

Climate Change, Farmer-Herders Conflicts and Food Security in Nigeria

Gospel Nukoaka Lebari, PhD¹, Ferguson Amaobi Onuegbu, PhD¹ & Sunday Adeniran²

¹University of Port Harcourt, Nigeria

²University of Abuja, Nigeria

Abstract: There is emerging consensus that climate has been changing. This change in the global climate has shown the capacity to threaten several aspects of global, regional and national life, among which is security and agriculture (food security). Thus, in Nigeria, the climate crisis appears to have exposed farmers and herders to frequent conflicts, and because the indigenous farmers grow the locally produced food and the herders, on the other hand, rear most of the animals that serve as meat (particularly beef), any conflict between these two places food security under threat. The study sought to: examine the role of climate change on the heightened farmers-herders conflict in Nigeria; and, explore the implications of climate change impacts on farmers-herders conflicts on Nigeria's food security. The study was guided by the eco-violence theory, which examines the inter-relationship between environmental changes and possible conflict situations. Data were derived from secondary sources that include journal articles, texts and books. The study established that climate change plays a great role in the frequent violent conflicts that have become a constant in farmer-herders relations in recent years and that these conflicts affect the country's agricultural output and food security negatively. The study recommends that the Nigerian state should transit from traditional agricultural system to Climate-Smart Agriculture to meet future needs, as well as build modern (public) ranches with the best of technologies in the Sahel region, to discourage nomadic herding.

Keywords: Climate Change, Farmer-Herders Conflict, Eco-Violence, Food Security, Nigeria

I. INTRODUCTION

There is an emerging consensus among scholars and international organizations that the earth's climate has been changing. This change has shown potentials for affecting diverse aspects of human life and existence, as it exposes nations to diverse challenges, from the economy to health and security threats, which manifest in unusual, but varying ways across regions. Globally, climate change weakens food security but the impacts vary between the rich and poor countries, with the poor countries most vulnerable to its associated risks. African countries being in the tropics are known to be hot; however, they are expected to become hotter because of climate change. The livelihood options of the people are mainly farming and pastoralism, which has been significantly affected by climate change (Devereux & Edwards, 2004). Thus, in some African countries, climate change has contributed to conflicts between farmers and herders, therefore, threatening food security.

In Nigeria, climate change manifests in unpredictable rainfall in the south and desertification in the North (Uyigüe & Agho, 2007). To that extent, aside from other possible implications, it has on security is the problem of the danger it poses to food security occasioned by the infamous clash between indigenous farmers and herders (prominently of the Fulani nation) who migrate from one place to another, exploring pasture for their herds. This situation tends to be on the rise because of the effects that changes in climatic conditions have on their domain, and this, of course, puts a threat to the availability and accessibility of foodstuffs. These conflicts between indigenous farmers and nomadic herders have resulted in several deaths, most of who are farmers; and this has direct implications on crop production and the Nigerian economy. Therefore, the conflicts between herdsman and farmers have endured several years and have been heightened in recent years. Because of this and several illegal activities, herdsman in Nigeria were classified as one of the most notorious terrorist groups operating in the world (Institute for Economics and Peace, 2016) probably because of the huge number of fatalities that have arisen from their activities.

It is expedient to point out that climate change has altered several known ways of people across the world, and has affected relationships both negatively and positively. However, as it concerns farmer-herders' relations, it has been characterized with violent conflicts than cooperation, impacting negatively on food security in the country. It is against this backdrop that this paper seeks to examine the impact of climate change on the persistent farmer-herders conflicts and its implication on the overall food security of the Nigerian state.

II. STATEMENT OF THE PROBLEM

Climate change is manifesting globally, but impacting locally, with the rise in sea levels, unpredictable rainfall, and desertification. This reality has shown the capacity to affect virtually every aspect of human life, with agriculture (a contributor and victim of it) not being spared.

