CLIMATE CHANGE INDUCED CONFLICT: THE CASE OF HERDSMEN AND FARMERS IN THE MIDDLE BELT OF NIGERIA

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Abstract

This study gives an account of how empirical evidence has shown that the herders-farmers conflict in the Middle Belt is partly induced by climate change. Based on Eco-survivalism and frustration-aggression theories, the study revealed that the shrinking of Lake Chad Basin, desertification, drought, reduction in average annual rainy period and wetland, drying up of rivers and water sources, flooding, erosion, and increasingly dwindling land for crop farming and grazing in northern Nigeria has been largely responsible for the conflict. Establishment and sustenance of modern methods of livestock production in the 21st century, protection of environment against and mitigation of the effects of climate change, and improvement in security apparatus of the nation are recommended as a panacea to the violent conflict between the herdsmen and the farmers in the Middle Belt of Nigeria.

Key Words: Climate Change, Farmers, Herdsmen, Middle-Belt, Nigeria.

Introduction

Climate change in Northern Nigeria, has had far reaching negative effects on the Middle Belt of the country, where, the climate change induced conflicts between herdsmen and farmers has taken a dangerous dimension in the past decade. The herdsmen allege that their cattle have been rustled, poisoned, cattle routes have been encroached upon and in some cases anti-open grazing laws have been enacted in some parts of the Middle Belt, which makes it difficult for open grazing (Akanle, 2018; Lakpini, 2018). These are considered threats to their source of livelihood and survival. On the other hand, empirical evidence has shown that the Middle Belt of Nigeria today is under siege, from killer-herdsmen. They are largely responsible for destruction of lives and properties, rape of girls and women, increasing number of internally displaced persons (IDPs) and IDP camps, disruption and destruction of economic, social and political activities, and subjugation and forceful occupation of the lands belonging to the peoples of the Middle Belt of Nigeria (Lanshima, 2018; Akanle, 2018).

The climate-induced conflict between herdsmen and farmers in the Middle Belt of Nigeria is a source of concern to well-meaning Nigerians, who view both crop farming and livestock production as important contributors to the sustainable development of Nigeria.

The objectives of this paper are therefore to: give an empirical account or analysis of how climate change has induced in great measure, the conflict between herdsmen and farmers in

the Middle Belt of Nigeria; attempt to use a theoretical framework that will comprehensively explain the conflict between them; and proffer workable solutions to the aforementioned.

Conceptual Considerations

In this section, attempts will be made to explain the major concepts in the study. These include climate change, conflict, herdsman, farmers, and Middle Belt of Nigeria.

Climate Change: According to the United States Global Change Research Programme (2009), climate change refers to the long-term regional or even global average of temperature, humidity, and rainfall patterns over seasons, years or decades. As rightly put by Odjugo (2010, p.47), climate change is caused by two basic factors, which include natural processes (biogeographical) and human activities (anthropogenic). The effects of anthropogenic human-caused-climate change range from more frequent and severe droughts to snow storms and extreme winter weather in temperate regions as a result of warming Arctic weather fronts. Climate change also has economic and socio-political effects. Food insecurity is already prevalent in a number of African countries and researchers are studying suggestive links between climate change and an increased likelihood of military conflict (McNew, Wingard, & Braithwaite, 2018).

Conflict: According to Hogan (2006, p.76-77) in the Academic's dictionary of sociology, "conflict can be defined as direct and conscious struggle between individuals or groups for the same goal." This corroborates Akpuru – Aja's definition of conflict as "an attitude, a behavior or action or a process that introduces strains and stresses in the relationship between two or more parties or goals" (Akpuru – Aja, 2007, p.15).

Conflicts are of different types and include ethnic, religious, and class conflicts (Folarin, 2005, p.523). They also include armed conflict – which is the resort to the use of force and armed violence in the pursuit of incompatible and particular interests and goals. As rightly pointed out by Francis (2011, p.20), the worst forms of armed conflict include mass murder and genocide against unarmed civilians.

Herdsman: Herdsman (singular: herdsman) are men who herd, tend, or manage livestock (Dictionary of the English Language, 2016). In Nigeria and indeed, West Africa, the Fulani ethnic group has the largest number of herdsman. *Fulani* is a *Hausa* word for the *Fula* people, who are traditionally believed to have roots stemming from North Africa and the Middle East, who later intermingled with the local West African ethnic groups. These Fulani herdsman or Fulani pastoralists are nomadic or semi-nomadic herders whose primary occupation is raising livestock (Iro, 1994). According to Levinson (1996), Appiah & Gates (2010), a significant proportion of the Fula – a third, or an estimated 7 to 8 million are pastoralists, making them the ethnic group with the largest nomadic pastoral community in the world. In Nigeria, there are 7,611,000 Fulani people. However, the total number of Fulani in all countries where they inhabit is approximately 30 million (Danver, 2015; Kays, 2011, Crowe, 2010). According to Iro (1994), the pure Fulani herdsman engage in random movement of cattle while the semi-nomadic make transhumance migration and return to their camps or homes.

Farmer: The word is derived from Farm and a farm is an area of land that is devoted primarily to agricultural processes with the primary objective of producing food and other crops. It is the basic facility in food production (Gregor, 1969; Adams, 1988). The name ‘farm’ may be used for specialized units such as arable farms, vegetable farms, fruit farms, dairy, pig and poultry farms, and land used for the production of natural fibres, biofuel and other commodities. It includes feedlots, orchards, and plantations. In today’s modern world, the term has been extended to include such industrial operations as wind farms and fish farms, which may operate on land or sea (Adams, 1988). According to Winterbottom & Jadhav (2011), ‘a farm may be owned and operated by a single individual, family, community, corporation or a company, may produce one or many types of produce and can be a holding of any size from a fraction of a hectare to several thousand hectares’. A **farmer** therefore, is a person engaged in agriculture, raising of living organisms for food or raw materials. As used in the context of this work, a farmer or more specifically, farmers in the Middle Belt of Nigeria are purely involved in crop farming.

