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The socio-economic implication of climatic change, desert encroachment and communal conflicts in Northern Nigeria

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ABSTRACT

The economic activities in Nigeria clearly show that over 60 percent of the population are engaged in agriculture for their livelihoods directly or indirectly. However overtime especially in the last decade, a dwindling state of agriculture and the decreasing number of farming population mostly in Northern Nigeria, known for the production of over 70 percent of the food crops in the country and other West African countries call for concern. Recent geographical survey has attributed these happenings to desert encroachment into farmlands caused by the changes in climatic conditions. In view of these, this study therefore seeks to observe the adjustment and coping strategies of individuals in the affected communities, it examines the communal conflicts among the people and government interventions in reducing the problems associated with climatic change. The study employed principally qualitative methodology: in-depth interviews, observations and focus group discussions, among a cross section of 1200 households drawn randomly and via a snowballing sampling method in four states (Sokoto, Zamfara, Kano and Borno), in Northern Nigeria, Major findings from the study showed that desert encroachment on farmlands is forcing a lot of youths to migrate and seek non-agricultural employment in urban centres, as well as deviant survival strategies such as crime and prostitutions. It was also observed, that as desert encroaches farmlands, community disputes and conflicts over fertile lands increased, and the problem of internally displaced persons were inevitable. Lastly, government interventions were claimed by 70 percent of the respondents to be non existent, slow and limited to economic compensations in some communities. This study concludes and recommends among other things, the need for government, the farming population, and the scientific communities to help in averting desert encroachment and the emanating conflict from climate change.

Keywords: Agriculture, Farming Population, Economic Activities and Coping Strategies, Word Counts: 287

INTRODUCTION

Agriculture is Nigeria's biggest employer, accounting for about 60 per cent of the workforce, working mainly in small-holdings using basic tools. Together with livestock raising, it provides a third of her gross domestic product. Nigeria's soils and climate allow cultivation of a wide variety of food crops, including cassava (of which Nigeria is the largest world producer), millet, sorghum and maize and other cash crops like rubber, cocoa, coffee, and cotton (Agricultural Report 2007). Nevertheless the state of agriculture in Nigeria in recent times shows a continuous decline in exportation and increase in importation of agricultural products into the country. The share of Nigeria's agricultural products in total exports plummeted from over 70 per cent in the 1960s to less than 2 per cent in 2010 (Akoroda; 2010). The major contribution to the decline has been liked with the negative effects of climate change on crop production in Sub-Saharan Africa (SSA). It is predicted that the majority of Nigeria vis a vis African countries will have novel climates over at least half of their current crop year by 2050 (IPCC, 2007). Higher temperatures, longer droughts, and increasingly frequent and violent storms are predicted to exacerbate the current challenges faced agricultural productions system in Nigeria. Already climate change rate is gradually exceeding adaptive capacity of a broad range of crop and forage varieties, animal breeds, and tree populations used Nigeria, ten years earlier than the prediction of IPCC, climate model prediction of 2020 (IPCC, 2007). Consequently food production and access to food, in many part of the country is becoming more expensive, in some cases scarce, severely compromised, exacerbating food security problems and malnutrition; poverty, hunger, diseases; and

communal conflicts resulting from the lost of 92, 000 hectares of land to drought and desertification (Commission for Sustainable Development, 2008) and the scramble and partition of limited fertile lands (Watson, 2001).

This is so because over the years unpredictable weather conditions have come to affect farming population; land fertility; and struggle for livelihood. Climatic variation and change have come to play a major hindrance in the informal-agricultural labour market vis a vis the employment potential it had in the past especially among inhabitants in northern Nigeria. The agricultural sector is being relegated, due to poor government attitude towards the sector; youths abandoning it in search of white collar jobs and other survivalist jobs. This has brought about massive rural migration to urban and border towns. The 2009 National Statistic puts the unemployment rate in Nigeria at 4.9% signifying a 2 percent increase from 2.9 percent in 2005 (National Bureau of Statistics, 2009). The corollary effect of climate change has been observed as playing a negative impact on Nigerian families financial needs at home. Evident is the increasing level of Child labour through the Almajiries system to alleviate poverty especially among the illiterates and rural populace (Ikuomola, 2007). In response to climate change different emerging survival strategies are gradually being opted for, as households now cope with the shocks and stresses of the change, relying on family, community structures, self insurance, migration, child labour and fosterage, prostitutions and other livelihood diversification (Freeman, et al., 2006; Watson, 2008).

Similarly the oversight and neglect of countries of the developing world, placing less emphasis on the need for adaptation under the National Adaptation Programme of Action (NAPA) has not help either. So far, the focus on NAPAs has been on climate change impact on agriculture, forestry and water resources management (Kovats and Akhtar, 2008), without envisaging other possible impacts on the socioeconomic wellbeing, national food security and communal conflicts. It is from the above therefore that the following objectives for the study were drawn.

Aims and Objectives of the Study: The main of objective of the study is to examine the socio-economic implication of climatic change, desert encroachment and communal conflicts in northern Nigeria, from which the follow specific objectives were derived:

- 1. to observe the adjustment and coping strategies of individuals in northern Nigeria.
- to examine the communal conflicts emanating from climate change and agriculture.
- 3. to highlight government interventions in reducing the problems associated with climatic change in northern Nigeria.

