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# The Future of Pastoralism in the Sahel Zone of West Africa Climate Change: Impacts and Consequences on Pastoralism

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**ON**

**FUTURE OF PASTORALISM IN AFRICA -  
CLIMATE CHANGE: IMPACTS AND  
CONSEQUENCES**

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# **THE FUTURE OF PASTORALISM IN THE SAHEL ZONE OF WEST AFRICA: CLIMATE CHANGE: IMPACTS & CONSEQUENCIES ON PASTORALISM**

## **ABSTRACT**

*This paper seeks to examine the challenges of climate change on pastoralism, considering its far-reaching impact and consequences. Over the years or decades, climate change has adversely affected the lives of millions of nomadic pastoralists and semi-nomadic pastoralists as well as those sedentary groups that benefit from the sector. The deterioration of the global weather conditions occasioned by severe drought and desert advancement which is attributed to trends in greenhouse gas emissions are the key driving factors that resulted in discouraging and frustrating pastoralism or pastoral activities in the Sudano-sahelian zone, unless adaptive strategies are taken to address the situation.*

## **Introduction**

Considering the desiccation process of the Sahara about 2500 BC, when drying-up process began in the Sahara, some of its inhabitants were forced to move northward toward the Mediterranean coastal plain, while others move southward into the Sudan Savannah.

Prof. Desmond Clark made mentioned of two types of late Stone Age cultures then developed south of the Sahara. The first, he termed it as West African complex, extended across the Sudan Savannah from the Senegal valley to Western Ethiopia. In this area the basis of life was agriculture. The other Late Stone Age culture is what Clark called the East Africa complex. This traces to cattle the keepers who were forced out of the drying Sahara and settled east of the Rift Valley in Ethiopia, Eritrea and Somalia land and down the east African high land into

Northern Tanzania. History of pastoralism is as old as human civilization. Animal keeping made first appearance in the Sahara about 5,000 BC. Animal husbandry found its way to Africa from near East through Egypt. Pastoralism dates back to the era of “Neolithic Revolution” when man for the first ever acquired the knowledge and skills with which to domesticate both animals and plants (Crops). Pastoralism is a branch of agriculture concerned with raising livestock and may have mobile aspect moving herds in search fresh water and pasture (Wikipedia 2009). Pastoralism is one of the most important economic activities from which millions of people drive their livelihood and a way of life of some 16 millions in the Sahelian zone (Berger, 2003)

### **Impact of Climatic Change**

Historical experience over the centuries revealed that both overgrazing and over cultivation contributes to environmental deterioration as it can give rise deterioration of grassland into desert. The ancient kingdom of Ghana tells the story only too well, as core of the former empire is now a desert. These will continue to degenerate within remedial intervention by man is undertaken.

Today's a lot attention and debate on climate change which is occasioned with “global warming” that served as a serious catastrophic concerning environmental sustainability. The Kyoto protocol which came into effect 16, February, 2005, brought with it an international treaty under which 35 agreed to start cutting back emission of carbon dioxide and other gases. The Kyoto protocol expires 1/1/2012, but it seems most developing and develop nations or economies like china and Brazil failed to comply with the treaty. Existing emissions of greenhouse gases will lead to a rise in average global temperatures of at least two degrees Celsius over the next 20 or 30 years. If urgent action is not taken soon earth may faced a rise of four degrees or more. Climate change is indeed a global challenge with rather more devastating effect on the poor

economies of the world and poor countries that will not respond adequately to the measures that can ameliorate it, particularly in Africa and other such governments there with careless approach life issues are the ones that will suffer from its devastating effects.

The intergovernmental panel summit on climate change in December, 2009, at Copenhagen hosted by Denmark is said to be the most important international conference in fifty years. Though, faced problems with big global emitters, yet it remains very critical in determining the future living conditions of our planet as observed by climate scientists. The just ended Cancun- Mexico convocation on climate change held in December 2010. This recent conference reiterates the United Nations Kyoto protocol which obliged developed nations to cut emissions until December 31, 2010 it also set-up fund with which to respond to climate change. Now the world awaits to see on the next global convention on climate change which is to be held at Durban – South Africa in December, 2010. In fact, matters concerning environmental sustainability are not unconnected with the concept of unlimited economic growth as it affects other area of development. This informs us that the continuous search for economic relevance puts in jeopardy other areas in the life of man that the gains in economic advancement cannot substitute. This is why man's activities in the pursuit of better living conditions account largely for the climate change challenges.

