CLIMATE CHANGE AND FARMERS-HERDERS CONFLICT IN NORTHERN NIGERIA

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Abstract

Farmer-pastoralist conflicts have been reported in many parts of Northern Nigeria. Often presented as being driven by resource scarcity, Farmers and Pastoralists have for a long time, found themselves in deadly clashes, most of which resulted in loss of lives and destruction of properties. The main resources fanning the embers of conflicts are water, land, and pasture. This study, therefore, assesses the effect of climate change-induced farmer-pastoralist conflict in Northern Nigeria. The paper relied on secondary sources of data, such as textbooks, journals, magazines, newspapers, the internet, and other relevant materials. The desertification of far Northern Nigeria, accompanied by the reduction in the availability of pastoral land for grazing of cattle and crop farming activities and other attendant extreme environmental conditions such as rising sea levels, drought, and other infectious diseases as a result of global warming, have forced pastoralists to migrate from the affected areas to safer parts for the survival of their means of livelihood. The study adopts the human needs theory as a framework. This framework insists that violence is a tragic expression of unmet human needs, implying that all actions undertaken by human beings are attempts to satisfy their needs and means of livelihood. The study affirms that the effect of climate change has been rife on both pastoralists and farmers and has inherently conditioned the conflict between farmers and pastoralists in northern Nigeria. The paper recommends that government should provide climate-smart interventions in the Sahelian areas which are more prone to climate change impacts for adaptation and mitigation.

Keywords: Conflict, Farmers, Pastoralists, Climate change, Northern Nigeria

Introduction

Climate change is emerging as one of the most challenging problems facing the world in the 21st century. Having already caused significant damages, Climate change threatens to bring about even more serious consequences in the future as the Earth's surface is rapidly undergoing and changes in its biosphere, biodiversity, and natural resources, an outcome which will no doubt continue to unfavorably affect the quality of human lives. Agriculture and pastoralism are two of the most vulnerable sectors that suffer the ramifications of climate change. The impact is even stronger in areas

where agriculture and pastoralism are vital for daily subsistence and where adaptive capacity is low.

Climate change has become a long-standing phenomenon that causes conflict betweenfarmers and pastoralists in northern Nigeria. As a mix of various gases which make up the earth's atmosphere has changed over time, this has resulted in the fluctuation of average global temperatures, and so significantly induced the migration of pastoralists to localities that offer a more generous supply of greener pastures and fodder. The current conflict between crop farmers and pastoralists in the Benue Valley can indeed be examined within the premises of this natural condition triggered by Climate change. No doubt the damages to the earth's ozone layer and the attendant effects of Climate change have been precipitated by the unprecedented global increase in material needs, such as food, shelter, clothes, and other technical apparatus which has often necessitated the use of various 'harmful' chemicals to advance the cause of modern society. Indeed, in all its glory it has also been the harbinger of doom, ushering in deforestation, desertification, a poleward shift of vegetation and animal population, rising sea levels, diseases as well as decreased rainfall.

Conflict is not a new story and has existed for many years. However, what we are increasingly now seeing in Northern Nigeria are conflictsdue to the scramble for resources such as areas for grazing and cultivation.Farmer-pastoralist conflicts have been reported in many partsof Africa and have often been presented as being driven by resource scarcity (Norman, 2013). In countries, such as Nigeria, Kenya, and Tanzania the two groups have for a long time found themselves in deadly clashes, most of which resulted in loss of lives, destruction of properties and downright reducing these areas into war zones as they try to clinch the right to use the land (Benjaminsen, 2009).

Conversely, climate change has consciously and unconsciously continued to define the nature of the conflict between farmers and Pastoralist, with the associated environmental pressure directly linked to the competition and stress between the groups involved within Northern Nigeria; for as resources decrease and human population increases, migration and social fragmentation intensify.

This paper examined the inherent effects of climate change on farmers and pastoralist conflict in Northern Nigeria. This problematique is anchored on the assertion that there is a nexus

between climate change and conflict in Northern Nigeria. This is prompted by concern that the environmental effects of climate change, especially the depletion of natural resources, will create conditions that increase the risk of violent conflict between farmers and pastoralists. Climate change acts as a 'threat multiplier' that makes existing concerns, such as water scarcity and food insecurity, more complex and intractable. It plays a key role in human insecurity and is expected to do so even more in future as its impacts manifest themselves (Barnettet, 2007).The impact of Climate change on pastoral and agricultural activities is believed to be stronger in Sub-Saharan Africa. In NorthernNigeria, the effects of climate change seems to have heightened the conflict between farmers and pastoralist.