Significance of the Study: Climate change represents a range of hazard that is already affecting nations in all spheres of human endeavours. Environmentally, its impact will put more pressure on governmental institutions in the long run with the lackadaisical attitude with which the issue is being treated especially in climate-sensitive Northern States, the snowballing effect will no doubt strain the cordial relationships and interactions between individuals, communities and nations especially as it affects lives and properties, socio-economic relations and wellbeing of a people if not nip in the bud. Secondly this study will bring to the fore the capacity of climate change engendering conflicts among hitherto peaceful agrarian communities. Lastly the study serves as a medium of climate change enlightenment campaign to rural farmers and Nigerians in general.

Research Setting and Methodology

The study setting comprised of four states of Borno, Kano Sokoto and Zamfara. Karaye and Minjibir local government areas were randomly selected in Kano State; a commercial and agricultural state, which is known for the production of groundnuts as well as for its solid mineral deposits. The state has more than 18,684 square kilometres of cultivable land and is the most extensively irrigated state in the country. It is arguably within the first five states in terms of commercial activity within Nigeria. In Sokoto State, (Tureta and Kware LGAs) is in the dry Sahel, surrounded by sandy Savannah and isolated hills. With an annual average temperature of 28.3 degrees Celsius, Sokoto is, on the whole, a very hot area. However, maximum daytime temperatures are for most of the year generally under 40 degrees and the dryness makes the heat bearable.

States	Borno	Kano	Sokoto	Zamfara
Selected Communities	1.Gubio	1.karaye 2 Miniihir	1.Tureta	1.Maru 2 Zumi

Field Survey 2008/09

The warmest months are February to April when daytime temperatures can exceed 45 degrees. Borno State (Gubio and Bayo) is in north-eastern Nigeria. Its capital is Maiduguri. Zamfara State (Maru and Zumi) is peopled by Hausa and Fulani peoples. Major groups of people include the Zamfarawa. With an area of 38,418 Square kilometres, it is bordered in the North by Niger Republic, to the South by Kaduna State. In the east it is bordered by Katsina State and to the West by Sokoto and Niger States. Some common features of these states are the arid vegetation, religion, culture and language.

The study employed principally qualitative methodology: in-depth interviews, observations and focus group discussions, among a cross section of 1200 households drawn randomly and via a snowballing sampling method. The study population was arrived at by selecting every household head. sixteen focus group discussions were conducted; four in each state complemented with several field observations limited to agricultural activities. As a qualitative study, data collected were subjected to content analysis while other relevant themes and information were discussed using simple percentages and tables.

RESULTS OF FINDINGS AND DISCUSSIONS

The research sample comprised of 1200 respondents: (984) 82 percent males and (216)18 percent females, all drawn from a survey of 1200 households in 8 Local government areas in the four selected northern states; as shown above. Age distribution shows that majority of the respondents were within the age bracket of 35-44 years (26%) and also within 55-64 years (22%). The respondents from the study area were predominantly Moslems (79%). Marital status revealed that 87 percent were married as against the single, 13 percent. Educational qualification shows that majority of the sample population had more of Secondary (32%) and Islamic education (37%). About 60 percent of the respondents were into farming. However 21 percent were civil servants, 16 percent were into trading and 5 percent were religious scholars.

Adjustment and Coping Strategies of Individuals in the Selected Communities: The major target of this research was to determine the effect of climate change on agricultural practice and on farming population. Series of interviews however revealed that agriculture is becoming less lucrative because

of the low farming yields, of food and cash crops such as millet, guinea corn, sugar cane, rice and beans (cowpea). This invariably translates to low income capacity in the sale of crops; and the economic power of inhabitants in the states. As noted by a respondent in Borno:

In the past agriculture was the main economic activities of our families, but the last 10 years has seen most families selling their farm lands to visitors because of the low yield of commercial crops (FGD/Male/56 years/Bayo/Borno).

Table 1. Showing the Socio-Demographic Characteristics of the Respondents

Gender	Frequency	Percentage
Female	216	18
Male	984	82
Age		
25-34 years	144	12
35-44 years	312	26
45-54 years	216	18
55-64 years	264	22
65-74 years	168	14
74years ⁺	96	8
Religion		
Islam	948	79
Christian	144	12
African Trad. Religion	108	9
Marital Status		
Married	1044	87
Single	156	13
Educational		
Qualification		
Tertiary	84	7
Secondary	384	32
Primary	108	9
Islamic	444	37
None	180	15
Occupation		
Civil Servants	252	21
Traders	192	16
Islamic Scholars	60	5
Farmers	696	58

Field Survey, 2008/2009

A common response from over 78 percent of the respondents revealed a positive impact of climate change on Western Education. Categorically it was mentioned that the current trend of agricultural produce, has made a lot of families to advice their wards to take to western education so as to be eligible for government jobs, and politics which is

becoming impossible without education. Some of the interviews corroborated the link and agitation for better education and in relation to climate change:

As it is, the only hope for our children is for them to be educated. If they are educated they will certainly get jobs in government ministries and parastatals because they will not get enough in agriculture. For instance as a boy my father depended sole on this family farm for survival, but today I am finding it difficult to depend on it, I have to combine it with other things like shoemaking and trading (IDIMale/65years/Maru/Zamfara).

The following statement, which also serve as advice was made by a fairly young respondent in Kano, that youth should think less of inheriting their family plantations:

I think the youths of our generation will be nowhere tomorrow if they are not educated because the changes in weather and climatic conditions have brought a lot of techniques into agriculture which is needed in modern day rearing of animals and cultivation of crops. Without this, in next few years all of us (youths) will not be interested in farming. (IDI/Male/23years/Minjibir/Kano).

