

ANALYSIS OF NOMADISM AND MAJOR NOMADIC ROUTES IN WEST AFRICA: ITS IMPLICATIONS FOR FOOD CROP AGRICULTURE

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Abstract

This study Analyzed Nomadism and Major Nomadic Routes in West Africa: Its Implications on Crop Agriculture. The study deployed the qualitative historical method which delved into history and interrogation of archaeological reports as well as written sources to ascertain the origin of nomadism in West Africa. It was established that nomadism involves movement of pastoralists from one place, country and region to the other in search of foliage and water course for their herds; moving within the country from drylands to the wet delta areas, and seamlessly across borders in West African countries in search of favourable grazing grounds on seasonal basis. It Furthermore, there was initial cordial relationship and mutual benefits derived by both herders and farmers. However, their relationship turned sore and resulted in violent clashes due to the following reasons: environmental challenges and climate changes such as increasing population of human beings and cattle, drought-induced famine, and increasing pressure on the land and other natural resources such as water, depletion lakes, streams and rivers, which led to intense completion and mutual encroachments on pastoral routes and farm lands, respectively. The clashes resulted in destruction of farm crops, killing, maiming and displacement of farmers leading to depletion of farming population, reduced farming activities and crop shortage.

Key Words: *Nomadism, Sedentary Farmers, Pastoral Routes, Environmental Challenges, Resource Conflict, Food Shortage.*

Introduction

Animal production in Africa depends mainly on the use of natural resources which could simply be referred to as grassland and shrubland for grazing by livestock in uncultivated land, especially in the arid and semi-arid zones of Burkina Faso, Mali and Niger, and stretching to the Atlantic seaboard in the north of Senegal and Mauritania. The major constraints to pastoral activities includes, land tenure, ownership rights and the scarcity of fodder resources (ECOWAS Commission and SWAC/OECD, 2008). To a large extent, Nomadic routes in Africa culminate in cross-border mobility. For instance, cross- border mobility could be referred to a resilience practice of pastoralist communities in the context of West Africa. In this context, the movement of animal and their herders is elicited primarily by the search for pasture and water as well as to avoid areas affected by livestock disease or to engage in livestock trade. The movement is subject to variation in distance either within a country or into bordering countries (Alidou, 2016). In Africa, there are two major types of transhumance routes; the north-south and south-north routes. Whereas north-south routes are more numerous and indicate dry season transhumance movements in the departure zones, south-north routes are less numerous and indicate wet season movements. There is a general trend that in West and Central African countries, cross border transhumance appears either as departure countries, or as reception or transit countries. However, most of the livestock routes are blocked by fields, forcing herders to make wide detours to reach water or fodder resources. Certain transhumance corridors have to pass through protected areas, where grazing is forbidden. In the border regions of Benin, Burkina Faso, Niger and Togo, for example, transhumant herds have to cross the “forest barrier” of the Arly, Pendjari and Oti-Mandouri wildlife parks, reserves and hunting zones (WAPO Park Complex) to reach reception zones in Benin and Togo via the two unequipped corridors of Kondio and Arly. These corridors have no rest areas, so that herders have to enter forbidden zones and thus commit offences that are severely punished (ECOWAS Commission and SWAC/OECD, 2008).

Nomadism is an aspect of pastoralism which involves transhumance and nomadism. The two are one and the same pastoral activities, which only differ in approach. Transhumance refers to a mobile livestock farming method on the basis of regular seasonal movements. These movements are highly predictable as herders are guided by the dictates of the seasons while passing through

the same pastoral routes they readily know. Nomadism on the other hand, is characterized by continuity and predictable movements of all members of a family or a group (West Africa Brief, 2018). However, presently, majority of agro-pastoralists in the Sahel practice semi-transhumance, whereby only a part of the family move by the dictates of the season while the other part of the family practice sedentary farming. In West Africa, agro-pastoral livestock is predominant. In it, cattle are moved within Sahelian countries to coastal countries. Thus, each year, hundreds of thousands of cattle are moved to supply coastal markets. These mark networks of internal and cross border movements, which breed conflict between the sedentary farmers and transhumant agro-pastoralists. In spite of the importance of transhumant livestock farming in providing dietary meat and development of areas that were hitherto abandoned and isolated (West Africa Brief, 2018), the activities of the nomads constitute challenges to the environment thereby affecting food production. To this end, the study has been arranged in the following segments: the concept of nomadism, historical evolution of nomadism in West Africa, nomadic routes in states of West Africa, and the implications of nomadic activities on food crop production.

Concept of Nomadism in West Africa

Generally speaking, nomadism refers to a way of life of a people who do not necessarily live in the same place on a continuous basis but have the inclination to move on cyclical or periodic basis. There are three types of nomads. These are nomadic hunters and gatherers, pastoral nomads and lastly, tinker or trade nomads (Encyclopedia Britannica (2018)).

We have nomadic hunters and gatherers who move from place to place, particularly to where they could get their games and water holes and location of plants, respectively, however, our focus on this study is on pastoral nomads.

Pastoral nomads are those who depend on domesticated livestock while migrating to an established territory in search of pasture for their animals. Some of them have designated focal sites that they occupy for considerable periods of the year. In the course of practicing their pastoral activities, some of them could depend wholly on their herds; may decide to hunt or gather, engage in agriculture, or engage in trade with agricultural communities for grain and other goods. In any case, the patterns of pastoral nomadism are varied and whatever pattern each

adopts, depends on the type of livestock, the topography and the climatic conditions of their operational areas (Encyclopedia Britannica (2018)).