Middle Belt of Nigeria: The Middle Belt of Nigeria is an area located at the central point of Nigeria, stretching across the country longitudinally, characterized with guinea savannah and marked by crystalline rock outcroppings and gently rolling hills. The two major rivers of Nigeria, the River Benue and Niger meet at a confluence in Lokoja - also in the Middle Belt. The Middle Belt of Nigeria comprises of six States, namely: Benue, Kogi, Kwara, Nasarawa, Niger, Plateau and the Federal Capital Territory (FCT), where Nigeria’s capital city, Abuja, is located. The area has the highest number of ethnic groups in Nigeria, populated mainly by minority ethnic groups, including Tiv, Birom, Langtang, Idoma, Igala, Ngas, Okun, Nupe, Eggon, Alago, Gwandara, Mada, Bassa, Igede, Ebira, Gbagi and various others (Federal Government of Nigeria, 2010). Middle Belt of Nigeria has a population of 40 million people and comprises of 75% Christians and 25% Muslims (Harnischfeger, 2008; Higazi, 2011). Over 70% of people in the Middle Belt are farmers. Tuber crops such as yam, cassava, cocoyam, potatoes, and cereals such as millet and maize, economic trees such as obeche and mahogany, fruits such as citrus, mango and guava, vegetables such as carrots, cabbage, lettuce, tomatoes and so on are produced in abundance, making the zone the agricultural power house of the nation (Federal Republic of Nigeria, 2010).

1.0 Statement of the Problem

In the last ten years, there has been an increasing trend of conflicts between the pastoral nomadic Fulani and their host farming communities in the Middle Belt of Nigeria (Martin, 2016). These intermittent skirmishes between the sedentary farmers and the pastoral nomadic Fulani usually were as a result of cattle straying into farmlands to destroy crops. However, these conflicts took a dangerous dimension in recent years. For example, in February 2013, Fulani killer-herdsmen allegedly murdered 186 people in Agatu Local Government Area (LGA) of Benue State burning several villages. On February 20-21, 2014, Fulani killer-herdsmen attacked Gwer West LGA, killed 35 people, and displaced over 80,000 persons. On March 15th, 2015, Egba village in Agatu LGA was sacked by Fulani killer-herdsmen who killed over 90 people. On March 5, 2016, about 500 persons were killed by Fulani killer-herdsmen in Agatu LGA. On May 8, 2017, not less than 50 people were killed in Tse – Akaa village of Logo Local Government of Benue State (Akanle,

2018). On 1st January, 2018, 73 people were murdered and their homes burnt by Fulani killer-herdsmen across Guma, Makurdi, and Logo LGAs of Benue State. These killings involved not only men but vulnerable groups like women and children (Umar, 2018). In communities such as Kaure, Kusasun, Mwaighu, Sabon Gida, Kwaki, Ajata, Kushaka, Bagna, Bassa/Kukoki, Allawa in Shiroro and Rafi LGAs of Niger State, Fulani killer-herdsmen were reported to have rustled livestock including cows, abducted women, raped girls, and burnt houses and other properties.

Also, these herdsmen murdered over 400 people in the East Senatorial district of the State in 2016 alone (Abang, 2017). Furthermore, Sabondaga, a small village of 20,000 people of predominantly farmers, in Niger State, was invaded at 11am on 10th January, 2017 by Fulani killer-herdsmen, who moved from one yam barn to another burning yams worth 500 million naira (Abang, 2017). On March 14, 2018, 32 people in Oganienugwu and Ikende communities in Dekina LGA and Abejukolo in Omala LGA of Kogi State were gruesomely murdered by Fulani killer-herdsmen (Olaniyi, Opara&Akubo, 2018). On 16th April, 2018, 80 persons were killed with AK 47 rifles by Fulani killer-herdsmen in Awe and Keana LGAs of Nasarawa State. This also led to the loss of 3 police personnel on peacekeeping mission (Adinoyi&Ukumba, 2018). On 24th April, 2018, Fulani killer-herdsmen stormed St. Ignatius Catholic Church, Ukpok-Mbalom Parish, Gwer LGA of Benue State, killing 2 catholic priests and 17 parishioners. The deceased were in the church to attend the 5:30am mass and a burial ceremony (Eyoboka, Abdullah, Agbakwuru&Duru, 2018). On Sunday 24th June, 2018, 86 people were killed by Fulani killer-herdsmen in attacks on Berom farmers in Plateau State, triggering displacement in BarkinLadi, Riyom, Jos-South, Bokkos and Mangu LGAs, while 6 people were injured and 50 houses were burnt (Busari, 2018).

The violent conflicts perpetrated by the Fulani killer-herdsmen in the Middle Belt of Nigeria have led to the establishment of so many Internally Displaced Persons (IDPs) Camps across the region. In Benue State alone, there are 8 IDP Camps with a total population of 190,000 people (Agbakwuru, 2018; Ameh, 2018). As of 9th July, 2018, 38,000 displaced people were in 31 IDP camps in Plateau State. These camps are not spacious enough consequently many people sleep outside and under trees, the toilet facilities remain a challenge, primary health care facilities are lacking and incidents of disease outbreaks like meningitis, cholera, and malaria are rife. Food is hardly enough even as over 60% of people in these camps are children and women (Duru, 2018). The situation in these camps is akin to the days of slavery, when people in various communities were denied their means of livelihood, freedom to live as free citizens, engage in their social, economic and political activities.