Some of these techniques were observed to be the irrigation practices and fertilizer applications in modern day farming, which has posed a lot of difficulties to farmers. Also the problem arising from availability and distribution network of pesticides and insecticides which are increasingly being used ever now than before, respondents claimed are not easily accessed when needed, and when supposedly available; they are usually too expensive. highlighted was the preponderance of good yields among families with better education. A relationship which shows that there is need for more Agricultural education or enlightenment programmes for farmers. because the percentage of the educated in the North is far less than other regions such as the Eastern and Western parts of Nigeria (Nigeria DHS, EdData, 2004). Going by this, a village head in Sokoto, summarised some of the importance of western knowledge and scientific education in boosting farming yields:

I am one of those whose crops produce better in this community. It is not because I have a big farm land or magic; but the knowledge of good farming practices, which has been possible with the help of my son who studied agricultural science in Borno State Polytechnic. He is the one who combines the fertilizers into ratio. If not for him I would have lease

the farm land to other people and concentrate on cattle rearing (IDI/Male/70 years/Tureta/Sokoto).

While it was relatively easy for wealthy farmers to adjust and cope with changes in climatic variations, it was not the case with the poor who constitute the majority of farmers in Nigeria. Poverty was highlighted by over 63 percent of respondents, as responsible for the poor yields in the farm. The common argument for them was finance and irregularity in the supply of fertilisers, insecticides and pesticides by governmental agencies as at when due. As noted by Mr Umoru, 'the wealthy farmers are doing well because they have enough money to buy fertilizer and chemicals. For us the poor, it is very expensive to buy. We have children and wives to cater for, so we can not afford to spend much on (Male, 48 vears/Maru/ chemicals' Complementing Mr Umoru's statement, in Borno, it was noted by another, a father of four, that over the years, the rain drops have decreased

the soil has become less fertile. There is too much heat all year round. For these reasons we rely more on chemicals which are usually subsidised by the state and local government, but before it gets down to us at the grassroots it is usually too late. The problem is the involvement of middlemen in the distribution; they prefer distributing the fertilisers and chemicals to the wealthy farm owners first before us (FGD/Gubio/Borno).

Another factor is the linkage between modern agricultural practice to western education, which some sects of the Muslim populated North have frowned at and being regarded as negative influence to Islamic faith. This is evident in the recent religious crisis involving the Boko Haram¹ faithful and the state government in Borno and other parts of the Northern States (Idris, 2009).

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¹ Religious Belief that western education is anti -Islam

Table 2. Residents' Perceptions and Descriptions of Climate Change effects on their Communities

Descriptions	Borno	Zamfara	Sokoto	Kano
Desertification/encroachment	78%	65%	74%	7%
Dryness of Streams	81%	93%	87%	18%
Wind Erosion	95%	76%	56%	21%
Extremes Climatic Conditions	97	87%	91%	32
Increasing Number of People with Sight Problems	52%	34%	48%	6%
Migration of Youths to Cities and border towns	88%	71%	82%	13%
Increase Criminal Activities	18%	7%	34%	67%
Prostitutions	17%	3%	5%	74%
Fragile Health	62%	71%	46%	21%
Incessant Communal Conflicts	89%	18%	75%	42%
Low yield of Crops	61%	44%	57%	26%

Field Survey, 2008.

Table 2 above shows the frequency and percentage distribution of respondents perceived and observed changes resulting from climate change in the last two decades. Desertification was noted by majority of the respondents as a major problem from climate change, in the four states. It was only in Kano that fewer number of respondents (7 percent) saw desertification as a problem, in Borno, Zamfara and Sokoto about 65 percent saw desertification and desert encroachment as emerging. Dryness of also highlighted, which also streams was corresponded to responses related to extremes of climatic conditions. A situation described by a nursing mother 'as end time'.

We do not know what the world is turning into, everywhere is hot. It was not like this while growing up, harmattan season use to be lovely. In recent past it has been harsh; may be the world is ending as it is widely preached in every mosque and church (IDI/Female/Karaye/Kano).

Extremes and irregularities of weather condition has also been found to be responsible for some of the health problems in northern Nigeria, for instance, meningitis has become so common that every year especially during the dry season government campaigns on radio are very rampant to inform the people to avail themselves for vaccinations. It is also at this time that Laser fever becomes rampant. A fever, most medical practitioners have linked to the faeces of a particular kind of rodent, commonly found during the dry season. Other problems attributed to

harsh or extreme weather conditions were on agricultural produces, mostly millets, sorghum, onions; and tomatoes; these are crops highly sensitive to weather conditions, the resultant effect was described as low quality and quantity of the produce as well as the cost. A burden mostly felt by people in other parts of the country as well as neighbouring countries of Niger; Chad, Cameroon, down to Mali, and some countries in Central Africa who seriously rely on food from the north. According to a farmer in Kano:

the dry season we are used to last between November and March, but today it starts earlier around September and the effect is still being felt till April/May (FGD/Minjibir/Kano).

There is no gainsaying, the inhabitants feel the brunt, as the rate of hunger and begging have been found soaring higher in the last decade. The Almagiri system were children are sent begging all in the name of acquiring Islamic knowledge is a common sight in the north, this set of children have also been found to be used in fomenting trouble in most of the ethno-religious crisis in Northern Nigeria (Imam, 1998; Fakoya; 2009).

Climate Change: Adjustment and Coping Strategies in Northern Nigeria

In northern Nigeria today, the poverty level can not be compared to that of the south as the effect of climate change has been so alarming on the vegetation (Akoroda, 2010). For this reason, there has been a big increase in the number of households who can not afford food. The FAO (2005) survey of the 36 states in Nigeria shows that the fraction of Nigerians who had been unable to afford food 'almost every month' between January and December 2005 was on the increase. The table below depicts the situation in the four states covered by this study.

