

Drought-Related Conflicts, Management and Resolution in the West African Sahel

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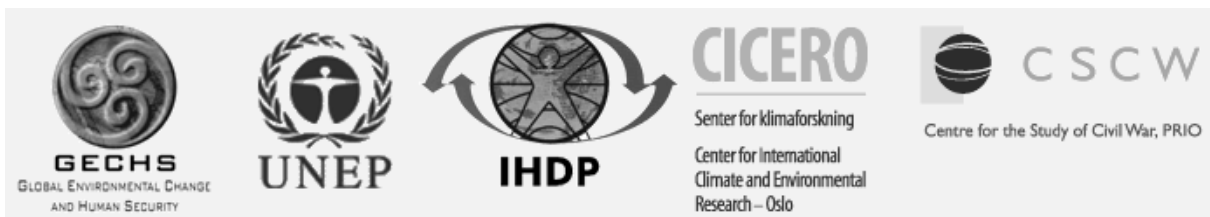
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Anthony Nyong and Charles Fiki

Recurrent droughts interacting with other social and economic factors have resulted in conflicts among rural populations in the West African Sahel. These conflicts have increased in their frequency and intensity and in the magnitude of the destruction caused by them, threatening the very livelihood of the majority the rural population (Adger and Brookes, 2001; Tarhule and Lamb, 2003). This has severe implications for human security and sustainable development in the region. Conflicts, per se, are not bad; rather, they are viewed as necessary if societies are to evolve and develop (Moore, 2005). However, when conflict is poorly managed, it can lead to degradation of the environment and violent confrontations. Developing an effective system for managing climate-related conflicts in the West African Sahel requires that we first identify the economic, environmental, social and cultural threats experienced by various vulnerable groups. Secondly, considering that climate-related conflicts are not new in the Sahel, we need to understand how vulnerable households and communities manage their conflicts using traditional management systems.

This paper examines climate-related conflict generation and management in the Sahelian and Sudan-Sahelian region of northern Nigeria, within its social context. It is only when potential and actual conflicts in the West African Sahel are understood in their social contexts that they can be solved. This understanding will help in developing and mainstreaming sustainable conflict management strategies into national developmental policies. Data for this report were collected from about 800 households in 27 communities in northern Nigeria using a combination of questionnaire administration, stakeholder analyses, focused group discussions and focused group discussions.

The results show that resource-related conflicts are the most predominant types of conflict in the region. Five traditional institutions are involved in conflict management with the basic goal being to maintain sustainability in the social and ecological systems. Two principles that guide conflict management within these institutions are the principles of timing the use of resources by competing uses, and the principle of risk aversion. The results of the research will inform policy in the design and implementation of conflict resolution strategies within the framework of sustainable development.

1. Introduction

Droughts and conflicts interact in the Sahel to exacerbate vulnerability and human insecurity in the region. Human security can be seen as the ability to reduce or eliminate the vulnerability to social, economic, environmental, and cultural threats that undermine sustainable development of communities. These vulnerabilities can occur as sudden shocks, long-term trends, or seasonal cycles. Drought has been a recurrent feature in this region and is a serious threat to human security. The magnitude and intensity of these droughts have been on the increase over the last 100 years and consequently in the destruction caused by it (Adger and Brookes, 2001). The Sahel is characterized by very scanty rainfall, with an annual average of between 150 and 1,000mm. Annual rainfall levels have been decreasing in the region over the course of this century, with an increase in inter-annual and spatial variability. This has resulted in about 200km southward shift in isohyets (Lebel *et al.*, 1997, L'Hôte *et al.*, 2002).

There is generally no convergence in predictions of climate change over the Sahel. A comparison of climate change predictions for Sub-Saharan West Africa (encompassing the Sahel) generates quite different predictions (Dietz *et al.*, 2001). Some GCMs predict an increase in temperature of between 1.5 and 2.5 °C and a decrease in annual precipitation of between 100 and 400 mm by the year 2050, some others predict a substantially lower increase in temperature with no decrease in precipitation. Some models predict a decrease in average rainfall, accompanied by a much larger inter-annual variability of rainfall that could result in more frequent and intense droughts. Many areas that presently have a semi-arid climate will become arid and sub-humid areas will become semi-arid (IPCC, 2001). Whatever the predictions, there is enough reason to believe that the climatic conditions for agriculture in the region might deteriorate, resulting in resource scarcity and increasing vulnerability in the region, particularly to food and human insecurity. Conflict in countries of Sub-Saharan Africa has been associated with per capita declines in food production of over 12% per year (Messer *et al.*, 1998).

However, vulnerability in the Sahel is not only caused by climate variability or climate change. Social, economic, and political factors act together to cause vulnerability. The West African Sahel has a very high population growth rate and the rate of food production can scarcely keep up with this high population growth rate (Dioné, 1991). Even the marginal increase in food production is achieved through a combination of agricultural intensification and extensification. In the first instance, the fallow system that was once practiced to preserve

soil fertility has almost disappeared and farmers in some areas are known to cultivate the land all-year round. With low inputs such as fertilizers, the soil fast loses its fertility with declining yields. The next step is to expand agriculture to meet the growing food needs. With the limited availability of cultivatable land, the farmers now expand into marginal lands resulting in a heightened competition between livestock and agricultural production. Additionally, by cultivating livestock corridors (enriched by animal manure), sedentary farmers have disturbed transhumance patterns and herders have been obliged to change their strategies to adapt to the new environmental conditions. Inter and intra-community conflicts are observed as the natural resource base shrinks due to higher population pressure and diminishing annual rainfall.

In addition, there has been a generally southern movement of pastoralism in response to the recurrent droughts in the Sahel. Furthermore, flexibility of animal movement is progressively hampered by increased population pressure and loss of corridors between wet and dry season grazing areas. This has also resulted in several conflicts between herders and farmers and the incidence of these conflicts, particularly between farmers and herders, is increasing. These conflicts are not limited to those between livelihood systems, as there are also intra-group conflicts. Moore (2005) has noted that conflicts, per se, are not bad; rather, they are viewed as necessary if societies are to evolve and develop. However, when conflict is poorly managed, it can lead to degradation of the environment and violent confrontations.

Managing climate-related conflicts should be pursued within the general framework of reducing the vulnerability to climate change. It should not all be about the implementation of options as it also depends on the availability of various types of resources to create an enabling environment for implementing the options. Poverty and limited technical capacity have been identified as the major impediments to reducing the impacts of climate change in developing countries, particularly in Africa (ADB, 2003). Because the poor are considered the most vulnerable to climate change impacts, it is often believed that financial capital is the most important indicator of adaptive capacity. However, the 1998/99 World Development Report identifies knowledge, not financial capital, as the key to sustainable social and economic development. Building on local knowledge is the first step to building adaptive capacity (Phillips and Titilola, 1995).

Studies have shown that local communities in the Sahel had successfully evolved systems to manage conflicts, including conflicts that result from climate related events. Therefore, any meaningful attempt at developing and implementing sustainable drought-related conflict management strategies in the future should start by examining how the communities in the region have successfully managed previous conflicts arising from

droughts whose magnitude had exceeded what has been predicted by models of future climate change. Building on the indigenous knowledge systems of the region offers great prospects for effective conflict resolution that will be sustainable in the region.