Conceptual Clarification

According to Nsikabasi,(2008) climate change is the long-term shift in weather patterns including precipitation, temperatures, cloud cover, and so on. Climate change is caused by human activities that have resulted in an increased concentration of greenhouse gases in our atmosphere, including carbon dioxide, water vapor, methane, ozone, and nitrous oxide. Human activities that result in the release of these greenhouse gases well beyond natural levels include things like deforestation, burning of fossil fuels, changes in wetland construction, and so forth.Furthermore,Nsikabasi, (2008)mentionedclimate change impacts such as increased surface temperatures, rises in sea levels, retreat of glaciers and melting of sea ice, changes in precipitation, Increases in intensity of extreme weather events such as heat waves, tornadoes, hurricanes, and heavy rainfall, longer, more severe droughts, species endangerment and extinction and loss of biodiversity, drops in agricultural yields, spread of vector-borne diseases because of increased range of insects and acidification of oceans creating drops in fishing yields and death of coral reefs.

Conflict may be defined as a struggle or contest between people with opposing needs, ideas, beliefs values, or goals and also as a result of scarce resources. As such, conflict is normal, ubiquitous, and unavoidable. It is an inherent feature of human existence. It is even useful on occasion. It is difficult to conceive of a situation which is conflict-free. Indeed, the very presence of conflict is at the heart of all human societies (BercovitchandLangley, 1994).

A farmer is a person engaged in agriculture, raising living organisms for food or raw materials. The term usually applies to

people who do some combination of raising field crops, orchards, vineyards, poultry, or other livestock. A farmer might own the farmed land or might work as laborers on land owned by others, but in advanced economies, a farmer is usually a farm owner, while employees of the farm are known as farm workers, or farmhands. The word farmer was originally used to describe a tenant paying a leasehold rent (a farm), often for holding a lord's manorial demesne (FAO, 2014).

Pastoralists are people who live mostly in dry and remote areas. Their livelihoods depend on their intimate knowledge of the surrounding ecosystem and on the well-being of their livestock. Pastoral systems take many forms and are adapted to particular natural, political and economic environments. The types of livestock kept by pastoralists vary according to climate, environment, water and other natural resources, and geographical area, and may include camels, goats, sheep, yaks, horses, llamas, alpacas, reindeer and vicunas (IFAD, 2009). In this paper, a pastoralist is one who keeps only animals as the main economic activity.

Global Emission and the Nigerian Ecosystem

An understanding of the issue of global emissions or climate change is germane to the robustness of this paper; hence it is briefly discussed here. At the global level, a country may generate global warming through the emission of industrial pollutants thatdestroy the ozone layerand which might affect other countries that may not likely be emitting. These emissions consequentlylead to the accumulation of GHGs in the atmosphere which creates concern for the globe. Such pollution is termed transboundary externality (IPCC, 2000).

In a global context, externalities are specified in terms of the distinction between polluting and victim countries. However, the main problem here in the issue of global emission is how to internalize the externality,which is the implementation of the polluter pays principle, at the global level. This is a case of a multilateral externality. This is because global emission involves several polluters and several victims, uncertain on the source and the direction of externalities. This makes it a global concern as each country is termed a polluter and a victim (Odingo, 2009).

In the model of social optimum with externalities, which is the standard model of environmental policy, general equilibrium implies that global emission is the cumulated sum of unitary

emissions, independent of the origin and the nature of each unit of emission (Asafu-Adjaye, 2005). The underlying hypothesis is termed uniformly mixing pollutants. This hypothesis is therefore plausible only for the global warming case, as the contribution of a unit of CO2 to the accumulation of GHGs in the atmosphere is the same wherever it was produced. For instance, a unit of CO2 generated in a polar area or in a tropical area will contribute to the same extent to global warming, but polar agriculture will benefit from global warming whereas African agriculture will likely suffer from it. However, acid rain impacts will differ from one country to another, depending on the soil characteristics, distance from the source of pollution, and the direction of the dominant winds (IPCC, 2000).