Table 3. Extract of the FAO Survey of Food

Affordability in Nigeria

States	Households	2005		
Zamfara	300	37%		
Sokoto	300	23%		
Borno	300	45%		
Kano	300	12%		

FAO, Survey 2005.

It was observed that the fraction of people unable to afford food increased between 2003 and 2005 (FAO, 2005). Part of the problem noted is rising food prices. In all four states studied, the prices of basic foods rose dramatically - for example, millet prices rose from about 30 Naira per Kg in January 2008, to about 50 Naira per Kg in December 2008. Prices of other staple foods such as rice and maize also grew The FAO (2005) came out with alarmingly. interesting results on food prices in the North, suggesting that the increase in food prices was as a result of large quantity being exported to other parts of Africa. The analysis though correct, failed to look inward that drought experienced in other countries where these foods are being exported is also affecting Nigeria too in meeting up with the local demands, hence increase in food prices locally; of which spending did not keep pace with prices: in these four northern states, average spending per household rose from 13,907 per month in 2007, to 16,423 Naira per month in 2008 (a slight increase, but not enough to cope with the big price rises). In the short term, as noted above some families did sell or lease their farm lands for survival. In some of the FGD sessions in Borno, Zamfara, and Sokoto. respondents comments explained the effect thus:

Life is becoming miserable; our children are now looking for the slightest reasons to live the village for cities, to survive. (Female/Bayo/Borno)

Kano and Abuja are now cities where our children are seeking for survival. Prostitution and crime is becoming common among our children, though this is not common here, but in Kano that is what some of our ladies go to. This is against our religion and tradition (Male/61years/Maru/ Zamfara)

The farming tradition is dying as our youths are all getting tired to farm, unlike 15 to 20 years back when students return home during farming seasons farm. such tradition (Male/57years/Kware/Sokoto).

For respondents in Kano in relation to other three states, as shown in the table above, 67 percent attested that criminal activities are on the increase. The reason once again is not far fetched; a situation which has been attributed to high concentration of migrants population (mostly youths) from other northern states and far beyond. Kano has been described as the largest state in terms of population based on the last census, though this has caused a lot of problems politically (which is not a major interest of this paper). The point being driven here is that Kano is to the North what Lagos is to the South in terms of city life, commerce, criminal activities; prostitutions and other deviant survival strategies (Isamah, and Okunola, 1997). The cosmopolitan nature of Kano and its liberality in terms of the implementation of Sharia was also attributed as a reason why it has higher crime rate than other states in the North:

As farming population decreases, people in the hinterland are forced to migrate to the cities where they can do some menial jobs to make ends meet. But surprisingly not everybody will get jobs, some boys are now involved in stealing and girls in prostitution at night. Most of these people are not from Kano, they are migrants, they have come to pollute our children, that is why some of us are asking the government to implement Sharia in the but they won't take us seriously (Male/Karaye/Kano)

Most of the criminal activities were noted to be perpetrated by unemployed youths popularly called Kwanta Kwanta. These sets of boys are local bandits found around waylaying wealthy men, traders, commuters at nights in most suburbs in the Northern Nigeria. In Kano, it is generally believed that most of them are unemployed youths found in Darki, Gadar and Jarna villages, these villages are located 50 kilometres outside Kano metropolis and were stated by 27 percentage of the respondents in Kano as notoriously dangerous at night.

Only recently (4th of April, 2010) the kwenta Kwenta was said to have been responsible for the death of a

prominent politician and one time governor of Kano State Late Alhaji Abubarka Remi (The Guardian, 2010). The attack and eventual death of the late politician to most government officials and media reporters is yet another testimony to the worsening security situation in the North. The increasing level of insecurity was attributed to unemployment and massive drift from agricultural activities vis a vis climate change. Over half of the sampled respondents agreed that unemployment has to do with the unproductive and now costly nature of Associated with this is the incessant agriculture. religious violence in Northern Nigeria and high level of criminal activities which is almost at par with the situation in the South. Quoting a Southerner in one of the interviews he said:

In the past the north used to be the safest, lifestyle was so simple, food stuff was cheap to the extent that tomatoes and pepper were not sold. We all sleep with our doors unlock; lives and properties were safe. The situation has completely changed since the 1980s (Male/69years/Gubio/Borno).

For another,

A lot of people have lost their lives and properties to these rampaging hoodlums and armed robbers. We the poor are mostly affected. Government we peasants are usually not taken seriously whenever we call for government security (IDI/Female/43years/Minjibir/Kano).

Among most respondents, the constant cry for the State and Federal government to come to their aid was common. It was not surprising as a young family man in Sokoto narrated how he lost his father to these hoodlums. He said:

With his death I am calling on any government in power to concentrate on human and climatic factors causing death in our communities. The manner of my father's death is sad; the entire family is yet to get over it. (Male/Tureta/Sokoto).

Trans-Border Crime in Northern Nigeria

Emphatically in Borno, Sokoto and Zamfara, transborder crime, movement of people and goods were noted by over two-third of the respondents to be on the increase. These states share boundaries with Republics of Niger and Chad and Cameroon. An important feature of these Border States is the porous nature of security (common to all borders in Africa), activities of smugglers in contra-bound goods have heightened over the years alongside smuggling of small arms into the country (Eselebor, 2008). The above scenario is not different from what is currently obtained, as Security Assessment of the Nigeria State (2008) shows that her immediate neighbours: Benin, Niger, Chad and Cameroun are weak states vulnerable to crisis and conflicts, food shortages, diseases; proliferation of small arms and light weapons. The concluding part of the assessment noted that Nigeria may be unsafe except security is beefed up across her border. This thinking informed Nwolise (1985:15) to postulate that:

'A country may have the best armed forces in terms of training and equipment, the most efficient police force, the most efficient custom men, the most active secret service agents and best quality prisons, but yet be the most insecure nation in the world as a result of defence and security problems within bad governments, alienated and suffering masses, ignorance, hunger, unemployment...'