Although farmer-herders' conflicts are not new to the world, and indeed Nigeria (Lebari, 2018; Odoh & Chigozie, 2012), the trend of this conflict has recently changed significantly, with an obvious outlook of competition and domination among these groups. There have been several attacks and counter-attacks between the herdsman and rural or indigenous

farmers, and these violent attacks have been responsible for the loss of lives, herds, crops, farms and the sacking of several communities. For instance, between the first eight days of 2018, over 80 people in Benue State, North Central Nigeria lost their lives to this senseless but persistent conflict (Punch Newspaper, January 9, 2018). Although some of the issues about the attacks are underreported, these violent issues have truncated agricultural activities, which in turn affect the nation's food security.

Nigeria depends on herders for meat (especially beef) and the indigenous farmers for a great percentage of the food crops consumed within her sphere, and as such both crop production and animal husbandry are of importance to Nigerians and the Nigerian state. Furthermore, food demand is ever increasing as the population has continuously been on the rise, and as such, any violent conflict that affects the actions of either the herders or indigenous farmers or both poses a threat to Nigeria's food security ambition.

III. OBJECTIVES OF THE STUDY

The aim of the study was to examine the role of climate change in the frequent conflicts between farmers and herders, and its implication on food security in Nigeria. The specific objectives of the study were:

- To examine the role of climate change in the rising farmer-herders conflicts in Nigeria;
- To explore the implications of climate change impacts on the farmer-herders conflict on food security in Nigeria.

IV. THEORETICAL FRAMEWORK

The study adopted the theory of eco-violence postulated by Homer-Dixon. The theory holds that in different developing societies, like Nigeria, there is over-dependence on some environmental capital which is essential for crop production. In the light of the above, Homer-Dixon (1998) avers that:

Decreases in the quality and quantity of renewable resources, population growth, and unequal resource access act singly or in various combinations to increase the scarcity, for certain population groups, of cropland, water, forests, and fish. This can reduce economic productivity, both for the local groups experiencing the scarcity and for the larger regional and national economies. The affected people may migrate or be expelled to new lands. Migrating groups often trigger ethnic conflicts when they move to new area, while decreases in wealth can cause deprivation conflicts (Odoh & Chigozie, 2012, p. 114).

The theory holds that violent conflicts may arise from the expected competition that exists or could arise between people or groups of people for scarce environmental resources. The reality of the above position has been furthered by the reality of climate change as it plagues the environment and further heightens scarcity therein.

In the light of this study, therefore, the eco-violence theory provides some clarity into the nature and dynamics of the frequent conflicts between herdsmen and farmers in Nigeria. Thus, the conflict has been driven by the state of competition and scarcity exposed by climate change and other environmental concerns, which cause the various groups to seek the protection and advancement of their livelihood and culture (Okoli & Atelhe, 2014).

This theory is relevant to this study in that the violent posture of farmers and herders (particularly) should be understood in relation to their survival. Thus, whereas, the herder(s) would consider anything that poses a threat to his herd(s) as a threat to his survival, culture and destiny, the indigenous farmers on the other hand might see it as a threat to their heritage. It is in the light of this that this violent conflict has persisted, aside from the reality of the state failing to maintain law and order. Interestingly, these conflicts negatively affect the agricultural sector and as such threaten the food security of the Nigerian state.

V. THE CONCEPT OF CLIMATE CHANGE

The subject of climate change having attracted various positions from scholars and international organizations is one bereft of a universally agreed definition like various subjects, particularly contentious ones. It is seen differently by the following international organizations 'World Meteorological Organization (WMO), United Nations Framework Convention on Climate Change (UNFCCC) and Global Climate Observing System (GCOS)' as "(i) long-term changes in the average weather conditions (WMO usage); (ii) all changes in the climate system, including the drivers of change, the changes themselves and their effects (GCOS usage); or (iii) only human-induced changes in the climate system (UNFCCC usage)" (FAO, 2008, p. 8). On their part, the Intergovernmental Panel on Climate Change (IPCC) sees it as "statistically significant variations that persist for an extended period, typically decades or longer. It includes shifts in frequency and magnitude of sporadic weather events as well as the slow continuous rise in global mean surface temperature" (Ifeanyi-Obi, Etuk, & Jike-Wai, 2012, p. 54). Similarly, Olaniyi, Funmilayo, and Olutimehin (2014) considers it as the intensification of the planet's temperature, arising from both natural events and the actions of humankind. The UNFCCC discussed it as occurring from anthropogenic factors, and thus submits that it is "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods" (UNFCCC, 1992, p. 7). This situation has both global and national consequences; in general, the consequences of climate change according to the Global Leadership for Climate Action (2009, p.10) is summed thus:

Over the last century, atmospheric concentrations of carbon dioxide have increased from a pre-industrial value

of 278 parts per million to 385 parts per million in 2008, and the average global temperature rose by 0.74 degree Celsius. According to scientists, this is the largest and fastest warming trend they have been able to discern in the Earth's history. With rising temperatures, the United Nations Intergovernmental Panel on Climate Change (IPCC) projects that the frequency of extreme events such as heatwaves, droughts, and heavy rainfall events will increase, adversely affecting agricultural, forests, biodiversity, water resources, industry, human health, and settlements (Ibaba, 2012, p. 6).

The above explains why climate change discourse has gained prominence in academics and world politics, leaders are trying to unite in taking steps towards coping with the issue and combating its associated challenges. However, Africa is living in the reality of the projection above, but expectedly things may worsen, thus revealing the helplessness of Africa and indeed Nigeria.

Furthermore, Okoye (2014) argues that humankind's activities of industrialization, burning of fossil fuel, flaring of gas, urbanization and agriculture are accountable for the emanation of worsened sum of greenhouse gases into the environment. These activities are responsible for a huge volume of greenhouse gases like CO₂, methane, Nitrogen Oxide (N₂O) and Chlorofluorocarbons (CFCs) discharged into the air. In addition, climate change is further seen as all forms of unpredictability attributable to the climate, and as such, it is the disparity between the long term statistics of the metrological elements of varying periods; however, it must concern the same geographical area, irrespective of their statistical nature or causes (Jack-Akhigbe & Ikorukpo, 2014).

Natural and anthropogenic factors can be held liable for climate change; however, anthropogenic factors are liable for most changes in the climate. According to Kaddo (2016) greenhouse gases stand out among grounds for the climate is changing, that these greenhouse gases are capable of grasping heat into the atmosphere; hence, ensuing in the greenhouse effect. He claims that scientists appear quite interested in the emissions of CO₂, particularly concerning its reduction due to fact that it is responsible for over 75% of emissions across the entire world. He further argued that man contributes enormously to the trending issue of climate change because most men and societies majorly depend on fossil fuel to meet the need for energy and that aside from the burning of fossil fuel, agriculture and transport have been intensely involved in the emission of greenhouse gases. For this study, climate change is the alteration of atmospheric conditions within an environment caused by ecocides over a long period.

VI. FARMER-HERDERS CONFLICT

In the broader sense, a farmer could be seen beyond crop production, however, for this study, farmers are seen as those who cultivate the land for planting food, and as rightly

observed, "most of those people are indigenous members of the community where they reside" (Aliyu, Ikedinma & Akinwande, 2018, p.119). farmers in Nigeria are mostly rural dwellers and as such are found in virtually all the rural societies in Nigeria. Put differently, herders are those who raise domestic animals like goats, cattle, sheep etc. These herders who are also referred to as herdsmen, pastoralists and cattle breeders tend to live lives that could be regarded as 'unusual' when compared to the lifestyle of others. However, in our context, herders, as used here is limited to cattle breeders who are usually of the Fulani ethnic nation. Their living is nomadic and they hold on to their tradition and culture in the practice of their husbandry; they usually move from place to place with sticks and machetes in their hands (Idowu, 2016), however, recent revelations have shown some of them moving around with local and/or sophisticated guns. Farmer-herders' conflict is simply the confrontations and contestations that goes on between farmers and herders because of the struggle for the available, but scarce land; and this conflict could be verbal or violent (Aliyu, Ikedinma & Akinwande, 2018).