Nigeria contains six ecological zones, ranging from a belt of mangrove swamps and tropical forests along the coast to open woodland and savanna on the low plateau which extends through much of the central part of the country, to the semi-arid plains in the north and highlands to the east. The principal food crops are yams, cassava, and maize to the south, and millet, sorghum, and cowpeas in the drier north. Cocoa, rubber, oil palm, groundnuts, and cotton are the main crops that are generally destined for export. Between the arid north and the moist south lies a Guinea Savanna Zone sometimes referred to as the middle belt. This area produces staples such as yams, sorghum, millet, cassava, cowpeas, and corn, with rice an important crop in some places. The middle belt's southern edge represents the lower limits of the northern grain-dominated economy. The most significant commercial crop of the middle belt is sesame (or benniseed).

Rainfall is heaviest in the south, where the rainforests and woodlands benefit from abundant precipitation and relatively short dry seasons. Root crops are the staples in the south, including cassava, yams, taro (cocoyam), and sweet potatoes. The cash crops in the south are tree crops, which in general are grown on large plantations that include cacao, oil palm, and rubber. However, almost 85 percent of Nigeria’s current palm oil production is from unorganized wild groves. The northern third of Nigeria experiences a dry season of five to seven months and lies mostly in the Sudan and Sahel Savanna zones. Staples in the north are millet, cowpeas, and a drought-resistant variety of sorghum known as guinea corn. Sorghum is Nigeria’s most widely cultivated grain, accounting for more than 45 percent of the total area. Sorghum cultivation spans from the north to the middle belt where precipitation and soil

moisture levels are low. Corn is also cultivated, as well as rice in suitable lowland areas. Wheat is a fadama (lowland) crop, irrigated along broad valley bottoms in the north, especially in the Lake Chad basin. The north's principal commercial crops are cotton and groundnuts (USDA, 2000).

Theoretical Framework

This paper adopts the Human Needs Theory (HNT) as propounded by scholars such as Abraham Maslow, John Burton, Marshall Rosenberg, and Manfred Max-Neef. However, for the purpose of this paper emphasis will be given John Burton'sstrand or perspective of the Human Needs Theory. Human Needs Theory contends that in order to live and attain well-being, humans need certain essentials. These are called human needs or basic human needs. Human needs theorists argue that conflicts and violent conflicts are caused by unmet human needs. Violence occurs when certain individuals or groups do not see any other way to meet their needs, or when they require understanding, respect, and consideration for their needs. Indeed, violence is a tragic expression of unmet human needs, implying that all actions undertaken by human beings are attempts to satisfy their needs. If we are able to connect with our needs and those of others, we will therefore be able to look at other ways of meeting such needs, avoiding violence and destruction. Indeed, this theory justifies the conflict between farmers and pastoralist is a product of unmet needs.

This theory is pivotal because Needs, unlike interests, cannot be traded, suppressed, or bargained for. Thus, the human needs approach makes a case for turning away from traditional negotiation models that do not take into account nonnegotiable issues. These include interest-based negotiation models that view conflict in terms of win-win or other consensus-based solutions and conventional power models (primarily used in the field of negotiation and international relations) that construct conflict and conflict management in terms of factual and zero-sum game perspectives.

This theory insists that violence is a tragic expression of unmet human needs, implying that all actions undertaken by human beings are attempts to satisfy their needs. Using this paradigm to explain constant violent confrontations in Northern Nigeria where farmers and pastoralists are scrambling for scarce resources such as fertile land, green pasture, water, and areas with favorable temperatures to fulfill their basic needs.

The Farmer-Pastoralists Conflict within the Perspective of Climate Change

Climate change is a natural phenomenon that is characterized by changes in the globaland regional climatic patterns as a result of increased levels of carbon emissions. These changes in the ozone layer have been affected and followed by a global rise intemperature thereby leading to warming oceans, shrinking ice sheets, decreased snowcover, rising sea levels, and several other extreme environmental events (Santer, 1996). A 'sensible' climate pattern is essential to the ecosystems' function and stability without which, the above-mentioned outcomes would be the consequence. One of the consequences of climate change is the shifting boundaries for many components and processes within the surface of the earth. Among these components are pathogens and infectious diseases. Vector-borne diseases are particularly sensitive to warm conditions because changes in temperature usually alter vector development rates by shifting their geographical distribution and altering their transmission dynamism. The development and growth of trypanosome, a vector-borne disease of humans and animals was recently identified as one of the twelve infections that are widely spread due to climate changes. These are the critical factors that previously limit the southward migration of Fulani and their cows, but with the introduction of new vaccines, southward migration became more feasible. In the northern part of Nigeria, climate change impacts can be mainly observed in the form of floods, drought, and rural-urban migration.