Climate change is characterized by intense heat waves, more wildfire, degraded air quality, more heavy down pours and flooding, increased drought, greater sea level rise, more intense storms, harm to water resources, harm to agriculture and harm to wild life and ecosystems are all having adverse effects on the future sustainability of traditional African stock breeding or animal husbandry and other sectors of human endeavor. Several impacts of global warming stem from

changes in water availability. Rainfall in Africa is expected to decline significantly in southern African and across North Africa. Conversely east Africa is expected to become wetter, with rain falling in more intense storms thus causing greater risk of flooding. Climate models show mixed results for what is to happen to west Africa's rainfall; some predict a fall and others a rise in levels. These shifts in rainfall will bring major impacts on ground in terms of crop yield, water availability, disease incidence and flood damage. Also many of Africa's major rivers such as the Nile, Niger and Zimbabwe are shared between a numbers of countries. These are critical for providing water for cities, irrigated agriculture, fisheries and hydroelectric power. If there is less rainfall this could mean greater competition and a risk of conflict over resources that is considered as a key – player in exacerbating conflicts between herders and the sedentary groups, especially crop – cultivators in most pastoral corridors in the Sahelian region.

Oxfam believes climate change is frustrating the efforts of poverty eradication that pervade million of people in the Sahelian region of West Africa. It will also exacerbate famine and disease in the region. Battle against climate change will not succeed unless global deforestation is halted. For this reason, the Bali action plan devised at the UN climate change conference in 2007 included an initiative known as reducing emissions from deforestation and forests degradation (Redd). The wood fuel that served as major source energy in Africa has long term impact on environment. As it could be seen about 80 percent of Africans rely on biomass for energy (wood and charcoal fuel). The industrial logging practices also resulted in higher emissions and large scale deforestation. Environmentalist shed observed about 4 million hectares of forest are felled each year Africa, twice the world average. In sub-Saharan Africa only 7.5 of the rural population has access to electricity. This shows that wood and its byproduct charcoal are unless radical steps are taken,

likely to remain the primary energy source for decades. The impact of deforestation is felt all over because it encourages desertification and erosion whose consequences are too disastrous to both man and animal. Natural tropical forests left undisturbed, served a stable storehouse of carbon. Microclimates virtually eliminate the possibility of fire, and high level of biodiversity may increase their resistance to the impact of climate change. Having noted some of the key players or issues with regard to challenges of climate change, it is now obviously clear without any second thought, these changes in climate that is occasioned by drought and desertification have posed and will continue to serve as a serious threat with far-reaching impact and consequences on the sector of Africa's animals husbandry.

Now, this paper will focus on northern – Nigeria, that contained a significant proportion of the country's cattle, sheep and goats. Northern Nigeria is of Sudan and Guinea savannah vegetation. Over 90 percent of the cattle and the larger proportion of the sheep and goats are held by the nomadic and semi-nomadic pastoralists. The northern region is located along two of Nigeria's main pastoral corridors; north west (running from Nigeria and Benin republics through Sokoto, Zamfara, Kebbi, Katsina, Niger, and Kwara States, and terminating in Oyo state and north-east (emanating of from the Republics of Niger, chad and cameroun running through Borno, Yobe, Adamawa, Jigawa, Kano and plateau States and terminating in the Benue – Niger Basins. The pastoral groups identified within these corridors belong to three sub-systems of the pastoral production system; the nomadic pastoralists, semi-nomadic pastoralists and the agro-pastoralists. The first two subsystems are known as the transhumant pastoralists within which are groups referred to as the Uawa, the Bokolohi and the Mbororo. All the

three groups belong to the Fulbe<sup>1</sup> (Fulani pastoralists). The Fulani are the most numerous and widespread pastoralists not only in Nigeria but across the west African region.