Interestingly, the violent attacks attributed to Fulani killer-herdsmen against farmers in the Middle Belt of Nigeria, no matter how alarming, do not just occur spontaneously. Indeed, these attacks have been largely induced. It is therefore perplexing that rather than investigate what has induced the conflicts, scholars tend to focus more attention on the perpetuation of these violent attacks – the tactics, the weapons used, the action or inaction of the security apparatus of the nation, the action, inaction or indifference of the government at all levels (Federal, State, and Local), the failure of the judiciary to decisively arrest the attacks, the humanitarian crises caused, and the consequences. This study proposes to fill these gaps by analyzing and emphasizing how

the conflicts between herders and farmers in the Middle Belt of Nigeria are largely induced by climate change in the northern part of Nigeria.

Methodology

The observation method was relied on for the purpose of data collection. Observation is not only one of the most pervasive activities of daily life, it is a primary tool of scientific inquiry (Selltitz et al, 1951). Scientifically, observation can be defined as a purposefully planned and systematically executed act of waiting or looking at the occurrence of events, activities and behaviour which constitute the subject or focus of research/study (Obasi, 1999). Observation, as a method of data collection is flexible, sometimes involving observation of interaction; examining organization records, life histories, or other behavioural foot prints (Leege and Francis, 1974). The importance of observation method to this research work cannot be overemphasized: it is through observation that accurate descriptions and explanations of the variables under study can be achieved. Furthermore, the data generated through observation is used to validate or disprove our theory. Moreover, the resolve to make use of observation as the method of data collection removes the problem of personal bias associated most times with self-report techniques as observation makes it possible to document events on the subject matter as they actually occur. For the purpose of analyzing secondary data, the qualitative descriptive method of data analysis was adopted. According to Asika (1999), qualitative descriptive analysis is used to verbally summarize the information gathered in research.

Thus, the use of this method of analysis is informed by the simplicity with which it summarizes, exposes and interprets relationships in a given data by giving a qualitative description or explanation to a statistical information. This does not however, vitiate the fact that, content analysis method will be applied where necessary.

2.0 Theoretical Framework

A theoretical framework is required to give this study the necessary insight. The Eco-Survivalism and the Frustration-Aggression theories were adopted by the researcher in this regard.

Eco-Survivalism theory derived its epistemological roots from philosophical existentialism, eco-violence/eco-scarcity perspective of environmental security and the political ecology theory (Okoli&Ayokhai, 2015). From the lenses of Eco-Survivalism, the Fulani pastoral-nomadic herdsman is estranged in an ecologically and structurally hostile and indifferent environment, in which he has to struggle for the survival of his cattle, culture, and life. He sees this struggle as an existential imperative and therefore strives to take his destiny into his own hands, even if it means going extremely violent in a desperate attempt to defend or redeem what he considers to be his endangered livelihood (Okoli, 2015). As rightly put by Okoli&Atelhe (2014, p.80): *The manifest militant posture of the Fulani pastoralists must be understood with reference to their*

worldviews vis-a-vis their mode of subsistence and collective survival, that is, pastoralism. For the average Fulani herdsman, pastoralism is a way of living, which is reckoned with as a mark of common heritage. In effect, any threat to his herd amounts to a threat, not only to his survival but also to his common destiny.

It should be noted that before the climate change in Northern Nigeria took a dangerous dimension, the Fulani herdsmen coexisted peacefully with their seasonal host Middle Belt farming communities. However, the climate change in the North and its accompanying negative effects, such as desertification, shrinking of Lake Chad Basin, drying up of water sources, reduction in annual rainfall, deforestation, wind storms, unavailability of forage, and so on, has constrained the herders to become permanent rather than seasonal grazers in the Middle Belt. This has led to a bitter and deadly struggle for survival between herdsmen and their hosts. The Middle Belt farmers see this as a practice that is unacceptable largely due to population explosion and shortage of land for farming. The Fulani herder on the other hand sees this as threat to his survival and is therefore, willing to attack his Middle Belt host violently, even if it means killing the farmer, destroying all he has, and occupying his land to survive.

The Frustration-Aggression theory on the other hand, which is similar to eco-survivalism is associated with Dolard et al (1939). This theory asserts that human beings have life goals and aspirations, and when they are prevented from achieving these goals and aspirations, they become frustrated. This frustration can further lead to aggression against themselves (suicide) or against others. In the case of Fulani herdsmen, the aforementioned factors associated with climate change in Northern Nigeria have combined to present a frustrating challenge to them over the years. These herdsmen therefore, decided to occupy the Middle Belt of Nigeria permanently to guarantee grazing. The herdsmen considered that the Middle Belt has rich water sources, including Rivers Benue and Niger as well as their tributaries, rich grass for the cattle, and friendly environment. However, the Middle Belt crop farmers found that the permanent occupation of their arable land by the herdsmen for grazing will negatively affect crop farming and their livelihood as open grazing and crop farming are incompatible. These crop farmers are worried as the cattle are in millions and there have been daily reported cases of cattle eating crops on farms. In addition to these, other factors such as population explosion, infrastructural development, establishment of markets, construction of network of roads and reduction of land size for crop farming in the Middle Belt of Nigeria made it impossible for farmers to welcome herdsmen, who decided to stay permanently and practice open grazing. The farmers therefore, resisted the forceful occupation of their lands by the herdsmen for open grazing. This resistance further frustrated the Fulani herdsmen. Their inability to resolve the problem to enable them graze their cattle freely has given rise to the present aggression against people and communities, farmlands, crops, and stored grains and tubers (Akanle, 2018) in the Middle Belt of Nigeria.