Brief History of Pastoral Nomadism in West Africa

History of pastoral nomadism in West Africa is difficult to establish, however, an archaeological finds made by Linseele (2006) gives us a picture of the origin of pastoral agriculture in the sub-region. According Linseele's report, pastoral nomadism had existed in the Middle East, North Africa and Sahara desert, it was after the end of the climatic optimum of the Early and Middle Holocene, when herders could no longer survive in the Sahara that made attempt to moved away from there and migrated southwards and reached the present Sahel zone of Western Africa by the second millennium BC. Archaeological evidence was reported to be sparse in West Africa before 2000 BC, archaeological evidence in sub-Saharan West Africa is incoherent. Thus, the gradual introduction of zebu cattle in West Africa, in the course of the first millennium AD, is presumed to have influenced the development of specialized nomadic pastoralism. This is because this type of cattle suits more, the arid environments and long-distance movements than other cattle types (Linseele, 2006).

The same archaeological report showed evidence of existence of pastoral nomadic groups in Sahelian West Africa during the first millennium AD and later periods. At some archaeological sites two size groups of cattle or ovicaprines were found. Thus, the smaller animals were perhaps kept by the sedentary groups, while the larger breeds were obtained from pastoral nomadic groups (Linseele, 2006).

In the more recent times, report of the movement of transhumance into the southern part of the Sahel developed in the 1970s owing to the population growth and the attendant crisis in the sector. This movement was intensified by the effects of climate change in the sub-region. Hence, countries such as Togo, Ghana and Cote d'Ivoire like countries in the Sahel region became host or transit countries of pastoral activities. Therefore, conflict between crop farmers and pastoralists due to pressure on the shared natural resources, advances in veterinary medicine, emergence of large landowners put together, have caused the herdsmen to make cyclical movements into arable and agropastoral areas in their efforts to minimize the use of pasture in these areas. The above scenario has led to the long-range front and backward movements of

cattle north-south and south-north, respectively, which involves cross border movements between the country of origin and a host country (Alidou, 2016). The areas crossed which may involve a third country are known as “transit zones”.

The West African long-distance transhumance takes place from January to May during the dry season, a situation in which the herds may transverse several hundred kilometers in search of large quantity and quality of fodder for the cattle. The Transhumance Protocol 1998 developed by the Economic Community of West African States (ECOWAS) via Decision A/DEC.5/10/18, that guarantees the free movement of pastoralists or herders across the Sub-region (ECOWAS, 2016) contributed in no small measure to the unfettered movement of herdsmen within the sub-region. This explains why to a large extent, why there are foreign herdsmen across borders. No doubt this plays an important role in West Africa society by providing livestock and its products as well as revenue from cattle (ECOWAS, 2016). The shrinking of Lake Chad has increased the influx of long distance migrant nomadic cattle herders, mainly the Udawas from Niger Republic and Chad further south (Ufuoku and Isiefe, 2009). Almost all coastal countries in West Africa such as Cote d’Ivoire, Ghana, Togo, Benin and Nigeria having boundaries with landlocked dry countries with large pastoral herds have experienced conflicts between most communities and cattle herders from the northern countries, particularly Chad, Mali, Burkina Faso and northern Cameroon (Agyuemang cited in Ogboru and Adejonwu-Osho (2018).

Nomadic Routes in West Africa

Generally speaking, there are different types of routes to facilitate the movement of cattle between pastures and water points. Pastoralism however, works best when the system is regulated in which space for livestock and pastoralists is demarcated and protected from encroaching herding routes, grazing areas and access to water, and farmers’ fields and crops are also protected from herders and their livestock, based on pastoral codes. On this note, we shall examine the nomadic routes in West Africa on a country by country basis.

Burkina Faso

For Burkina Faso, even though conflicts are relatively low, due to acute pressure on land, water, and livelihoods, many pastoralists have left the country for neighbouring countries further south. This has increased pressures and tensions in other parts of West Africa. Furthermore, security in the northern part of the country, especially in Soum, Oudalan, and Seno provinces has been

complicated by the conflict in Mali. Thus, in Burkina Faso there is cross border transhumance and internal transhumance between different regions and provinces. It follows that in the dry season pastoralists tend to move southwards from semi-arid northern areas of the Sahel into Savanna zone, or to more humid zones of neighbouring countries. They return northwards at the start of the rainy season, but it appears presently that the length of the transhumance period is increasing in many cases, due to the scarcity of pasture and water in the Sahel. Transhumance in Burkina Faso is determined by the availability of pasture and water, but also by access to it, which is a function of local politics, economics, and social relations connected to land tenure and land use, as much as local ecology (UNOWAS, 2018).

Again, in Burkina Faso there is private, communal and state land. The state designated areas of land for specific activities, including agriculture, forestry, pastoralism, wildlife conservation. This system was reported to have functioned effectively during the regime of Thomas Sankara, but in the past three decades enforcement has been weak. Much land that was allocated for pastoralists has been cultivated or taken over for other developmental purposes, including agriculture and plantations. Population growth combined with adverse environmental and climatic conditions has also reduced the area of usable land. There is a system of transhumance routes and access routes to water points such as rivers and dams, but many of these have been blocked or narrowed by crop fields. Pressures on pastoral livelihoods and farmers have increased. As a result, these constraints in Burkina Faso are pushing many pastoralists southwards into neighbouring countries, particularly to Cote d' Ivoire, Ghana, Togo and Benin. Pastoralists in Burkina Faso are a typical example of the trend of 'migratory drift' from the drylands to Sub-humid areas, resulting in permanent relocation. In this case, most pastoralists with large herds were reported to have already left Burkina Faso. Following this moves, the Togolese government formulated policies to enable it benefit from this influx, with a quota of 50,000 animals allowed entry into the country from other West African countries, and a tax of 5,000 FCFA per head of cattle when pastoralists cross the border. Furthermore, local authorities in Togo and Benin also imposed charges in the communes that the pastoralists pass through while on transhumance (UNOWAS, 2018).

