Jurnal Politik

Volume 9 | Issue 1 Article 2

3-31-2023

Conflict Weather: Climate Change as a Driver of Pastoralist Conflicts in the Lake Chad Region

Tope Shola Akinyetun
Lagos State University of Education, akinyetuntope@gmail.com

Nife Elizabeth Ogunbodede
University of Delaware, Delaware

Recommended Citation

Akinyetun, Tope Shola and Ogunbodede, Nife Elizabeth (2023) "Conflict Weather: Climate Change as a Driver of Pastoralist Conflicts in the Lake Chad Region," *Jurnal Politik*: Vol. 9: Iss. 1, Article 2.
DOI: 10.7454/jp.v9i1.1142
Available at: https://scholarhub.ui.ac.id/politik/vol9/iss1/2

Conflict Weather: Climate Change as a Driver of Pastoralist Conflicts in the Lake Chad Region

TOPE SHOLA AKINYETUN

Department of Political Science
Lagos State University of Education, Lagos State, Nigeria.
http://orcid.org/0000-0002-1906-3410

NIFE ELIZABETH OGUNBODEDE

Department of Political Science and International Relations
University of Delaware, Delaware, Newark, USA.
https://orcid.org/0009-0003-3128-0615

ABSTRACT
The Lake Chad region hosts a significant portion of sub-Saharan Africa's pastoralist activities. Pastoralism in the region has become synonymous with armed conflict, thus escalating the tension in the area and making it a hotbed of insecurity. Among other things, the exacerbation of the herder-farmer crisis in this area is attributable to climate change. Lake Chad which serves as a source of water, fodder, and fertile land for herders and farmers in the region, has been shrinking. This, coupled with drought, flooding, and variability in weather patterns, forces pastoralists to move around and engage in a constant migratory pattern, resulting in war-like competition for resources with farmers in the host communities. This paper adds to the debate on the role of climate change in fueling pastoralist conflicts in the area. The discourse, presented using qualitative methods and secondary data sourced from journal articles, briefs, reports, and internet sources, is couched using the political ecology framework. The paper finds that intensity of violent events and fatalities involving pastoralists in the area is driven by the disruption of livelihood occasioned by climate change. Four patterns of pastoralist conflict in the area are identified: conflict between herders and farmers; between different pastoralist groups; between the pastoralist and government; and between the pastoralist and other resource users. The paper also identifies the effects of climate change on displacement, disruption of economic activities, and undermining pastoralist livelihood.

Keywords: Climate change, conflict, Lake Chad region, pastoralism, violence.

DOI: https://doi.org/10.7454/jp.v9i1.1142

INTRODUCTION

Pastoralists are predominant in arid and semiarid rangelands in tropical and subtropical areas. Pastoralism, which refers to the subsistence occupation of nomadic societies feeding herbivorous livestock on degraded terrain, is still being practiced globally. In sub-Saharan Africa, it is estimated that about 367 million people live in pastoralist societies

even though urbanization, agricultural advancements such as irrigation, and societal stigma against nomadic peoples are reducing their popularity. However, the economic importance of pastoralism cannot be overlooked. It significantly contributes to the economies of nations throughout Africa by providing vast quantities of livestock to domestic and international markets, as well as to human nourishment. It is estimated that in West Africa alone, livestock exports are worth US$ 800 million (Scanes 2018, Pflaum 2021).

Pastoralism in Africa has become synonymous with conflict. The insecurity impasse of pastoralist conflict on the continent has assumed unprecedented proportions, thus deepening the threat to development. The incidence is more pronounced in the Lake Chad region (hereafter the region or LCR), where the deaths attributable to the phenomenon are reportedly more than those attributable to Al-Qaeda, Al Shabab, and Boko Haram (Mbih 2020). The area, which covers nearly 8 per cent of the African continent, is an endorheic depression surrounded by eight nations, four of which are close to the lake: Nigeria, Niger, Chad, and Cameroon. With 29% and 44% of their respective territories located inside the watershed's boundaries, respectively, Niger and Chad share the most significant boundary in the basin (International Atomic Energy Agency 2017).

The area is susceptible to changing climatic variations, significantly impact migration patterns, livelihoods, and security. It is believed that the intensity of violent conflicts in the area and Africa is generally, in part, attributable to the incidence of climate change, which increases the chances of rivalry and competition for scarce resources (Tarif 2022). Several factors have been identified in the proliferation of conflicts in this area. For instance, pastoral conflict; otherwise, farmer-herder conflicts have been given religious colouration. In Plateau Nigeria, the conflict has been framed as being between Muslim herders and Christian-farming communities. This is exemplified by the attack on Muslims by armed Christians in August 2021, which led to the death of over 30 people (Olufemi 2021).

It has been argued that little direct evidence supports the link between pastoral conflicts and climate change. Such scholars opine that pastoralist conflict in the area is driven by an array of factors, including poor social and physical infrastructure, bad governance, social exclusion, poverty, unemployment, violent extremism, burgeoning population, and lack of economic opportunities (Adebola, and Aniekwe 2022). Others contend that the farmer-herder crisis in Africa is fueled by inadequate infrastructure in primary grazing areas and grazing routes, unfavourable national agricultural policies, the reallocation of water resources away from grazing land and towards farming, and alternate uses of grazing lands supported by federal and state governments and their policies (George, Adelaj, and Awokuse 2020).

However, this study argues that little evidence cannot be equated to a lack of evidence. The absence of a direct link between pastoralism and climate change does not invalidate that climate change increases the risk of such conflicts. If so, such narratives must continue to be explored, given the escalating prevalence of this phenomenon in the region. This study stresses that climate change contributes to violence in the LCR by putting strain on communities and exacerbating socioeconomic vulnerabilities that lead to instability. This view finds expression in Brottem and McDonnell (2020), that conflict patterns associated with pastoralism are influenced by how water and grazing resources are distributed due to climate change. The various techniques adopted by pastoralists to diversify their sources of income and mitigate the effects of climate change may make them more competitive with other resource users. These changes may serve as a medium- to long-term element in the conflict.