Though, in Nigeria, there are some pastoralists groups like the Koyam, Kayi, the Shuwa and related peoples who are found in semi arid zone around Lake Chad other than the Fulbe pastoralists.

As the tradition entails, the animals exist by scavenging depending in natural grazing. The nomadic pastoralists practice transhumance, moving south in the dry season and north in wet seasons in keeping with their seasonal variations in the availability of water and prevalence of bovine diseases. The semi – nomadic<sup>2</sup> pastoralists normally have a home base where they most of time cultivating some crops and by so doing combine crop and animal husbandry. In this regard grazing has traditionally been on a communal basis, no individual possessing sole to any grazing land pastoralists usually used uncultivated bush fallow farms and forest and grazing reserves, and grass and water were considered free resources available to the stock that got to them first. In the main, pastoralists had relatively easy access to available pasture and water as well as co-operation of the farmers.

In Nigeria, however, over the last quarter of the 20<sup>th</sup> century and even in this present 21<sup>st</sup> century, a progressive deterioration in grazing pasture conditions solely necessitated by “drought” which yoked together with famine and desertification have made pastoralism or pastoral activities

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1. *The Nigerian Fulbe are described in a number of classic monographs, most notable 8t. Croix (1944), Hopen (1958) and Stenning (1959) all whom studied pastoralists clans in semi-arid areas. While Awogbade (1983), and charter and Roger (1986) dead with pastoralists in humid and sub humid areas.*

2. *The semi-nomadic pastoralists are the most important numerically. Growing gero-a cereal crop variety is an encumbrance but not so great as serous interfere with workable system of transhumance see hopen the Fulbe pastoral family in Gwanfu (1958) London, pp-3-1.*



discouraging or rather frustration. Drought is a natural reoccurring phenomenon that entails a long period of time associated little or no rain. The secular drought which is the most common and devastating in semi arid areas, occur in sequence of eleven years (Yobe economic summit 2008).

In the pastoral sahel, a typical year includes a short rainy season<sup>3</sup> from July to September, and a long dry season from October to July. Rainfall are erratic and unpredictable. This result in scattered pastoral resources and in continuous variations in the biomass between and within years. Drought is part of the pastoral life. Therefore, several droughts have severally battered Sahelian countries during the last century (in 1914, 1931, 1931, 1942, 1973, 1992) except during a period of higher rainfall in the 1950s and 1960s which have made many pastoralists to smile.

Of all the aforementioned droughts. The 1973 drought was said to be disastrous for its far – reaching consequences to the animals and the environment. The Fulbe pastoralist called it *sheduwa*-meaning “Great Drought”. The disastrous drought which affected the Sahelian zone of Africa south of the Sahara in 1973 in now a historical fact<sup>4</sup>. it occasioned large – scale migration of people and livestock southwards resulting in the dislocation of the economy and society of the affected areas. The drought is well remembered with great shock and trauma in the minds several pastoral families in the Sahel region. Almost all pastoral families or groups and communities suffered heavy cattle or livestock losses.

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3. A study in 1999 by R. Blench on “traditional/livestock breeds; distribution and Dynamics in relation to ecology” showed that the mean annual rainfall is less than 500mm in north-esteem Nigeria with only two months a years receiving above 100mm.

4. See for instance, R.K. Udo (1980) ground work of Nigeria history (Nigeria) pp,7

The Fulbe disastrous drought which affected the Sahelian zone of Africa south of the Sahara in 1973 is now a historical fact<sup>4</sup>. It occasioned large-scale migration of people and livestock southwards resulting in the dislocation of the economy and society of the affected areas. The drought is well remembered with great shock and trauma in the minds of the people serving pastoral families in the Sahel. Almost all pastoral families or groups and communities suffer heavy cattle or livestock losses. Cattle rearing is called in the season "animals decimation" for those that were left with few animals resorted to establishment agro-pastoralists camps, since the lack of stock with which to engage real or extensively transhumant life while those pastoralists who were completely destitute have no cause to stay in the nomadic life, rather had to move to towns and cities to find other means of livelihood. The pastoralists population that have maintained their traditional transhumance pattern were nonracially if compared, not up to the two categories mentioned, the drought brought with it for the first time the appearance of the Hanagamba<sup>5</sup> – Fulani en masse with a large number of

livestock, whose original home – country is Niger Republic, into northern Nigeria.