Reportedly, Ghana also put some charges on pastoralists, particularly where chiefs sometimes demand payment in livestock for passing through or staying in their territory, which on the other hand amount to loss of huge sum of revenue for the Burkina Faso government. In the bid to

move away from Burkina Faso, many pastoralists in the northern region acquired national and international ECOWAS certificates of transhumance and are well aware of the regulations. They obtain the certificates by presenting livestock vaccination cards and proof of identity. They present their ECOWAS transhumance certificates at international borders and, when on transhumance, forest guards and veterinarians often ask to see their documents (UNOWAS, 2018).

A very interesting point in the determination and maintenance of nomadic routes in Burkina Faso is that pastoral land is not protected as such; much of the pastoral land has been cultivated by small-scale farmers, taken for plantation agriculture, acquired by elites, or built on. Following this trend, transhumance routes and access routes to water are frequently blocked or narrowed by farms and settlements. This has constrained the pastoral mobility and leading to the destruction of crops by cattle, and has been worsened by the fact that the laws governing the rural space, including Burkina Faso's 2002 Pastoral Policy Act, are not effectively enforced coupled with little awareness of the regulatory law (UNOWAS, 2018).

Guinea

As for Guinea, there is competition for increasingly scarce land and water along the grazing routes such as in Beyla in the forest region and Boké/Boffa areas in the maritime region. In the country, most pastoralists are Fulani, and farmers (outside of *Moyenne Guinée*) are most likely to be of another ethnic group. Pastoralism is spread across all four geographical regions of Guinea. There are different types of pastoralism and transhumance. As reported by the Ministry of Livestock, *Moyenne Guinée* has the highest number of pastoralists and livestock, followed by *Haute Guinée*. There is transhumance on a north-south basis between these regions and *Guinée Maritime* to the west and *Guinée Forestière* to the south. Not all transhumance in Guinea is on a north-south basis, as there is also transhumance on a highland-lowland basis and along rivers. The main transhumance zone in Guinea in terms of the number of cattle moved during the dry season is from the highlands of the central Plateau (adjoining the Futa Jallon) to surrounding lowland areas. Transhumance occurs westwards from Middle Guinea to *Guinée Maritime* and eastwards from Middle Guinea to Upper Guinea. On the western side of the highlands there are two main transhumance zones: south-west down to Boké and Boffa, near the Atlantic coast, and north-west to Gaoual and Koundara, towards the borders with Senegal and Guinea Bissau (UNOWAS, 2018).

There is significant cross-border transhumance into Guinea-Bissau and to a lesser extent across the northern border into Senegal. This transhumance occurs to and from the area around Téliélé (in the central highlands, south-west Futa Jallon). Ultimately, due to pressure on dry season pastures around Boké and Boffa, fewer pastoralists now go on transhumance to the maritime areas and more go to Gaoual and Koundara or across the border into Guinea Bissau. However, there are still large numbers of pastoralists in the area with their trypano-tolerant N'Dama cattle. As pointed out earlier, not all pastoralists are transhumance because it is only necessary for those with larger herds. In the Futa Jallon, for example, which is predominantly Fulani, most of the population is sedentary and in the rural areas agro-pastoralism is the norm. A distinctive feature of their system is that the livestock are left to roam freely, without herders. As per Guinea's pastoral code, it is the responsibility of farmers to fence their fields (using natural fencing) so that cattle cannot enter and to survey their farms during the day to ensure livestock do not encroach. Similarly, it is the responsibility of herders to put their livestock in paddocks at night if they are near farms (UNOWAS, 2018).

Internal transhumance can be for only 20-30 kilometres within one locality, or longer distances of 100 kilometres or more between regions. Cross-border transhumance on the other hand occurs in both directions between Guinea, Guinea-Bissau, Senegal, Sierra Leone, Liberia, Mali, and Côte d'Ivoire. Both are critical for pastoral production and resilience, but in some parts of Guinea (e.g. along the border with Guinea-Bissau) cross-border transhumance is driven by land scarcity, with insufficient protection of grazing land. For instance, cross-border transhumance into Guinea-Bissau is partly to avoid cotton farms in bordering lowland areas of the Republic of Guinea. Pastoralists report that the cotton farmers often cultivate their transhumance routes while they are in Guinea-Bissau, preventing them from returning before the harvest. In other areas, pastoralists claim they have trouble herding their livestock to streams and waterways during the dry season because the access routes have been cultivated with vegetables, by farmers doing irrigated farming. Reduced or loss of access to water points and riverine grazing areas due to cultivation by dry season farmers has become a common problem for pastoralists throughout West Africa (UNOWAS, 2018).

