

## Climate Change, Population Drift and Violent Conflict over Land Resources in Northeastern Nigeria

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**ABSTRACT** In the recent times, due to the increasing rate of global warming, the northeast region of Nigeria has been experiencing continuous climatic change characterized by drastic reduction in rainfall, increase in the rate of dryness and heat, which makes it a fast growing arid environment, with depletion in the amount of water, flora and fauna resources on the land. In response to the pastoral and arable farm occupational needs of the people, there has been continuous population drift southward where there are more fauna, flora and water resources. Following the above, an important question that needs to be addressed is how has the pressure over scarce resources consequent to climatic change led to communal civil violent conflict in the area? And what have been the patterns over the years? Against this background, this work focuses on investigating the chain of interactions between climate change, population drift and pressure, and conflict over land resources. Specifically this article addresses the nature of communal civil violent conflicts in the northeast area of Nigeria, the extent to which continuous climate change has contributed to the scenario, the patterns of the climatically induced violent conflicts, the major actors and the policy implications of the conflict in the sub region. Among other theoretical orientations, this discourse anchors on and utilizes the Toronto School of Environmental Scarcity and Conflicts paradigm in examining what obtains in the study area. However, it went step further to present a fair critical overview of the weakness and strength of the theoretical postulation of "ecoviolence" of the Toronto school as amplified by Homer-Dixon, his associates and other scholars in the field of conflict analysis

### INTRODUCTION

Climate conditions throughout the whole world have been constantly changing. The world had gone through series of climate epochs, which include the ice age, and consequently, the ice recessions among others. In the recent times, Intergovernmental Panel on Climate Change (IPCC), World Meteorological Organization (WMO) and United Nations Environment Programme (UNEP) established that the earth has become warmer over the last century. According to them, the average surface temperature of the earth has increased during the twentieth century by about  $0.6 \pm 0.2^\circ\text{C}$ . It is warmer presently around the world than at any other time during the past 1000 years, with possibilities of warmest years of the previous century occurring within the past decades. This change in temperature usually lead to lower ozone levels near the earth's surface, and significant increase of Smog problems in the cities where the release of carbon dioxide is greater. Generally, small increases in atmospheric temperatures could also change the way clouds form and dissipate. Warmer temperatures near the ground could cause lower clouds to evaporate, letting heat rise farther into the

atmosphere. As this heated air rises and cools, higher clouds form, but lower clouds usually reflect sunlight back into space while higher clouds tend to absorb more heat. Therefore more high cloud means more heat trapped near the earth's surface, so small increases in temperature could set off a cycle in which the temperature holds more and more heat over time.

The earth's constant warming and heating has affected many parts of Nigeria, especially those in the Northern fringes of the country, who are located far away from the cooling effect of the sea along the coastline down the south. As a result of this, the region has been experiencing continuous climate change characterized by reduction in rainfall, increase in the rate of dryness and heat. The north eastern Nigeria which was mainly a Sudan Savannah is increasingly becoming an arid environment at a very fast receding rate, estimated at about 0.6 kilometer per year occasioned by fast depletion in the amount of surface water, flora and fauna resource on the land. Land cover changes are indeed important index of climate change in Nigeria and other countries. The consistent reduction in rainfall leads to a reduction in the natural regeneration rate of land resources, which

presents a chain of causal reaction that, makes people to exploit more previously undisturbed lands leading to depletion of the forest cover and increase in the sand dunes/Aeolian deposits. The strong and worrisome increase of 425% in the extent of sand dunes/Aeolian deposits between 1976 and 1995 is a strong pointer to land resource loss due to climate change (Fasona and Omojola, 2005) and possibilities of desert encroachment around the northern axis of Nigeria.

The decreasing availability of physical, environmental and land resources such as clean water, good agricultural land for arable and animal husbandry could create a condition of “simple scarcity”, “group identity” and “deprivation” in the area, (Homer-Dixon, 1994) that may provoke violent conflicts of high magnitude due to population movements and scramble for the available resources. This notion as championed by Homer-Dixon and his associates has its root in the neo-Malthusian notions of carrying capacity which explicates the interface between human population and available resources. Homer-Dixon and his neo-Malthusian protagonists have been criticized on both theoretical and empirical grounds (Gleditsch, 1998 and De Soysa, 2002) because there are other variables that actively relate to conflict on set and generation<sup>1</sup>. Gleditsch maintains that people analyze the causal chain in the conflict onset from their different orientations in his words,

*Not everyone includes all the elements of this causal chain or puts the emphasis in the same place. Biologists frequently single out population growth as the key causal factor; environmentalists tend to start with environmental degradation; and critics of capitalism tend to emphasize excessive consumption.....*  
( Gleditsch, 1998: 383)

Collier and Hoeffler (2001) explain the risk of conflict in their model of greed and grievance. The crux of their argument is that rent-seeking activities based on resource abundance are prime factor in greed or opportunity models of internal conflict and war<sup>2</sup>. Thereby indicating that resource abundance, not necessarily scarcity could be a veritable source of conflict as demonstrated by Anderson (2003). From a deeper reflection, De Soya (2002) notes that most studies including those by the Development Economics Research Group at the World Bank find strong empirical support for the proposition that natural

resources motivate rapacious behaviour and allow the finance of civil war. She found that conflict is likelier when countries have a moderate level of renewable resources per capita but diminishes with abundance. Also from her empirical findings, she concludes that relative availability of renewable resources per capita seems to be more problematic in terms of conflict and there are no direct links from renewable resource scarcity to conflict.