2.0 Conceptual Models of Climate-Related Conflict Management in the Sahel

Drought-related conflicts have occurred for centuries in the West African Sahel and indigenous management strategies have been developed to manage them. The underlying factor in these conflicts is resource scarcity. Homer-Dixon and Percival (1997), stressing the causal pathways between resource scarcity and conflict in selected developing countries, argue that under certain circumstances, the scarcity of renewable resources such as cropland, forests and water generate social effects (such as poverty, weak institutions, resource capture and migration) and produce conflict and instability. This causal pathway is important for tracing the process between resource scarcity and the occurrence of conflict, but it neglects the community capacity to absorb or manage conflicts. While the authors recommend ingenuity (technology and international assistance) as a tool to resolve conflict, particularly in developing countries, Fiki and Lee (2004) have noted that ingenuity is relative to context because it is experientially based, which makes the self-organizing capabilities and the self-regulating capacity of local communities very important.

The efficacy of traditional institutions in the management of conflicts in the past, particularly in the West African Sahel has been noted (Moore, 2005; Appiah-Opoku and Hyma, 1999). The failure of these institutions and the escalation of conflicts are attributed to the juxtaposition of the "modern" or "western" tenure regimes with traditional regimes. Besides rendering traditional conflict management strategies ineffective, it has been suggested that these institutions may themselves be responsible for imposing additional constraints on the user groups and their production management strategies - further reducing alternatives, flexibility, and sustainability (Moore, 2005). However conflict is managed, the results of this management could help to reduce or escalate further conflicts.

In this report, we consider two models of conflict management - state-directed models and local community models. Conflict management by the state comprises the formal institutions that make up the state, functioning to ensure the compliance of the population with the existing arrays of regulation and programmes within the broad framework of state hegemony over the community. This form of governance is most often based on foreign laws and procedures and fails to recognize the inherent partnership between the state and the local

community (Fiki and Lee, 2004). Because this model relies on the formal apparatus of the state, it is seen by local communities as a coercive means of social order. Many local communities in Nigeria are sceptical both of the legitimate functions of the state and of its capacity to ensure security and social justice. It has been argued that one's ability to receive justice in this system depends on a person's socioeconomic status and political power as well as the technical requirements of the law.

This skepticism and the weakness of formal institutions of justice administration (such as the police and the law courts) in rural communities, has led to a renewed interest in the local community models of conflict resolution. This model takes into account the self-organizing capabilities of people at the local level, so as to identify their capacities, strategies and resources and thereby strengthen local control of resources, community network, public safety and self-governance (Fiki and Lee, 2004). Local community models of conflict management vary according to the nature of the community. They are generally closely bound with socio-political and economic realities of the lifestyles of the communities. These mechanisms are rooted in the culture and history of the African people, and are in one way or another unique to each community. However, one common thread is that throughout Africa people have deeply rooted cultural commitments, and in many of the conflicts in Africa this cultural heritage plays a decisive role. In addition, family ties and community networking are constantly respected, maintained and strengthened. When there is a dispute between different parties, priority is given to restoring the relationships (Brock-Utne, 2001).

Generally, conflict management in most traditional societies is not a function of a specialized institution or agency; rather, it is embedded in the nature of the community and can be identified by its network, organizing themes, activities, structures and cultures. Through the local community model, conflict management mirrors the self-organizing capacity (the initiative for self-direction and collective action) in rural communities. Understanding conflict management in this way is important for local social development to occur (Jones, 1998), because development itself has, historically, been a conflictual process at the local levels due to the dissonance between policy prescriptions and the realities experienced by the community (Lee and Fiki, 2004). Social development and its impact depend on the outcomes of existing and future conflict and the community capacity to mitigate it.

Therefore, conflict generation and conflict management should be seen as indicators of local capabilities for governance. Conflict management is a governance practice that conveys the self-mobilizing, self-organizing and self-regulating capacity of local

communities. This model is based on the simple notion that communities are assuming greater responsibility for governance, service provision and local development. Communities have therefore become sites of, not just for, governance. To understand how cohesion is fostered and mobilized for community safety is therefore an important tool for engaging local communities in taking control of their future. This, in itself is the essence of capacity building to adapt to climate change.

3.0 The Study Region

By some definitions, the Sahel covers a wider latitudinal belt that extends roughly between 10° and 20° N, covering countries such as Senegal, Gambia Mauritania, Mali, Burkina Faso, Niger, Chad, and the Sudan and also parts of the Ivory Coast, Ghana, Benin, Togo Nigeria, Cameroon and Ethiopia. The scope of this study is limited to the Sahelian and Sudan Sahelian zones of northern Nigeria, between latitudes 10° and 13° N. The word “Sahel” is derived from Arabic which means “shore”; a shore which borders the extreme fringe of the Sahara, where the ecology and the climate make life possible again after the vast and lifeless Sahara desert. The Sahel is characterized by strong climatic variations and fluctuations with a highly irregular rainfall. The region exhibits a steep gradient of decreasing rainfall from south to north, with totals ranging from 150 mm in the northern fringes to about 1000 mm in the south. The rains fall during a short single wet season that lasts for about 3 – 4 months. Annual rainfall levels have been decreasing in the region over the course of this century, with an increase in inter-annual and spatial variability (Lebel et al., 2000).

Drought has been a recurrent feature in this region, with early records dating back to the 1680s. The magnitude and intensity of these droughts have been on the increase over the last 100 years, and consequently in the destruction caused by it (Adger and Brookes, 2001; Tarhule and Lamb, 2003). The most prominent of these droughts was that of the early 1970s during which hundreds of thousands of people and millions of animals died (Mortimore 1998). The Palmer Drought Severity Index shows that the Sahel is still experiencing drought conditions (Dai et al., 2004). The climatic changes observed in the Sahel are consistent with scenarios of anthropogenic enhanced greenhouse warming as described in modeling studies (. The influence of changing Sea Surface Temperature on rainfall variability is statistically significant over a large part of the Sahel as derived from ensemble simulations. The warming of the tropical Atlantic by up to 2K as predicted for 2090 has a remarkable impact on the distribution of rainfall over the southern part of the Sahel: While coastal rainfall up to 10° N is

increasing by almost 500mm, the Sudan and Sahel are threatened by a deficit of precipitation amounting to 200mm (Hulme et al., 2001).

The Sahel is characterized by a high population growth (about 3.1 %) and a rapid rate of urbanization that is estimated at about 7 % (Cour, 2001). With a population of about 50 million inhabitants, population density is often higher than in sub-humid and humid agroclimates. There is a visible north-south stratification of the livelihood systems. The northerly cultures tend towards pastoralism, while the southerly cultures largely practice sedentary arable rain-fed farming. Agriculture is the predominant livelihood system, employing more than half of the working population and contributes nearly 40 % of the Gross Domestic Product (Dioné, 1991). Only 8% of the land area in the Sahel is suitable for farming, largely rain-fed, and irrigated agriculture currently occupies only about 5% of this land. The lack of water, in association with high temperatures (up to 45° C at certain periods of the year), is the most limiting factor for agricultural productivity in the region. Millet, sorghum, cowpeas and maize are the dominant food crops grown in the region (FAO, 1998). The main cash-crops are cotton and groundnut. Farmers are predominantly small-holders using traditional farming systems which mix food crops and cash crops on the same farming unit. The rearing of livestock is a very important aspect of life.

It is anticipated that climate variability and change in the Sahel will have overwhelming impacts on agriculture and landuse, ecosystem and biodiversity, human settlements, diseases and health, hydrology and water resources. With respect to agriculture and landuse, climate change will elicit a significant change in agricultural production both in terms of the quantum of products as well as the location or area of production (IPCC, 2001). For example, the change is expected to lead, among other things, to a shift in rainfall belts. Since agriculture is largely rain-fed in the Sahel, this will be accompanied by a shift in the traditional areas of production of certain crops with all the possible negative consequences that this may bring to the local people (Desanker et al., 2001). The southward movement of the isohyets has also resulted in the southward migration of pastoralists into lands formerly occupied by sedentary farmers. This has been a major source of conflicts in the region leading to widespread destruction of farmlands and cattle, with adverse implications for food security in the region.