3.0 An Analysis of How Climate Change Induced the Conflict between Herdsmen and Farmers in the Middle Belt of Nigeria

The researcher is of the view that the negative effects of climate change in Northern Nigeria have greatly induced this conflict. They include the following;

- i. **Desertification:** Desertification is derived from the word ‘Desert’ and a **Desert** is a desolate stretch of barren or arid land mass of great spread, with little or no vegetative cover, mainly covered in sand, gravels or pebbles or a mixture of these, with practically no form of surface water, having minimal or no significant annual rainfall (Leha, 2016). Therefore, Omofonmwan&Osa-Edoh (2008) rightly defined **desertification** as the encroachment of the desert on land that was once fertile. Desertification has been a challenge in Northern Nigeria for a very long time. Indeed, Okeke (2014) reported that *in 1994, the United Nations General Assembly declared June 17 the ‘World Day to Combat Desertification and Drought’ to promote public awareness of the issue, and the implementation of the United Nations Convention to Combat Desertification in those countries experiencing serious drought and/or desertification, particularly in Africa.* Long before this declaration, 11 northern states of Nigeria, namely, Zamfara, Sokoto, Kebbi, Jigawa, Yobe, Borno, Bauchi, Kano, Gombe, Katsina, and Adamawa were already suffering the impact of climate change as these states were being and are still ravaged by desertification (Okeke, 2014). Jaiyeoba (2002) also reported that desertification was evident in Northern Nigeria, and about 20% of Nigeria’s land had been encroached by the desert despite the problem was first reported in the 1920s. These views are corroborated by Odiogor (2010) who noted that 350, 000 hectares of land are lost every year to desert encroachment and this has led to demographic displacements in villages across 11 states in Northern Nigeria. To buttress this point, Medugu (2011) noted that arid and semi-arid areas in Northern Nigeria are becoming drier and climate uncertainty is growing at alarming rate and has become a threat to food security and as a precursor for deadly conflicts. Indeed, Lakpini (2018) posited that 50 and 75% of the land mass of Kano, Jigawa, Kebbi, Katsina, Sokoto, Zamfara, Adamawa, Bauchi, Borno, Gombe and Yobe have been encroached by desert. While desertification as a threat to human existence is a product of both natural and human mismanagement of natural resources, especially, land, the inaction, inefficient, and ineffectiveness of successive governments in the desert prone states in Northern Nigeria led to the diminishing of productive land and other natural resources (Omofonmwan&Osa-Edoh, 2008). The devastating effects of desertification include; destruction of fertility of the land to support crops and livestock production, drying up of rivers and other water sources, increase in temperature, decrease in rainfall, and destruction of vegetation (Odjugo, 2010; Mikailu, 2016; Ogbeide, 2017). Consequently, the Fulani herdsmen from these arid states are compelled to migrate to the Middle Belt of Nigeria where Rivers Benue and Niger, their tributaries, smaller rivers, and streams ensure availability of water all year round. These many sources of water guarantee perennial fertile soil to provide food for the cattle. The rainfall in the Middle Belt is also longer than in the 11 northern states as it lasts for seven months of the year (April to October), unlike in the 11 northern states that experience rainfall for only three months and below (Askira& Sabo, 2012; Okeke, 2014; Mikailu, 2016). Askira& Sabo (2012) posited that though the Federal Government from time to time disburses billions of Naira to states for ecological purposes, most times the money is either diverted or mis-appropriated. These scholars cited Kano as an example where there are a total of six major dams, including Tiga and Challawa, and sixteen smaller ones but the state has been unable to feed itself or eliminate cases of desert threats. Askira& Sabo (2012)

added that *before the discovery of oil, maximum attention was given to agriculture but since the discovery of oil, what northern governors do is to wait for allocation from Abuja to run their states and they have abandoned agriculture including projects that check desert encroachment.*

Today, massive migration of herdsmen from the 11 frontline desert states in the north to the Middle Belt of Nigeria induced by effects of climate change has resulted in conflicts (Okeke, 2012). This conflict between herdsmen and farmers in the Middle Belt of Nigeria borders on land for grazing and land for farming. The sedentary Middle Belt farmers value their land so much as social and economic life depends on land. These farmers farm on land to feed themselves, their families, and also meet other needs and obligations such as sending children to school, building of homes, construction of community infrastructures and payment of taxes by selling crops raised on this land. So to them, land is everything and a symbol of identity. As succinctly put by Odiogor (2010), *land is a symbol of identity in most African countries, a means of cultural affiliation, social and economic survival. This means that people tend to go into extinction when they are deprived of this resource.* The farmers in the Middle Belt are therefore naturally unwilling to permanently sacrifice their land to the herdsmen to freely graze on since the land is scarce due to population explosion, infrastructural development and so on. On the other hand, the herdsmen from the 11 frontier desert states are frustrated at the inability of their Middle Belt farmer hosts to comprehend their own predicament and willingly allow open grazing of cattle on their farm land (Akanle, 2018). This makes the herdsmen to react violently as the herders see this as threat to their survival. Furthermore, *the 1978 Land Use Act placed nomadic Fulani herders in a difficult position, whilst giving communities legal ownership status over their ancestral lands, most grazing communities failed to meet such applications* (Orji, 2018, p.7).

- ii. **Shrinking of Lake Chad Basin:** The Lake Chad Basin bestrides four countries, namely, Nigeria, Cameroon, Chad, and Niger Republic. Beyioku (2016) informs us that the Lake Chad Basin originally occupied a land space of 40,000 square kilometers. Due to its shrinking, it occupied 25,000 square kilometers some 50 years ago (Osinbajo, 2018). However, Lake Chad has lost 95 percent of its water (Odjugo, 2010) and only covers about 1,300 square kilometers today (Beyioku, 2016). With the drying up of the Lake Chad, the livelihoods of 40 million people have been put at risk. Furthermore, there is the big threat that the Lake Chad could turn into pure desert as research has thrown up fossilized evidences that in prehistoric times, most of the deserts today, the Sahara Desert inclusive, used to be vast seas (Vanguard Editorial, 2018). The ecological disaster that ensued as a result of the shrinking of Lake Chad has displaced millions of people off large swathes of fertile agricultural lands. The Fulani herdsmen were equally displaced from the area. Due to availability of water and fertility of the land, many Fulani herdsmen from Nigeria, Cameroon, Chad, and Niger Republic, were permanently grazing their cattle around the Lake Chad Basin. However, with the shrinking of the Lake, a critical mass of Fulani herdsmen had to migrate to the more fertile and greener Middle Belt of Nigeria (Beyioku, 2016). This massive migration of herdsmen with their cattle to the Middle Belt of Nigeria