In the case of northeast axis of Nigeria, one may not generalize from the above studies that onset of communal violent conflicts in that zone is mainly as a result of rebellion against the government or the need by some rebel groups to take control of extractable, movable and export oriented materials to sustain a fight as it is the case in some resource rich countries in West Africa. The northern Nigerian case may be a bit different also from the point of view of the actors in the conflict, who are mainly arable peasants and the herdsmen, in which case the involvement of the state is at the stage of dispute settlement rather than on the onset of violence. The task ahead which this article intends to address is a systematic identification and analysis of cases from that zone with an aim of fitting the scenario into an existing standard theoretical orientation in environment and conflict nexus

Previous study in the northeast Nigeria by Fiki and Lee (2004) has highlighted some aspects of conflict generation, conflict management, and self – organizing capabilities in drought – prone rural communities, but this present study seeks to integrate the scarcity of flora as the fulcrum of analysis. In other words, an attempt would be made to understand the role of scramble for flora in conflict generation among the sedentary arable farmers and the migratory herdsmen/pastoralists in the area.

In the light of the above, this discourse focuses on the chain of interactions between land resources scarcity, the scrambling and outbreaks of violent conflicts in northeast Nigeria. The discourse utilizes secondary data sources for collection of information, which were analysed by “content analysis”. Prolonged observational study was also carried out in the study area over a period of time. The body of the discourse is presented in the following sections after the introduction, Nigeria and North East Nigeria in Climate Perspective; Theoretical framework of Analysis; Nature of violent conflicts; Environmentally induced Conflict over land

resources in North East Nigeria; Emerging Pattern of Environmentally induced Conflict over land resources in North East Nigeria and the policy implications of violent conflict over land resources in the area of study.

### LOCATION OF STUDY

The northeast zone, which comprises of about one fourth of the countries land mass of Nigeria situates within 9°-14°N and 8°-15°E (Iloeje, 1976). Politically, the zone comprises of Bornu, Yobe, Adamawa, Taraba, Gombe, and Bauchi (six States). Most of these states share boundaries with international communities like Cameroun, and Chad Republics. It experiences acute dryness on the soil, which hardly supports luxuriant growth of grass and other flora biodiversities. However, there is luxuriant growth of trees around riverbeds, mountains and highlands, which supports arable and animal husbandry. The region's population is made up of both sedentary arable farmers and migratory herdsmen, mainly of Fulani ethnic group. There are about 200 ethnic groups in this zone, among which are the Tiv, Fulani, Bachama, Kutep, Jukun, etc (TEE-REX, 2003).

### NIGERIA AND NORTH EASTERN NIGERIA IN CLIMATE PERSPECTIVE

In the past, the descriptions of the climate of Nigeria, and indeed North Eastern Nigeria have been rather simplistic due to paucity of data, but with the availability of data manipulation techniques, it is possible to discuss more fundamental features of the climate. Such is necessary at this point in time as recent droughts, water shortages, fauna and flora depletion have highlighted how important it is to understand weather phenomena (Oguntoyinbo, 1982) and how they affect human security. Nigeria is one of the countries in West African sub-region; it has an estimated population of about 140million people (Nigeria 2006 Census) spread over a land area of 932,768sqkm. Nigeria is bound by Cameroon to the east, Chad to the northeast, Niger to the north, Benin to the west, and the Atlantic Ocean to the south.

Due to its location along the tropics of equator, Nigeria experiences high temperatures all the year round, with seasonal and latitudinal variations which affect the seasonal ranges. Within Nigeria, the mean temperatures are

determined by the location of a particular place in question. Observation indicates that mean maximum temperatures increase from the coast northward. The highest monthly mean of 32.2°C for the coastal region to a mean of 40.6°C in the extreme north, including the northeast axis is common. The Rainfall pattern in Nigeria is a good reflection of the seasonal variations of the surface location of the Inter-Tropical Discontinuity. The basic characteristics depict a decrease both in duration and amount from the coastline to the interior except where altitudinal effects create some breaks and alterations. The coastal areas receive more than 4000mm spread over 8-10 months, while the extreme north fringes of the country receives less than 250mm, which is spread over a shorter period of time between 3-4 months.

The implication of variation in the overall climatic condition is differentiation in the vegetative zones in Nigeria, which are tied to a combination of amount of rainfall and temperature. The ecology of the country varies from tropical forest in the south to dry savanna in the far north, yielding a diverse mix of plant and animal life. About two-thirds of Nigeria lies in the watershed of the Niger River, which empties in to the Atlantic at the Niger Delta, and its major tributaries: the Benue in the northeast, the Kaduna in the west, the Sokoto in the northwest, and the Anambra in the southeast. The amount of vegetation cover on the soil decrease northwards, with the extreme north relatively bare compared to other zones. There are forests<sup>3</sup>, Savannah<sup>4</sup>, and *mountane* vegetation zones. In the low-lying coastal regions, mangroves are found while swamp forest are found where the water is fresh. Farther inland, this vegetation gives way to tropical forest, with its many species of tropical hardwoods, including mahogany, *iroko*, and *obeche*. The fauna of Nigeria includes elephants, buffaloes, lions, and leopards, smaller animals such as antelope, monkeys, jackals, and hyenas, which are found in abundance. Hippopotamuses and crocodiles are still common in the largest rivers. Birds, including species that migrate seasonally between Africa and Europe, are also abundant in Nigeria.

### THEORETICAL FRAMEWORK OF ANALYSIS

In this section, the theoretical framework of analyzing inter-linkage between environmental

changes and possible conflict situation is presented. Without the full understanding of the intervening factors, it may be difficult to grasp the true nature of the relationship between human activity, environmental change, social disruption and conflict in northeast, Nigeria. An illustration of a framework of analysis advanced by Homer-Dixon (1991) will be utilized as the primary theoretical anchor in this paper as shown in figure 1. Homer-Dixon and other neo-Malthusian scholars rooted their perspective in the “*ecoviolenc*” maxim that “*shrinking resource pie*” is supposedly fuelling violent civil conflict by aggravating strained social relationships among different groups sharing common natural resources, as against others that believe in the proverbial “*honey pot*” thesis of conflict onset. The ecoviolence theories perspective of conflict explains that conflict is generated by the scarcity of natural resources in at least two primary ways as has been incorporated by Homer-Dixon and associates from the Toronto school of thought.