The above has led to widespread complaints by pastoralists in Guinea of transhumance routes being blocked by farms. This happens most often because the routes are not properly demarcated. There are some initiatives to protect the routes, including donor projects to locate

and demarcate them with beacons. Thus, the more routes are blocked, the greater the risk of cattle encroaching onto farms and destroying crops. Other constraints faced by the pastoralists include acute water shortages in the dry season, both in grazing areas and along the routes. Water scarcity is therefore a major factors encouraging transhumance during the dry season in Guinea. The cattle need water and herders have to rear the animals close to water sources, whether natural or man-made (UNOWAS, 2018).

Mali

Pastoralism is an important aspect the economic sector in Mali. Whereas, out of Mali's nine regions, Mopti has by far the highest number of cattle, with 28% of the total, there are substantial numbers of cattle in all regions of Mali except Kidal, which due to its aridity has an estimated 52% of Mali's camels. Sheep and goats are present in all regions, but Gao was estimated to have the highest number, with over 20% of sheep and over 19% of goats, followed by Mopti with 18% and 19% respectively. In the north, cattle are concentrated around the rivers, while camels and to some extent sheep and goats also survive from wells and bore holes in the arid interior. Pastoralism and transhumance in Mali are strongly influenced by the country's topography and the distribution of rainfall across its different ecological zones. There are four main ecological zones, extending laterally across the country in the following range:

- Saharan zone (desert) in the north, with mean annual rainfall of less than 200mm;
- Sahelian zone across the centre, with mean annual rainfall of 200mm - 600mm;
- Sudan or northern savanna zone, with mean annual rainfall of 600mm- 1000mm;
- Sudan-Guinea savanna in the south, with mean annual rainfall above 1000mm (UNOWAS, 2018).

There are many microclimates within each zone: rainfall patterns are not uniform across any one zone, and the level of rainfall varies from year to year. Local climate is affected by topography, such as by the many plateaux in Mali. The availability of water and pasture is also determined by other hydrological conditions – the presence of rivers and depth of groundwater as well as rainfall. Geology is also key as this affects the hydrology and determines soil types, which in turn affects the distribution of grasses and therefore transhumance patterns. Pastoralists in Mali use and manage the natural resources of this varied and unstable ecological situation by being mobile and flexible (Han, 1999).

There is variation in the distribution of pastoralist groups in Mali between regions and eco-climatic zones. Pastoralists in Timbuktu and Gao regions consist mainly of Tuareg, Bella, Arab, and Fulani (all of whom are internally variegated in different groups and lineages). Kidal region is predominantly Tuareg and Arab, while most pastoralists in Mopti region are Fulani. Even the areas claimed as Azawad by Tuareg separatists are ethnically diverse, with Songhai, Bella ('black' Tuaregs, descended from former slaves), Fulani and others, while agro-pastoral zones in central Mali and along the Niger Bend include cultivators from different parts of the country. In Mopti region, Fulani pastoralism exists alongside a productive fishing economy and farming activities of Dogon, Bambara, Songhai, and Fulani farmers (and others); in Segou region, which is predominantly Bambara, farming is the dominant activity and pastoralism is more constrained but still an important part of the economy there (UNOWAS, 2018).

In concrete terms, Mali has borders with seven countries and there is international transhumance across all its borders, though in the vast desert areas bordering Mauritania, Algeria and north Niger transhumance is severely circumscribed. In the main pastoral zones of the Sahel and savanna, there are strong cross-border links and two-way movements, in dry and rainy seasons, with pastoralists moving into Mali as well. Cross-border transhumance into northern regions of Mali has been interrupted by the prevailing insecurity, but in southern Mali it still occurs without much interruption as research findings in Mauritania demonstrate. Internal transhumance within Mali is especially important and happens on a north-south axis between dry and rainy seasons, between highlands and lowlands, and along the Niger Bend. The Inner Niger Delta is the key dry season transhumance zone in Mali, covering an area of some 50,000 km², from Ke Macina circle in Segou region to Mopti and the circles of Niafunké, Diré, and Goundam in Tombouktou region. The Delta is a regional resource, especially during the dry season, but transhumance there has been interrupted by conflict. The Delta is of vital importance for rice cultivation, pastoralism, and fishing (UNOWAS, 2018).

Transhumance movements in the Inner Niger Delta have historically been determined by the advance and retreat of flood waters, with as many as 40% of Mali's cattle taken there each year on transhumance, as well as some cattle from neighbouring countries. Of particular importance are the alluvial flood plains of the Inner Niger Delta on which a nutritious aquatic grass known as *bourgoutière* (*burgu* or *Echinolchloa stagnina*) grows. Large tracts of *burgu* emerge and become accessible to livestock as the River Niger's flood waters retreat at the end of the rainy

season. The Diina encompassed the Inner Delta and the adjacent drylands, which form part of the transhumance orbit of pastoralists when the river floods. Nineteenth century Fulani hegemony and ‘arrangements with respect to resource tenure, livestock movements, and economic organization’ was brought to an end by French colonial rule. It is still referred back to by some Fulani pastoralists as a model system which regulated the use of land and water between different user groups (Han, 1999).

Mauritania

Pastoralism in Mauritania is determined by rainfall patterns and the distribution of water and pasture, which vary seasonally and between different regions of the country. The aridity increases moving northwards where, except in scattered oases, agriculture is impossible; the only livestock that survive in the desert are camels and, in some areas, a few domestic sheep and goats. The main pastoral zone in Mauritania, with the highest number of livestock, is in the south (FAO.org, 2020). The riverine areas are especially important, but this is an agro-pastoral zone, though it is presented as potential conflict zone between farmers and pastoralists. Mauritania’s long southern border is also its most important transhumance zone, with nomadic groups moving their cattle, sheep, goats and camels between Mauritania, Senegal and Mali, on a seasonal basis. The Mauritania-Senegal border is marked by the Senegal River (the right bank belongs to Mauritania, the left bank to Senegal). On the Mauritanian side, the Senegal River flows approximately 600 kilometres from Gouray (near Sélibabi, Guidimaka Region), to Rosso and beyond in Trarza Region, near the Atlantic coast (across the border from Saint Louis, Senegal) (UNOWAS, 2018).