has intensified the violent conflicts between the herdsmen and their sedentary farmer hosts. The farmers consider the aggressive occupation of the land for permanent open grazing as overwhelming, *moreso*, as there are 19.7 million cattle in Nigeria and over 90% of these are reared by the Fulani herdsmen (Lakpini, 2018). These herdsmen, according to Lakpini (2018), *have no land of their own dedicated to grazing. They trespass and encroach into other people's land feeding on any available biomass including cultivated crops*. Experts have posited that there is no way of tackling the challenges climate change in Northern Nigeria has thrown up without comprehensively addressing and reversing the extinction of the Lake Chad (Vanguard Editorial, 2018).

- iii. **Drying up of Water Sources:** Nigeria's vegetation types range from mangrove forest/high forest in the South (South-South, South-West, and South-East) to the Savannah Woodland/Grassland in the Middle Belt, to the desert in the North (Adeyinka, Bankole & Olaoye, 2005). Interestingly, precipitation in Nigeria varies too. Idowu (2018), disclosed that precipitation in the Coastline and South-Eastern Nigeria records 430cm, the South-West records 180cm, the Middle Belt records 130cm while the North (East and West) is the driest zone and records only about 50cm. Thus, the low precipitation in Northern Nigeria leads to water shortage. It is therefore, very common to see vast areas which were once wetlands in Northern Nigeria becoming dry land. Dams, rivers and streams are not excluded from drying up due to low precipitation and other human activities such as overgrazing and poor agricultural practices, consistent felling of trees without planting new trees and so on. Consequently, fertile land becomes barren desert, and unable to support both crop and livestock production (Nugent, 2018). This drying up of water sources in Northern Nigeria is a push factor as Fulani herdsmen move southwards to find land to permanently graze livestock, causing friction with farmers settled in the Middle Belt states of Nigeria (Nugent, 2018).
- iv. **Reduction in Annual Rainfall:** The monsoon wind which originates from the Atlantic South Atlantic ocean brings into Nigeria's air mass, a warm moist sea to land seasonal wind. The warmth and high humidity it gives makes it ascend and ultimately produces copious rainfall – which occurs due to condensation of water vapour in rapidly rising air. The Southern part of Nigeria therefore experiences heavy and abundant rainfall. In the Coastal areas, the rain falls all year round. The annual rainfall in South-South and South-West Nigeria is over 4,000mm (157.5 in). South-East Nigeria has annual rainfall of between 2,000mm and 3,000mm (118.1 in). In the Middle Belt of Nigeria, the tropical savanna climate presents a well-marked rainy season and a dry season. Therefore, the annual rainfall in the Middle Belt is between 1,500mm (59.1 in) to 2,000mm (78.7 in). In this area, it rains from April to October (Adedoyin, 1989; Geographical Alliance of Iowa, 2010). In contrast, the sahel climate or tropical dry climate, is the predominant climate type in the northern part of Nigeria. Annual rainfall totals are lower compared to the southern and central part of Nigeria. The rainy season in Northern Nigeria, especially, the 11 frontline desert states, lasts for only three months (June – August) and in rare cases, four months (June – September). The rest of the year is hot and dry. Temperatures climb as high

as 40°C (104.0°F) and 45°C (113.0°F) consistently (Adedoyin, 1989; and Geographical Alliance of Iowa, 2010). Thus, insufficient rainfall and high temperatures in Northern Nigeria make it impossible for availability of adequate pasture and water for the consumption of cattle. Furthermore, pastures are grazed to the extent of not being able to regenerate properly. The soil too gets compacted and exposed to vagaries of weather (Dosu, 2011). Consequently, the migrant Fulani herdsmen and the host communities they migrate to in the Middle Belt of Nigeria have to compete for land that is already scarce and cannot adequately cater for both crops and grazing. This degenerates into conflicts (Ubelejit, 2016).

- v. **Deforestation:** Butler (2014) defined deforestation as a process where vegetation is cut down without any simultaneous replanting for economic or social reasons. As far back as 2005, Nigeria had the highest rate of deforestation in the world, according to the Food and Agriculture Organization of the United Nations – FAO (Butler, 2005). Between 2000 and 2005, Nigeria lost 55.7% of her primary forests – which is forests with no visible signs of past or present human activities. Logging, overgrazing, and collection of fuel wood are cited as leading causes of deforestation in Nigeria. In 2005, 12.2%, the equivalent of 11,089,000 hectares (27,400,000 acres) had been forested in Nigeria. Between 1990 and 2000, Nigeria lost an average of 409,700 hectares of forest every year, which was estimated to be an average annual deforestation rate of 2.38%. Furthermore, between 1990 and 2005, Nigeria lost 35.7% of its forest cover, or around 6,145,000 hectares (Federal Republic of Nigeria, 2005). Odjugo (2010), also posited that from 1990 to 2010, Nigeria nearly halved its amount of forest cover, moving from 17,234 to 9041 hectares. Eleven northern states, namely, Sokoto, Kebbi, Jigawa, Kano, Katsina, Bauchi, Gombe, Adamawa, Borno, Yobe and Zamfara are the most affected states in deforestation. The excessive exploitation of forests exposes the dry sandy soil of these arid areas to strong winds during dry season (Askira&Sabo, 2012). Consequently, this high deforestation rates, especially, in the northern part of Nigeria, increased temperatures, decreased rainfall, and contributed to desertification. The situation is getting worse by day (Lakpini, 2018; Askira& Sabo, 2012). These factors made it imperative for mass migration of herdsmen and cattle to the Middle Belt of Nigeria, which has better forest cover. As the resultant migration has intensified, so too have violent clashes over grazing lands between local crop farmers and herdsmen, whom the former accuse of wanton destruction of their crops and forceful appropriation of their lands (Odjugo, 2010; Idowu, 2018). According to Udeh (2018), the farmers have been crying out: *Our farms are under attack and our children and women are left vulnerable to the violence of the Fulani herdsmen, who would rather kill humans than risk losing their cattle to hunger.*
- vi. **Drought:** According to Eireann (2018, p.1), a drought is a period of below average precipitation in a given region, resulting in prolonged shortages in the water supply, whether atmospheric, surface water or ground water. Drought can have substantial impact on the ecosystem and agriculture of the affected region (Australian Government Bureau of Meteorology, 2018) and harm to the local economy (McGuirk, 2007). Drought brings heat and heat has significantly compounded the climatic conditions in Northern Nigeria by hastening evaporation of water. Furthermore, it has lowered water surface and subterranean