The illustration suggested by Homer-Dixon implies that the total effect of human activity on the environment in a particular ecological zone is mainly a function of two variables: first, the product of total *population in the region* and *physical activity per capita*<sup>5</sup>, and second, the

*vulnerability of the ecosystem in that region to those particular activities.*

The figure also shows that environmental effects may cause “social effects” that in turn could lead to conflict. For instance desert encroachment on landmass may produce large-scale migration, which could create ethnic conflicts as migratory groups clash with indigenous (settled) populations. Within this paradigm, we must be aware of the intervening role of population growth, demographic structure, and patterns of population distribution. (Simon, 1981; McNicoll, 1984; Ehrlich and Ehrlich, 1990).

Similarly, researchers must understand the effect of the *ideational-factors*<sup>1</sup> in conflict generation. The threshold beyond or within which given societies could respond effectively to the inbuilt stress induced by climate/environmental change differs. Particularly, if we wish to understand a society’s propensity towards conflict, given certain social effects due to the environmental stress, we need to understand the relationship, between the ideational factors and conflict. However, environmental stress and consequent conflict relation do not occur if environmental and resource scarcity threshold is not attained. The

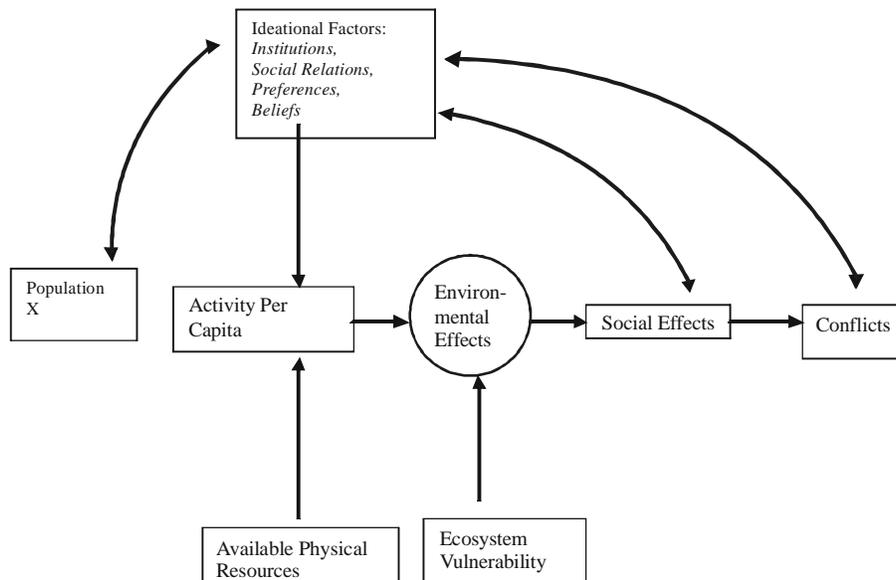


Fig. 1. Environmental change and acute conflict nexus adopted from Homer-Dixon (1991)

threshold of environmental scarcity could be attained as a result of interaction amongst sources of scarcity in a particular environment as proposed by Homer-Dixon (1994). According to him, the three sources of environmental scarcity often interact; in two distinct patterns “resource capture”<sup>2</sup> and “ecological marginalization”<sup>3</sup>.

Resource capture depicts a situation where a fall in the quantity and quality of renewable resources can combine with population growth to encourage powerful or advantaged groups within a society to shift resource distribution in their favour. This usually produces acute environmental scarcity for poorer and weaker groups whose claims to resources are opposed by more powerful groups. On the other hand, unequal resource access can combine with population growth to cause migration to regions that are ecologically fragile, such as steep upland slopes, areas at risk of desertification, and tropical rain forests. High population densities in these areas, combined with a lack of knowledge and capital to protect local resources, causes severe environmental damage and chronic poverty. The second process is usually called “ecological marginalisation” (Homer-Dixon, 1994).

Having illustrated the interaction between climate/environmental change and conflict, and subsequently, how the interaction of sources of environmental scarcity emerges, it is important to know that the end point of these processes as illustrated above is conflict. In this regard, three theoretical perspective of conflict frustration – aggression (Dollard, et al, 1939; Berkowitz, 1962; Gurr, 1970), group identify (Sherif, 1966; Tajfel, 1981; Azar and Burton, 1986; Horowitz, 1985) and structural theories (Wendt, 1987; Giddens, 1984) explains the type of conflicts – at individual, group and systems levels – that could emerge as a result of conflict prone situations. The general patterns of conflict discernable could be reduced to *Simple-Scarcity conflicts*, *Group-Identity related conflicts*, and *Relative Deprivation induced conflicts* (Fig. 2).

In examining the interaction between climate change, population drift and violent conflict over land resources in northeast Nigeria, these theoretical perspectives would be applied to determine the climate – social effect nexus and the pattern of conflicts that emerge in the area. Our analysis of what obtains in that part of Nigeria may not be restricted to the given paradigms already advanced by earlier scholars, especially the Homer-Dixon and Toronto School of thought.

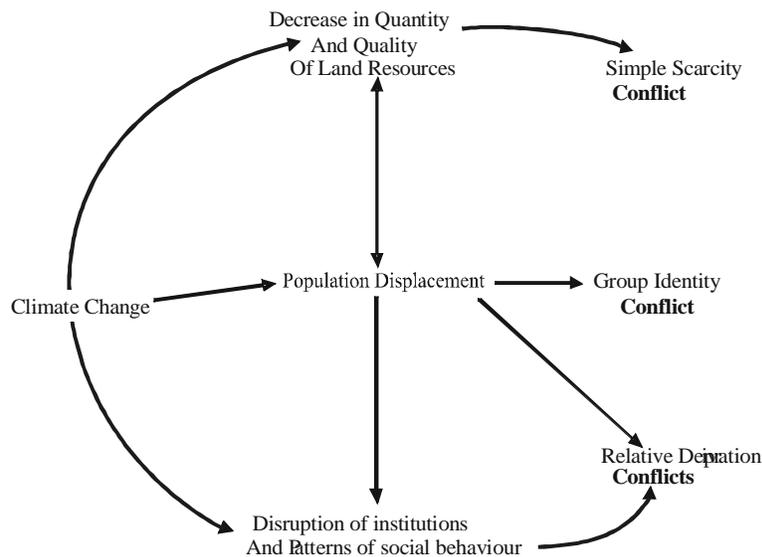


Fig. 2. Types of conflicts likely to arise from environmental change

Note: This model was proposed by Homer-Dixon (1991)