The Senegal valley, including the Futa Toro, is the most fertile part of Mauritania and is a key water and agro-pastoral resource for both Mauritania and Senegal. Meanwhile the eastern half of Mauritania’s southern frontier, bordering Mali and stretching across Assaba, Hodh El-Gharbi, and Hodh El-Chargui regions, has less water but fewer farms. This is a key pastoral zone, with a large number of livestock and predominantly Moor pastoralists. They have permanent settlements on the Mauritanian side of the border but the herders are highly mobile, moving on cross-border transhumance into the Kayes, Koulikoro, and Segou regions of Mali during the dry season and then returning northwards with the rains (UNOWAS, 2018).

The majority of pastoralists in Mauritania are Moor (white and black) and Haalpulaar (also referred to as Peul or Fulani/Fulbe). The Haalpulaaren are concentrated in the Futa Toro, where they tend to be sedentary or semi-sedentary; while the Mbororo or nomadic Fulbe are also present further east along the southern border with Mali (Leservisier, 2012).

The Haalpulaar and Moors living near the river are generally agro-pastoralists but moving northwards or east away from the agricultural areas, concentrating only on pastoralism, often with large herds. Their transhumance tracks can range from southern Mauritania all the way across long desert routes to Tiris Zemmour region, near the Algerian border in the north. Sometimes good pasture for camels is also found around Zouérat (near the border with Western Sahara). The mobility of transhumant pastoralists only has the potential to trigger conflict in agro-pastoral zones where there are farming activities. Till now, no large-scale violent conflicts between farmers and herders were reported in Mauritania, but smaller disputes occur on a regular basis (UNOWAS, 2018).

.Another important factor that determines the mobility of nomads in Mauritania is the livestock trade across borders. Pastoralism and the livestock trade between Mauritania, Mali and Senegal are vital economic activities, in which mobility is fundamental. It is estimated that 400,000 sheep are sent annually from Kiffa to Senegal for the Tabaski festival (Eid el-Adha or ‘Festival of Sacrifice’). There is more transhumance of pastoralists from Mauritania to Senegal than the other way around. Mauritania is a highly arid country where pasture does not tend to last throughout the dry season. And in areas where there is good pasture (from grasses and trees) there tends to be more pressure from large numbers of livestock. Shortage of pasture (or water) necessitates transhumance (UNOWAS, 2018).

Access to water is a challenge for pastoralists throughout Mauritania, due to the country’s low rainfall. This can lead to competition around water points (wells or bore holes), thus, there is a high level of pastoral mobility across Mauritania’s southern border with Mali. There is also trade across the border. The movement is two-way but cross-border transhumance of pastoralists based in Mauritania outpaces that of Malians moving north. As compared to Mauritania, pasture and water are more accessible further south in Mali. When the rains come in Mauritania, pastoralists spend the grazing period there; conversely, during the dry season, they walk with their livestock to Mali. Until 2016, pastoralists from Mauritania could graze their animals freely in Mali; since then, some limits seem to have been placed on their movements. Today, Mauritanian pastoralists

herd alongside Malian pastoralists (most of whom are Fulani, whereas a majority of the Mauritians on the same transhumance route are Moor, with some Fulani). They appear to have a reciprocal relationship: when Malian pastoralists go on transhumance to Mauritania at the end of the dry season, they migrate together with the Mauritians, who then look after them on the other side of the border. However, in spite of this cordiality, conflict could occur when pastoralists move their herds southwards in the dry season before the crops have been harvested, particularly in the Kayes and Koulikoro regions of Mali due to damage to farmland (UNOWAS, 2018).

Niger Republic

Niger presents both interesting and contrasting nomadic mobility spanning across regions and across its contiguous borders. In this vein, pastoralists in Niger are mobile, moving their herds on a seasonal basis in search of available pasture and water. There is internal transhumance within Niger and cross-border transhumance into neighbouring countries: Benin, Burkina Faso, and Mali to the west, Nigeria to the south, and northern Cameroon and Chad to the east (UNOWAS, 2018).

The main ethno-linguistic groups associated with pastoralism in Niger are the Fulani, Tuareg, Arab, Tubu (Teda), and Buduma (Yedina). There are clan differences within each group, and land tenure and access to pasture vary between them and can be locally specific, defined by family, lineage and history rather than ethnicity *per se*. There are differences in the distribution and specialization of pastoral groups, as well as some overlaps. Fulani and Tuareg communities have the widest distribution in Niger; the Tubu are more limited to desert areas bordering Chad and Libya, while the Buduma are concentrated in the Lake Chad area. There is interaction between groups, and for example mixed Fulani and Tuareg villages in central Niger. Traditionally, Tuareg and Tubu are more specialized in camels and occupy more arid areas, while the various Fulani clans own most of the cattle stock and are in more semi-arid areas (UNOWAS, 2018).