Over the years the Nigerian police have been complaining of the in-migration of *Negerians* into the country through these borders; so also is the case by Nigerien Gerdames. A security officer in Borno made us to know that since agricultural activities are declining, many individuals especially among youths and middle aged men in Borno, intensified their effort in cross-border trade, and involvement in smuggling activities. Such smuggled items ranges from sugar, can beef, alcohol and spirit; vegetable oil, soaps, drugs, textile materials and small arms (Akoroda, 2010). According to an interviewee 'the attractiveness of these goods are irresistible by members' in the communities'.

The listed items clearly showed that agricultural products, such as diaries, vegetable oil and sugar which used to be surplus and cost nothing to the inhabitants are now attracting huge prices. Compare to the past the present situation depicts an increase in prices of most commodities especially diary and affected bv the scarcity of pastures/grazing fields all year round. Important to state also is the fact that most textile industries which also contributed a lot to employment opportunities in the past have packed up, while such companies in the south complained more of governmental policies and low patronage, the north pinpointed the problem of water shortage, which over the years has become

a problem, not only for water based industries but also for inhabitants. Water is a major resource needed in textile industries. The Nigerian Tribune (2010:4) noted that the only few surviving ones depend on generators and plants (a depiction of the poor state of energy supply in Nigeria), with a snowballing effect on the cost of production and eventual closure and relocation of industries. (Babagana, A, 2007; 2009). The collapse coupled with poor government policies on importation and high prices of locally produced goods have turned Nigeria into a dumping ground for all kinds of textile and fairly used clothes, boosted by activities of smugglers and trans-border crime (Martinez, 1994; Afolayan, 2000).

Water is so difficulty to come by especially in the dry season. It was better off when we were growing up, but the past 10years have been hell. Though government do supply water it is irregular, now there are private individuals who trade in water; and anything private is usually too expensive (IDI/Male/Karaye/Kano).

Other non agricultural activities engaged by most youths are bike riding, not in its conventional sense but for commercial purpose. In local parlance it is generally referred to as Okada business, here individual learn how to ride bike in order to carry passenger for a fee, most times, without helmet and the casualties have been said to be on the increased over the years; since most of these youths are not properly trained. The rush to become a bike rider rather than taking to farming was linked to governmental policies of distributing free bikes to households as part of political campaign and promises which most household termed dividend of democracy. Over 85 percents of the respondents interviewed had bikes either given freely or bought at a subsidised rate. Simply put a female respondent noted that:

If not for these bike riding my son would have been redundant, but it has helped us, he works with it during the day. The family now depends on him for survival (IDI/female/ 51years/Tureta/Sokoto)

In Kano, majority (56 percent) of the respondents noted that though bike riding has alleviated poverty but not without its consequences on families and youths. Some of these were noted as injuries (some times head and spinal cord), temporal or permanent disabilities and other times death. The cosmopolitan

nature of Kano and the level of literacy came to bear in some of the responses which revealed that most bike men were youths from extreme northern states with poor educational background and skills in riding:

In Kano town, it is a common thing for one to be warned not to board bikes of any suspicious male who is not an indigene. Most of these boys get free bikes and the next day they are on the street carrying passengers. In Kano over 90 percent are from Borno or Sokoto. The number of lives that have been lost because of their recklessness can not be quantified (FGD/Male/47years/Karaye/Kano).

Buttressing the above another discussant said:

Take a look at all the *bike boys*, what is common to all is the scars on their legs as a result of continuous accidents and bad driving habits (IDI/Male/58years/Minjibir/Kano).

The above summations revealed that there is an increasing agro-phobia among youths of today in northern Nigeria. In explaining the crisis of desertification and changes in weather conditions, streams, surface water, borehole and wells go dry: this is common to all states in Northern Nigeria. Some of these problems suggest that the Sahara desert is spreading south. It is unrealistic to expect Nigerian farmers to be able to halt the steady growth of the Sahara desert, as most farmers struggle to The Nigerian government, and various NGOs, deserve credit for helping some parts of Northern Nigeria (such as Sokoto and Kano). But their current effort is not enough to prevent Northern Nigeria from becoming desertified - a much more ambitious project is needed. Farming is hardly mentioned in Nigerian government plans for water (UNEP, 2005a). UNEP (2005b) claim that "Central Africa rarely experiences problems of water availability, because rainfall is high and generally predictable", and imply Nigeria can rely on Lake Chad - but the same document admits "Satellite images show that the lake has shrunk considerably over the past 30 years, and is now 5 per cent of its former size, due to persistent low rainfall in the region".

The weather condition and its consequences were observed to have strained the relationship between Negerians and Nigerians on long time agricultural relations. Accounts of 68 percent of the households confirmed that most Negerians do come to Nigeria as

labourers and farmers because desertification has had a long time effect on them as far back as the 1980s, a situation accounting for their experience.

Now, farming is reducing, less of their labour is needed. This has not augur well with them too, many of these Negerains are becoming aggressive and militant in nature because of the low patronage of their skills (IDI/Male/72years/Zamfara).