**CRITICAL ANALYSIS OF TORONTO  
SCHOOL AND HOMER-DIXON'S  
THEORETICAL ANALYSIS OF  
ENVIRONMENT AND  
CONFLICT NEXUS**

Homer-Dixon and his associates have been criticized by other scholars who believe in the 'honey pot' theory of conflict generation, with over concentration on the premise that there is a supposedly a direct linkage between environmental scarcity and conflict, thereby projecting environment as an overbearing independent variable to conflict. There may be empirical evidences to support this view to some extent, especially in relation to inter tribal warfare in single cases by Anthropologists where environmental factors were found very important in explaining warfare among the *Yuman* societies of Colorado and Gila rivers (Graham, 1975<sup>1</sup>). But despite the numerous pronouncements on the relationship between the two variables, there is no consensus yet on the causal mechanism and directions. Most of the anti-neo Malthusians believe that there are other strictly mutually related variables that may be considered in the analysis of environment conflict nexus.

As earlier pointed out, Gleditsch (1998) believes that there are other paths to conflict and not necessarily environment. In other words the relationship between environment and communal conflict may not be direct, even though Homer-Dixon and his associates over simplified the relationship through selected case study approach to justify the dependent variable, where there is single-factor reasoning. He enunciated that "in examining only cases of conflicts, one is likely to find at least partial confirmation of whatever one is looking for, unless there are very clearly specified criteria for the threshold level of the independent variable assumed to lead to violence. No society is completely free of environmental degradation, nor is any society completely free of ethnic fragmentation, religious differences, economic inequalities, or problems of governance. From a set of armed conflicts, one may variously conclude that they are all environmental conflicts, ethnic conflicts, clashes of civilizations, or products of bad governance" (Gleditsch, 1998: 392).

However, Homer-Dixon and associates justify this method by arguing that biased case selection

enhances understanding of the complex relationships among variables in highly interactive social, political, economic, and environmental system. Gleditsch outlined two problems from this orientation

*There are two problems with this argument. One is that it seems to imply that environmental problems are more complex than other social (or for that matter physical) phenomena that researchers study. No justification is given for this view. I would argue on the contrary, that any social system is as complex as the theory developed to study it.....Second any methodological limitation can be justified at an exploratory stage (Gleditsch, 1998: 391-392)*

Similarly, the Toronto School and Homer-Dixon fell short of some of the expectations in their environment-conflict analysis by fallen into the nine common problems<sup>2</sup> in armed conflict and environment study as identified by Gleditsch (1998: 387-395). For instance some problematic aspects of the complex and untestable models characterized studies from Homer-Dixon and his associates. Apart from the methodological criticisms, recent studies have countered the Toronto School's conclusion on the powerful influence of environmental scarcity as a predictor of civil conflict. Also, De Soysa (2002) found little support for the ecoviolence and 'ingenuity gaps' argument as propounded by the Toronto school of thought and other theorists of environmental scarcity and conflict nexus. Contrarily, she found direct and indirect effects for resource curse arguments. According to her study, the 'honey pot' effects from resource abundance are likely also to be reinforced by the 'resource curse' effects on the economy and society spawning conflict via the 'silent force of greed' and providing ample reason for loud discourse of grievance. Concluding from her empirical study, in her own words she says

*...the results show a direct positive effect of abundance of mineral wealth on civil conflict, regardless of whether these resources are located among the poor states, support for the view that the 'honey pot' of abundant mineral resources is a major determinant of civil conflict. An abundance of natural capital, measured as land abundance, pasture, agricultural and timber assets, and non-timber forest*

*assets(renewable), shows a curvilinear shape with conflict, whereby moderate levels of renewable resource wealth per capita predicts conflict, not extreme scarcity ( De Soysa, 2002)*

One important contribution of De Soysa's empirical study is the correction of some already taken for granted notions earlier advanced by the Toronto school of *ecoviolence* theories, which is further amplified by Homer-Dixon and associates. It has provided an alternative explanations and conclusions without ambiguities by testing the proposition that resource scarcity leads to conflict and lower development by utilizing a more precise measure of scarcity- the total par capita stock of natural capital disaggregated as renewable and non-renewable.

#### **ENVIRONMENTALLY INDUCED CONFLICT OVER LAND RESOURCES IN NORTH EAST NIGERIA**

With particular reference to our area of study, violent conflicts that have taken place there over the years could be described according to scope, stake, actors and location as the case may be. The conflict situation is likely to continue in a progressive manner due to the increasing down-south march of the Sahara desert through the Sahelian zone of the northeast Nigeria is leading to opening up of more agrarian land to grazing, which usually marks the beginning of hostile contact between the arable agriculturists and the pastoralists. However, what is important to us in this paper is identification of the types that are environmentally induced in the northeast fringes of Nigeria.

In North East Nigeria, there are many conflicts, which are environmentally induced. These are conflicts over grazing land, over cattle, over water points and over cultivable land. While there are conflicts over grazing land and over cattle amongst pastoral people, there are also conflicts over cultivable land amongst peasant farmers within the same ethnic group and also between ethnic groups. Such conflicts amongst pastoralists are common and widespread in Nigeria. This is similar to what happens in, the Karamajong of Uganda and the Pokot of Kenya who have been fighting over grazing land and over cattle for more than three decades (Bujra, 2000). Other examples of conflicts amongst

pastoralists are many in other parts of Africa: among the Somalis, Oromos, Karamajong, Pokot, Masai, etc. Similarly, conflicts for fertile and cultivable land have been taking place amongst many ethnic groups in the area like elsewhere in Africa<sup>3</sup>.