These Hanagamba groups of Fulbe though peaceful but were spread all over the zone, especially in the northern states bordering the Republic of Niger. Their appearance has heightened competition over grazing grass or pasture, water points and also led to congestion that is

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*5. Both Stenning and Hopen in their monograph. If pastoral Fulbe in northern Nigeria have not stated the Hanagamba group of Fulbe pastoralists. The former, the study of savannah nomads in western Bornu province while the latter, pastoral Fulbe family in Gwabdu, Sokoto province, have no mention of any Hanagamba pastoral activities in these areas or zones. This shows that the Hanagamba were neither of the colonial nor immediately post independence pastoralists groups in Nigeria. They only became traced in Nigeria with the great drought of 1973.*

occasioned by animals diseases. These cases had adversely affected the well-being of these areas in question and as such paved the way for desert encroachment or rather desert advancement. These pressures of over grazing issues had forced the pastoralists of the semi-arid areas to move farther south to humid and sub humid zones in search of favorable grazing conditions. These movements were not without rancor especially between crop cultivator/herders. Recently, countries like Niger have been hit by a emerging drought which in combination with locust invasions during the preceding months, resulted pasture shortages in 2004 and 2005 respectively.

### **Consequences of Climate Change**

Over the years, overgrazing was seen as the main cause of land degradation in the Sahel and pastoral communities were accused of destroying the erratic herd movement. Now, pastoral communities are increasingly recognized by development agencies as efficient resource users. Research has also highlighted the resilience of Sahelian pastures and their influence of climate rather than stocking rates on the vegetation, especially grass. In the north – south transects the Sahel literature confirmed that pastoral land degradation tends to occur when mobility is constrained and livestock maintain a high grazing intensity for prolonged periods of time.

The natural disasters brought about by changes in world weather conditions have threatened and will to continue disrupt the pastoral activities in this region in the event of no any concerted or collective actions to restore the situation. These impacts of climate changes coupled with rapid growth of population and resultant pressure on the land has brought the pastoralists and the crop farmers who compete for these into conflicts and clashes. Thus, bringing or causing the issue of “land squeeze” which served as a potential source of conflict between pastoralists and sedentary groups – mostly farming communities in

many parts of Nigeria including Benue, Taraba, Gombe and plateau states served as a flash point centers. For instance, the year 1999 witnessed a seasonal large numbers of transhumance pastoralists grazing along the Nigeria - Niger boarder, engaging on their traditional patterns of north –south movement. This heavy wave of migration was not unconnected with the shortage of grazing pasture as a result of drought. And as such, the pastoralists have to make their way to central or southern Nigeria that served as a good and favorable grazing area especially in the dry season. In this situation, dispute flare up as migrating livestock in search of water and pasture for their animals would sometimes graze on farmers lands and use their water point. The Ngalda episode witnessed the unjust and illegal killings of pastoral cattle rearers, women, children, the age and even animals (cows) were not spared. The then administration in Gombe State ordered and stationed soldiers at Nglada, a border- town between Gombe and Yobe. The place served as a traditional passage or grazing route to many pastoralists that are found moving along Nigeria – Niger border axis. Regrettably the soldiers were misguided by some unpatriotic elements who saw the situation as an opportunity to settle their personal scores. The mischievous individuals behind the scene also engaged in carting in away cows of their victims to the southern part of the country (Lagos) for sale. *Daraja Kautal Hore* (pastoralists organisation) intercepted one such consignment at Lagos Abattoir cattle market on the 14/9/1999 and promptly recorded the seizure on camera.