Today, thirty years after, Akoroda, (2010) observed that the situation in Nigeria is becoming worrisome, as food shortages and rampant hunger are evident in most households, a situation which has also reduced the proportion of support in terms of food supply to neighbouring nations with smaller populations characterised by disproportionately heavier agroclimatic challenges with food crises.

Regarding the skills of hired farm labourers from neighbouring countries it was observed that most Northerners prefer the Labour of the Negerian because they are more knowledgeable in desert and dry season farming. The reason again is not far fetched as mentioned earlier. 'they have had their fair share of climate change Impact on agriculture'. Security report has also shown that most of the crisis occurring in the north have traces of Negerian Moslems (mostly youths) hired to fight against the Christians and non Moslem population. The Boko Haram killings brought out these facts in Maduguri and recent Jos crisis (The Guardian, 2010).

Communal Conflicts in Northern Nigeria: The increasing conflict in Africa has been attributed mostly to bad government, while for others, poverty, diseases and hunger are the major causes of conflict in the region. Though these view points are all on track, as noted in this study. In Sokoto Remi basin area for example government construction of the bakolori dam without adequate environmental impact assessment (Yahaya, 2000) has fostered desert encroachment and desertification as well as other social problems such as the scramble for fertile lands for farming. The scramble for land as reported by an official in the Tureta Local council, brought out the details in terms of the number and occurrence of displaced persons in the state. Noting that there is no weekend in the palace without cases of conflicts among farmers and farmlands being settled. Different households and farmers do bring cases either relating to violence on their wards or farmhands. On the average he noted that there are usually more than five cases of communal and individual conflicts monthly, and fighting relating to agricultural activities,

and the vandalisation of crops by cattle's belonging to different communities. Buttressing further he concluded that:

If you take a look there are a lot of people living in the council, because of one problem or the other. Most of them are victims of displacement from their farms, and others are those who have lost their farm produce as a result of communal fights... burning of one another's farmland out of retaliation. To avoid continuous conflicts some of the victims of such conflicts have either move from such land in search for another, while for those who have nowhere to go, are being harboured here in the palace in the wisdom of the traditional ruler. (FGD/Tureta/Sokoto).

A common occurrence as explained by two-third of respondents in the study areas revealed that there are regular disputes between the farm guards and petty farmers in neighbouring villages, and as desert encroaches farmlands, community disputes and conflicts over fertile lands increases and the problem of internally displaced persons were inevitable. Respondents in Zamfara, described conflict as existing mostly among peasant farmers, whose lands have over the years become less productive as a result of the harsh climatic factor, and their inability to raise fund to buy fertilisers and other modern farming products for improved farming. Hence it was generally agreed by over half of the respondents that peasant farmers are 'a highly volatile group'. A situation captured by a respondent in Borno thus: 'a hungry man is an angry man... you can not take that away from us'.

Year in year out...the situation keeps worsening, the complaints were so grave that the state government had to put in place patrol vehicles to routinely go around these conflicting communities to avoid further escalation of conflicts (IDI/Male/Zumi/Zamfara).

Militancy and aggressiveness among youths was said to have heightened as poverty increases in the region. In an account of a long time residents from Chad, 'hostility as a behaviour is a recent phenomenon.

it is not part of the culture of the people here to be hostile and aggressive, it is as a result of poverty and low yield from the farm. To a new comer one will think it has always been their habits and behaviour. This is not true' (FGD/Female/Gubio/Borno).

Apart from conflicts among farmers, the dam construction in Sokoto has also led to the dispossession of peasants farms from their traditional source of livelihood. Report shows that the construction of the dam left the peasants farmers with lands that became infertile; others claimed that they were given lands that were infertile as compensation which was vehemently rejected, and demanded cash compensation instead. Indeed, tens of thousands of farmers had been either permanently deprived of land or prevented from cultivating it for two or three farming seasons in 2000-2001 (Yahaya, 2002). This culminated in the use of para-military police forces which brutally suppressed the rebellion, burning villages, killing and wounding hundreds of men, women and children. Ken (1985) viewed the implantation of large irrigation schemes inevitably means that some people would be dispossessed of their land and houses.

The building of Bakolori dam on the Sokoto Rima Basin displaced some 18,000 inhabitants. Yahaya (2002) reported that the Federal Government resettlement scheme was faulty as the villagers often complain of poor water supply and poor land for farming. Hence, under Bakolori Irrigation Project, farmers from various communities in the project area became landless and in adequate compensation characterize the entire process. To worsen their situation, economic trees and crops were destroyed with reckless abandon without due compensation. 'The manner in which land reallocation was handled was dubious and fraudulent'. Also, enforcement of cropping pattern that conflict with established food and economic life of the area was devastation in their lives. Meanwhile, northern Nigeria region where the project took place is one of the worst development regions of the country. These critical situations resulted in massive uprising for seven months. In the process, police and soldiers were drafted to the area where many farmers were attacked, beaten up and subsequently captured and imprisoned. According to Beckman (1985) some of the aggrieved farmers fought back in formidable force, throwing out daggers, home made deadly weapons, such as dane guns, cutlasses and other dangerous weapons. In another focus group discussion, a respondent noted that farmers were fed up of promises and ready to fight and die in the process so as to bring to an end their sufferings.

The devastating consequence of this crisis resulted in the death of fourteen farmers, one policeman and fifteen others, and four policemen severely injured. As the crisis escalated by the end of June 1980 not less than three hundred and eighty six people have been killed. The disaster resulted in looting of property, while granaries, houses and vehicles were set ablaze. That is not all, Yahaya and Ango (2000) reported several other environmental degradation brought about by the irrigation project. Hence, Bakolori irrigation project was indeed a confluence of devastation. Presently the research shows that the dam is gradually drying up, a situation which has increased the distance Bakolori women and children trek to get good source of water, the wet season serves as succour to the inhabitants around the dam, anytime it rains.