One of the main difficulties pastoralists report in Niger is insufficient pasture, especially during the long dry season. This is possibly linked to diminishing rainfall as well as shorter rainy seasons and increased population pressure. The pressure on pasture comes from pastoralists themselves and from farmers. There has been some movement of pastoralists away from arid areas where pasture is lacking, to parts of the Sahelian zone where at least some pasture is

available. This has increased the burden on pastoralist communities in southern Niger, in what are already strained ecological conditions. Where there is land with high potential for farming, migrant farmers have also moved in and increased the area of land under cultivation, competing with pastoralists and agro-pastoralists (UNOWAS, 2018).

Moreover, nomadic activities are constrained by certain actions of the farmers who tend to collect and store forage (including grasses), reducing what is available for resident and transhumant herders during the dry season. They may then sell such fodder to pastoralists, whereas previously pastoralists would graze their animals on it directly. Competition among pastoralists and between pastoralists and farmers around water sources is also an issue in some areas. Thus, in Niger, pressure on pasture is a more serious concern than the blockage of transhumance routes. In some areas, the transhumance routes are reportedly kept open, but in other areas animal grazing areas and transhumant routes are reportedly blocked or narrowed by farms. This constitutes a source of farmer-herder conflicts in agro-pastoral areas. The other challenge is the timing of transhumance: if there is scarcity of pasture further north, pastoralists will sometimes move southwards into agricultural areas before the harvest. This can lead to the destruction of crops if transhumance routes and grazing land are inadequate (UNOWAS, 2018).

Some pastoralists in Tillaberi region and around Dakoro in Maradi region report that they have fewer cattle presently than a decade ago because of insufficient pasture, caused by the expansion of agriculture, overgrazing, and shorter rainy seasons. In most of Niger there is no longer enough pasture to sustain the livestock, so during the dry season part of the herds must either be taken out of the country on transhumance or they must be given animal feed. Pastoralists often have to sell some of their livestock to buy animal feed, gradually depleting their wealth. There are concerns over whether pastoralism can be sustained for the next generation. As pasture land is not well protected and is affected by erratic rainfall, animal feed is necessary to sustain the pastoral economy, especially in the late dry season (UNOWAS, 2018). Above constraints has led to active cross border nomadic activities in neighbouring countries of Mali and Nigeria.

Nigeria

Most of the transhumance occurs within Nigeria's borders, but there is also cross-border transhumance. Pastoralists tend to move southwards during the dry season and northwards during the rainy season, often within an orbit of about 100-200 kilometres. Most transhumance

occurs within northern Nigeria; not necessarily between northern and southern Nigeria, but transhumance and permanent migration from the far North to the far South has increased in the past few years. There are exceptions to this north-south movement, notably when transhumance is towards rivers or other water points, which are dry season resources that attract pastoralists from different directions. The River Benue and River Niger and their various tributaries are key water sources, and, alongside the rivers, there is good pasture. The Hadejia-Nguru wetlands in Jigawa and Yobe States and Lake Chad in Borno State are also important water resources for farmers and pastoralists in northern Nigeria. The desiccation of Lake Chad over the past half-century has had an adverse effect on pastoral livelihoods in northeast Nigeria and for pastoralists in other countries bordering the lake including Niger, Chad, and Cameroon (UNOWAS, 2018). Prior to 1950s, there was a symbiotic relationship between pastoralism and crop farmers, a system in which pastoralists practice transhumance. In this system, the pastoralists migrated to the southern part of the Guinea Savannah zone, where there was enough pasture and lower density of crop farmers. It follows that during the wet season, these areas faced high challenge from African animal trypanosomiasis transmitted by tsetse flies, prompting pastoralists to migrate to visit farmlands within the northern Sudan Savannah zone and supplying dairy products to the local farming community. Reciprocating this gesture, the farming communities supplied pastoralists with grain, and permitting the cattle to graze on crop residues after the harvest with valuable manure as left over (Ducrotov, Majekodunmi, Welburn, 2016).

There is cross-border transhumance between Nigeria and neighbouring ECOWAS countries, presenting significant pastoral mobility from the western axis of Nigeria into the Republic of Benin and to Togo, Ghana and beyond. In some cases, this is a permanent move due to pressures in Nigeria rather than seasonal transhumance, but there is reportedly migration into south-west Nigeria. Also, evidence of pastoral mobility in both directions across the northern border between Nigeria and Niger exist, usually between dry and rainy seasons. However, there is anecdotal evidence to suggest that at least some pastoralists in Niger are no longer crossing the border because of the widespread insecurity in Nigeria and the devaluation of the Naira. The latter has reduced the attractiveness of Nigerian livestock markets for pastoralists from the Republic of Niger seeking to sell livestock in Nigeria. Cross-border transhumance from Niger now appears to be more limited to certain states and routes, depending on security, and therefore avoiding the insurgency in Borno State and the rampant banditry in Zamfara State. Some

pastoralists do still move southwards from Niger into northern Nigeria during the dry season. There is some coordination between specific states like Katsina and their counterparts in Niger regarding transhumance movements, which run in both directions. There is also transhumance between Nigeria and Cameroon, but patterns vary depending on the security situation and the section of the border, which runs all the way from the Atlantic seaboard to Lake Chad. Cameroon is part of the Economic Community of Central African States (ECCAS) and therefore the ECOWAS Transhumance Protocol does not govern this movement (UNOWAS, 2018).