Quintessentially, the Nigerian terrain can summarily be characterized by desertification in the far north, the expansion of the savannah in the middle belt, and the contraction of the rainforest down south which invariably reduces the availability of pasture and increases the distribution of the tsetse fly (Nyong 2010).

The Fulani and associated tribes are custodians of over 90% of cattle in Nigeria, their cattle are the major source of dairy and meat in the country. The distribution of Fulani's is not only by pasture and water but also by the presence and absence of cattle parasites such as trypanosome, sleeping sickness, and African trypanosomiasis caused by parasites carried by the tsetse fly which infect the nervous system of cows and can lead to theirsudden death. The lack of sufficient rainfall as a result of climate change reduces forage availability on the ranch lands and this always creates an imbalance between the numbers of livestock and available fodder. Because of this, animals become emaciated and die. The effect of

drought is slightly less intense in north central Nigeria and as such, attracts the pastoralists into the region, this trend however has always had the tendency to cause violence. Adogi, (2013) and Nyong (2005) argue that the changes have continued to heighten the phenomenon of protracted drought and advancement of desertification. The environmental pressure due to that action of man directly or indirectly has displaced available land and heightened competition among the land user groups who exploit the environment in the utilization and the share of the land resources such as pasture, forests, water, and fadama,these have continued to pose serious challenges to both farmers and pastoralists as well as their contribution to national development.

The interplay of complex ecological, cultural, and demographic factors has come together to suppress the production system which reflects pastoralist's responses to temporal and spatial heterogeneity in the distribution of the key resources for the livestock today with all its attendant consequences. The movement to adapt and respond to global warming in the sense that by moving herds, the pastoralists gain advantages to avert the undesirable consequences of global warming. Herder's traditional response to changes in the natural and socio-economic environment depends on the flexibility of herding practice which has been largely eroded by several non-climatic factors such as conflict, socio-economic factors, and access to grazing routes. Arising from these and other associated security challenges, pastoralists are now forcedto migrate in search of greener pastures and thus resulting in increased incidences of violent clashes between them and crop farmers over access to grazing space in upland areas and fadama flood plains. The movements across the various ecological zones have also been induced by disease incidences which lead to increase mobility of cattle and reduction in dairy production Ofuoku and Isife (2009).

The movement of the pastoralists which is an adjustment to climate changes has brought in its wake a new dimension to the conflicts where today, the media is being biased in reporting the incidents when the crop farmers engage in a fierce battle with cattle rearers in states such as Nasarawa, Plateau, Taraba, Zamfara, Niger, Kogi, Delta, Enugu, Ebonyi, Kwara, Oyo, Ondo, and Benue states., The reports that armed conflicts have taken center stage in some of these states sometimes is seeking to downplay the role of the criminal elements who take advantage of these movements to create chaos and in the thick of the confusion, engage pastoralists in a fierce battle in a habit to rustle their cattle as a cover-up. As a result,

they also maim and kill crop farmers to divert attention and the pastoralists are in the end fingered as the culprits and the reprisal attacks directed against them.

The pastoralists are most times caught up in the web of the viral menace of criminal gangs and this brings to force incidences of cattle rustling and violent conflicts in Brinin Gwari axis of Kaduna state, Dansadau area of *Zamfara* state, Awe, Doma, Obi, keana area of Nasarawa state, Dakina local government area of kogi state, Guma, logo and Agatu area of Benue state, as well as Mangu, Bakkos, and Bassa Local Government area of Plateau state. It can be argued that the pastoralists, essentially have never been supported by the government, particularly those who have lost their cattle to these armedgroups, and those who have suffered losses as a result of drought, diseases, flooding, and conflict-induced by the effects of climate change. Compared with the crop farming communities that have always been supported by the government. The conflict induced by global warming has led to the massive loss of lives, livestock, and property and displacement of people and associated refugee phenomenon, coupled with the poor handling style by the security agencies in the country, this has largely assumed a challenge for national security.