Arid rangelands have traditionally been used under a communal property regime by nomadic producers who move their stock in search of pasture according to season. Livestock numbers are strongly influenced by climatic variability. With increased droughts, the livestock in the Sahel would be greatly reduced, with severe implications for food security in the region.

The major indigenous ethnic groups in northern Nigeria include the Hausa, Fulani, Kanuri, Shuwa, Burbur, Gerewa, Ningawa. In addition to the ethnic groups whose home territories are in this region, in-migration has also brought in several other ethnic groups from within and outside the country. The ethnic diversity of the area creates a potential for conflict as these groups have different interests in the resource base, possess different skills with which to use it, and claim rights over different resources and areas. Reconciling these different interests makes the achievement of sustainable resource use more difficult.

In all these, one sees a disastrous consequence of droughts in the Sahel and the resultant conflicts over resource scarcity are generated from the struggle for survival. Conflicts in this region, therefore, should be understood from this perspective.

4.0 Research Methods

4.1 Reconnaissance Survey

The data collection started with a reconnaissance survey that took the research team from the east to the west of northern Nigeria, covering all the states that fall within the study area. The essence of the reconnaissance survey was to familiarize the research team with the study area, identify the major livelihood systems in the area, and identify the major issues that needed to be dealt with in the survey, as well as identify study communities. A major problem noted in the visit was the high water deficit in the area. Hand dug wells exploiting ground water were common features. It was also common to find once perennial rivers that had turned to dry valleys.

There is a differentiation of livelihood systems in the study sites. Villages that are farther north are predominantly pastoralists and those further south are largely sedentary arable farmers. At the interface of these two livelihood systems lies a zone of mixed livelihood systems comprising both pastoralists and arable farming. The large stock of cattle found in the zone is mainly from neighbouring countries like Chad, Niger and Cameroon. Livestock from these countries are attracted to this zone because these countries are currently experiencing some dry spells, and the zone has available fodder around the patches of the wetland areas, the fadamas (flood plains of rivers) and the river valleys that still contain water.

After the reconnaissance survey, we selected the study communities for inclusion in the project using a three-tier sampling strategy. First, we selected all the states that are vulnerable to drought and then listed all the local government areas (numbering 250) in all the

affected states. From the list, we aggregated them into larger units, numbering 27 and selected a community each from the larger units (Figure 1). The factors that we considered in selecting the study villages included the occurrence of past and or repeated drought disasters, the main livelihood system in the village and the size of the village. We grouped the villages into three classes based on its population and physical size – large, medium and small. We ensured that the villages selected had a mix of these classes.

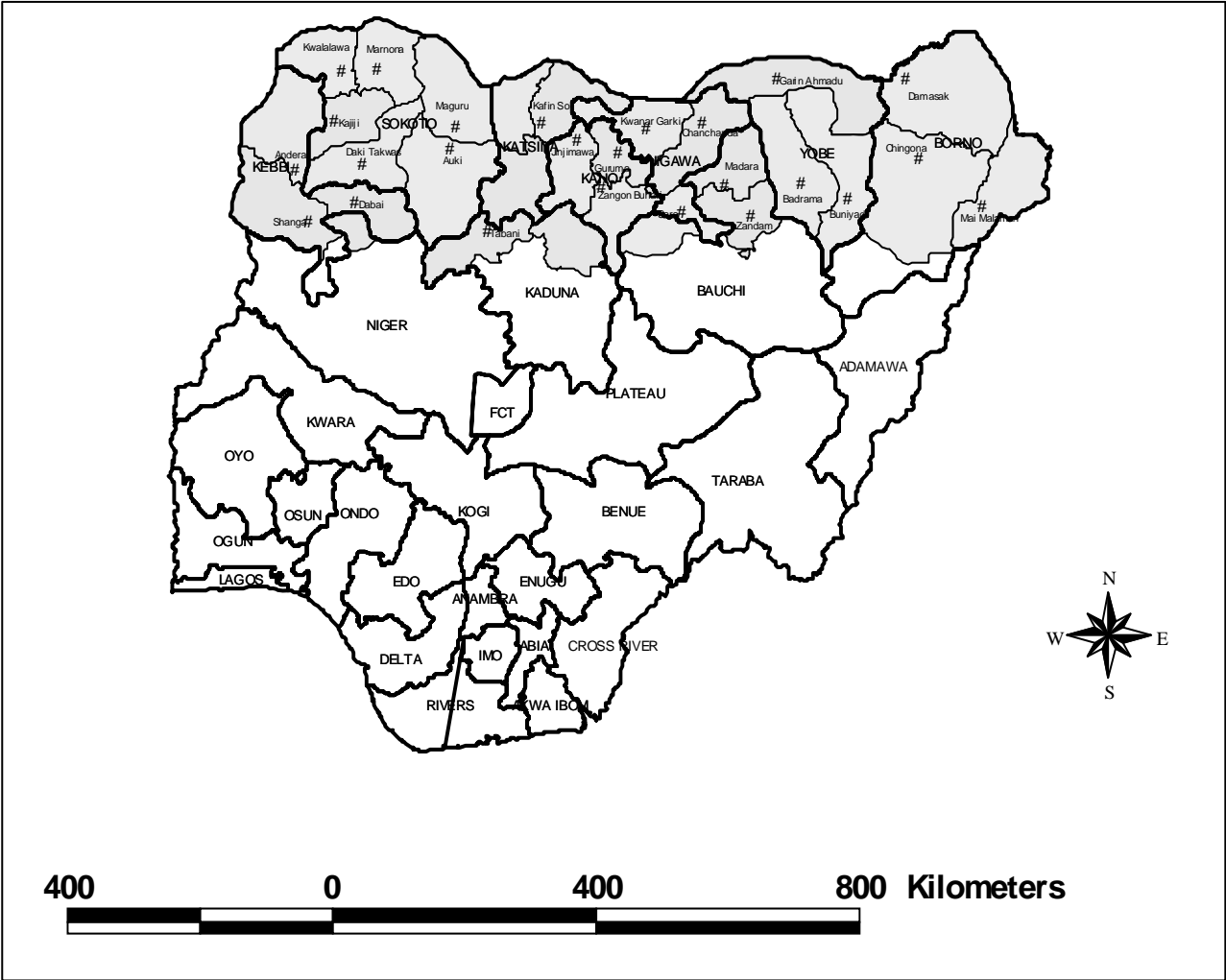


Figure 1: Study Sites

4.2 Data Collection

Actual data collection for the study was done through the administration of questionnaires, focus group discussions and stakeholder analysis. The questionnaire comprised 17 sections that solicit information that include household processes and relations, socioeconomic and drought-related variables, livelihood systems and strategies. The questionnaire was developed

in conjunction with relevant stakeholders identified during the reconnaissance survey and pre-tested in three communities to assess its validity and reliability in collecting pertinent information for the study. After the pre-test, some questions were modified to suit local norms and customs.