VII. THE CONCEPT OF FOOD SECURITY

The World Food Summit (1996) opines that food security exists "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 2016, p. 1). The position of the World Food Summit above could be viewed both nationally and locally. The local concept involves continuous availability of domestically produced foodstuffs, without economic limitations, as availability alone no longer qualifies for food security (Zibokere, 2008). Simplistically, Tersoo and Ogochukwu (2014, p. 34) opine that at the individual level, food security "implies the intake of food and the absorption of nutrients sufficient to meet differential individual needs for activity, health, growth and development". This opinion is at variance with the earlier position, as it focuses on the availability and nutritional value of food for the individual household, but does not give attention to the issue of access, which is a true situation in political societies with rising cases of poverty and hunger. They were however right when they argued that occupational demand and lifestyle can still be an encumbrance to individuals in a household, particularly those households that have the economic resources required for the provision of required food.

According to the Food and Agricultural Organization (FAO, 2008), food security depends more on socio-economic conditions than on agro-climatic ones, and on access to food rather than the production or physical availability of food. Ogundare (2015, p. 5) observed that it is "the ability of a people to meet their required level of food consumption at all times." However simplistic this view appears, it tends to put into consideration the reality of most developing societies who are still struggling with achieving the availability. In essence, if food is not available, the consumption need per

time cannot be met. Hence, hundreds of millions of people are still living in hunger globally, and without any intent of negating the truth and import of economic access, without the availability of food, any talk on access would amount to a mere wish.

VIII. METHOD

The method adopted for this study was mainly qualitative, with data derived from journal articles, textbooks and book chapters, newspaper reports and other relevant and reliable online materials. The data generated were analyzed qualitatively, using content analysis.

Climate Change And Farmer-Herders Conflicts In Nigeria

The question of climate change affects the world differently, with various regions having their unique consequences. In Africa in general, and West Africa precisely, social conflicts are obvious manifestations of climate change. Whereas, the conflict arising from it spreads into various aspects of security, without sparing human and food security. Aside from traditional reasons for migration like economic and socio-cultural factors, climate change had since become a major determinant of migration, particularly among herders in Nigeria (Amusan, Abegunde & Akinyemi, 2017; Aderinto & Achem, 2019). In Nigeria, herders who use to migrate seasonally from Northern Nigeria towards the South, now tend to migrate constantly mainly to explore green pastures for their herds. This migration has more recently been typified by conflicts, which has cut short lives and properties. In the course of their activity, these herds are allegedly led into farms to eat up crops planted by local farmers, rather than the expected grasses, a situation that has brought about frequent clashes among farmers and herders. These farmer-herders' clashes have had negative implications on the serenity, order and peaceful coexistence among both social groups (Olaniyan & Okeke-Uzodike, 2015)

Although the migration of herdsman in Nigeria is in no way new (Olaniyan & Okeke-Uzodike, 2015), recent migrations have heightened because of climate change that confronts today's world. However, the mention of the name "herdsman" have become more associated with violence, and so have been their nomadic activities. Furthermore, they argue that the high

level of migration among herdsman in Nigeria can be traced to climate change, and similarly, the associated conflicts that characterise these migrations can also be traced to climate change.

Due to climate change reducing the availability of land because of the scarcity of land induced by climate change, there exists an unusual competition between herders and farmers to protect and advance their culture and livelihood without consideration to the location and the resultant effect of this desire for advancement (Bello, 2013). Migration to the North Central and Southern parts of Nigeria by herders to seek pasture and water for their herds, irrespective of the price and the cost, hence, climate change has been responsible for most of the various violent conflicts between herdsman and farmers across the country (Adigun, 2019). The herders in Nigeria are mostly of the Fulani ethnic extraction of Northern Nigeria, and they tend to see any threat posed to their herds or herding activities as a threat to their identity, livelihood, culture, and heritage. To this end, the herders are ready to do anything, including dying and killing to preserve this heritage of theirs.