To this end, this scholarly discourse delves into the intricate relationship between climate change and pastoralist conflicts within the Lake Chad region. Prior studies have depicted the level and intensity of the conflict as a homogeneous occurrence; however, this investigation delves deeper, illuminating various conflict dynamics, including conflicts between herders and farmers, between different pastoralist groups, between pastoralists and government, and between pastoralists

and other resource users. Attempts have also been made to examine the ramifications of climate change on displacement, loss of lives and property, and disruption of socioeconomic activities and livelihoods.

This study employed a qualitative research design and obtained data from secondary sources. Peer-reviewed articles from academic journals were reviewed to obtain comprehensive insights into the subject matter. Reports and briefings from governmental and non-governmental organizations were also consulted to gather valuable information, while credible online sources such as reputable websites and databases were utilized to access additional data and reports. The collected data was subjected to thematic analysis to identify recurring patterns, themes, and relationships. The analysis is guided by the political ecology framework, which provides a lens to examine the complex interactions between climate change and pastoralist conflicts. By analyzing the data thematically, this study aims to uncover insights into the relationship between climate change and pastoralist conflicts in the Lake Chad region. The remainder of this paper is presented under seven sub-headings: theoretical perspectives, the Lake Chad Basin, climate change in the LCR, the impact of climate change on pastoralist livelihoods, conflict dynamics, consequences of climate change-induced pastoralist conflicts, and conclusion.

THEORETICAL PERSPECTIVES

Political Ecology

The Political Ecology (PE) theory is to examine how pastoral conflicts in the LCR are affected by climate change. Political ecology is a theoretical framework that was developed in the 1970s and the 1980s in response to the shortcomings of traditional ecological approaches, which tend to view environmental issues as exclusively biological. Political ecologists contend that understanding how social, political, and economic factors influence resource use and distribution patterns is essential for comprehending and resolving environmental issues. Environmental issues are fundamentally social and political (Bassett, and Peimer 2015).

PE highlights the significance of comprehending the social and historical contexts in which environmental problems develop, as well as how power relations and institutions shape these problems. PE enables an understanding of how political and economic factors, such as land use policies, resource allocation, and governance structures, shape changes in precipitation patterns and extreme weather events caused by climate change (Awash 2014). PE highlights the significance of comprehending how institutions and power dynamics influence patterns of resource use and distribution (Liverman 2015). PE emphasizes the significance of comprehending the social and historical context in which environmental problems occur, as well as how this context affects our knowledge and response to these problems (Bassett, and Peimer 2015).

For instance, the conflicts between farmers and pastoralists in Nigeria is significantly influenced by land use policies. The 1978 Nigerian Land Use Decree gave state and local governments complete control over land assignment and leasing, creating tensions between settled farmers and Fulani pastoralists (Okello et al. 2014). The Act grants government ownership of land but does not address the relationship between farmers and pastoralists who share this resource. This lack of provision for resource management intensifies competition and strains the relationships between groups (Fasona et al. 2015; Chunwate, Yerima, and Ademu 2021). Efforts to resolve land-use issues by mapping cattle routes and promoting grazing reserves have been ineffective. Inter-communal violence, particularly in the Kaduna and Plateau States, has resulted in over 10,000 deaths since 2010 (Okello et al. 2014).

The Nigerian Grazing Reserve Act of 1964 aimed to improve Fulani access to grazing land and promote sedentarization, but it has not been effectively enforced. Only 2.82 million hectares across 313 reserves have been acquired, falling short of the intended allocation of 9.8 million acres (Okello et al. 2014). The presence of multiple institutions and conflicting management approaches between state and customary institutions complicate resource management. Changes in land use restrict pastoralists' access to resources; for example, converting to crop farming and fragmented grazing systems. The commercialization of pastoral-

ism has led to some pastoralists fencing off rangeland areas, limiting resource access for others, and exacerbating conflicts (Liversage, and Rota 2020).

In Chad, competition for scarce natural resources, particularly land, and water, drives conflict. Population growth in humans and livestock has led to encroachment on traditional grazing areas, water sources, and transhumance corridors, triggering conflicts. Ethnic and religious factors also influence the farmer-herder relationship (McCarthy 2020). Religious and political factors can exacerbate conflicts between farmers and pastoralists. This is the case in Cameroon, where underlying resource scarcity issues and grievances contribute to the formation of organized groups with ethnic or religious sentiments, leading to protests or acts of violence. Meanwhile, policy changes that allow land grabbing and commercialization have intensified competition and conflicts over land and resources (Ntumva 2022).

In the northwestern region of Cameroon, conflicts and inequality have arisen due to land ownership and competition over land acquisition. Indigenous elites, bureaucrats, and cattle graziers have accumulated large tracts of land, depriving the rural population of subsistence land. Customary and statutory regulations perpetuate unequal land allocation based on class, gender, and social hierarchy, leading to conflict and violence. The erosion of farmers' land rights is a significant concern, as communal land systems fail to provide adequate protection (Sone 2012).

In Chad, deficiencies in governance, particularly within the justice sector and legal frameworks regulating transhumance, contributed to conflicts between communities. Local elites with livestock investments often raise biased justice systems in favour of herders, leading to inadequate legal redress for farmers. Biased responses increase frustration among farmers and herders. Furthermore, there is an absence of adequate legal frameworks at the national and regional levels with outdated laws and insufficient implementation measures (McCarthy 2020).

According to Jobbins and McDonnell (2021), policies favoring settled populations have undermined the customary practices of pastoralists

and farmers, shifting control over resources to state authorities. Recognition and protection by state authorities are crucial for pastoralists, and efforts have been made to incorporate pastoralism into modern governance systems. Diverse pastoralist communities have distinct interests and levels of social and political capitalism. Marginalized groups such as women and youth often have limited opportunities to participate in formal governing bodies. The poor economic prospects of youth and their exclusion fuels grievance and violence in the region and threatens security and development (Akinyetun, 2023a; Akinyetun, 2023b). This underscores the importance of the inclusion of diverse voices and perspectives when designing interventions for pastoralist communities.