Besides, pastoralists face many challenges in Nigeria. This could be evidenced by the fact that Transhumance routes are in practice not well protected and are often cultivated or blocked. For example, there are occasions where the herdsmen find cattle routes used by them on a day-to-day basis are blocked by farmers who saw them taking the animals for grazing in the morning before they could return to their camp or village in the evening. In the South, the infrastructure to regulate the relationship between pastoralists and farmers does not exist, hence the herdsmen move around with their cattle freely (UNOWAS, 2018).

The 1965 law establishing grazing reserves in the then Northern Region was 'inherited' by individual states in northern Nigeria after the regions were divided into states in 1967. The grazing reserves are therefore under the jurisdiction of northern states, not of the Federal Government. Most grazing reserves in northern Nigeria now only exist on paper (The Grazing Reserves Law, 1965). An example, which has regional implications for south-west Nigeria, is the loss of much of the Bobi Grazing Reserve in Niger State, which was a major grazing area. While the Bobi Grazing Reserve was equipped by the Federal Government with facilities for pastoralists, part of it has been turned into farmland as pastoralists abandoned the Reserve because of deteriorating infrastructure. The loss of grazing reserves and other pastoral land in northern Nigeria partly explains why more pastoralists have moved to southern parts of the country where grazing reserves never existed (UNOWAS, 2018). The cattle routes and grazing reserves were created by law in Nigeria to regulate the movement of cattle. Therefore, herdsmen who went outside these areas were arrested and fined, and the money used to compensate farmers for damaged crops. But with rapid urban expansion, increased population pressure on land, and climate change, the cattle routes and grazing reserves have been encroached upon. In some cases, they have even ceased to exist, as a result of land speculation, physical development, and commercial agriculture (Odoemena, 2017).

The recent wave of Fulani herdsmen into southern Nigeria are collectively called ‘Mbororo’, but that is a general term for transhumant Fulani pastoralists. They come from different clans in the North, but they generally migrate if pasture is limited in their areas of origin or if they are denied access due to insecurity or local politics. In the case of south-western Nigeria, the origins of the Mbororo tend to be in the North- West. Their movement into the South-West in significant numbers began only about a decade ago, but they were preceded by earlier waves of Fulani pastoralists, beginning in the mid-twentieth century, who successfully integrated with local communities. In southwest Nigeria (including Kwara State) the earlier groups of Fulani pastoralists are widely referred to as Borgu’en, and they are by now socially integrated and speak Yoruba and other local languages. There is therefore a need to recognize the diversity of pastoralists in Nigeria and identify different patterns of mobility. The level of herder-farmer violence in the South is still at a much lower level than in northern Nigeria. More field research is needed on the situation in the southern part of Nigeria and recent clashes recorded there between herders and farmers (UNOWAS, 2018).

However, population pressure on land has resulted in deforestation and settlement in Guinea Savannah and rainforest regions coupled with the control of tsetse and trypanosomiasis has made it possible for the cattle and crop farmers to inhabit these zones all year round, thereby increasing the competition for resources and land (Bourn, Reid, Rogers, Snow, Wint, 2000; Azuwike and Enwerem, 2010). With the above scenario, grazing zones and transhumance routes came under serious pressure leading to increased incidence of land encroachment for farming. The Fulani on the other hand, having no rights to land, continued their cattle grazing on the land, leading to increasing local conflict, especially when transhumant herds damage crops. In addition to this, the changing climatic conditions lead to desertification that reduces access to water and pasture as well as food insecurity in the Sahel region (Blench, 1996).

The above was a major reason for the establishment of grazing reserves in 1960s in an attempt to provide the Fulani with secure land tenure and modernize the livestock sector, different from traditional practices of cattle transhumance. Thus, emphasis was placed on settlement or put differently sedentarization of nomadic pastoralists, in order to reduce opportunities for farmer-pastoralist conflict (Suleiman, 1986). The Grazing Reserve Act was passed in 1964 (Waters-Bayer and Taylor-Powell 1984a; Awogbade 1987). Between 1970 and 1980, the federal and state governments invested about 120 million Naira (70 million USD) in livestock development out of

70% was allocated for grazing reserves. While the selection and acquisition of grazing lands was the responsibility of individual states, the reserves were implemented through the National Livestock Project Unit (NLPU) of the Federal Livestock Department, now the National Livestock Project Department, who were responsible for infrastructure development, e.g. provision of boreholes, dams, schools and roads (Ingawa et al. 1989). However, pastoralists were dissuaded from settling within reserves by the absence of formal gazetting, the lack of legalized grazing and land ownership and slow government investment in infrastructure (Waters-Bayer and Taylor-Powell 1984a).

In summary, there is a common trend in the nomadic routes in African countries discussed. This binding thrust is the north-south and south-north movement. This back and forth movement is determined by the herdsman search for pasture, water, and favourable weather condition for their cattle. This movement could be intra-country or cross border movement. Besides, the grazing reserves or ranges are mostly abandoned or non-functional as the case may be, while the ill defined grazing routes have been encroached upon by either the farmers or for developmental purposes thereby propelling most of the pastoral conflicts that fuel further movement of the nomads within the region.

Implications for Crop and Food Production

From the analysis in the previous discussion on the nomadic routes in West Africa, it was observed that the sub-regional livestock sector is dominated by traditional system of agropastoralism. The pastoralists in the West Africa move within almost seamlessly within the expanse of land criss-crossing between the semi-arid north during the wet season and the south during the dry season. This sometimes involves moving across borders of states in search of pasture and water for their herds. In the process of their transhumance activities, they usually come in contact with sedentary crop farmers (Shettima and Tar, 2008).