water levels, lowered flow levels, reduced water quality and increased pollution of surface water, caused drying out of wetlands, loss of biodiversity, worsened health of trees, caused lack of pasture for cattle, promoted appearance of pests and dendroid diseases, caused bad health of people directly exposed to excessive heat waves, diminished crop growth, yield, and carrying capacity of livestock, promoted dust bowls (erosion of landscape), dust storms, caused malnutrition, dehydration and related diseases (Mosley, 2014; Mosley et al, 2012; Hogan, 2010; Mosley et al, 2014). Consequently, there has been massive migration of herdsmen to the Middle Belt of Nigeria and quest by these herdsmen to avail themselves of adequate land and water for permanent grazing. This has triggered conflict between the sedentary farmers and the migrating herdsmen.

- vii. **Wind Storms:** A storm is any disturbed state of an environment or in an astronomical body's atmosphere, especially, affecting its surface, and strongly implying severe weather (Harley, 2017; Rincon, 2010). A **wind storm** is a storm marked by high wind with little or no precipitation. In the 11 frontline desert northern states of Nigeria, strong winds are known to affect visibility, damage crops, destroy buildings, bridges, and so on, turning loose debris into deadly weapons that affect human beings, crops, and cattle. Wind storms in Northern Nigeria are a strong contributory factor to the migration of Fulani herdsmen to the Middle Belt of Nigeria, where, violent conflicts have been occurring between herdsmen and the local farmers as a result of conflicting interests on the scarce land available for crop farming and grazing.

4.0 Conclusion and Recommendations

The study has succeeded in giving an account of how empirical evidence has shown that the conflict between herdsmen and farmers in the Middle Belt of Nigeria is largely induced by climate change in the northern part of Nigeria. From the foregoing, it may be surmised that the herdsmen are compelled to encroach on crop farm land for permanent open grazing since climate change in Northern Nigeria has made it increasingly impossible to successfully graze there. Any opposition to this position from the host farmers is seen as a threat to the survival of the herdsmen and the herdsmen's occupation. These herdsmen therefore, employ violence to forcefully occupy lands belonging to the farmers for grazing.

The farmer on the hand views open grazing as incompatible with crop farming. His farm land is considered not only as a symbol of identity and his ancestral inheritance but also as the means of his survival. He is therefore, not willing to allow open grazing as that will deprive him of access to crop farming and ultimately his livelihood.

The study has sustained the thesis that a more comprehensive explanation to the conflict between herders and farmers in the Middle Belt of Nigeria lies in eco-survivalism and frustration-aggression theories.

It is therefore recommended that the Federal Government of Nigeria should:

- i. Demonstrate the will and commitment to tackle this conflict and urgently stop the killings of Nigerians in the Middle Belt and other parts of Nigeria by Fulani herdsmen;
- ii. Encourage, promote and sustain modern methods of livestock production in the 21st century, such as ranching, as population explosion, urban development, and shortage of land has made it impossible to practice open grazing; and

- iii. Protect the environment against and mitigate the effects of climate change, especially in the 11 frontline northern states that have been most affected by climate change. Reforestation, canalization and dredging of rivers, building/maintenance of dams and practice of drought resistant agriculture should be implemented in the 11 states.

References

- Abang, M. (2017, January 30). The untold stories of the killings of farmers in Niger State. Retrieved 16 July, 2018, from <http://www.bellanaija.com/2017/01/mercy-abang>.
- Adams, J.H. (1988). The decoupling of farm and household: Differential consequences of capitalist development on southern Illinois and Third World family farms. *Comparative Studies in society and History*, 30 (3), 453 – 482. Doi: 10.1017/S0010417500015334.
- Adedoyin, J.A. (1989). Initiation of West African squall lines. *Meteorology and Atmospheric Physics*, 41, 99-103. Doi:10.1007/BF01043455.
- Adeyinka, M.A, Bankole, P.O. & Olaoye, S. (2005). Environmental statistics: Situation in Federal Republic of Nigeria. Country Report presented at the Workshop on Environment Statistics, held in Dakar, Senegal, 28 February – 4 March.
- Adinoyi, S. & Ukumba, E. (2018, April 19). 17 victims of suspected herdsmen killings get mass burial in Nasarawa. ThisDay, p.6.
- Akanle, T.W. (2018). Conflict resolution mechanism to address the menace of farmers-herders conflict in Nigeria. A lecture delivered at the National Stakeholders Dialogue on Herders – Farmers Conflict organized by the Alumni Association of The National Institute in collaboration with the Presidential Committee on Proliferation of Small and Light Weapons, held at the National Universities Commission, Abuja, 18-19 April.
- Akpuru –Aja, A. (2007). *Basic concepts, issues and strategies of peace and conflict resolution: Nigerian-African conflict case studies*. Enugu: Keny and Brothers Ent. (Nig).
- Ameh, J. (2018, April 6). 24 killed in fresh herdsmen attacks on Benue communities – Reps caucus. The Punch, p.9.
- American Heritage (2016). *Dictionary of the English Language* (5th ed.). New York: Houghton Mifflin Harcourt Publishing Company.
- Asika, N. (1999). *Research methodology in the behavioural sciences*. Lagos: Longman Nigeria Plc.
- Askira, A. & Sabo, H. (2012, October 24). Desert encroachment killing North. *The Nation*, p.2.
- Australian Government Bureau of Meteorology (2018). *Living with drought*. Melbourne: National Climate Centre.
- Beyioku, J. (2016). *Climate change in Nigeria: A brief review of causes, effects, and solution*. Abuja: Federal Ministry of Information and Culture.