The PE framework can help analyze the impact of climate change on pastoral conflicts in the Lake Chad region. This makes it possible to comprehend how, depending on their socioeconomic level, various pastoralist groups will likely be differently affected by these changes. Taking cues from PE, climate change in the LCR is a problem that is influenced by human attitudes, values, and institutions rather than just being a biological issue. The cultural and historical backdrop of pastoralists and the laws and organizations that control these resources influence how they see and relate to lakes and wetlands. This suggests that environmental issues are not solely the consequence of individual decisions or technological shortcomings, but rather the result of intricate power dynamics between many groups, such as those between pastoralists, farmers, and government authorities, influencing pastoral conflict and climate change in the Lake Chad region. For instance, the livelihoods and general well-being of pastoralists can be significantly impacted by government policies and decisions regarding resource allocation, which can also increase existing conflicts over resources.

As PE suggests, the social and historical framework in which these issues arise in LCR shapes climate change and pastoral conflicts. The way pastoralists are affected by and adapt to climate change can depend on historical patterns of resource use, land ownership, and current social and economic inequities. PE promotes a critical viewpoint on environmental concerns and challenges, prevailing notions, ideas, and

information about the natural world and interactions between people and nature. A critical viewpoint that challenges prevailing presumptions and ideas about the causes and effects of climate change, as well as the efficacy of present policies and interventions, is necessary to understand the relationship between climate change and pastoral conflicts in the Lake Chad region.

Other frameworks, such as the Adaptive Management framework, Livelihood framework, and Climate Justice framework, can be helpful in addition to the PE framework. While the Livelihood framework can be used to understand how pastoralists' livelihoods are affected by climate change, the Adaptive Management framework can also be used to understand how pastoral communities adjust to their effects. The Climate Justice paradigm can be used to comprehend how marginalized communities are disproportionately impacted by climate change and how to achieve the equitable allocation of opportunities and resources.

RESULTS

The Lake Chad Basin

The Lake Chad Basin is one of Africa's largest sedimentary groundwater basins, covering an area of approximately 2,381,000 km2 in the eastern Sahel region on the southern edge of the Sahara Desert. The intensity of annual rainfall varies significantly throughout the basin from Libya to the Central African Republic, ranging from 1,500 mm/a in the south to less than 100 mm/a in the north. The potential evapotranspiration near the basin's centre surpasses 2,000 mm per year because of year-round high temperatures. Because of the uneven distribution of water resources among the basin's northern, central, and southern regions, this phenomenon results in severe constraints on their availability (International Atomic Energy Agency 2017). The LCR is divided into two major parts. The northern portion of the basin is desert, while the Sahel zone, dry savanna, and thorny shrub savanna are south of the desert. The region is further divided into six bioclimatic regions: Saharan (100 mm), Sahara-Sahelian (100–200 mm), Sahelian (200–600

mm), Sudano-Sahel (600–800 mm), Sudanian (800–1200 mm), and sub-Guinean (>1200 mm) (Bala 2022).

Among the eight major countries that make up the Lake Chad region, riparian countries (Cameroon, Chad, Niger, and Nigeria) surround the lake. They are frequently mentioned in discussions about the Lake Chad region. Within these riparian countries, eight territories make up the Lake Chad region: Far North and Northern areas (Cameroon); the provinces of Lac and Hadjer-Lamis (Chad); Diffa Region (Niger); and Borno, Adamawa, and Yobe States (Nigeria) (Adebola and Aniekwe 2022). Despite being the second-largest wetland in Africa, between the mid-1960s and the mid-1980s, Lake Chad lost almost 90% of its surface water area, or approximately 23,000 sq km. This is the same size as the 4,200 American football stadiums combined. Lake Chad was the fourth-largest lake in Africa and the 11th-largest lake in the world before it began to decline. Despite a minor recovery in its water level since the mid-1990s, it is still, on average, 80% lower than that in the mid-1960s. The conflict has escalated as a result of the harsh environment and lack of climate change adaptation strategies (Jedwab et al. 2021).

Pastoralist Communities and their Traditional Livelihoods

Pastoralist groups in Africa include the Toubous in Chad, Sudan, Libya, and Niger; the Baggara in the Sudanese regions of Darfur and Kordofan; the Moors, Berbers, and Saharawi in the Saharan regions; and the Fulani, who are spread from Senegal through Nigeria, the Sahel, and Central Africa. Fulani is a large ethnic group with hundreds of subclans and tens of millions of members (Brottem, and McDonnell 2020). Fulani is a nomadic ethnic group with a significant population in various West African countries. The Fulani are estimated to be around 20 million and are primarily pastoralists, making them the world's largest nomadic pastoral population. Although they are mostly based in northern Nigeria, they can also be found in other parts of Africa including Mali, Mauritania, the Central African Republic, Niger, Burkina Faso, Ghana, Sierra Leone, Guinea Bissau, Senegal, and Cameroon.

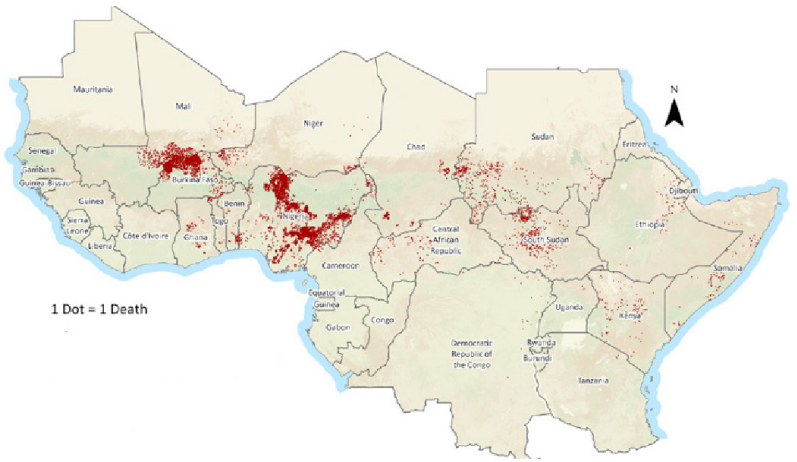
Fulani's migration into Cameroon can be traced to the British colonial era in the 1920s and the 1930s. Two different categories of herders have been recognized in Northwest Cameroon. These are the Fulani semi-sedentary households, whose way of life is primarily dependent on raising livestock, and the affluent Fulani and non-Fulani pastoralists, who own ranches and maintain large herds of cattle; wealthy livestock owners are businesspeople and political elites who own rangelands and who hire or entrust their livestock to other herdsmen, typically local Fulani, for their tradition and livestock herding expertise (Mbih 2020).