Conflict resolution is usually approached through the study of the people involved. About 900 questionnaires were administered to household heads in the 27 communities selected in Nigeria between April 2003 and March 2004. In this study, a household is defined as a social and economic unit consisting of one or more individuals, whether they are relatives or not, who live together and share both the pot and the roof (dwelling and food). The questionnaire administration was supplemented by focused group discussions and stakeholder analyses. This is because the questionnaires could only reveal past and present vulnerabilities, but do not explain the processes that are at the root of the households' present situation of vulnerability. Moreover, group processes and decision-making are variables that are crucial to understanding governance capabilities, particularly in rural communities, which are too complex to be adequately captured with one method of data collection, especially for studies such as this one.

Three villages, one representing a major livelihood system, were selected for focused group discussion. Key informants and insider assistance play important roles in mediating the relationship between the "researcher" and the "researched" by providing access, smoothing the way and facilitating answers to emerging questions (Charmaz and Mitchell, 1997). The analysis of the transcripts followed thematic references and connections that emerged in the interviews.

5.0 Results and Discussion

5.1 Self-Assessed Perceptions of Vulnerability

Although the focus of the study is to examine the generation and management of drought-related conflicts, it is obvious that human security is one of the dimensions of vulnerability to climate change. This study adopted the United Nations Centre for Regional Development (UNCRD) framework that seeks to integrate the human security concept into local development strategies through a two-pronged approach that entails: (i) a vulnerability analysis to identify vulnerable communities/groups as well as the economic, environmental, social, and cultural threats experienced at the household and village levels, and the corresponding coping strategies of the community; and (ii) capacity assessments at the

community level for integrating the coping strategies of households and villages into planning and project formulation within their jurisdictions. This is in line with the recent report on human security by the Committee on Human Security that states “human security focuses on shielding people from critical and pervasive threats and empowering them to take charge of their lives (CHS, 2003).

Therefore, the project first attempted to identify the various risks of concern among households in the study area. In this work, we asked broader questions about what risks the people face in their lives overall and looking at how their perceptions of risk can inform our understanding of their vulnerability. The risks respondents are vulnerable to are presented in Table 1. It should be noted that households listed more than one risk and Table 1 is a summation of all the households that mentioned a particular risk. The table shows that the greatest concern of the respondents was the risk of insufficient food, followed by shortage of water for domestic use. Without the respondents specifically mentioning drought, the table shows that all the concerns of the respondents are problems related to droughts, an indication that drought is a major problem in the study area.

Table 1: Reasons for Vulnerability (ranked)

S/No	Perceived Risk	Percentage
1	Insufficient food for people	58.2
2	Shortage of water for domestic use	50.9
3	Shortage of water for animals	50.3
4	Shortage of crops for cultivation	48.4
5	Animal diseases	42.5
6	Insufficient pasture for animals	36.6
7	Limited land for cultivation	34.6
8	Crop failure	26.8
9	Conflicts/insecurity	22.2
10	Human diseases	20.9
11	Low prices for animals	13.7
12	Lack of employment	12.4

Vulnerability is a relative term differentiating between socioeconomic groups or regions, rather than an absolute measurement of deprivation. The analyst or decision maker must assign the thresholds of vulnerability that warrant specific responses. For our study, we developed a methodology for classifying households based on their levels of current vulnerability using the vulnerability indicator approach. This methodology combined a top-down and bottom-up approach. In conjunction with stakeholders, 14 indicators of vulnerability were identified along with their weights (Table 2). Indicators that directly impact

on vulnerability were given a weight of 1, while those that did not directly affect vulnerability had a weight of 0.5. Indicators that respondents felt directly explain vulnerability include crop yield, dependency ratio, livestock ownership, livelihood diversification and drought preparedness.

Table 2: Indices and Weights for Vulnerability Assessment in Northern Nigeria

Index	Weight	Derived as	Range	Average
1 Acreage under cultivation	0.5	Hectares/consumer units	0.1 -2.8	0.6
2 Crop yield	1	Total Bags of cereals harvested/consumer unit	1.4 - 21.2	10.5
3 Dependency ratio	1	Labour units/consumer units (inverted)	0.3 – 0.8	0.5
4 Livestock ownership	1	Tropical Livestock Units/consumer units	0.0 – 8.2	3.7
5 Gender of Household Head	0.5	Value given to sex of household head	1.0 – 2.0	1.8
6 Livelihood diversification	1	Weighted number of non-agricultural income generating activities/consumer units	0.0 - 2.4	0.7
7 Annual cash income	1	In 1000 Naira/consumer units	2.5 – 9.7	4.2
8 Drought Preparedness	1	Value given to use of drought resistant crops and livestock and receives drought related information and advise	0.0 – 2.0	1.1
9 Educational background of the household head	0.5	Value given to highest school level attained by the head of the household	0.0 -4.0	1.8
10 Land tenure situation	0.5	Value given to land tenure situation	1.0 – 3.0	2.5
11 Type of house	0.5	Value given to type of house lived in	1.0 -3.0	1.80
12 Self-sufficiency in food production	0.5	Number of years surplus foodstuffs were sold minus number of years foodstuffs were bought in the past 10 years	0.0 -20.0	11.2
13 Family and Social Networks	0.5	Value given to strength of family and social networks.	1.0 – 4.0	2.25
14 Quality of household	0.5	Number of able persons/ number of disabled and or sick persons in the household (inverted)	1.5 – 12.0	7.6
Overall Vulnerability	10	Sum of (index scores * index value)	236.5 to 855.1	472.1

Source: Field Work (2003)

The highest score for an index was put at 100% and to know the individual household's score for an index, the household score for that index was divided by 100. Adding up the household scores on the 14 indices resulted in an overall vulnerability score for each household in the sample. The next step in defining vulnerability classes was to identify different thresholds within which households can be grouped into various levels of vulnerability. We could have adopted the Delphi method using 'expert judgement' or a top-down approach based only on the computations of vulnerability done earlier. However, we considered none of these methods satisfactory as we believe that the respondents should contribute to defining their

vulnerability. We therefore sought to define vulnerability from the perspective of the vulnerable. We therefore adopted a methodology that combined a top-down and bottom-up approach to delineating vulnerability thresholds.

During the questionnaire administration, we had included a vulnerability ranking exercise where we had assisted the respondents to place themselves in any of three classes of vulnerability: very vulnerable, vulnerable and least vulnerable. These allowed us to factor in their perceptions and self-reported assessments of vulnerability. We took all those who put themselves in each group, found the average scores from for each group based on our earlier computation and used those as the midpoints of the various vulnerability classes and then built class intervals about them. We arrived at the following ranges. Those that scored 350 and below were categorized as highly vulnerable, scores between 351 and 700 were categorized as vulnerable, and above 700 as least vulnerable. A place is given a vulnerability ranking by virtue of the vulnerability of those who occupy the place. The individual vulnerability scores were aggregated for each village and the result is shown in Figure 2.