As herders graze their cattle, the pastoralists needed the calories produced by crop farmers; the crop farmers in turn require the protein and dairy products from the pastoralists. In this regard, both are intertwined as they share land, water, fodder and other sources. They are bound to run into conflict with each other over resource use. This is exemplified by two major livestock

corridors of Nigeria (northwest and northeast) where there has been persistent conflict between crop farmers and pastoralists for more than three decades (Shettima and Tar, 2008).

Due to perceived threats to their lives and alleged killing of stray cattle by farmers (Bello, 2015) and cattle rustling, the pastoralists began to move with arms usually in large groups and engage in crop damaging intentionally (FACU,1999). Mutual exchange relationship between the herders and farmers persisted as long as they exhibited mutual understanding and inclination towards coexistence. A good example of the above could be drawn from Niger Republic in which during the post harvest period, crop farmers persuaded the pastoralists to bring their animals to their farms and were prepared to offer them some gifts such as money, sugar and tea (Little and Horowitz, 1987).

In spite of the mutual exchange and coexistence between the herders and crop farmers, their relationship was also strained in some occasions, for example when the herders embark on early southward movement into the sedentary farmers' zone before the completion of harvest (Horowitz et al., 1983). However, the conflict between the two was not as intense as it were in the present period in which multidimensional factors elicit conflicts that disrupt and threaten the peaceful coexistence and sustainability of food crop production in Nigeria (Moritz, 2016), and by extension other West African states.

There are other contributing factors to the pastoralists-farmer conflicts. These include population growth and environmental problems. Increase in human population, increasing number of herds as well as the extension of cultivated farm plots culminated in putting pressure on natural resources such as land, water and foliage (Breusers, et al. , 1998). Besides population growth and associated pressures on natural resources, environmental problems which includes drought (such as the Sahelian drought and associated famine) that elicited mass migration of humans and livestock population towards the southernmost wetlands across the sub-region(Bennet, 1991; Brown and Crawford, 2008); as well as climate change factors which caused the rivers, lakes and streams to recede. The pressure on these natural resources led to intense competition and conflict between the herders and farmers (Shettima and Tar, 2008).

Above competition and resource conflict between crop farmers and pastoralists could be exemplified by the Mali River Delta conflicts. When the delta became drier in Mali, the sedentary farmers began to cultivate deeper into the delta and in doing so, they encroached the stock (pastoral) routes causing the flooding of the plains. In reaction to the flooding, the

pastoralists began crop damaging out of frustration (Morehead, 1989). The conflict between the crop farmers and pastoralists had continued in its tempo with negative consequences on food production.

One of the consequences of the herder-farmer conflict is abandonment of cultivation of certain food crops or reduction in number of food crops the farmers cultivate. For example, the Fadama farmers in Bama Local Government Area in Borno State Nigeria were forced to abandon the cultivation of certain crops such as tomatoes, which they used to plant with onions (Shettima and Tar, 2008). In a similar vein, Fadama farmers were forced to limit the variety of crops they were used to cultivating (Audu, Chiroma, Shettima, Bukar, Bumba, Malgwi, 2007). Secondly, given the trans-border nature of pastoral nomadism, conflicts between the herder and farmers has the tendency of translating into national, regional and international security (Frerks, 2007). An insecure national and regional space does not allow conducive atmosphere for sedentary crop farming as the resource conflicts result in mass displacements of civilian population, most of who are crop farmers. Thus, pastoral related-violent conflict results in famine, as many farmers who are among the internally displaced persons no longer engage in farming, but have now formed bulk of refugees living on emergency reliefs by humanitarian agencies (Shettima and Tar, 2008).

In specific terms, in Northern and Middlebelt regions of Nigeria that used to be the food basket of Nigeria are no longer producing optimally, resulting from herder-farmer conflict with associated killings of the farmers, destruction of crops and displacement of farming communities. When many farmers lose their lives as a result of the farmer-herder conflicts, they experience declining production in crop production and herds (Suleiman, 2015). In all ramifications, Farmer-herder conflicts have drastically reduced the availability of food supply (National Emergency Management Agency [NEMA], 2018). This poses a grave food insecurity situation in the country.

Conclusion

This study Analyzed Nomadism and Major Nomadic Routes in West Africa: Its Implications on Crop Agriculture. It was established that nomadism involves movement of pastoralists from one place, country and region to the other in search of foliage and water course for their herds. The study revealed that the very origin of pastoral nomadism in West Africa was the moving away of pastoralists from drier Sahara desert into the Sahel West Africa. And in each of the major

pastoral countries such as Mauritania, Mali, Guinea, Niger, Nigeria etc., the herders move within the country from drylands to the wet delta areas. Besides, they also move seamlessly across borders in West African countries in search of favourable grazing grounds on seasonal basis. In the course of their movement along the pastoral routes, the initial relationship between the herders and farmers was cordial and for mutual benefits. However, due to increasing population of human beings and cattle, and increasing pressure on the land and other natural resources such as water, the farmers began to encroach in the pastoral routes while the herders began to encroach into the farm lands thereby precipitating conflicts between the two. Besides, the environmental and climate changes such as drought and associated famine, the depletion of lakes, streams and rivers led to intense competition between the pastoralists and crop farmers for these scarce resources which turned into violent clashes and lingering counter attacks or reprisal attacks by both parties resulting in killings, destruction of farmlands and food crops, displacement of farmers etc. It was further revealed that the implications of the killings, displacements of farming population and destruction of food crops are reduction in farming activities, reduction in variety of food crop cultivation and resultant food shortage.

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