Conflict Trends

Between 2015 and 2022, conflict events involving identity militia in the LCR increased by 136 per cent resulting in 15,661 events, while fatalities increased by 26 per cent resulting in 45,472 fatalities. When broken down, 2803 events and 4,154 fatalities took place in Cameroon, 407 events and 1,632 fatalities in Chad, 1,372 events and 2,961 fatalities in Niger, and 11,079 events and 36,725 fatalities in Nigeria (Armed Conflict Location & Event Data 2022). By implication, Nigeria is the area with the highest number of events and fatalities in the region. This is corroborated in Figure 1, which shows the occurrence of death resulting from pastoralist conflict in the region. It also reveals that Nigeria has the highest prevalence of deaths relating to pastoral conflict in the Lake Chad region.

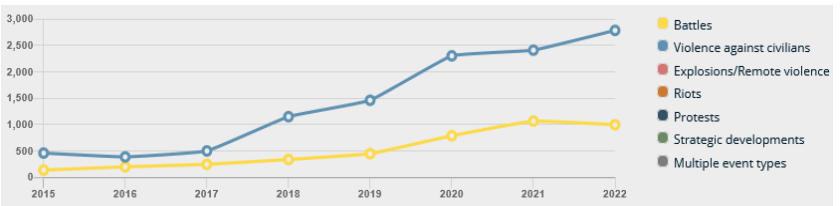
The figure above indicates that armed conflict in the region has persisted for nearly a decade leading to the destruction of life and property. While two of the most common conflicts in the region are battles and violence against civilians, there has been a marked increase in the incidence of violence against civilians since 2015. With less than 500 deaths in 2015, the phenomenon increased exponentially in 2018, 2020, and 2022 when the number of deaths jumped to over 2500 deaths in the time frame. Closely followed by this is the incidence of battles which increased from less than 500 deaths in 2015 to over 1000 in 2021 (see Figure 2). By implication, the region is troubled by armed conflicts, which have recently increased dramatically.

Figure 1: Deaths relating to pastoral conflict in the LCR, 2016 – 2020



Source: Jobbins, and McDonnell (2021, 8)

Figure 2: Annual trend of armed conflicts involving pastoralists and identity militias in the LCR, 2015-2022



Source: Armed Conflict Location & Event Data (2022).

Spikes in these events and fatalities have been linked to multifaceted issues, including the growing population, urbanization, identity conflict, and climate change. The climate change narrative stresses variability in weather patterns, strains resources, and pushes people together. The climate change discourse has metamorphosed from an environmental threat to an energy problem and is now a security threat. Climate change poses a great threat to global peace, as it increases the incidence of forced migration, displacement, resource shortage, resource-based conflict, border disputes, and unprecedented humanitarian crises (Olaniyan, Francis, and Okeke-Uzodike 2015).

Conflicts in pastoral areas including Nigeria and Chad are influenced by a combination of factors. Negative narratives about pastoralist violence perpetuated by fear, media portrayal, and vested interests contribute to the conflicts. Loss of resource access is intertwined with long-standing socio-ethnic divisions and can be fueled by external actors. Poverty, inequality, extremism, firearms availability, rural banditry, and commercial cattle raiding exacerbate the conflicts. These struggles are entangled within broader geopolitical contexts driven by resource competition, institutional failures, corruption, and insecurity in land and resource tenure (Liversage, and Rota 2020). Historically, collaboration between pastoralists and other groups has been necessary to maximize access to scarce and variable resources. However, pastoralist systems have faced significant challenges in recent decades, including the loss of grazing lands and resources. Weakened customary governance, imbalanced negotiation, and increased statutory governance favoring settled farmers have disrupted the dynamics. Pastoralists often face weak representation and limited involvement in decision-making processes concerning their lands. The emergence of new state-supported institutions can marginalize existing institutions, creating tensions that escalate into conflicts, making pastoralists victims influenced by factors beyond their control (Liversage, and Rota 2020).

According to Benjaminsen and Boubacar (2021), poor governance and corruption within social, state, and political institutions exacerbate farmer-herder conflicts over scarce resources. Biased decisions resulting from corruption undermine justice and intensify grievances among disadvantaged actors. Pastoralists, due to their economic power, can influence decisions by bribing officials in local government, police, and the judiciary.

Land conflicts have been a major cause of complex and violent conflicts in various African countries, particularly in the East, West, and Horn of Africa. The increase in population and urbanization has led to a decrease in available land per person, forcing farmers and livestock keepers to interact and compete for limited resources on a confined amount of land. Changes in land use plans, prioritizing new

settlements and infrastructure over traditional agricultural and livestock areas, further contribute to the conflicts (Ntumva 2022).

Climate Change in the LCR

Climate change refers to all climatic fluctuations in a specific location over time, whether they are caused by natural phenomena or things related to human activity. The frequency and severity of droughts have increased throughout Africa because of climate change, and the expansion and productivity of pastoral systems have decreased. Climate change has slowed agricultural production development in Africa more than in any other continent between 1961 and 2021 by 34%. In dry regions, these conditions have a significant impact on food security. Given the number of people exposed to growing desertification and decreased yields, this trend is anticipated to worsen (ACAPS 2022). By the late 2030s and the early 2040s, both the Sahel and tropical West Africa are expected to see unprecedented shifts in temperature and precipitation. In the worst-case and intermediate emissions scenarios, temperatures are predicted to increase by 3-6°C from the levels seen in the late 20th century (Tarif 2022).