Climate Change and Conflict in Northern Nigeria

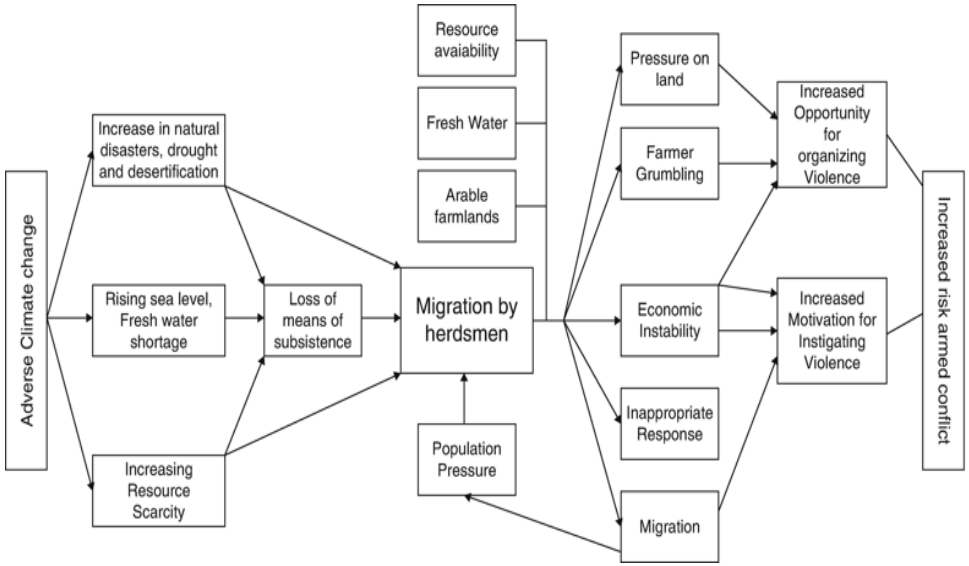
Climate change is irreversible observable variations in the state of the climate over time. It is caused by an increased concentration of greenhouse gases (GHGs) in the atmosphere. Greenhouse gases which include methane (CH4), carbon dioxide (CO2), water vapor (H20), and nitrous oxide (N20) are emitted through various human activities like burning of fossil fuels, wood burning, agricultural practices, gas flaring (Ogbo. 2013), and overgrazing. The wanton release of greenhouse gases into the atmosphere as a result ofthe burning of fossil fuels, burning of wood, gas flaring, agriculture, and other economic activities has continued to cause an increase in the average world's temperature. Recently, climate change has gained global attention as never before (Odjugo 2010) due to the problems it has triggered around the world. Nigeria particularly is experiencing the adverse effects of climate change evident in the occurrence of drought and desertification especially in the northern parts of the country (which are the arid region (Olaniyi. 2014). The subsistence farmers and pastoralists who are unable to access better technologies and improved agricultural practices are at the receiving end of these climate risks (Hendrix and Salehyan 2012).

The Fulanis in Nigeria are known for their nomadic and pastoral nature and have a relatively large and wealthy population. According to Odoh and Chigozie (2012), "Nigeria has a restricted inventory of pastoral peoples, the Fulani, the Kanuri-related groups, the Shuwa, the Yedina and the Uled Suleiman." Fulanis are the most widely spread around Africa and around the Volta region of Ghana, Gambia River, and Chad and most likely entered Nigeria before the fifteenth century. The raising of concerns about the rise of environmental migrants began about three decades ago when the then-director of the United Nations Environment Program projected a figure of about 50 million environmental refugees at the time (Bates 2002; Tolba 1989). In time past, the pastoralists were restricted to the edge of the desert, but during the twentieth century, they began to migrate and settle in different zones which was formerly impossible for them to do. The West African Sahelian drought and famine of 1968–1974, consequent upon climate change in the region, led to the migration of Fulani herdsmen and their cattle and resulted in pressure on and competition for resource use and conflict between farmers and pastoralists (Shettima and Tar 2008). The incidence of severe heat and less rain in northern Nigeria predisposes the region to climate impacts such as desertification and water and land scarcity. Pasture and water for cattle become scarce and found at different times of the year in different places thereby necessitating what is referred to as "seasonal migration" of the herdsmen and their herds (Emmanuel 2017). With almost two-thirds of the northwestern and eastern states at risk of turning into desert or semi-desert, the risk of climate conflicts cannot be ruled out.