Until the 1980s, the great majority of aquaculture pioneering was based on rain fed cultivation. Rivers remained the preserve of fishermen and were often obstructed by dense vegetation where banks were grassy, herders could graze unimpeded the introduction of *fadama* cultivation in Nigeria in the 1970s things began to change and shift because it has become an all year round activates. The term *fadama* can refer to almost

any naturally flooded piece of land but applies particularly to valley bottoms, where rice is an increasingly common crop, also supplying urban demand. It is combined with clap-net fishing in seasonal ponds. However, (*fadama*) cultivation since 1980s has meant that herders and farmers are now competing directly for access to river banks with consequent increase in conflict. In Nigeria *fadama* occupies over three hectares of land, with core states mostly in the Sahelian zone. In most states *fadama* water, ponds and rivulets formerly used as watering points for livestock are now converted to sources of irrigation water to the discomfort of the pastoralists. Added to that the core *fadama* states have not yet complied with the recommendation of the 1996 World Bank Mission which required agricultural development project to set aside 20 percent of the *fadama* for pastoral purposes.

In looking at Jigawa being one of the core *fadama* state located in the Sahel region, the following scenario obtained in the state. Drought and erratic patterns have reduced river flows in the Hadeja-jama'are flood plain. This resulted in the concentration of crop and livestock production in the *fadama*. In many villages in Jigawa State, drought and quela birds damage have made upland cultivation of cereals and legumes unpopular. For the Fulani, upland grazing areas are in poor state and cannot support large number of livestock over time. Hence they move to *fadama* in search of alternative pasture and water points, especially in the dry season. Moreover, dams on the Hadejia river particularly Tiga and Challawa Gorge dams and the associated large scale irrigation projects have drastically constrained the flow of water to the Hadijia flood plains in Jigawa reducing agronomic and pastoral activities in the state. Nevertheless, development interventions within the state such as the national *Fadama* Development Programme have encourage expansion of cultivation into areas that were formerly left fallow and used for

livestock grazing. This has created conditions for conflict – especially in the villages along the international and inter states routes.

In Sokoto, also a core *fadama* state had witnessed a disastrous flood in August/September of last season. Observers said the flood disaster is the worst in the history of Sokoto. The flood disaster destroyed houses and properties worth of billions of Naira, hundreds of thousands of farm lands and grazing areas, and claimed lives of both human and animals, as a result of dam failure or breakage (Bakallori) along river Rima. In fact, the great plain of Sokoto turned to be a disaster area that even attracted the interventions of both national and international agencies. The flood ended up in destroying farm residues and grazing pastures that resulted or culminated in jeopardizing pastoral activities and threatening the survival of pastoralists in the areas affected.

Here, in Yobe state which is in the north –eastern region of the country, the area is situated at the western part of the Chad Basin. Heinrich Barth in recounting his extensive travels in western Sudan in the 19<sup>th</sup> century, described the area as the “Great forest<sup>6</sup> of Bornu” meaning that the conditions of this area in question is favorable for animal husbandry or Pastoralism. However, over the years or decades the situation began to shift and change as a result of severe reoccurring drought occasioned by rapid desert advancement couple with action of man, have made this area once known for its good grazing condition to become an unfriendly and hostile area to pastoralists for no reason why other than the challenges of climate change. Gidado Hammayare – a Fulani pastoralists stated that “we are now in serious dilemma because our cows, sheep and goats are hungry and thirsty, There is no green for them eat which will in turn make reproduce”.

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6. Great Forest stretched from Bade to Gujba and covers about 6,000 sq miles. See DJ Stenning- “Savannah Nomads” Pp 27-35

Movement to relatively fertile land is necessary as cows, camels, goats and sheep face extinction because of starvation and thirst. Hammayare- a pastoralist in Bursary District of Yobe State, added that there is no crisis like communal skirmishes here but the trouble is that our grazing lands have been captured by sand dunes and as such most of our cows are emaciating and decimating. These happenings prompted Yobe herdsmen to be migrating en mass. Contrary to what was obtained of animals census conducted in 1991, which indicated that the state had over 1.5 million cows and authorities in the Ministry of Animals and Fisheries Development in Damaturu-the state capital believes the number has tripled over the years and argued that Yobe has the largest concentration of animals in Nigeria.