One of the effects of climate change on LCR is flooding. Flooding is a severe environmental threat in Nigeria. Over 3.2 million people were affected by flooding in Nigeria in 2022, and over 600 people died as a result. 34 out of the 36 states have been affected, and more than 1.4 million people have been displaced. Before the October harvest season, over 569,000 hectares of farmland were devastated or damaged by floods, which exacerbated the already grave food crisis, while nearly 300,000 homes were destroyed. In addition to losing their homes, hundreds of thousands have limited access to work opportunities and food (OCHA 2022).

Flooding occurs frequently in the Diffa area of Niger because of the strong rainy season and overflowing rivers (mid-June to September). Since 2017, an increasing number of Africans have been affected by floods annually. In Diffa, flooding has affected more than 63,000 individuals over the past three years: 45,847 in 2019, 7,203 in 2020, and

10,000 in 2021. Floods devastate homes and hectares of crops, displacing those who have temporarily lost their homes or means of survival (ACAPS 2022). Although floods occur annually in Chad, the magnitude of the catastrophe in 2022 is very significant. The already grave humanitarian situation has worsened as a result of floods in southern and central Chad. According to reports, floods in N'Djamena forced more than 155,000 residents to leave their houses as of November 15. The homes, schools, and medical centres were all submerged in water. Floods also harm populations whose livelihoods depend on agriculture. The destruction of 19,000 livestock and damage to more than 465,000 hectares of crops raises concerns regarding agricultural production, food insecurity, and hunger (Médecins Sans Frontières 2022).

The Far North area of Cameroon witnessed catastrophic flooding in 2020. At least 150,000 people were affected by torrential rains, which destroyed homes, farmland, and road infrastructure while displacing thousands of people from their homes. Due to the delayed rainy season and low average rainfall recorded in 2021, the rainfall pattern was considerably different. Nonetheless, flash floods caused 647 people to be homeless and damaged 1,500 ha of agricultural land in the Mayo-Sava district. The difference in rainfall between 2020 and 2021 demonstrated severe fluctuations in the LCR climate (ACAPS 2022).

DISCUSSION

Impact of Climate Change on Pastoralist Conflicts

Pastoralist conflicts refer to disputes between pastoralists or between them and farmers of crops over land and resources. The scramble for pastures by livestock herders for their flocks often leads to overgrazing of fertile grounds, grazing on farmers' crops, pollution of waterways, or destruction of cultivable terrain. This creates frustration among crop farmers, engendering violent conflicts between herders and farmers. However, pastoralists accuse crop farmers and other groups of animal abuse, rustling, and theft. There are also instances of in-group struggles for grazelands between pastoralists (Penu, and Paalo 2021). Pastoralist

https://scholarhub.ui.ac.id/politik/vol9/iss1/2
DOI: 10.7454/jp.v9i1.1142

conflict is a global phenomenon reported in Ethiopia, between Somali and Oromo pastoralists in Israel, between Bedouin herders and Jewish farmers, and Southern Africa, and between smallholder crop farmers and animal farmers. The LCR is one location that is particularly affected by climate change. This area is characterized by a complex interplay of social, economic, and environmental elements that make it especially susceptible to the effects of climate change.

Conflict and migration are fueled in the region by droughts, flooding, and shrinking lakes, all of which are effects of climate change. This also limits food security, peace, and development in the region. Regional tensions have brought about humanitarian crises and displacement. An estimated 3 million people are believed to have been displaced and 11 million people require humanitarian aid. Over 60,000 individuals were forced to seek refuge in Chad due to access natural resources in late 2021 (Associated Press 2023).

The LCR is a vital resource for millions of people who rely on it. The lake is an essential water source for farming, raising cattle, and fishing, while nearby wetlands serve as crucial habitats for various of plant and animal species. However, the lake has been significantly declining over the last few decades owing to several factors, including population growth, excessive water resource consumption, and the effects of climate change (Venturi, and Barana 2021). Recessions in lakes can be harmful to pastoralist populations. Farmers who depend on the lake's water for irrigation and cattle herders who need the lake's water and the surrounding flora so that their livestock may drink and eat enough could suffer from a lake's retreat. The original freed-up arable land may also become arid as the lake dries. All these elements could lead to more intense rivalry for a few resources, which may fuel conflicts (Jedwab et al. 2021).

Pastoralists, who rely on the lake and nearby marshes for grazing and watering their herds, constitute a significant portion of the population in the Lake Chad region. These pastoralists' ways of life are significantly affected by climate change, which further increases resource-related conflicts. A significant impact of climate change on pastoralists in the

Lake Chad region is the alteration of precipitation patterns, which exacerbate the region's extreme aridity. The volume of water available for use by people and animals decreases when temperatures rise due to increased evaporation from the lake and nearby wetlands. This significantly impacts the local economy, especially the agriculture and fishing industries, which provide most of the region's residents with a living space (Bala 2022).

The prevalence of drought, flooding, and climate change in the LCR has forced pastoralists to move around and engage in a constant migratory pattern, resulting in a clash of interests in the host communities. Thus, the increase in farmer-herder conflicts in the area is a result of the change in climatic conditions (George, Adelaja, and Awokuse 2020). Pastoralist conflicts are frequently centred on disagreements over who is entitled to and how much control there is over agro-pastoral resources. Conflicts of interest differ from community to community. In the LCR, the communities most vulnerable to such conflicts are the Bamunka, Sabga, Sabongari, and Acha-Tugi communities in Northwest Cameroon (Mbih 2020), Benue, Zamfara, Plateau in Nigeria (Bello, and Abdullahi 2021), Ouaddaï and Sila in Chad (Crisis Group 2019), and Diffa and Tubu in Niger (United Nations Office for West Africa and the Sahel 2018).

Fulani's traditional patterns of transhumance have recently shifted. Instead of passing through an area or staying there temporarily, they now reside there permanently. In other situations, they enter previously unexplored territories. This increases the pressure on scarce resources and engenders competition and conflicts between them and the host community members. Here, the change in the livelihood of the Fulani due to climate change brings it in fierce contact with farmers whose livelihoods had been disrupted by the same climate change, as evidenced by the reclining of lakes, floods, and droughts. The clash of interests arising from the alteration of the livelihoods of these actors provokes violent conflict (Olaniyan et al. 2015).