Climate change affects the availability of pasture and water for animal consumption and is also responsible for droughts, desertification, extreme cold, and storms. Lakes are drying up and there is a decline in river flow in the northern region of Nigeria. There is less supply of water for agricultural purposes like crop production and maintenance of pasture for cattle rearing. When pastoralists are short-changed by these basic needs for their cattle due to climate change, it is common to find them moving from far north down to the North central in search of better environmental and weather conditions. This migration usually for adaptation purposes creates problems for the receiving communities. This kind of encroachment, according to Odoh and Chigozie (2012), could engender conflict given the pressure on land, food shortage, conflicts of interest, cultural differences, overpopulation, social

disorganization, and religious, social, and cultural intolerance that follows.

The framework adopted for this study illustrates the complex path to climate conflict originating from climate change. Climate change, from the human, needs theory, leads to the loss of means of livelihood through an increase in extreme events such as droughts and desertification. Loss of means of sustenance, in this case grazing land and water source for the cattle, influence migration decisions by herdsmen. Migration in turn leads to pressure and competition on limited resources among other things and finally leads to conflicts. Different from the common explanation that the clashes between herdsmen and farmers are ethno-religious, this pathway offers a new perspective on how resource scarcity and the need for survival can engender conflict.



Source (Odoh and Chigozie 2012)

The outcome of the scenario in the north has been the prevailing internecine between fanners and pastoralists, which has so far tended to have defied all remedies. An extrapolation from the forgoing theoretical postulation which has been articulated in this analytical paradigm and the crux of this theory is that the desperate quest for survival of these groups as well as their attempt to meet their basic need such as land that is scarce for farming and grazing activity is likely to precipitate violence. All the various versions of conflict theories have tried to explain the causes of conflict and the reasons for conflict escalation in human society; scholars like Marx,

Engels, VI Lenin, Ross, Scarborough, Johan Gattung, Collier, Mao Tse Tung, have not adequately explained how these social conflicts can be managed to have relative peace in the state which may not lead to the destruction of lives and property. The solution that Marx gives for revolution is not always the best in modern conflict analysis because of the development of weapons of mass destruction and the proliferation of small and light weapons in the hand of the common masses. Therefore, due tothese shortcomings, this study developed a conflict-integrated negation /mediation model as the basic model fundamentally employed for the purposeof this study, this is because the causes of this conflict are adequately explained and understood within the various theoretical prism. What's left now is how this conflict can be managed.

Conclusion

This study examined the effects of climate change on pastoralists and farmers'crises. Farmer-pastoralist conflicts, being a common feature of economic livelihood in Northern Nigeria, has been identified as a threat to peaceful coexistence, security, and orderliness. Climate change along with its attendant consequences has subjected both groups to an intensified struggle for the scarce resources available. Therefore, as part of the conflict-integrated negation/mediation model of this study, it is pertinent to pay keen attention to the effects of climate change, firstly by acknowledging that it is very much an environmental force that needs to be given the attention it deserves. Similarly, after the acknowledgement is the need to review, assess and modify previous state policies on land use and grazing laws to reflect the realities on the ground. There also seems to be a need for an aggressive campaign and education of the populace on what climate change is and how they in their communities can play a role in mitigating its effect. Most importantly, as new policies and new grounds are being set in place to manage the farmer-pastoralists dilemma, policies should not spawn out from a vacuum but should strive to take into account the differences in the sociocultural ideologies, beliefs, values, and salient underpinnings that makes these groups unique.The government should provide climate-smart interventions in the Sahelian areas which are more prone to climate change impacts for adaptation and mitigation; diversify crops, adopt improved silage and forage, and improve range management; and implement other improved agricultural systems as suggested in Nigeria's National Adaptation Strategies and Plan of Action towards climate change.

REFERENCES

Adogi, M. (2013). Fulani -Farmer conflicts inNasarrawa State; The Ecological,population and politics. Abuja: Murny Greens consult.