- Busari, S. (2018, June 25). Nigeria: Scores killed, homes burned in Plateau State attacks. CNN.
- Butler, R.A. (2005). Nigeria has the worst deforestation rate, FAO revises figures. Retrieved 14 September, 2018 from <http://news.mongabay.com/2005/11/nigeria>
- Butler, R. (2014). Environmental issues in Nigeria. Retrieved 14 September, 2018. <https://rainforests.mongabay.com/20nigeria.htm>
- Crowe, F. (2010). *Modern Muslim societies*. London: Marshall Cavendish.
- Danver, S. L. (2015). *Native peoples of the world: An encyclopedia of groups, cultures and contemporary issues*. London: Routledge.
- Dolard, J., Miller, N. E., Doob, L.W. & Mowver, O. (1939). *Frustration – Aggression*. New Haven, C.T.: Yale University Press.
- Dosu, A. (2011). Fulani – farmer conflict and climate change in Ghana: Migrant Fulani herdsmen clashing with Ghanaian farmers in struggle for diminishing land and water resources. Retrieved 16 September, 2018 from <http://www.1.american.edu/ted/ICE/Fulani.htm/>
- Duru, P. (2018, January 21). This is another hell: 102-year-old survivor of Benue killings, others sleep in the open, in chilly harmattan in IDP Camps. Sunday Vanguard, p.32.
- Editorial (2018, March 2). Lake Chad must be saved. *Vanguard*, p.2.
- Eireann, M. (2013, July 18). It's a scorcher – and Ireland is officially 'in drought'. *Irish News*.
- Eyoboka, S., Abdullah, W. Agbakwuru, J. & Duru, P. (2018, April 25). Fresh bloodbath in Benue, 2 Catholic priests, 17 others killed by herdsmen. Vanguard, p.1.
- Federal Republic of Nigeria (2010). *Nigeria at 50: A compendium*. Abuja: 1st October Publishing.
- Federal Republic of Nigeria (2005). Nigeria forest information and data. Retrieved 15 April, 2018, from rainforests.mongabay.com
- Francis, D.J. (2011). Peace and conflict studies: An African overview of basic concepts. In Best, S.G. (Ed.) *Introduction to peace and conflict studies in West Africa: A reader*. Abuja: National Universities Commission and University for Peace.
- Folarin, B. (2005). Theoretical perspectives on the management of issues, conflicts and crises in Nigeria. In Yakubu, A.M, Adegboye, R.T., Ubah, C.N., and Dogo, B. (Eds.) *Crisis and Conflict management in Nigeria since 1980: Governance and conflict management* (Vol. II). Kaduna: Nigerian Defence Academy.
- Gregor, H.F. (1969). Farm structure in regional comparison: California and New Jersey vegetable farms. *Economic Geography*, 45 (3), 209 – 225.

- Geographical Alliance of Iowa (2010). *The human and physical characteristics of Nigeria*. Iowa: University of Northern Iowa.
- Harley, M. (2017). Coastal storm definition. In Ciavola, P., Coco, G., (Ed.) *Coastal storms: Processes and Impacts*. London: John Wiley & Sons.
- Harnischfeger, J. (2008). *Democratization and Islamic law: The Shariah conflict in Nigeria*. Frankfurt: Campus Verlag.
- Higazi, A. (2011). The Jos crisis: A recurrent Nigerian tragedy. *Frankfurt: Fredrich-Ebert-Stiftung*, 2, 3 – 6.
- Hogan, M.O. (2006). *Academic's dictionary of sociology* (1st ed.). New Delhi: Academic Publishers.
- Hogan, C.M. (2010). Abiotic factor. In Monosson, E. (Ed.) *Encyclopedia of Earth*. Washington DC: National Council for Science and Environment.
- Idowu, O. (2018). *How climate change influences herdsmen in Nigeria: Climate score card*. Abuja: Federal Ministry of Environment.
- Iro, I. (1994). From nomadism to sedentarism: An analysis of development constraints and public policy issues in the socioeconomic transformation of the pastoral Fulani of Nigeria. A thesis, Howard University.
- Jaiyeoba, I.A. (2002). *Environment in Africa atlas: Nigeria*. Paris: J.A. Paris.
- Kays, S. J. (2011). *Cultivated vegetables of the world: A multilingual onomasticon*. New York.
- Lakpini, C.A.M. (2018). Addressing the root causes of farmers/herders conflicts in Nigeria: Policy options and strategies. Paper presented at the National Stakeholders Dialogue on Herders-Farmers Conflict organized by the Alumni Association of the National Institute in collaboration with the Presidential Committee on Proliferation of Small and Light Weapons, held at the National Universities Commission Abuja, 18 – 19 April.
- Leha, N.M. (2006). Desert encroachment: Sub-saharan Nigeria safe? Retrieved 18 September, 2018 from <http://www.slideshare.net/guesta61391ce/desert-encroachment>
- Lanshima, C.A. (2018). Conflicts, IDPs and slavery in the 21st century: The menace of Fulani killer-herdsmen in the Middle Belt of Nigeria. Paper presented at the 2018 Pan-African Anthropologic Association (PAAA) Conference held at the University of Calabar, Nigeria, 15 – 17 August.
- Leege, D. C. & Francis, W. L. (1974). *Political research: Design, measurement and analysis*. New York: Basic Books Inc Publishers.
- Levinson, D. (1996). Fulani. *Encyclopedia of world cultures: Africa and the Middle East* (Vol. 9). London: Gale Group.
- Martin, P. (2016, August 10). Nigeria's deadly battle for land: Herdsmen versus farmers. BCC News.