It is no longer news that water is our major problems; the only source of good water is about 8-10 km. the situation got worsen when all streams were channelled to Bakolori dam. (IDI/Female/ 25 years/Kware/Sokoto).

The majority of peasant farmers, mostly men in this sample asserted their grievances towards government and the wealthy class as well as large scale farmers. For most, the necessities of life have been taken away from them. As Musa, Abdulahi, Adamu, and Isiaka, conclude:

Since the first day the contractors started work in Bakolori, life has been miserable to us, you know?

The land is my life.now the land is drying, and I am gradually dying.

Is it now that I will start searching for a new job when all my life has been farming?

We all need our land and our life back. The dam has done more harm than good. (IDI and FGD/Male in Tureta and Kware/Sokoto).

Only few individuals (Large scale farmers) supported the idea that the dam still serves its purpose for irrigation, but not without mentioning the fact that the water level is reducing yearly, most especially in the last decade. The researcher observations revealed that farming activities have moved far away from the dam which was once cherished as the most fertile land to farm by most respondents and peasants' population. The irrigation channel showed that over head pumps and pipes were directed to large mechanised farms owned by government, the rich and well guarded by local vigilantes, to avoid

encroachment by peasants' farmers. The goes to show that there are envisaged threats and hostilities between the different cadres of land users. This was confirmed in one of the researcher's visitation to traditional head of Bayo council, he was engaged with a group of elders and a number of youths. It was latter explained to us that the palace sent for them to settle a recurring and unending conflicts of farmland encroachment between two communities in the LGA, though it was not taken seriously as shown in the expression of the village head. This he said:

It is a regular thing for communities to fight over land, during planting seasons. We know how to calm them down; though once in a while it gets out of hand and we call the state security personnel to handle them (IDI/Male/75years/Bayo/Borno).

Corresponding to what various literature have shown (Willem 2009; Akoroda; 2010), conflicts among farmers and cattle rearers were highlighted by over 75 percent of the respondents in the selected states, the recurrence of pastorialist and farmers conflict seem to have intensified over time. This account was noted more in Sokoto, about forty-eight percent of the respondents compared to twenty-two percent in other states, Maduguri, (6%); Zamfara, (13%); Kano (3%). The high percentage of herdsmen and farmers conflicts occurs more in Sokoto: and Zamfara because of the high breeding activities of cattle rearers especially the specie called Red Bororo. which are known for their high yielding capacity and destructive characteristics compared to other cattle in Nigeria. The conflict was said to occur mainly in the dry season when the Fulani herdsmen migrate south with the cattle in search for green pastures. It is in this process they destroy our farm land says a respondent:

In the past the migration use to be more in the middle of the dry season and after havest but nowadays it is throughout the year. Worst of all during planting season, they walk on seeds planted, and in most cases a lot of the seeds fail to germinate. This has caused huge loss to us. The damage is usually the cause of our conflicts with the Fulani herdsmen. It is a yearly battle between us. (FGD/Male/Tureta/Sokoto).

It is important to state here that since land area of any country is fixed, and for Nigeria with her rising population, there is bound to be continuous uprising among peasants, the use of force in the acquisition of farmlands, the tendencies for family members to fight and kill for land, and adjacent communities fighting for livelihood. As shown from the study, and applicable to other northern states, frequent skirmishes among livestock herdsmen searching for grazing strips and cultivators trying to expand their farm land are rampant.

A female account in Kano also revealed that apart from destruction of seeds, the movement of cattle along rivers and streams exposes them to various diseases. Such as blindness (Trachoma) and worm (Dracunculus medinensis).This corroborates Mansur, et al (2007) findings in a survey of 34 communities in sokoto state, where it was found that 81% of households had refuse and animal dung littered within their compounds. Sixty percent of children had 'unclean faces' and over 85% of households had no access to water within their vicinity. Till date Trachoma and glaucoma in northern Nigeria are still of public health concern. Apart from animal dung around sources of water supply, the long dry season, dusty and hazy weather conditions are major contributory factors fostering various health problems and new variants of pest and insects affecting agriculture in Nigeria. Only recently Nigerian Television Authority (NTA, 2010) weather forecast reported that for the first time in the history of Nigeria Maiduquiri, the capital city of Borno state had a temperature of 47°C, which was also linked to ailing health of the people and low crop yields.

Climate Change Effect on Staple Food in Northern Nigeria: A common submission about climate change shows that staple foods of the people have also changed with the climate. For instance over eighty-four percent of women sampled complained about some food items which were no longer available in large quantity such as guinea corn, (a smaller variety of maize) used in preparing Tuwo Dawa which most people prefer to eat. Instead, Tuwo Masara, a product from the cheap, bigger variety and readily available maize is today consumed. The high price of the preferred guinea corn (Sorghum) has been attributed to climate change. In reacting to the above statement a male trader, who sells food stuff in Kano noted that:

Apart from the high cost of guinea corn, over the years a number of crops have not been producing well, because of the excessive heat which is not favourable to their cultivation. Instead the alternative maize is cultivated and currently being used for preparing Tuwo Masara, which is less nutritious. (IDI/Male/ 63years /Minjibir/Kano).

In support of the above, a mother related the impact on the younger generation thus:

Many of out youths and children are no longer familiar with some of the old delicacies we were known for. Such as Tuwo Dawa. Some may have heard about them while others may only eat such food during festive period especially among those who are 18/20 years below (FGD/Female/Maru/Zamfara).