Therefore, in a bid to endure the hard times associated with their activities and heritage, they formed the Miyetti-Allah Cattle Breeders Association of Nigeria (MACBAN) to guarantee the security of their cultural heritage from the threat of extinction, as well as to help in the integration of herders wherever they settle across the sphere of the Nigerian state (Awogbade, 1987). To that extent, their Umbrella body (MACBAN) has always risen in the defence of their activities and championed their course around the various parts of the Nigerian state; they have at various times gone as far as issuing threats to communities and states (governments) who seem not to have cooperated favourably with the herders. With the mounting incidence of farmer-herders' conflict in Nigeria and the endemic fatality from these violent conflicts, herdsman in Nigeria were ranked to be among the top terrorist groups in the world in the Global Terrorism Index (Institute for Economics and Peace, 2016). Below are some incidences of farmer-herders' conflicts in Nigeria.

Table 1: Some Cases of Violent Farmer-Herders Conflicts in Nigeria from 2002 to 2018

S/N	Nature of Incidence	Date	Place
1	Killing of over 30 persons in a conflict over grazing land in Barkin Ladi Local Government Area	January, 2002	Plateau State
2	Killing of over 100 people in violent clashes between Fulani and Yungar ethnic groups	February, 2003	Adamawa State
3	Attack and burning down of 34 farming villages by herdsman, leading to the death of over 63 persons and scores of injured	May, 2003	Adamawa/Gombe States
4	Killing of 49 farmers by herders in Yelwa	February, 2004	Plateau State
5	Dozens killed in Adamawa State over disputed grazing land	February, 2005	Adamawa State
6	Killing of 32 persons, houses raised and farms destroyed in Nassarawa State. Over 700 nomads were sent away from Borno	December, 2009	Nassarawa& Borno States

7	Invasion of three villages in Jos South LGA (Dogo Na Hauwa, Ratsat and Jeji), which saw the killing of dozens, most of which were women and children	March , 2010	Plateau State
8	Herdsmen/farmers conflict left one person dead and over 17 farmers injured in Kirikasamma LGA, Borno State. Herdsmen/farmers clash led to the death of two soldiers, over 50 men, and several other women and children in Benue State.	November, 2011	Borno & Benue States
9	Over 30 people were killed in a violent clash in Gwer West LGA	March, 2012	Benue State
10	Over 16 persons were killed and 5,000 displaced as a result of a clash between Tiv farmers and herdsmen in Kadarko community, Giza LGA	March 2012	Nassarawa State
11	One person was killed and several others injured in a violent clash in Sokoto	April, 2012	Sokoto State
12	5 people were killed and several others displaced in a violent clash in Gwer West LGA	May, 2012	Benue State
13	At least 6 were killed, houses burnt and farmlands were destroyed as a result of a serious conflict between herdsmen and farmers in Ngandum village, in Adamawa State. The above was a fall out of the invasion of a rice field by herdsmen and their cattle which resulted in the death of a farmer	June, 2012	Adamawa State
14	Over 200 persons (including a then serving senator, Gyang Dantong) were murdered in Matse and Kakuru Villages during a funeral for some people earlier killed by alleged Fulani herdsmen	July, 2012	Plateau State
15	Violent clashes between farmers from Gbagyi and Fulani herdsmen led to the death of 2, injured 5, displaced about 1500 persons and saw the destruction of over 27 settlements	December, 2012	Plateau State
16	A farmer's hand was cut off; and his sibling was raped, while his farmland was destroyed	March, 2015	Oyo State
17	5 days to the end of a political dispensation, over 100 farmers (and members of their families) were murdered in villages and camps (IDP) around Ukura, Per, Gafa and Tse LGAs	May, 2015	Benue State
18	Herdsmen invaded and attacked several villages in Agatu LGA, leading to the massacre of over 500 villagers and the displacement of over 7000. Over 10 people were killed and 300 people displaced in a clash between farmers and herdsmen in Tor-Anyiin and Tor-Ataan, Buruku LGA	February, 2016	Benue State
19	Herdsmen attacked two villages in Gashaka LGA leaving 15 people dead	April, 2016	Taraba State
20	Over 23 persons were allegedly killed by herdsmen in Delta State. As a result, residents of the 25 LGAs of the state protested on the Benin-Asaba Expressway	April 2016	Delta State
21	Ukpabi Nimbo in Uwani LGA of Enugu State was attacked by suspected herdsmen, leaving about 40 persons dead	April, 2016	Enugu State
22	Logo communities in attacked by herdsmen, with over 70 persons killed and several others injured	July, 2016	Benue State
23	Herdsmen attacked several communities in Southern Kaduna, killing at least 20 people and several others injured	February, 2017	Kaduna State
24	Ambush of Policemen attached to the Abraka Police Division of the Delta State Police Command by suspected herdsmen. The incident led to the death of 5 police officers.	May, 2017	Delta State
25	Herdsmen attacked two communities in Irigwe Kingdom, Bassa LGA, leaving over 75 people dead, several injured and over 13,000 displaced and hundreds of houses destroyed	October 2017	Plateau State
26	Herdsmen attacked Benue communities on the 1 st of January, and murdered well over 50 people. Also, over 55 villagers in Lau LGA of Taraba State were murdered	January, 2018	Benue/Taraba States
27	Herdsmen attacked seven villages in Nimbo in Uzo-Uwani LGA, killed about 40 persons and destroyed several properties	April, 2018	Enugu State
28	Herdsmen attacked Ugondo, Turan and Gabo-Nenzev in Logo LGA and killed about 59 persons	June, 2018	Benue State