The frequency and severity of extreme weather events are increasing, significantly affecting pastoralists in the Lake Chad region. The liveli-

hoods of pastoralists are significantly affected by crop failures, livestock losses, and damage to infrastructure resulting from droughts, floods, and other extreme weather events. These events also disrupt traditional seasonal migration patterns of pastoralism, forcing them to relocate and intensifying resource-related conflicts. A temperature rise caused by climate change can also result in desertification, which lowers the productivity of grazing land and the calibre of the feed. This results in smaller herd sizes and lower pastoralist incomes, which increase poverty and social vulnerability (Venturi, and Barana 2021; Adebola, and Aniekwe 2022).

The reduction in rainfall has severely disturbed agricultural operations, hurting livelihood viability for those who live along the lake's edge. The ability of individuals to adjust to climatic threats is further hindered by frequent attacks by armed groups, even though they are accustomed to moving to more fruitful regions when the lake recedes. To deal with the problem, farmers are increasingly utilizing tactics that have an impact on natural resources. For instance, some people employ flow modification to redirect water from lakes and rivers to crop plots, so they may receive water to irrigate their crops (ACAPS 2022).

Drought, an offshoot of climate change, alters livestock movement patterns and may produce conflicts at the local level. Shifting motion has also been linked to other environmental occurrences and patterns. However, these shifts may be related to long-term adaptations, as pastoralism is an inherently adaptive practice. As a result, shifting pastoral movements can produce friction and, occasionally, conflict. As pastoral groups look for new grazing possibilities in sub-humid areas, new markets or through livelihood diversification into trading and agriculture, southward shifts in transhumance activities are recorded, and pastoral conflicts are engendered (Brottem, and McDonnell 2020).

The consequences of climate change jeopardize physical safety, health, food security, and livelihood security. In addition to the risks, it poses to personal security, climate change can also increase the likelihood of violent conflict—collective aggression motivated by social, political, or economic factors. Research on climate change and conflict

is organized around four recognized pathways of climate insecurity: (a) deteriorating livelihood conditions, (b) rising migration and shifting pastoral mobility patterns, (c) armed groups' tactical concerns, and (d) elite exploitation of local complaints (Tarif 2022). In addition to environmental threats, climate change in the Lake Chad region has serious social and economic consequences. Increased disputes over resources and population displacement follow a drop in water level and availability. Owing to the preexistent incidence of marginalization and vulnerability, the chances of exacerbating social and economic inequalities increase (Adebola, and Aniekwe 2022).

Conflict Dynamics

The patterns of pastoralist conflict can be grouped into four categories: conflict between herders and farmers; between different pastoralist groups; between pastoralists and government; and between pastoralists and other resource users.

Conflicts between Herders and Farmers/Fishermen

Farmer-herder conflicts in Africa can be traced to the precolonial period, particularly between the 12th and 13th centuries, when alterations to geographical boundaries led to the loss of land ownership, thus leading to resource scarcity, migration, and environmental degradation. Farmer–herder conflicts have been reported in various parts of Nigeria, including the Zamfara and Plateau states. In June 2018, the clash between herdsmen and farmers in Maradun, Zamfara, led to the death of over 24 people and the destruction of property. In July 2018, 22 people were killed in a conflict between herders and farmers in the same community. In October 2018, the conflict between herders and farmers in Anka, Zamfara, resulted in the death of 19 people and the kidnapping of many others (Bello, and Abdullahi 2021).

In an attack on farmers in Bassa and Riyom, Plateau state, by herders in August 2021, 17 people were killed while 85 buildings were burnt. Meanwhile, in neighbouring communities such as Kishesha and Mai-

yanga, over 20 people were killed. Several people were killed in villages such as Kpetenvie, Maiyanga, Kpachudu, Zahwra, and Nche-Tahu, and over 400 homes were burned. It has been reported that climate-induced conflicts necessitate conflicts. The scarcity of pastoral lands has forced pastoralists into other communities with conserved forests. As a result of this incursion, pastoralists' livestock destroyed the crops and farmland of farmers. Farmers are forced to retaliate by attacking herders or stealing their herds. This has resulted in recurring conflicts and reprisal attacks (Olufemi 2021).

In Cameroon's Logone and Chari divisions, the conflict between herders and fishermen over access to water resulted in 18 deaths and 70 fatalities. The area has also witnessed the killing of dozens of cattle, the torching of over 40 houses, and the destruction of food in homes and farms (Kindzeka 2021). On December 5, 2021, deadly fights broke out in the border community of Ouloumsa in Cameroon because of a dispute between herders, fishermen, and farmers over diminishing water supplies. The intercommunal rivalry then escalated violence, whereby ten nearby villages were burned to the ground. According to the report, 30 people suffered significant injuries, while 22 died (Schlein 2021). In Cameroon's Far North, a pastoralist conflict over water access claimed the lives of over 22 people and injured them more than 30 times. The dispute began in December when farming communities stopped Arab Choa herders from taking their herds to the river. This incident was a recurrence of one that occurred four months earlier when Choa herders and Mousgoum fishermen killed dozens of people and drove thousands of people from their homes (Kouagheu, and Ramadane 2021).

Competition for resources resulting in violence is standard in southern and central Chad. Consequently, members of the community are potentially armed. In September 2022, tensions between Arab herders and mostly Black African farmers killed 19 people and injured 22 others. Frightfully, the problem began when farmers accused the herders of letting their animals eat or step on their crops. According to reports, the violence started with an argument between a farmer and a herder in Marabe, a small community 500 kilometres (310 miles) southeast of the

capital N'Djamena with the latter accused of destroying their sorghum crops. On September 13 and 14, the unrest spread to two other villages that shared a border with the Central African Republic, where fields and villages were set on fire (Agence France-Presse 2022).

Conflicts between different Pastoralist Groups

Conflicts among herders involve pastoralists as both perpetrators and victims. There have been conflicts between different pastoralist groups in the LCR. Given that the primary source of income for pastoralist communities is mobile livestock herding, different pastoralist communities may struggle for access as resources become scarce, resulting in conflicts. Furthermore, the problem is exacerbated by the ambiguity surrounding land ownership and tenure rights, which frequently leaves pastoralists uncertain of their legal entitlements to particular resources. The absence of adequate channels for resolving disputes among pastoralists in the Lake Chad region is another problem. The conventional dispute-resolution techniques used by many pastoralist communities are frequently insufficient to address today's more complicated and heated conflicts (Climate Diplomacy, n.d.).