Most of these rural conflicts over land and cattle have been going on over a long period, with very little attention given to them. Even today, most such conflicts go unnoticed and unreported – unless large-scale killing and injuries take place and the state intervenes militarily. These conflicts go back a long way, in some cases to the pre-colonial period. However, major changes have been introduced in the countries' economies such as changes over land laws, which often contradict customary laws (Obioha, 2000; Obioha, 2002; Obioha, 2004), confiscation of large tracts of land for ranching and large-scale farming, and increase in population. Most important is the rise of rural inequalities – between rich and poor/landless farmers, between rich ranchers and poor cattle owners. These changes have led to a considerable competition for the scarce resources of land (cultivable and grazing, including water). Furthermore, environmental deterioration in land productivity and scarcity of water has contributed to the intensity of the competition. Amongst pastoral societies in particular, the system of grazing, which involves movement of large cattle herds to water points and in search of pasture, has created a serious problem. Private ownership of land has restricted these necessary movements of pastoralist and the impact has been serious and catastrophic on pastoralist societies (Bujra, 2000).

Different cases and examples of violent conflict over land resources in north eastern Nigeria in the recent time include those that have been occurring in different states of that region of Nigeria. The particular worrying situation is the ongoing conflict between the Jukuns and the Tivs, and related tensions between other groups, in the central states of Benue, Taraba and Nasarawa. This conflict culminated in the killing of more than 200 civilians by the military in Benue in October 2001. The case of Tiv-Jukun crises is deep rooted in the issue of traditional homelands, which is deep in Nigerian culture and it is a typical case of between two sedentary cultivator groups from different ethnic groups. There was once a Jukun kingdom over much of

the area of the conflict, and there is much sentiment among the Jukun that this is their land. The Tiv staple diet yam, a nutritious root, which removes almost all nutrition from the soil, and yam fields, must lie fallow for several years before reusing them. So each year, Tiv farmers must move to new plots of land, and after generations they began to feel this was their right. Jukun felt the Tiv were no longer respecting the rights of the traditional people of the area, but were taking new land without permission. In essence, it is convincing that the Tivs system of farming, which is the shifting cultivation pattern invariably, forces them or preconditions them to move from one plot of land to another with great possibility of pushing them towards the brinks of their marked portion and consequent conflict with their neighbours.

Similarly, many parts of central and northeastern Nigeria have recorded many violent disputes between indigenous farming communities and nomads in recent years, due to increasing desertification and consequent population pressure over land in the country's northern fringes which forces grazers away from their original abode<sup>4</sup>. As a result, many pastoral people have started pushing southwards in search of grazing land, accounting to a large extent for the conflict between Tivs and the pastoral Hausa-Fulani people in June 2001 (IRIN-WA 18 July 2001). Also in March 2003, many people were killed when a group of heavily armed men attacked the town of Dumne, Bornu state in northeastern Nigeria. The attackers, thought to be nomadic herdsmen from neighbouring Chad, attacked the rural town. According to reports from the area, some of the residents believed the attack were not unrelated to a violent dispute over grazing land in September 2002 between local people, who are mainly farmers, and nomadic herdsmen.

#### **EMERGING PATTERN OF ENVIRONMENTALLY INDUCED CONFLICT OVER LAND RESOURCES IN NORTHEAST NIGERIA**

A summary of various conflicts in Nigeria, including those that are climate change induced in the last few years are captured in Fasona and Omojola (2005). Various conflicts over land as reported in their study range from inter-community struggle for dominance and control of land resources in the very densely populated

states of southeast Nigeria to struggle for control of land, environment and oil production in the Niger Delta region of Nigeria, and most important to this article, the conflict between the cattle Fulani herdsmen and the settled cultivator natives of guinea savannah over the right to land. Exclusively land related conflicts and those that partially relate to land account for more than 50% of the communal clashes experienced in Nigeria from 1991 to 2005. The pattern of the climate variability related conflicts in northeast Nigeria could be likened to that of "pull" and "push" drag of elastic object where there are pressure ends that are ordinarily unwilling to let go, else it would hurt. "The guinea savannah farmer who is already farming close to the margins of cultivation" as Fasona and Omojola puts it would naturally resist any attempt of invasion of his farmland by the cattle herdsmen who are continually in search of greener pastures that are only in existence within the limit of arable land.

More critical empirical examination of the emerging violent conflicts over land resources in northeast Nigeria indicates that about eleven types of conflict types could be identified and distinguished (Table 1).

These include those that may take place at inter-ethnic, intra ethnic or even personal level, with actors in the conflict varying from the same group of people who claim original ownership of the land regarded as the '*indigenes*' and also between this particular type of group (indigenes) and people who migrated into the same area latter on referred to as '*settlers*'. Conflict could also be between the same people that share the same residence status or between those that share contradictory rights. From the table, the major stake or issue of interest or contention is either arable land or fresh vegetation grazing land as the case may be, while the objective sort may be for distributive justice, which is usually the case in some areas where particular section(s) of the community feel cheated in terms of the expanse of land due to them. Other objectives sort could also be to reinforce group identity or search for relief from scarcity when the occasion arises or both. The former has a very strong leaning towards political emancipation and the control of the super structures of the community or area, while the latter is more inclined towards the capturing of the economic base of the community, which is land.