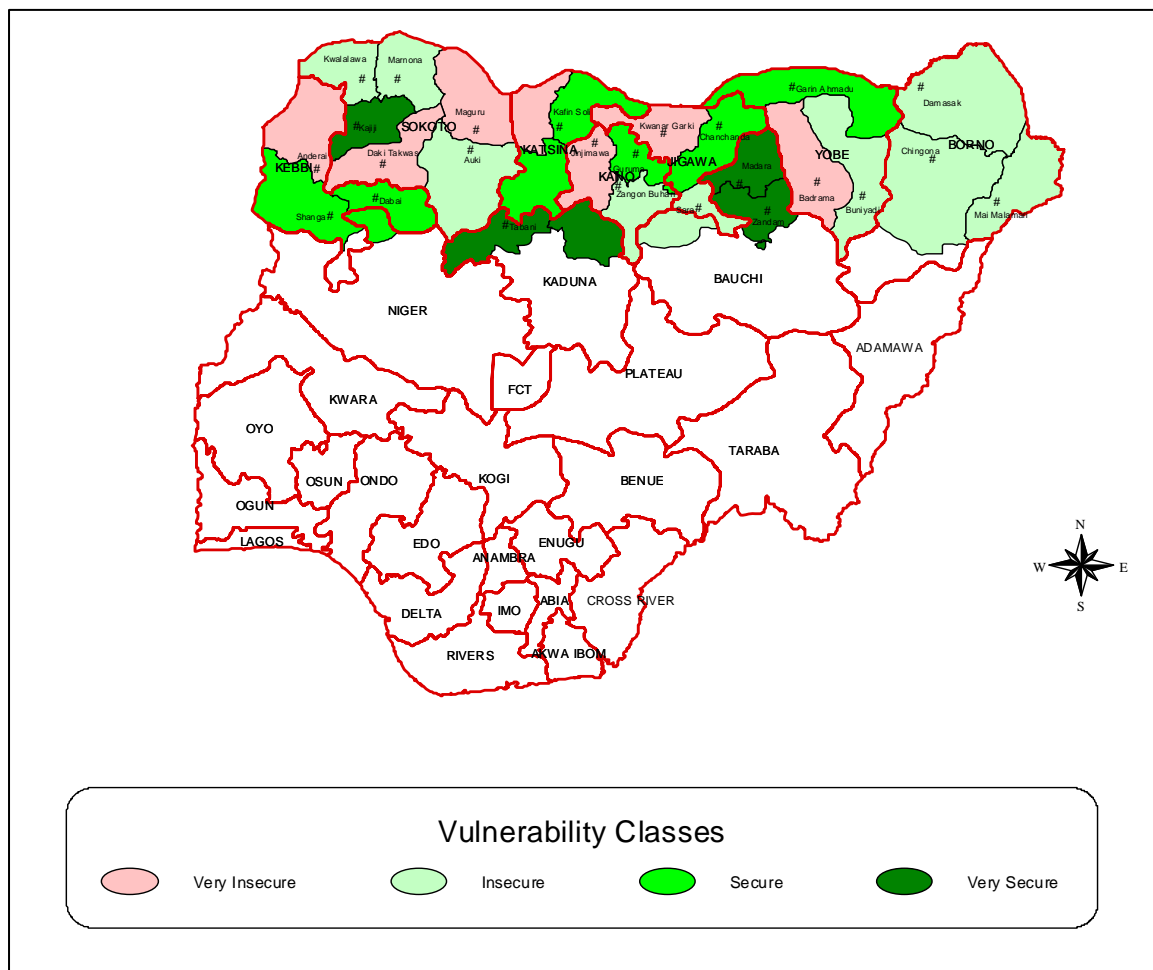


Figure 2: Vulnerability in Northern Nigeria

5.2 Characterization of Conflicts

5.2.1 Pattern of Conflicts

Conflicts are common in Sahelian northern Nigeria. In northern Nigeria, five different types of natural resource conflicts were identified in terms of the actors involved. These are:

- a) Family/household conflicts;
- b) Inter-group conflicts between different livelihood and/or ethnic groups,
- c) Intra-group conflicts between different socio-economic groups within an ethnic group,
- d) Conflicts between the state and people,
- e) Inter-regional and international conflicts between the north and other regions within Nigeria and also between neighbouring countries – Chad, Niger and Cameroon.

In the survey, About 200 households, representing 24.5% of the respondents had experienced conflicts. The number of households that had experienced conflicts and the years of these conflicts are presented in Figure 3. Although respondents could recall the conflicts they had experienced as far back as 1965, we wish to note that it is recall knowledge and the figure may not give a true representation of the situation for obvious reasons. First, very few people who participated in the study would have been old enough 40 years ago to have remembered the conflicts. Second, we believe that only major or violent conflicts would have left such lasting memories in the minds of respondents 40 years after. As such, the older conflicts were obviously violent ones. Some respondents had experienced conflicts more than once prior to the study. Of the respondents that had experienced conflicts, 90% (178) had experienced it only once, 8% (18) had experienced conflicts two times while 2% (4) had experienced conflicts 3 times.

There was also a seasonal variation in the reported clashes. About 60% (116) of the respondents reported that the conflicts they experienced occurred in the dry season and only about 40% reported conflicts in the rainy season. The study also showed a spatial differentiation in the occurrence of the conflicts. More violent conflicts occurred more within the resource-rich areas like the Fadama (fertile flood plains), the river valleys and around the oasis that dot the study area. The conflicts that largely occurred in these areas were usually conflicts over ownership rights involving neighbouring communities.

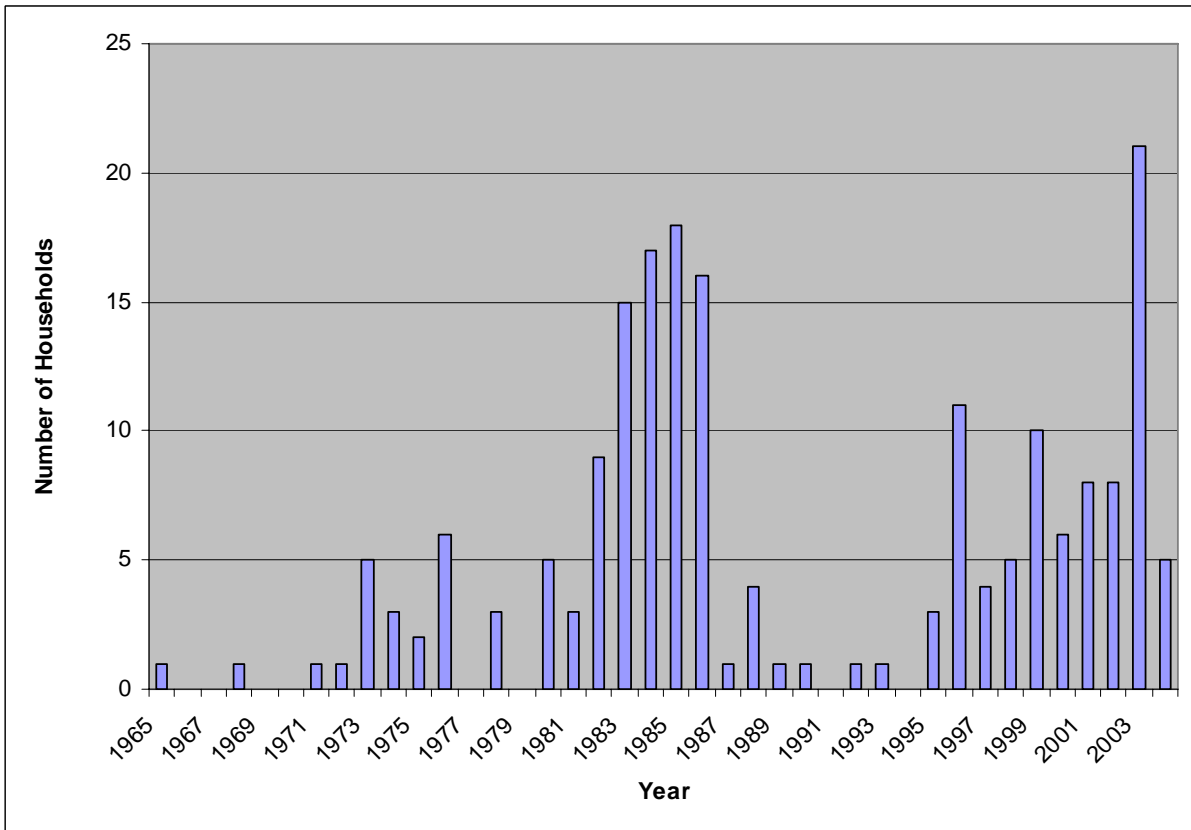


Figure 3: Self-Reported Conflicts in Study Communities.