The cycle of violence and retribution has resulted from the absence of efficient channels for resolving problems, further aggravating the situation. Livestock thefts and disputes over grazing rights regularly catalyse hostility between various pastoralist groups. This is stressed when numerous nomadic tribes simultaneously attempt to enter the same region. Although the culture of pastoralists has always included livestock rustling as a way to replenish herds after droughts and to give young herders wealth, it is arguable that this practice has grown more violent as a result of civil wars and the proliferation of weapons in the region (Climate Diplomacy n.d.).

Conflicts have been documented between the Fulani, Tubu, Arab, Buduma, and Tuareg communities in Niger, where pastoralism is predominant among the population. Within each group, there were clan differences, and each group had a different land tenure system and access to pasture. There are also differences in the distribution and

specialization of pastoral groups. The Fulani and Tuareg are widespread; the Tubu are restricted to the desert regions that border Chad and Libya, while the Buduma are mainly found around Lake Chad. There is an interaction between the groups, as shown in central Niger's mixed-Fulani and Tuareg settlements. Despite their distribution, they interact closely and frequently compete for resources. When there are disputes over land or water ownership, raiding occurs between the pastoral groups. Raids on Fulani cattle occurred as a result of the Tuareg uprisings in the 1990s in Niger and Mali. Conflicts with Fulani occurred in the Diffa region as a result of rebellions by Tubu communities in eastern Niger. Although a peace agreement partially helped resolve the issue, the Boko Haram insurgency led to a resurgence of fighting between the Fulani and Tubu. According to reports, armed Tubu militias have been pillaging Fulani cattle and have even engaged in combat at the Kabelawa IDP camp (United Nations Office for West Africa and the Sahel 2018).

The herdsmen–herdsmen conflict has also been reported in Lake Fitri, Chad. These herders claim access to grazing lands, modern wells, and certain sumps. Although some conflicts turn out to be temporary, they may arise when resource access is at risk. When these disputes are not settled peacefully by the herdsmen because of a claim to ownership of the same well or grazing area, it often results in violence. In 2006, the Arab Oulad Awada and the Nawala engaged in a bloody conflict to possess the Beyalla well in the southern region (Am-Djamena Bilala, Fitri). The conflict led to the death of four Oulad Awada and six Nawala herders, with an extremely high number of fatalities. The Oulad Awada and Nawala Okoura engaged in another war in April 2007 over the same issue, this time in the Adjadj region. The casualties were higher as eight Oulad Awada and 15 Nawala Okoura herders were killed, with many others critically injured. These groups fought for possession of a single well in Souar in 2008, a dispute that the earlier ones probably worsened. Twenty-eight people were killed, including 23 Oulad Awada and five Nawala, increasing the death toll (Zakinet 2015).

Conflicts between Pastoralists and Government

Pastoralists are also known to conflict with the government, as they traverse large distances in search of grazing land, sometimes crossing protected areas, or causing damage to the crops. On the other hand, the government sometimes views pastoralists as a hindrance to development and considers them illegal squatters on government land. This has resulted in the forced relocation of pastoralist communities and destroyed their livelihoods. The conflict between pastoralists and the government has intensified in recent years owing to the effects of climate change and desertification in the region. This has led to reduced grazing lands and increased competition over resources, exacerbating tensions between the two groups.

In Chad, the fears of the government's periodic violence could spread to other provinces, and the Chadian authority escalated its response in August 2019 by imposing a state of emergency in Ouaddaï and Sila, as well as in Tibesti in the north. The government strengthened its military presence in the East and intensified efforts to disarm communities and warring actors there. This led to friction between populations in Ouaddaï and Sila and security forces. (Crisis Group 2019).

In 2023, a drone attacked pastoralists in Nassarawa state, resulting in the death of 40 herders, injury of many, and the destruction of hundreds of cattle. The herders were attacked when returning from the neighbouring Benue state with a herd of cattle after escaping law enforcement officers enforcing an anti-open grazing ordinance. The governor of Nassarawa State, Abdullahi Sule, denied any military operation but blamed the attack on the explosion of an unidentified drone operated from an unknown location. The government and community members, however, fear that there will be a reprisal attack by the herders (Obiezu 2023).

In response to attacks by herders, security forces allegedly committed human rights violations in Nigeria's Adamawa, Benue, Taraba, and Adamawa states. In Adamawa, the Nigerian Air Force responded to the attacks on villages in the Demsa and Numan local government areas

on December 4, 2017, by deploying an air raid that killed 35 people and injured 51 others. Moreover, over 3,000 houses were destroyed by skyrockets in the five villages. The Air Force claimed that it simply acted in response to an army request from security forces; however, they denied any responsibility for casualties (Amnesty International 2018).

Conflicts between Pastoralists and Other Resource Users

Conflicts between herders and other resource users have also been reported in the LCR. For instance, owing to climate change, water scarcity in sub-Saharan Africa has become a dominant occurrence. Considering that agriculture and pastoralism are predominant in the Sahel, the absence or scarcity of water required for agricultural productivity prompts herders to migrate in search of water and grazing lands. In cases where resources are scarce in the host communities, unhealthy competition and rivalry between herders and members of the host communities are stoked. Clashes between herdsmen and host communities have been reported in Maradun, Anka, and Zamfara, leading to the death of three and eight people in January and February 2020, respectively (Bello, and Abdullahi 2021).

Consequences of Climate Change-Induced Pastoralist Conflicts

Pastoralist conflicts in the LCR have wide-ranging adverse effects. They result in human casualties, community displacement, and the destruction of animals and property. The disputes also have broader economic repercussions since they disrupt trade and commerce and put people's livelihoods at risk.