**Table 1: Typologies of climatically induced violent conflict over land resources in North East Nigeria**

<i>Types</i>	<i>Level</i>	<i>Actors</i>	<i>Occupation</i>	<i>Stake</i>	<i>Dimension</i>	<i>Objective sort</i>
TP1	Inter Ethnic	Indigene/ settler	Cultivators/ herdsmen	Vegetation and land	Domestic/ international	Relief from scarcity/ reinforcement of group identity
TP2	Inter Ethnic	Indigene/ settler	Cultivator/ cultivators	Arable land	Domestic	Relief from scarcity/ reinforcement of group identity
TP3	Inter Ethnic	Indigene/ settler	Herdsmen/ herdsmen	Grazing land	Domestic/ international	Relief from scarcity/ reinforcement of group identity
TP4	Inter Ethnic	settler/ settler	Cultivator/ cultivators	Arable land	Domestic	Relief from scarcity/ reinforcement of group identity
TP5	Intra Ethnic	indigene/ indigene	Cultivator/ cultivators	Arable land	Domestic	Distributive Justice
TP6	Intra Ethnic	Indigene/ indigene	Herdsmen/ herdsmen	Grazing land	Domestic	Relief from scarcity
TP7	Intra Ethnic	Settler/ settler	Herdsmen/ herdsmen	Grazing land	Domestic	Relief from scarcity
TP8	Intra Ethnic	Settler/ settler	Cultivator/ cultivators	Arable land	Domestic	Distributive Justice
TP9	Inter Personal	Settler/ settler	Cultivator/ cultivators	Arable land	Domestic	Distributive Justice
TP10	Inter Personal	Settler/ indigene	Cultivator/ cultivators	Arable land	Domestic	Distributive Justice
TP11	Inter Personal	Indigene/ indigene	Cultivator/ cultivators	Arable land	Domestic	Distributive Justice

Source: Obioha, 2005

These typologies or patterns are not mutually exclusive from one another because there are instances where two or more types emerge. Studies in the past for instance (Fiki and Lee, 2004) and more recently (Nyong and Fiki, 2005), outlined patterns of conflicts that occur in the northern/Sahel region of Nigeria, which includes most parts of northeast Nigeria. For instance, Nyong and Fiki identified five different types of natural resource related conflict in terms of actors involved as follows,

- 1) family/Household Conflicts
- 2) Inter group conflicts between different household/or ethnic groups,
- 3) Intra-group conflicts between different socio-economic groups within an ethnic group,
- 4) Conflicts between the state and people
- 5) Inter regional and international conflicts between the north and the other regions within Nigeria and also between neighbouring countries.

This classification could be perceived as non-mutually exclusive categorization where there are overlapping cases among typologies in the actors involved in the process.

The typologies observed in the northeast Nigeria could be applied to recent violent conflicts in the area to demonstrate their usability in explaining or describing scenarios in the area

(Table 2). From the general picture in the table, in 2000 the Biliri uprising was as a result of religious crisis between the native population and the migrant group who are also referred to as settlers. One of the important characteristic of this case is the inter-ethnic nature which presents reinforcement of group identity as the main issue. One may at this point think that the conflict arising from here are entirely as a result of religious differences, not knowing that there are more land issue to it than the eye could see. Similar to the 2000 uprising, the Song crisis 2002 was distinctively an out come of scramble for limited land resources between the settled cultivating population and the migratory Fulani herdsmen, which makes it an inter-ethnic conflict.

Besides, the object of the conflict was not only to seek relief from scarcity, but also to reinforce group identity and supremacy. Other conflicts situations that share the same characteristics with the Song crisis include, the Yelwa/Shenda/Wase communal disturbances, the Demsa area crisis, and the Bali village reprisal attacks, which are motivated mainly by the need to control land resources and also to test group identity. On the other hand, while the Dumen village crisis of 2002 was mainly a land issue and scarcity, the Numan conflicts in 2004 and 2005 are exclusively to test the strength of group cohesion and identity. This is so because in the two instances, the actors in the crises were

**Table 2: Application of typologies to specific conflict cases and scenarios**

<i>1</i>	<i>Crisis / Location</i>	<i>Year</i>	<i>Level</i>	<i>Actors</i>	<i>Occupation</i>	<i>Objective sort</i>
2	Billiri Uprising	2000	Inter ethnic	Indigene/ settler	-	Reinforcement of group identity
3	Song Crisis	2002	Inter ethnic	Indigene/ settler	Herdsmen/ Cultivators	Relief from scarcity/ reinforcement of group Identity
4	Dumen Village	2002	Inter ethnic	Indigene/ settler	Herdsmen/ Cultivators	Relief from scarcity
5	Yelwa/ Shendam /Wase	2003	Inter ethnic	Indigene/ settler	Cultivators/ Cultivators	Relief from scarcity and reinforcement of group identity
6	Numan	2004	Inter ethnic	Indigene/ indigene	-	Reinforcement of group identity
7	Demsa	2005	Inter ethnic	Indigene/ settler	Herdsmen/ Cultivators	Relief from scarcity and reinforcement of group identity
8	Lamurde	2005	Intra ethnic	Indigene/ indigene	Cultivators/ Cultivators	Reinforcement of group identity
9	Madagali	2005	Inter ethnic	Indigene/ indigene	-	Reinforcement of group identity
10	Bali Village reprisals	2005	Inter ethnic	Indigene/ settler	Herdsmen/ Cultivators	Relief from scarcity and reinforcement of group identity
11	Numan reprisals	2005	Inter ethnic	Indigene/ indigene	-	Reinforcement of group identity

both claimants of indigenous rights. Generally, the summary presented on the table, though not yet exhaustive portends that most of the conflicts in the northeast axis of Nigeria are inter-ethnic in nature, while very few cases are between people of the same ethnic origin, like the case of Lamurde in 2005.

With regard to the actors and occupations of the opposing groups, our matching shows that both indigene/settle and indigene/indigene dichotomies are equally common actors, while the herdsmen/cultivators conflict is the commonest for occupational analysis. Object sort, which is usually the remote cause of the conflict range from reinforcement of group identity to scramble for relief from available scarce resources.