Source: Lebari (2018); Aliyu, Ikedinma & Akinwande (2018)

Food Security Implication Of Climate Change And Farmer-Herders Conflicts In Nigeria

The fact that the climate is vital to the natural environment is not an issue for contestation. In the light of the implications posed by climate change to the relations between farmers and herders in Nigeria, whereas there is a history of migration among herders in Nigeria, climate change tends to have further aggravated the need for herders to migrate to other parts of Nigeria in search of greener pastures for their herds.

This frequent migration has been more associated with violent conflicts than cooperation, as the media has been awash with deaths and clashes arising from these conflicts. Okoli and Addo (2018) argue that the incessant violent conflicts between herders and farmers have had significant, but varying implications on the agricultural sector, as farming activities are deeply affected, particularly in those areas where farming tend to take place beyond the subsistence level. This reality is terrible for the security of food in the nation, as it is

responsible for food scarcity, high cost of foodstuffs and limited access to food. This is because this crisis has been responsible for the marauding of crops and herds, and discourages investment in the sector.

As climate change escalates the migration of herders from one location to another, with the result being violent conflicts, several farmers have abandoned their farms/farming as they are scared of returning from their farms, thus bringing about a reduction in productivity, and as such outputs and income is held back from the indigenous farmers, and a few times, the herders (Kazzah, 2018; Idowu, 2016). Kazzah (2018) further argues that as herds in the course of grazing destroy crops and farms, there have most often been some forms of reprisals from the farmers, leading to the killing of several cows. This situation is negative in that both the crops produced meant for food and the herds meant for meat are attacked, and as such, chances are that the food could be scarcely available, and even when available, the cost of the food could be outrageous.

Owing to the multidimensional nature in which the issue of food security is viewed generally, climate change-induced farmer-herders' conflicts bring about unstable prices in staple food, as the prices almost always navigate upward, therefore, putting the peasants and other low-income earning Nigerians under economic pressure (Innocent, Christian & Onuigbo, 2017) and leaving more than half of the Nigerian populace exposed to food insecurity (Osagie, 2013).

IX. CONCLUSION

The reality of climate change in Nigeria has aggravated the migration of herders from the Sahel to other parts of Nigeria in search of pasture and water for their herds. Unfortunately, their migration opens up competition for the farmland with the indigenous farmers and this more often than not, leads to violent conflicts responsible for the death of several people and herds and the destruction and obstruction of several farms and farming processes. As a result, there have been issues of abandonment of crops in the farms, which make the availability of food to be threatened. Owing to the challenges above, the cost of staple food tends to inflate and as such making the people (most of whom are poor) vulnerable in relation to cost as they might struggle to afford staple foods. Thus, the manifestation of climate change exacerbates farmer-herders conflicts, therefore posing a threat to food security in Nigeria.