5.2.2 Causes of Conflicts

Four major causes/types of conflicts were identified in the study: conflicts from access to resources, political conflicts, religious conflicts and domestic conflicts. The distribution of these conflicts is presented in Figure 4. These conflicts span scales that range from the individual/household through the community to the region.

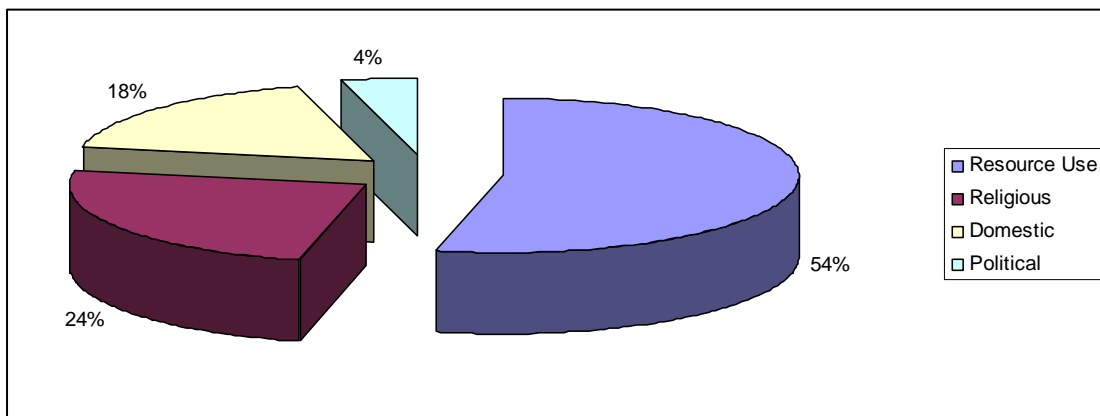


Figure 4: Causes of Conflicts

From Figure 4, one sees that access to resource was the major cause of conflict in the study area. Under this category, we had such contributing factors as farmland encroachment, grazing habit, conflicts from use of wells/water, land dispute, ownership rights, etc. For politically-motivated conflicts, we had cases that arose from national elections, elections of village heads and elections into age-grade and community associations. Only 8 cases of domestic conflicts were recorded. Such conflicts include beating of spouses and children fighting at water wells. When asked if only 8 such cases actually occurred, the Focused Group Discussions (FGD) unanimously agreed that those were 'normal' conflicts as long as they do not disturb the community network and collective security. The 8 reported cases were those that affected the community network where the families of the abused spouses from neighbouring communities engaged in physical fights with the families of the abusive spouses. However, other family conflicts that were mentioned in the FGDs arose where the spouse had to travel very far to obtain water and or firewood and ended up preparing a late meal, or where water was not readily available for the spouse to have his bath. This, in some cases resulted in domestic conflicts that were considered 'normal'. Religious conflicts largely occurred between the Christians and the Muslims and sometimes had ethnic intonations.

Seeing that encroachment was the major cause of resource-related conflicts, we sought to understand it more clearly through the windows of the stakeholders through a Focused Group Discussion. In the FGD, both agricultural and pastoralist stakeholders presented a conflicting perspective of each other, reflecting what we term nomadic-sedentary cleavages. These cleavages are rooted in the differences in the cultural and production systems and the way in which their intersection generally informs the competitive use of ecological resources. For instance, both pastoralists and sedentary farmers believe that water is a free gift from God and no-individual should claim ownership of it. However, the farmers believe that having paid for the construction of the wells to serve domestic and irrigation needs, the pastoralists should not use them as watering points for their cattle without recourse to them. The sedentary farmers also believe that the pastoralists deliberately lead their cows to feed on their crops believing it is more nutritious than grass, but the pastoralists accuse the farmers of deliberately cultivating their cattle paths to cause trouble and consequently seek for compensation from the pastoralists. The pastoralists have come to believe that this is a strategy adopted by farmers to increase their income particularly during drought periods. This perceptual difference of both groups appears to amplify the conflict situation. One common thread from the FGDs was that conflicts within these communities were regarded as external, emanating from outside the communities.

Conflict over resources often translates into conflict over territories leading to cross-border conflicts with other communities. While access to resources is free and resources are used in competing ways, this usage must not threaten ownership rights. Where usage of resources appears to threaten ownership rights, the outcome is the attempt to establish some control over the given resource and territory (Fiki and Lee, 2004). The local understanding of conflict generation reflects community views on private and public space. Most of the conflicts in this study occur in public space, because they are the activity domains of the community for commercial or productive activities. What count as private and public space is not, however, restricted to the system of ownership established in contract and property law, rather, the distinctions reflect resource utilization. From the FGDs, our understanding of a public space is that it may be owned by families or groups without this entailing a restriction of the use of such spaces by the community, except when usage threatens ownership rights. For instance, a fadama is a public space, but the land is also owned by a family or a group of families.

5.2.3 Losses from Conflicts

The Losses reported from conflicts are presented in Figure 5. The conflicts have resulted in several losses to the communities. While only 22 households reported the loss of standing crops, 41 reportedly lost livestock. Eight households, among both pastoralists and sedentary farmers lost human lives during conflicts. We are careful not to see these losses only from economic perspectives. How much does a human life cost? For instance, the mention of “value” by the pastoralist presents an interesting perception of the mechanism of commodity exchange. The decimation of their herds by drought has frightening implications for the pastoral peoples. The pastoralists primarily rely on their livestock for protein supply, money and social security. To lose them, therefore, is to lose everything. Such animal losses translated into economic terms, is also an economic disaster to many households and livelihood systems.

