood events which are engineered by climate change. Nigeria has been facing the secondary impacts of its changing climate, though exacerbated by ethno-religious divergence, which are manifested in violent conflicts, internal displacement of people and forced migration. The poor response of the Nigerian government to its dwindling climate buried in gross dearth of political will, institutional defects and profiteering predispose the country to more danger of climate change impacts soonest. Therefore, mitigation and adaptation measures of climate change should be unbiased and efficient conflict management strategies, as well as the improved condition of living must be ensured by the Nigerian government and all stakeholders to save the current and future generations from havocs of climate change.

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