Experiences revealed that the impact of climate change on pastoralists have serious implications on the socio – economic sectors of the continent, thereby threatening the survival of millions of Africans particularly in the Sudano – Sahel region. The subsequent disruption in the livelihoods of large numbers of households as a result of drought, have micro and macro consequences on the pastoral and regional economies; indeed, it can be urged that every destocked pastoralist is a potential security risk as he joins the reserve army of the jobless ready to take illegal and criminal activities as a means of alternative livelihood. Some violent criminal activities have been traced to displaced pastoralists operation on high ways in some countries of the Sudan – Sahel region (PARE 2006). As it could be seen, pastoralism provides 10% of the world's meat production and support some 200 million pastorals household (FAO, 2001) Again more than 80 percent of Nigerians depend on the pastoralists for meat, milk, ghee, cheese and hides and skin. Pastoralists provide the bulls used for carting, ploughing and hauling, let alone the manure. Thousands of Nigerians wholly or partly make a living from animals business, butchering and transporting

herds (Iro 2008). However, environmental deterioration solely caused by the changing weather conditions has reversed the whole situation resulting not only in the economic dislocation of the pastoralists but also those who benefit from pastoral sector.

Recent studies confirmed that the declining dairy production which is the basic subsistence in Fulbe household have made a number of pastoral families and households to fail or disintegrate. The major contributing factor to these cases was that of animal decimation which prevent milk and other dairy products to be exchanged or sold especially by pastoralist women in order cater for other domestic needs. The gains derived from sales of milk and dairy products served as supplementary income to women and the household at large. So, in the absence of these dairy products many pastoral families and marriages collapsed especially the young couple. In this regard ladies or women quickly rush to sedentary life and then tend to be courtesan. Today, in most towns and urban centre's of the Sahelian zone, it has boldly appeared that most prostitute are products on this incident. That is why aids or HIV pandemic is at play in this region too.

Latest experience indicated that majority of drought strained herdsmen have changed their normal traditional north- south movement but rather to eastward toward the Lake Chad Basin so as to avoid perennial sectarian crises in the Jos – plateau area. However, Lake Chad is one area where the effects of climate change have manifested. Moreover Lack Chad and its Tributaries are equally facing the dual assault of climate change and human overuse. Researchers argued that Mega Chad was as large as Caspian sea. The Irony is that the lake has receded to less than 2, 000 square kilometers from 25,000 square kilometers, its size in the 1960s. By the time the lake finally dries up the effect will be unimaginable because not only the pastoralists would be affected but many communities in Nigeria, Cameroun, Niger and Chad



Republic who depend on the lake for irrigation and other domestic uses will no doubt have their share of the consequences. It is feared that in no distance decades, the lake will disappear and about 30 million people will be affected or displaced, unless concerted or collective efforts were made through Inter Basin Water Transfer from Congo River Basin in order to recharge the Lake Chad against the forces of complete desiccation. This calls for immediate attention or A.U, NEPAD and of course the international agencies to execute this gigantic project.

The recession of Lake Chad led thousands of Shuwa-Arabs<sup>7</sup> nomadic pastoralists to abandoned pastoralism, an occupation of their ancestral-heritage. The shrinkage of the Lake made pastoral activities to be an up-hill task or battle because there is extensive competition over access to grazing lands, conflicts with farmers (irrigators) and also the Shuwa pastoralists have to traveled far distance in search of water points. Pastrolsim to these people is no longer the same and therefore the prevailing circumstance surrounding the sector cannot be contained easily. At last, what was saw from the Shuwa Arab was their mass exodus into urban centers, particular Maiduguri the Borno state capital, currently witnessing sectarian crises quite unlike that of Jos.

## **CONCLUSION**

Climate change has threatened one of the oldest livelihoods that go beyond the contours of geography. The impact and consequences of these challenges of climate change have adversely contributed in no small measure in the deterioration of the Sahelian region that resulted in

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7. See Y. Mukhtar, (2002) *Musa Daggash – The story of a Shuwa Arab Boy (Nigeria)*, pp 1 -23.

Making the region to be barren and unproductive as well as impoverishment the region, unless resolutions reached on climate change are adhered especially by industrialized nations.

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