The summations can be interpreted as a situation of 'when the preferable becomes unavailable, the available becomes the preferable'. The effect no doubt points to global warming, which is reducing the amount of rainfall, transpiration, evaporation, and drought, evident more on certain agricultural products and livelihoods. As explained earlier, majority of the inhabitants in this region are poor farmers. They depend directly and heavily on natural and environmental resources to take care of their needs. For instance, they depend mainly on wood for energy; for cooking their food, because they cannot afford the costlier alternatives of kerosene and cooking gas. In fact, fuel wood is a very lucrative business as trucks are seen daily hurling wood within villages and even between villages and urban centres. These woods are from trees hacked down without anyone being planted to replace them. This has resulted in serious decimation of the already diminishing forests which is increasingly being replaced by the desert. Other forest resources and wildlife are also affected. The Price of beef has also sky-rocketed likewise other poultry products. This situation, many women craved has more often created internal conflict between wives and their husbands who prefer food of the old order (more nutritious meal). To some extent it has been reported that most inter-spousal violence result from common issues relating to food in the pot.

As it is said in our community the best way to please a man is through his stomach, nowadays it is very expensive to do that. The money our husbands drop for meals can no longer buy those things it used to buy, and yet they prefer those things. (IDI/Female/Gubio/Borno).

There were other food items hitherto not among the diets of the northerners such as *Dunza*, a by-product from Maize, used mainly as feed for livestock but presently consumed by the populace, so also is the introduction of *garri/eba* into their meals..

Government Interventions in Reducing the Problems Associated with Climate Change in Nigeria: Going by the responses from the study population on one hand, it was noted that the issue of climate change has never been taken seriously, as claimed by about 70 percent of the respondents from the four states, to be non existent, slow and limited to economic compensations; which were not fully spread to all affected communities. Many of the respondents see the situation as a phenomenon that will get better only with time in the nearest future (69) percent). This claim however is still widely been held by a lot of people in the north based on high level fatalism. For instance a community head in Sokoto, believed that there is nothing wrong with the situation of things, that with some sacrifices and prayers the situation will come to an end. Narrating further he

The excessive heat and dryness experienced have happened before. During the time of our forefathers, sacrifices were done, prayers were said and the situation came under control. These days people do not belief in such measures and actions anymore FGD/Male/69 years/Kware/Sokoto).

For another, a Female household head in Kano explained:.

It is only of recent, through jingles on radio that we are being told that there is some thing called climate change. All we hear is that government will come to our aid as crop yields are getting poorer. Till date there is nothing tangible to show for their efforts. (IDI/Female, 67 years/Karaye/kano).

The belief and ignorance of the peasant class contribute to the ever increasing state of poverty in Nigeria. Their inertia through want of health and their enslavement by superstition have also hindered the acceptance of modern farming practices, a situation most corrupt politicians have capitalised upon in exploiting the masses and in providing solutions to symptoms (effects) rather than the ailment (climate change). This is also common to the peasants in every nook and corners in Nigeria and Africa in general. In Zamfara, it was highlighted by over 76 percent of the entire household involved in the survey that there were no new programmes or activities by government apart from what they have normally been doing, for instance fertilizer has always been distributed to us during planting season; water supply for irrigation farming; seedlings for farming; Apart from these all other governmental programmes on

climate change were said to be non existent and limited to compensations.

The knowledge of climate change is common among individuals in major cities in Nigeria than the suburbs, with the up roar of the persistent gas flaring environmental degradation in the Niger-delta region, certainly not in rural and agrarian communities of the north where such is absent. Major hindrance and characteristic of the states in Northern Nigeria is the high level of poverty and illiteracy. Little wonder that most sensitisation programmes on climate change are usually from the more industrial and educated Southern states where all the major industries are located (agro-allied and petrochemical companies); research institutions are engaging in climate change debates, symposium and programmes. Before now Nigerians in the Niger-delta region were the first to raised alarm over the changes in climatic and weather conditions, which initially started with high level acidic rain, excessive heat, and other times flooding (Ikporupo, 2007).

The impact was also felt on the number of people falling heal with new diseases that were hitherto not common, such as cancer, gland disease and skin rashes. The farming population was not spared, as land and vegetation could no longer support some of the food crops in large quantity. For example the yield of cassava dropped in quality and in quantity. Among other anomalies, initially it was strictly attributed to gas flaring by Multinational companies involved in the exploration of oil and gas, and because of the high level of educated and enlightened populace, measures are now more in place in the south than in the north where bulk of agricultural activities are taking place. These situations no doubt call for great attention.

Conclusion and Recommendation: This study therefore conclude that though climate change has and is still affecting farmers and the people in Northern Nigeria as shown in table 2, economically, socially and otherwise. It has brought about various survival strategies among the populace. Internal conflict resulting from the incessant agitation of scarce fertile lands for farming and the corollary effect on the number of internally displaced persons call for urgent attention. It is therefore important for government at all levels to put more machinery on ground in the north as well as in the south, because over 70 percent of the nation's food crop comes from the region. Also Nigeria as a country should invest more in combating climatic change; agricultural and

climatologic research should be enhanced to combat desert encroachment, and in the long run reducing inherent conflicts. In the short run it is important for small fields' peasants to be given the best seeds of the best varieties, secondly enable them with the best skills for farming, and avail them the best support for all operations relating to agriculture and livelihoods. Each of these key words: seeds, skills and support represent a host of components in climate change programmes; needed input and effort by the government (devoid of politics), populace and the scientific communities on how to reconcile issues surrounding climate change (practically) not only in Nigeria but also worldwide.

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