The various emerging conflict types in the northeast Nigeria fit into the earlier analysis of Homer-Dixon (1991), where he distinguished *Simple Scarcity, Group Identify and Relative Deprivation Conflicts*. Simple Scarcity Conflicts are explained and predicted by general structural theories. These are conflicts where actors rationally calculate their interests in a zero-sum or negative-sum situation such as might arise from resource scarcity. As a result of this they become land shortage and unable to practice what is their subsistence occupation, and on the extreme they are made poor because of their

inadequate land or landlessness (Obioha and Odumosu, 2001). Such conflicts have erupted several times in the northeast axis of Nigeria, which usually arise over the scramble over some types of resources in particular: river water and agricultural productive land. These renewable resources by implication seem particularly likely to spark conflicts because their scarcity is increasing rapidly without commensurate replenishment.

## DISCUSSION OF FINDINGS

Evidently, as has presented above, there is a positive feedback relationship between conflicts in the northeast Nigeria and increasing quest by competing interests to control the available scarce resources in the area. For instance, the need for more food has led to serious interpersonal conflict over land. The peasant populations often clash with one another when there is scramble for possession of arable land near water sources in the Sahel Savannah. Violent conflicts involving different typologies we identified in the area of study is very recurrent. In most cases, Simple Scarcity Conflict is usually of both domestic and international dimension, involving people with setter/settler and indigene/indigene status who are usually of the same ethnic group. The major stake for this kind

of conflict is usually cultivatable land. Another type of conflict within which we can find various sub-types of conflict that are prevalent in the area is Group-Identity Conflicts. They are explained and predicted by group identity theories. Such conflicts are likely to arise from the large-scale movements of population brought about by environmental change as different ethnic and cultural groups are propelled together under circumstances of deprivation. In this particular case, there are usually inter-group hostilities, whereby a group would emphasize its own identity while denigrating, discriminating against, and attacking others.

From empirical situation in northeast Nigeria, this kind of conflict usually involve groups from different ethnic groups, which may be of domestic or international dimension. The cases of the clash over grazing land by pastoralist Fulani herdsmen and the sedentary indigenous cultivators in many rural areas in the sub-region are typical examples. The conflicts are usually sparked-off by southwards population drift of the herdsmen who move in search of pastures for their flock. In this process, they come in contact with settled population who take to crop cultivation on particular “fertile land” that produce good vegetation. The scramble for this piece of land by both Fulani nomads and the sedentary cultivators explains the cause of this type conflict. Environmental scarcity and consequent migration of people to where there is a greener pasture is the strong inclination of this conflict pattern.

Similar to the above conflict types, Relative – deprivation theories indicate that as developing societies produce less wealth because of environmental degradations, their citizens will probably become increasingly discontented by their inability to grasp their own share in the process of scramble for available resources. At some point, the discontent and frustration of some groups may cross a critical threshold, and they will act violently against other groups perceived to be the agents of their economic misery. The Fulani herdsmen invasion of many arable lands, which had led to series of communal conflict in various parts of northeast Nigeria, is a typical example of this scenario. Usually, the sedentary cultivators perceive the Fulani migrants whose flock invade and destroy their farmland as the agents of their economic misery, which translates in low agricultural and crop

production from the farms. On the other hand, the Fulani pastoralists also believe that the cultivators monopolize the whole land areas that have prospects of “green” vegetation for their farming, with little or no space left for grazing of their flock. Our various typologies that involve the migratory herdsmen/sedentary farmers fit into this description.

However, having been exposed to some criticisms leveled against the Toronto school and the theories of ecoviolence, it may not be contradictory or out of place for us to allude that even though various criticisms against Homer-Dixon and his associates are germane, our present study which is focused on the description and identification of various forms of climate induced conflict in Northeast Nigeria stands to lean more on the theoretical orientations of *ecoviolence* as used by Homer-Dixon and associates. First, our study is more like a case study based on a description of what obtains in a particular geographical zone in Nigeria. Thus it does not employ the system level or nation level that requires large empirical based samples. Second, it appears that most of Homer-Dixon’s explanations and those of the Toronto school irrespective of their methodological deficiencies have more real life bearing to what obtains in most internal conflicts in Africa, and especially with our area of study, northeast Nigeria. However, in adopting their theoretical orientation, some modifications and adjustments were made as shown in figures 1 and 2. In addition, the ecoviolence theory of ‘*shrinking pie*’ describes the scramble for resources in northeast Nigeria among the arable peasant farmers and the cattle herdsmen more than the ‘*honey pot*’ theory. Besides, it is amenable to small scale civil conflicts analysis which is the focus of our study rather than more encompassing complex civil war situation. Homer-Dixon’s analysis also presents varying typologies of conflict that may arise as a result of the interaction between the environmental scarcities, which is related to one of the aims of this discourse. In this area of study there may be no much sense linking the conflict episodes there to honey pot, which is non existent. However, this does not suggest that all violent conflicts in the northeast Nigeria are amenable to an explanation with the theoretical postulations of the Toronto School or that other literature or theories of internal conflict are not applicable there. Rather our scope of analysis is determined

by the amount and type of information gathered about the subject of study in the area. The obvious need to test various environmental and conflict based theories in northeast Nigeria in particular and the Nigerian and West African sub-region in general underscores the notion of inadequate empirical data for research purpose in Nigeria.

### MANAGEMENT AND POLICY OPTIONS RECOMMENDATIONS

Efforts to address the issue of conflicts resulting from scramble for land resources, which is usually induced by climate change, have to be strengthened. The government and various stakeholders should not only stop conflicts whenever they arise, but also to put a permanent and sustainable structure to address it. In this case the strengthening of local indigenous<sup>1</sup> existing institutions as earlier studied by Nyong and Fiki (2005) and Fiki and Lee (2004) seems to be the undoubtedly means. Five categories of indigenous institutions involved in managing conflicts were identified in these studies. They are: social, religious, political, judicial and economic, which are organized on the basis of traditional roles and systems of authority, legitimized in family, chieftaincy, village council, and native court system as the case may be.