- McGuirk, R. (2007). *Australian drought and climate change: Aussies to drink purified sewage*. Canberra: National Climate Centre.
- McNew, D., Wingard, M., & Braithwaite, P. (2018). *What is climate change? The definition, causes and effects*. London: Wired.
- Medugu, N. I. (2011). The effects of climate change in Nigeria. Retrieved 16 September, 2018 from <http://environmentalsynergy.wordpress.com/2011/04/18/the-effect-of-climate-change-in-nigeria/>
- Mikailu, N. (2016). Making sense of Nigeria's Fulani-farmer conflict. Retrieved 16 September, 2018 from <http://www.bbc.com/news/world-africa-36139388>
- Mosley, L.M. (2014). Drought impacts on the water quality of freshwater systems: review and integration. *Earth Science Reviews*. Doi:10.1016/j.earscirev.2014.11.010
- Mosley, L.M., Zammit, B., Leyden, E. Heneker, T. M., Hipsey, M.R., Skinner, D. & Aldridge, K.T. (2012). The impact of extreme lowflows on the water quality of the lower Murray River and Lakes (South Australia). *Water Resources Management*, 26, 3923 – 3946.
- Mosley, L.M, Zammit, B., Jolly, A. & Barnett, L. (2014). Acidification of Lake water due to drought. *Journal of Hydrology*, 511, 484 – 493.
- NASA (2018). *What is in a name? Weather, global warming and climate*. California: California Institute of Technology.
- Ndukwe, P. I. (1996). *Fulani*. Lagos: The Rosen Publishing Group.
- Nugent, C. (2018). Land conflict has long been a problem in Nigeria. Here is how climate change is making it worse. Retrieved 14th September, 2018 from time.com/5324712/climate-change-nigeria/
- Obasi, I. N. (1999). *Research methodology in political science*. Enugu: Academic Printing Press.
- Odjugo, P.A.O. (2010). General overview of climate change impacts in Nigeria. *Journal of Human Ecology*, 29 (1), 47 – 55.
- Odiogor, H. (2010, May 3). Nigeria: Special report on desertification – the sun eats our land. *Vanguard*, p.8.
- Ogbeide, O. A. (2017). Fulani herdsmen and communal clashes in Nigeria: Issues and solutions. *Mayfair Journal of Agribusiness Management*, 1 (2), 50 – 61.
- Okeke, C.C. (2014, June 18). World day to combat desertification: Rising to the challenge of desertification in the North. *The Daily Trust*, p.6.
- Okoli, A. C. & Ayokhai, F.E.F. (2015). Insecurity and identity conflicts: A study of Fulani militancy in North Central geopolitical zone of Nigeria in the fourth republic. *Studies in politics and society*, 3 (1).
- Okoli, A. C. (2015). Pastoral transhumance and dynamics of social conflict in Nasarawa State, North Central Nigeria. Draft research paper prepared for Centre for Democracy and Development, Abuja, Nigeria.

- Okoli, A. C. &Atelhe, G.A. (2014). Nomads against natives: A political ecology of Nasarawa State, Nigeria. *American International Journal of Contemporary Research*, 4 (2).
- Olaniyi, S., Opara, G. &Akubo, J. (2018, March 16). Fulani herdsmen kill 32 in Kogi State attack. *The Guardian*, p.2.
- Omofofomwan, S.I. &Osa-Edoh, E.I. (2008). The challenges of environmental problems in Nigeria. *Journal of Human Ecology*, 23 (1), 53 – 57.
- Orji, N.D. (2018). Arms proliferation in the escalation and sustenance of farmers/herders conflict in Nigeria. Paper presented at National Stakeholders Dialogue on Herders – Farmers Conflict organized by the Alumni Association of The National Institute in collaboration with the Presidential Committee on Proliferation of Small and Light Weapons, held at National Universities Commission, Abuja, 18-19 April.
- Osinbajo, Y. (2018). Lake Chad must be saved. Opening speech of the Vice-President of Nigeria at the International Conference of Lake Chad, Niamey, February 28.
- Rincon, P. (2010, June 23). Superstorm rages on exoplanet. BBC News, London.
- Selltiz et al. (1951). *Research methods in social relations*. New York: Methuen and Co. Ltd.
- Ubelejit, N.T. (2016). Fulani herdsmen and communal conflicts: Climate change as precipitator. *Journal of Political Science and Leadership Research*, 2(1), 25 -32.
- Udeh, C. (2018). How climate change is provoking clashes between herdsmen and farmers in Nigeria. Cambridge Climate Lecture Series, Cambridge, United Kingdom. 22nd February.
- Umar, S. (2018, January 2). Suspected Fulani killer-herdsmen murders 73 people in Benue State. *Channels Television*.
- United States Global Change Research Program (2009). *Global climate change impacts in the United States*. Cambridge: Cambridge University Press.
- Winterbottom, J. & Jadhav, R. (2014). Special report – India’s food chain in deep change. Reuters. Retrieved 12 July 2011. <http://in.reuters.com/article/idINIndia-57791920110620>

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