Akpaki, A.Z.(2002). Ackerbauern and Mobil Her hierhatter in Zentral& Nord-Benin.Dietrich Zeiner Verlag

Blench, R (2004). National resources conflict in north central Nigeria: A hand book and case Studies. Mallam Dendo ltd.

Collier, P. et al (2003). Breaking the conflicts Trap: Civil and Interest in Comparative Perspective. New Haren Yale University press.

Coser L.A (1977). Master of Sociology Thought, New York, hour court Jovanrich

Deutch M. (1991), subjective features of conflict Resolution - dimension in conflict inthem London: Sage Publication pp 29-30.

Dunmoye, A.R. (2009). "Security Development Nexus Conflict and Crisis in Nigeria"National Defence College, Abuja.

Ekanda, B.A. (2004). Beyond Isolation: Towards Co-operation, Relations and Resolutions of thnic conflicts in contemporary African Society. CODESRIA Bull 3-4 pp 35-37

Hagherg, S.(1998). Between peace and justice, dispute settlement between Karaboro agriculturalist and fulbeagro- pastoralists in Burkina Faso Upper sala. Uppsala studies in cultural anthropology.25.

Hendrix CS, Salehyan I (2012) Climate change, rainfall and social conflict in Africa. J Peace Res 49(1):35–50

Ikani, I.E. & Ibrahim, O. A. (2008).Pastoralist-crop Farmers Conflict and Resolution mechanisms in kogi State. North Central Nigeria in Gefu, J.O Clement, B.I.A and Maisamari B(eds) the future of translimance pastoralism in west Africa and central Africa: strategies, dynamics, conflicts and interventions. Shika-Zaria: National Animal production Research Institute.

IPCC (Intergovernmental Panel on Climate Change) (2003) Climate change 2003: synthesis report. A contribution of Working Groups I, II, and III of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge

Khan, I. (2007). Climate changes and Nomads/Farmers conflict, paper presented at workshop on Nomadic and Farmers conflicts, Organized by the miyyati Allah cattle breeders Association, sokoto Branch, October 2007

Memorandum Submitted to Senate Public Hearing by the Joint Senate Committees on Agriculture and Rural Development and National Security and Intelligence on 10th May, 2016. Miyetti Allah Cattle Breeders Association of Nigeria (MACB And RC. NO. 3500.)

Nyong A. (2010), "Climate related conflicts in West Africa" - in report from African publication, Health environment and conflicts ESCO report issue 12

Nyong, A. Fiki, C. (2005). Droughts related Conflicts, Management and Resolution in the West African Sahel. Human Security and Climate Change. International workshop. Oslo GECHS, ICERO and PR20, pp5-16.

Odoh SI, Chigozie CF (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 J Bus Manag Rev 2(1):110–124

Ofuoku A.U &Isife B.I (2009) causes, effects and resolution of farmers/nomadic cattle herdersconflict in delta state Nigeria: international journal of sociology and anthropology 1(2) 49-50.

Rose R. S., and Rose J. R. (1989). Small Group in Organization Settings. Englewood Cliffs, N J; Prentice Hall.

Santer, B.D et al. (1996). "A search for human influences on the thermal structure of the atmosphere," *Nature* Vol 382, 4 July 1996, pp.39-46 https://climate.nasa.gov/ .

Scarborough, G.I. (1998). An expert system for accessing vulnerability to instability in Davies and T.R Gurr (eds) (1998) preventive measures: Building Risk, Risk Assessment and crisis early warning systems Lanham M.D Rowan and Little Field.

Shettima AG, Tar UA (2008) Farmer-pastoralist conflict in West Africa: exploring the causes and consequences. Inform Soc Justice 1(2):163–184.

Shuaibu, M, Badamasi, Afi Andrigas A. y. (2015) climate change and parasitic shift: Strategy for the Fulani of Northern Nigeria. Department of Apply Science, School Of General And Applied Studies, Shehu Idris Collage Of Health Science and Technology, Markarfi, Kaduna, Kaduna State Polytechnic.

Tonah S. (2006). Managing herders/farmers conflict in Ghana and volta Basin. Ibadan journal of social science 4(l):33-45.

Vanderline, J. (2005). Conflicts and cooperation over the commons: A conceptual and methodological Framework for Assessing the Role of local institution http.www. Itri ogar .org.