The campaign for reforestation that is ongoing in all parts of Nigeria particularly in the drought prone areas of North East Nigeria needs to be boosted. When this is done, it will create a lasting solution to the problem of southwards movement of the Fulani cattle herdsman, which usually spark off a number of violent conflict in that area, they would be encouraged to sit tight on a particular land hence the vegetation remains luxuriant to support their livestock. In addition, the grazing belt policy of the federal government of Nigeria needs to be implemented to the latter if the conflict situation between the herdsman and the settled arable farmers is to be minimized. This policy programme *inter-alia* provides a framework within which the herdsman and the arable farmers can coexist with one another, by mapping out areas of grazing out of the existing green land, within which the arable farmers are prohibited to crop. In the same vain, the areas that are mapped out for the arable farmers are controlled against encroachment by the herdsman.

Finally, there is a need for clear understanding of what the causes of conflicts are there in northeast Nigeria before meaningful suggestions could apply. In order to achieve this need, an empirical research to test both theories of ecoviolence, suggestively the *shrinking pie* and the counter theory of *honey pot* is necessary at this stage of Nigerian development, when violent communal conflicts are rampant irrespective of dozens of academic research work commissioned at one point in time or the other to unravel the situation. From there, we can then begin to think of how to mediate between environmental scarcity and conflict as have been advanced in literature. What is important is to domesticate some of the research works already done elsewhere in Nigeria to determine what works in addressing the incessant conflict situations in Nigeria.

### CONCLUSION

The evidence from the foregoing discourse indicates that in the North East Nigeria, like most parts of the northern axis of the country, environmental scarcity occasioned by lowering amount of rainfall has caused tremendous damage to human life through incessant conflict in the quest for scramble and domination of scarce existing land resources. Rivers have almost dried up and vegetation scanty and bare in many instances. This phenomenon affects every aspect of agricultural activity, but the magnitude of negative effect on animal husbandry is greater than in any other sector. The quest for greener pasture by the herdsman usually brings them in contact with sedentary population who are involved in crop production. In most cases, this contact results to invasion of the cropland of the sedentary group by the livestock of the migratory group.

Conflicts that usually arise in this process are usually violent and long lasting, which may have some international repercussions around borders. Conflict types resulting from scramble for land resources in the North East Nigeria are classified in to eleven types that have varying dimensions. Applications of the emerging classifications to the scenario in the locality shows that inter ethnic conflicts, usually between herdsman and sedentary arable farmers who are also different from each other based on their concept of "indigeneness" is the commonest.

From all observations in the locality, human security implication of the conflict is enormous, because other areas of human needs are usually in danger whenever there is conflict. Thus the spill over effect may extend to varying magnitude that usually snowball into ethnic, religious and other types of conflicts in the Northern axis of Nigeria. This observation therefore calls for more investigation into the international security implication of the climate change induced internal violent conflict scenario in northeastern Nigeria.

### NOTES

<sup>1</sup>Gleditsch has argued that the causal mechanisms are too elaborate (operating through multiple paths of causality and several layers of intervening variables) and fail to take account for the effects of differing levels economic and political development on resource consumption and conflict- that is, highly developed economies and polities may experience lessened instances of conflict over resources even as their demand for them increases. De Soysa (2002) rightly notes that Homer-Dixon's research design looks only at instances of resource conflict, selecting on the dependent variable and therefore likely overestimating the centrality of environmental degradation to conflict.

<sup>2</sup>This position is a revalidations of earlier revelation in Collier (2000a) where he gauges which of the proxies of greed and grievance predict conflict onset, and found out that the economic variables that proxy greed-motivated rebellion outperform the proxies for the grievance-motivated rebellion. He concludes that true cause of much civil war is not the loud discourse of greed, but the silent force of greed.

<sup>3</sup>Main forest types are salt-water swamp, fresh water swamp, and high forest

<sup>4</sup>Main savannah types are guinea savannah, Sudan savannah, sahel savannah

<sup>5</sup>Activity per capita, in turn, is a function of available physical resource, which include non-renewable resources such as animals, and renewable resources such as water, forests, and agricultural land and ideational factors, including institutions, social relations, preferences and beliefs.

<sup>6</sup>Ideational factors are broad and complex social and psychological context. It includes patterns of land distribution; family and community structure; the economic and legal incentives to consume and produce goods, including the system of property rights; perceptions of the probability of long-run societal stability; historically noted patterns of trade and interaction with societies; the distribution of coercive power within and among nations; the form and effectiveness of institutions of governance; and metaphysical beliefs about the relationship between humans and nature.

<sup>7</sup>Resource Capture: Resource Depletion as a result of Climate Change and Population Growth Cause Unequal Resource Access, which in turn predisposes to violent conflict

<sup>8</sup>Ecological Marginalization: Unequal Resource Access and Population Growth Cause Resource

Degradation and Depletion, which leads to increased environmental Scarcity and in turn violent conflict

<sup>9</sup>Graham (1975), cited in Gleditsch 1998.

<sup>10</sup>Nine common problems identified by Gleditsch in his critique of literature in armed conflict and environment include- the question of whether resource scarcity or environmental degradation; Definitions polemics; overlooking of important variables; nontestable and complex models; The lack of a control group; Reverse Causality; Using the future as evidence; Foreign and domestic conflict classification problem; levels of analysis.

<sup>11</sup>Examples of large-scale conflicts over cultivable land (involving ethnic groups) are not, suspect, as frequent as those among the pastoralists. Nevertheless, there are recent examples of well-reported conflicts in Kenya (Rift Valley), Nigeria (Ife and Modakeke Yoruba communities), the DRC (between the Hema and Lendu, in Ituri District) and in Ghana.

<sup>12</sup>For instance similar conflict in the Mambilla plateau, which is in the same region, resulted in dozens of deaths and forced more than 25,000 Fulani herdsmen to flee across the border to Cameroon

<sup>13</sup>Indigenous institutions are informal institutions that include local cultural forms of organization- e.g. locally elected, appointed, or hereditary leaders and elders, customary rules and regulations relating to access to resources, and indigenous practices and knowledge (Nyong and Fiki, 2005)

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