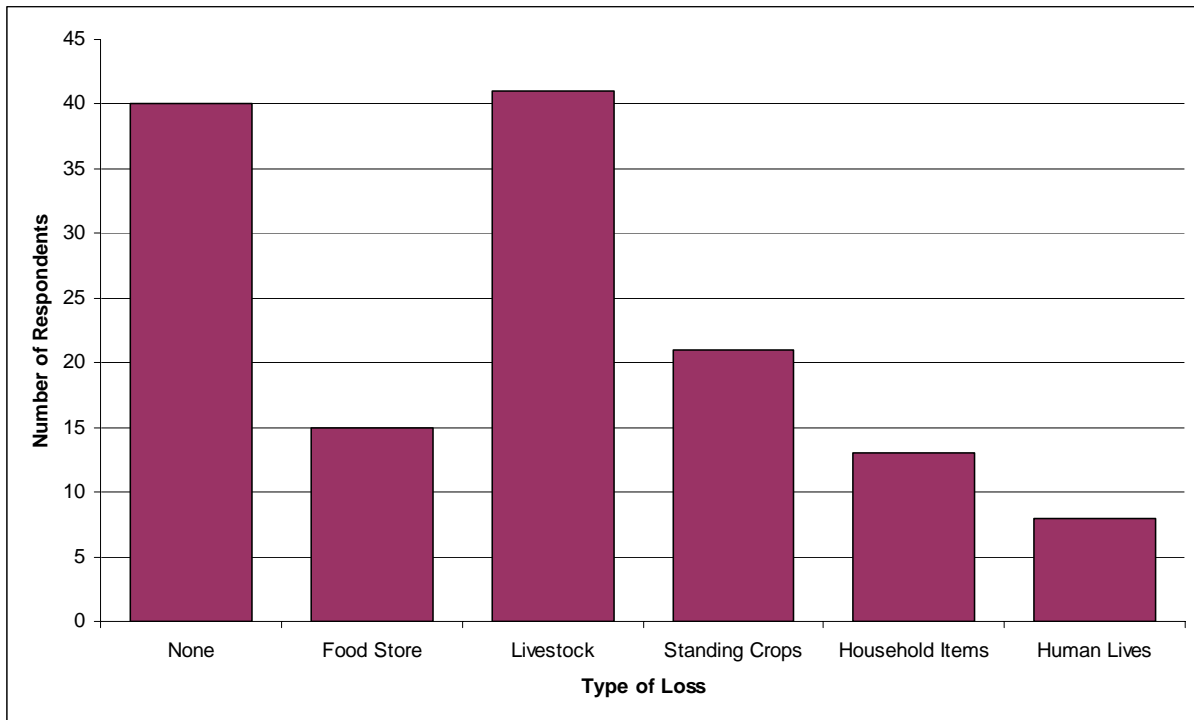


Figure 5: Losses from Conflicts.

The pattern of losses indicates how the risk profiles of drought are reproduced in the conflict situation involving the two livelihood systems. During the FGDs, the sedentary farmers, though losing less in monetary terms compared to the pastoralists, they presented a higher level of perceived losses indicating a deeper subjective vulnerability. These livelihood groups have differential vulnerabilities to the effects of resource scarcity because pastoralists are flexible and may migrate as a coping mechanism, while farmers are less resilient to drought.

5.3 Conflict Resolution

As noted by Nyong and Kanaroglou (1999) and Fiki and Lee (2004), ecology, the production and social systems are conditioning factors of conflict generation because they define access to and control of resources in semi-arid northern Nigeria. Knowing that conflicts have become a normal occurrence in this resource scarce region, it is instructive to examine how such conflicts are addressed traditionally. The ultimate aim of these conflict resolutions is to ensure sustainability in both the social and ecological systems. In the social system, sustainability is achieved through equitability, satisfaction, efficiency and cultural stability. In the ecological system, sustainability is achieved through stability, resilience, ecosystem health and permanence. In the FGDs it was generally believed that the best way to resolve conflicts is to

prevent it in the first instance. Looking at it from this perspective, this section presents the various methods of conflict resolution and decision-making used, together with the guiding principles for preventing conflict in the study area.

Three scales of drought-related conflicts were identified in the study - family disputes, property disputes and inter-community conflicts. In all these, the main guiding principle in conflict resolution using local knowledge systems is that it focuses on reconciling all parties in the conflict, as opposed to the western system which is largely adversarial. When there is a dispute between different parties, priority is given to restoring the relationships.

5.3.1 Indigenous institutions in conflict management

Indigenous institutions are informal institutions. They include local cultural forms of organisation, for example locally elected, appointed, or hereditary leaders and elders, customary rules and regulations relating to access to resources, and indigenous practices and knowledge. All of these have been recently heralded as a valuable resource through which appropriate and sustainable development can be achieved (Watson, 2001).

Five categories of indigenous institutions involved in managing conflicts were identified in northern Nigeria (Table 3). These institutions are: social, religious, political, judicial, and economic. These institutions are organized on the basis of traditional roles and systems of authority, and legitimized in such structures as family, chieftaincy hierarchy, village council, and native or indigenous court systems. Indigenous institutions possess a framework of ideas, guiding principles, and institutional foundation that can serve as entry points in the search for local options and broad-based conflict management initiatives in northern Nigeria in particular and in the entire West African Sahel in general.

However, factors that constrain the efficacy of these traditional institutions include the difficulty of altering entrenched attitudes, and the rapid and continuing loss of indigenous belief systems and practices through the imposition of western culture and norms (Appiah-Opoku and Hyma, 1999). Although indigenous institutions have suffered and continue to suffer some erosion, this does not necessarily render them outdated. Cultures advance on the basis of new experiences (Banuri & Marglin, 1993). Thus, far from being anachronisms in today's world, indigenous institutions have much to offer contemporary policy makers searching for a bottom-up approach to conflict resolution and management.

Table 3: Indigenous Institutions in Northern Nigeria

Category of Indigenous Institution	Type of Institution	Defining Characteristics
Social Institutions	<ul style="list-style-type: none"> • Family, kinship and clan, • age-grade and ethnic • Land tenure associations 	<ul style="list-style-type: none"> • Network of relationships. • Emphasise collective decision-making. • Communal ownership of land • Have appropriate technologies for primary resource utilization
Economic Institutions	<ul style="list-style-type: none"> • Fadama associations • Miyetti-Allah cattle rearers • Various craft organizations • Indigenous cooperative societies 	<ul style="list-style-type: none"> • Experiential knowledge • Assist in times of crises • Rooted in local culture and social values • Uphold holistic view of nature
Judicial Institutions	<ul style="list-style-type: none"> • Native court system at family to chiefdom levels • Village by-laws 	<ul style="list-style-type: none"> • Settle internal disputes and litigations • Guided by precedents and wisdom of elders • Custodian of lands
Political Institutions	<ul style="list-style-type: none"> • Chieftaincy system from family to chiefdom levels 	<ul style="list-style-type: none"> • Transactive decision making • Hierarchical levels of authority
Religious Institutions	<ul style="list-style-type: none"> • Ancestral worship, 	<ul style="list-style-type: none"> • Forms basis of morality • Dictate code of conduct

5.3.2 Guiding Principles

Conflicts among members of the same household or family usually have less effect on the community network and collective security and are considered normal conflict. As a result, it is handled privately among the disputing parties. Most family conflicts are settled by getting the offenders to denounce such behaviours and where such behaviours persist, such individuals are ostracized as social deviants. Denouncing such wrongful behaviour is usually seen as a form of community restoration (See Fiki and Lee, 2004). But when a conflict escalates to the point where it affects another family or compound, it is brought within the control of the community institutions and structures, due to its implications for the community network and inter-group relations. Such conflicts are handled by third parties such as institutional heads, or a group of elders among the disputing parties. These elders and community leaders are bearers of knowledge and it is rare for disputants to disobey such

elders and heads since they are seen as the repertoire and conduits for the generational transfer of knowledge and culture. As simple as this arrangement seems, this method of conflict resolution conveys the importance of social organization, local institutions, individual and group responsibility in the regulation of conduct.

In resource-related conflicts that are beyond the level of the household/family, the principles of timing and risk aversion operate to regulate conduct and mitigate conflicts. These principles sustain inter-group relations among competing user groups, such as between the pastoralists and the sedentary farmers.

The first principle involves the timing of resource use among competing groups. This principle guarantees resource use for competing users (farmers, pastoralists and other users), at such times that reflect the demand and time of need. For instance, some communal lands are used by pastoralists at certain times of the year (after the harvest and before the next planting) and by sedentary farmers at such times that would allow them take advantage of the rains and plant. Also, access to water use is regulated in certain communities, allowing contenders to access and use water during their allotted times so that water use is prioritized according to need. The timing principle, as observed by Fiki and Lee (2004) performs three functions. Firstly, it guarantees accessibility to a resource for everyone's needs, demonstrating a form of equity in access. Secondly, it enables the resource to recover from previous exploitation during times of scarcity. Thirdly, the principle further mitigates conflict by preventing contact among competing users in the resource sites. It is possible that if parties fail to satisfy their needs within their allotted time, they may encroach on the time slot set aside for rival users, potentially triggering conflict.