X. RECOMMENDATIONS

The paper recommends that:

- The Nigerian state should transit from traditional agricultural system to Climate-Smart Agriculture to meet future needs. This is necessary because crop yields in some parts of the country are projected to decline by up to 50%.
- The Nigerian state should enforce the Robbery and Firearms (Special Provision) Act (1990) which

forbids illegal bearing of firearms. In this light, the state should seek to de-radicalize and demobilize the (violent) herders.

- The state should build modern (public) ranches with the best of technologies in the Sahel region, to discourage nomadic herding. However, to achieve this, the state should involve key Northern leaders like the Sultan of Sokoto and the various Emirs on the need to imbibe ranching into their culture, considering the economic and security benefits it provides.

REFERENCES

- [1] Adebayo, P. F., & Ojo, E. O. (2012). Food Security in Nigeria: An Overview. *European Journal of Sustainable Development*, 1(2), 199-221.
- [2] Adegbola, J., Bamishaiye, E., & Daura, A. (2011). Food security in Nigeria: Government's Intervention and the Place of Effective Storage. *Asian Journal of Agriculture and Rural Development*, 1, 56-63.
- [3] Aderinto, A. & Achem, V. (2019). A Concentric Approach to Understanding Herders-Farmers Clashes in Benue and Nasarawa States, Nigeria. *International Journal of Sociology and Anthropology*, 11(4), 37-42.
- [4] Adigun, O.W (2019). A Critical Analysis of the Relationship Between Climate Change, Land Disputes, and the Patterns of Farmers/Herdsman's Conflicts in Nigeria. *Canadian Social Science*, 15(3), 76-89.
- [5] Aliyu, M. K, Ikedinma, H.A & Akinwande, A.E (2018). Assessment of the Effect of Farmers-Herdsman Conflicts on National Integration in Nigeria. *International Journal of Social Sciences*, 8(10), 118-128.
- [6] Amusan, L., Abegunde, O. & Akinyemi, T.E (2017). Climate Change, Pastoral Migration, Resource Governance and Security: The Grazing Bill Solution to Farmer-Herder Conflict in Nigeria. *Environmental Economics*, 8(3), 35-45.
- [7] Bello, A.U (2013). Herdsmen and Farmers Conflicts in the North-Eastern Nigeria: Causes, Repercussions and Resolutions. *Academic Journal of Interdisciplinary Studies*, 2(5), 128-139.
- [8] Devereux, S. & Edwards, J. (2004). Climate Change and Food Security, *Institute of Development Studies Bulletin*, 35, 22-30.
- [9] FAO. (2008). Climate Change and Food Security: a Framework Document. Rome: Food and Agriculture Organization.
- [10] FAO. (2016). Climate Change and Food Security: Risks and Responses. Food and Agriculture Organization of the United Nations (FAO) Report, 110.
- [11] Ibaba, I. S. (2012). Climate Change and the Risk of Violent Conflict in Post-Amnesty Niger Delta: Niger Delta University Publishers Ltd.
- [12] Idowu, S.A (2016). Farmers-Herdsman Conflicts and its Implications on Food Security in Kwara State, Nigeria. *Journal of Peasant Studies*, 2(1), 58-74.
- [13] Ifeanyi-Obi, C., Etuk, U., & Jike-Wai, O. (2012). Climate Change, Effects and Adaptation Strategies; Implication for Agricultural Extension System in Nigeria. *Greener Journal of Agricultural Sciences*, 2(2), 53-60.
- [14] Innocent, E.O, Christian, U. & Onuigbo, R.A (2017). Economic Effects of Fulani Herdsman-Farmers Clashes in Nigeria. *Specialty Journal of Politics and Law*, 2(1), 1-11.
- [15] Jack-Akhigbe, P., & Ikorukpo, I. (2014). Oil Pollution, Climate Change and the Feminization of Poverty in the Niger Delta. Paper Presented at the First National Conference of the Centre for Niger Delta Studies, Niger Delta University, Bayelsa State, Nigeria, 2nd-3rd December.
- [16] Kaddo, J. R. (2016). Climate Change: Causes, Effects, and Solutions. Retrieved from <http://spark.parkland.edu/ah/164>. Accessed 04/06/2019.