This arrangement was found to be effective in managing competition for resource use in the study. It calls for the need to strengthen the controlling processes and networks rather than discipline individuals *per se*. Group interests arise from the compulsion to survive through the production social life, order and security, the timing principle builds into cultural and production relations the protection of these interests. As stated earlier, the underlying principle of conflict resolution at the local level is reconciliation rather than punishment, the "timing principle" reconciles group differences in the allotment of user time by regulating competition over scarce resources. In so doing, it minimizes the pressures that group differences exert on the social cohesion of the community.

The second principle is risk aversion, works on the principle of 'minimax', minimizing risks and maximizing advantages (Gulliver, 1985; Fiki and Lee, 2004). This principle operates for all the contending users of resources and moderates inter-group

differences. For the farmers, drought is an unpredictable phenomenon and when it occurs, it simply means the loss of crops and an uncertain future. While the pastoralists' encroachments on their farms may mean a loss of crops, it may also be a gain in monetary compensation from the pastoralists. Farmers thus prefer to lose their crops to encroachment than to drought. To the pastoralists, the retaliation from the farmers could result in the death of their animals, which have a high commodity and reproductive value. The pastoralists are often willing and able to pay for the crops destroyed by their herds during encroachment because their herds are fed, particularly during droughts with its attendant scarcity of ecosystem resources

This survival principle of risk-aversion by both the pastoralists and the sedentary farmers are not meant to escalate into conflicts as the offending party usually first self-reports himself and the incidence to the village head for mediation and settlement. In cases where the farm owners are present at the scene of the damage, settlement is reached instantly and later the village head is informed. The settlement is the same whether the case is taken to the village head or not. The pastoralist pays for the value of the crops destroyed. Where it is the farmer who attacks the herds when they have caused no destruction to his crops, he is also expected to pay the pastoralist the value of the herds destroyed. Where destruction is on both sides, the value for the two losses is computed and the difference is paid to whomever it accrues.

While the process of self-reporting and of imputing values to lost crops and herds is cumbersome, it shows how the economy is implicated in conflict management using this principle. The moral economy entails a correspondence between the "safety-first principle" and the "subsistence ethic" in the rural society (Watts, 1983). Thus, effective risk reduction and loss management enable farmers to maintain their conventional consumption levels and assets, even in drought years.

Risk aversion technique usually performs three functions in sustaining the social order in local communities at times of conflict (Fiki and Lee, 2004; Shearing, 2001). Firstly, it is a deterrent and a control mechanism by imposing responsibility on the parties in conflict. Secondly, it is regarded as a just mechanism because it reconciles the interests of the parties and enmeshes the regulation into the network of relationships among contending groups. In this way, it balances the interests of both individual and public good. Thirdly, it reduces the potential for violence, since there is certainty for compensation, which may go both ways. Overall, it makes possible a contextual restorative justice by healing wounds through compensation and making the offender take responsibility, thereby building a reliable network of relationships.

5.3.3 Policy Implications

One of the major objectives of the Millennium Development Goals (MDGs) for Africa is to reduce poverty by half by the year 2015. To achieve these goals, concerted efforts need to be made to address the problems of human security in the region, particularly as it pertains to reducing and managing conflicts caused by scarcity of natural resources. Most of these conflicts do not stem from sheer aggressiveness but from a desire to survive in the face of a drought or other unfavourable climatic conditions. Integrating human security into local development strategies ensures that vulnerabilities to economic risks, environmental degradation, social breakdown, political conflicts, and cultural erosion are addressed.

The first task in integrating human security into local development would be to identify the risks faced by the community and the most vulnerable groups. Allowing the community to identify their problems and the risks they face themselves can best do this. In past decade, emphasis on development has changed from a top-down approach to a bottom-up approach, where funding and developmental agencies work in partnership with local communities to implement sustainable programmes. One way of ensuring sustainability is to give the local communities what they want and are willing to support. This implies that these projects must directly address their highest prioritized needs. It is therefore suggested that human insecurity does not exist in isolation of other vulnerabilities and a proper understanding of these vulnerabilities holds the key to understanding the problem of human insecurity in Africa. Understanding and addressing other vulnerabilities to climate change will go a long way in addressing the problem of human insecurity and conflicts in the West African Sahel.

The second task in integrating human security into local development is to study the strategies adopted by the vulnerable in coping with risks, including the strategies adopted to manage drought-related conflicts. Drought-related conflicts are not new in the West African Sahel and most of the local communities have in the past successfully managed such conflicts. Local institutions have been the vehicle through which these conflicts have been managed. As a first step towards developing workable conflict management strategies, we need to build on what already exists. This implies the building of the local capacities of these institutions to manage conflicts.

It has long been accepted that development has not just experienced difficulties because of technical problems, or a lack of know-how, but because of a lack of institutional capacity, and problems of organising who should participate in, contribute to, and benefit

from, development projects (Watson, 2001). These are structures that are in-built in most traditional institutions.

6. Conclusion

Sahelian northern Nigeria has experienced recurrent droughts that have increased in intensity and in the magnitude of the destruction that accompany them. There is a marked decline in rainfall accompanied by a downward shift in the isohyets. This downward shift in the isohyets means there is no longer a clear demarcation between landscapes that served the pastoralists and the sedentary farmers who have lived in harmony in the past. The result is a conflict that results from the struggle for the scarce ecosystem resources within and between competing groups. This is compounded by the poor economic outlook in the area. West Africa is considered the poorest of the poorest regions. A greater proportion of the Least Developed countries (about 70%) are in Africa, and most of them are in West Africa. In addition to this, the West African Sahel has one of the highest population growth rates in the world. All these heighten the competition for the limited resources in the region, resulting in the conflicts that have come to characterise the region in the past century.

The study highlighted two methods of managing conflicts in this region – a state-controlled process through the formal court systems and state-law enforcement officers. The failure of this formal institution has elicited calls for a revival of local conflict management systems. Over the years, traditional institutions have successfully managed drought-related conflicts in the region. The failure of these institutions to continuously manage these conflicts has been attributed to the rapid and continuing loss of indigenous belief systems and practices through the imposition of western culture and norms. Although indigenous institutions have suffered and continue to suffer some erosion, this does not necessarily render them outdated. Cultures advance on the basis of new experiences. Thus, far from being anachronisms in today's world, indigenous institutions have much to offer contemporary policy makers searching for a bottom-up approach to conflict resolution and management.

The key to successful management of drought-related conflicts arising from resource use in the Sahel is to mainstream such strategies into national and regional development policies. This would entail that one understands the nature of the general vulnerability to climate change from the perspectives of the vulnerable. Conflict-resolution strategies should not be seen in isolation but as part of the general strategy to cope with climate change. Second, the capacity of the local people to cope with the negative consequences of climate

change should be developed, including the capacity to manage conflicts. Capacity building works best if it builds on what already exists, and on what the people are used to. Traditional institutions in northern Nigeria have been efficient in managing conflicts in the past. It is therefore important that the factors that have eroded this efficiency be identified and removed. While not all the activities or methods engaged by traditional institutions in resolving conflicts are necessarily sustainable, it is recommended that a best practice be developed, combining traditional knowledge with western knowledge. If an effective and a sustainable system of managing conflicts is not developed for the Sahel, it would be difficult for the region to achieve the MDGs of reducing poverty by half by the year 2015.

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