- [17] Kazzah, S. (2018). Herdsmen-Farmers Conflicts: It's Implication on Food Security and Economic Development in Southern Kaduna 1999-2017. *International Journal of Strategic Research in Education, Technology and Humanities*, 5(1), 126-138.
- [18] Ladan, S. I. (2014). An Appraisal of Climate Change and Agriculture in Nigeria. *Journal of Geography and Regional Planning*, 7(9), 176-184.
- [19] Lebari, G.N (2018). Amorphous Terrorists? The Nigerian State and the Activities of Fulani Herdsmen. *Nigerian Journal of Oil and Politics*, 3(1), 43-62.
- [20] Nzeadibe, T. C., Egbule, C. L., Chukwuone, N. A., & Agu, V. C. (2011). Climate Change Awareness and Adaptation in the Niger Delta Region of Nigeria. *African Technology Policy Studies Network, Working Papers*, No. 57.
- [21] Odoh, S.I & Chigozie, C.F (2012). Climate Change and Conflict in Nigeria: A Theoretical and Empirical Examination of the Worsening Incidence of Conflict between Fulani Herdsmen and Farmers in Northern Nigeria. *Arabian Journal of Business and Management Review*, 2(1). 111-124.
- [22] Ogundare, W. (2015). Sustainable Food Security: Re-igniting Nigeria's Economy via Systems Strengthening. Not Available.
- [23] Okoli, A.C & Atelhe, G.A (2014). Nomads Against Natives: A Political Ecology of Herders/Farmers Conflicts in Nasarawa State, Nigeria. *American International Journal of Contemporary Research*, 4(2), 76-88.
- [24] Okoli, F.C & Addo, H.A (2018). Implication of Fulani Herders/Benue Farmers Crises on Food Security of Benue State of Nigeria. *International Journal of Academic Multidisciplinary Research*, 2(10), 16-23.
- [25] Okoye, A. C. (2014). Climate Change and the Challenges of Millenium Development Goals Attainment in the Niger Delta. Paper Presented at the First National Conference of the Centre for Niger Delta Studies, Niger Delta University, Bayelsa State, Nigeria, 2nd-3rd December.
- [26] Olaniyan, A. & Okeke-Uzodike, U. (2015). Desperate Guests, Unwilling Hosts: Climate Change-Induced Migration and Farmer-Herder Conflicts in Southwestern Nigeria. *Conflict Studies Quarterly*, 10, 23-40.
- [27] Olaniyi, O., Funmilayo, O., & Olutimehin, I. (2014). Review of Climate Change and its Effect on Nigeria Ecosystem. *International Journal of Environment and Pollution Research*, 2(3), 70-81.
- [28] Osagie, C. (2013). "Fear of Food Insecurity Grips Nigeria." *Saturday This Day*, November, 8, P.24.
- [29] Punch Newspaper (January 9, 2018). Benue: Death Toll from Herdsmen, Farmers Clashes Reaches 80. Retrieved from punchng.com/breaking-death-toll-from-benue-herdersfarmers-clashes-reaches-80/. Accessed 24/01/2020.
- [30] Tersoo, I. J., & Ogochukwu, I. J. (2014). The Implication of Climate Change on Food Security in Nigeria. *Journal Of Good Governance And Sustainable Development In Africa (jggsda)*, 2.
- [31] UNFCCC (1992). United Nations Framework Convention on Climate Change. United Nations Framework Convention on Climate Change.
- [32] Uyigwe, E., & Agho, M. (2007). Coping with climate change and environmental degradation in the Niger Delta of Southern Nigeria. *Nigeria: Community Research and Development Centre Nigeria (CREDC)*, 1, 30.
- [33] Zibokere, D. S. (2008). Food Insecurity in the Niger Delta: The Challenges for the Agricultural Engineer. *Niger Delta Digest*, 1, 28-38.