Displacement

Pastoralist conflicts have led to the displacement of thousands of people, creating a severe humanitarian crisis in the Sahel. The conflict between farmers and herders displaced 300,000 people in four Nigerian states between 2001 and 2018. The breakdown shows 19,000 people were

displaced in Taraba, 100,000 in Nasarawa, 100,000 in Plateau, and 176,000 in Benue (Olufemi, 2021). Hundreds of Cameroonians have fled their northern border with Chad following the conflict between herders and fishermen in 2021 (Kindzeka 2021). The conflict between Arab Choa herders and Mousgoum and Massa farmers in Far North Cameroon also forced hundreds of people to flee their homes to Chad (Kouagheu, and Ramadane 2021). As a result of the conflict in Ouloumsa, Cameroon in December 2021, approximately 30,000 refugees – the majority of whom were women and children – fled into Chad, bringing the number of refugees and internally displaced persons in Chad to approximately 1,000,000 (Schlein 2021).

According to the International Organization for Migration (2022), poverty, unemployment, conflict with non-state armed groups, and climate variability, among other causes, have all contributed to the crisis currently confronting the Lake Chad region states and resulted in a substantial population displacement. IDPs, refugees, and returnees made up the majority of the projected 5,752,539 affected people living in Cameroon, Chad, Niger, and Nigeria as of December 22, 2022. A total of 4,438,320 people (77% of the affected population) were in Nigeria, 651,310 people (11% of the affected population) were in Cameroon, and 289,954 people (5 %) were in Chad (372,955 individuals).

Disruption of Economic Activities

Conflicts and food insecurity have a dynamic causal relationship since food insecurity can either result from or contribute to conflict. Due to their direct effects on the ability to farmland, pastoralist disputes directly impact the food insecurity of rural communities. Conflicts have a negative economic impact on pastoralists and farming communities with severe financial repercussions. They restrict the operation of farmers and herders, endangering their ability to make a living. Persistent conflicts harm farmers' cattle herds, farm yields, harvesting, and agricultural productivity (Nnaja et al. 2022).

Conflict leads to a decline in households' total agricultural output. As a result of these attacks, many farmers in rural areas were forced to

leave their fields and relocate to urban areas, resulting in a decline in the overall land area used for agriculture. Conflicts also dramatically lower the production of certain crops, including soy, cassava, sorghum, rice, and yams. The amount of time that household members spend on farms is also decreased by conflicts. Conflict exposure had a tangible negative influence on local cow herds and purchases. Conflict-affected areas are more prone to livestock theft, losses, and a decline in cattle purchases (George, Adelaja, and Awokuse 2020). Conflicts may affect the four mainstays of food security: availability, accessibility, usage, and stabilization of food. By affecting physical access to food, conflicts limit its accessibility. Conflicts may also destroy infrastructure such as roads, marketplaces, and farms. This may lead to food price volatility and the food imports value. This results in an increase in poverty and hunger (Nnaja et al. 2022).

Undermining of Pastoralist Livelihoods

Hectares of crops are frequently destroyed by floods, which occur more frequently, especially in Lac (Chad) and Far North (Cameroon). These extreme weather occurrences not only cause individuals to lose their means of survival but also uproot thousands of people every year. Some are compelled to use crisis adaptation techniques, such as survival sex and joining armed groups and community militias, as a result of the decrease in agricultural production, restricting the access of displaced persons and host communities to food (ACAPS 2022). Some fishermen are compelled to relocate to more fruitful places as the lake shrinks to sustain their livelihoods. The number of fish captured significantly declined as a result of many fish returning to the same fishing locations. Some local fishers use fishing techniques to compensate for the decrease in yield. One strategy involves creating bottlenecks in narrow channels to collect all fish migrating from rivers to ponds during the rainy season. Other fishermen employ small-mesh nets, restricting fish movement and increasing their chances of capturing juveniles. These actions damage the ecosystem and affect fish resources regarding the variety of species and catches.

CONCLUSION

The frequency and severity of extreme weather events are on the rise, significantly affecting the Lake Chad region. The changes in precipitation patterns and temperature rises worsen the region's predisposition to flooding, droughts, and other extreme weather events. Frequent heavy rains cause significant flooding and infrastructure damage, while protracted droughts result in water shortages and crop failures. Because grazing and watering locations are less accessible as the lake and wetlands disappear, there is more competition among pastoralists for few resources. As pastoralists are compelled to go more out in search of pasture and water for their herds, this results in disputes over access to land, water, and other resources. Pastoralist conflicts are frequently centred on disagreements over who is entitled to and how much control there is over agro-pastoral resources. This increases the pressure on scarce resources and engenders competition and conflicts between the herders and farmers in the host community.

More so, the livelihoods of pastoralists are significantly affected by crop failures, livestock losses, and damage to infrastructure resulting from droughts, floods, and other extreme weather events. For instance, the reduction in rainfall has severely disturbed agricultural operations, which harms the viability of livelihoods for those who live along the lake's edge. Frequent attacks by armed groups further hinder the ability of individuals to adjust to climatic threats.

The resulting conflict dynamics can be assessed under four categories: conflict between herders and farmers; between different pastoralist groups; between pastoralists and government; and between pastoralists and other resource users. Meanwhile, Pastoralist conflicts in the LCR have wide-ranging negative effects. They result in human casualties, community displacement, and the destruction of animals and property. The disputes also have broader economic repercussions since they disrupt trade and commerce and put people's livelihoods at risk. It, therefore, behoves countries in the LCR to incorporate adaptation strategies to mitigate the effect of climate change on pastoralist conflicts. This includes planting drought-resistant crops, promoting water management

strategies, guaranteeing community-based resources management, and adopting policy and legal frameworks.

REFERENCES

ACAPS. 2022. Lake Chad Basin. https://www.acaps.org/sites/acaps/files/slides/files/20220816_acaps_thematic_report_global_analysis_team_lake_chad_basin_0.pdf.

Armed Conflict Location & Event Data. 2022. "Armed Conflict Location & Event Data Project (ACLED) Codebook." Version 8, ACLED.

Adebola, Titilayo, and Chika C. Aniekwe. 2022. The Lake Chad Basin Region: Conflicts, Crises and Contemporary Developments. *Flora IP*, August 26. https://www.floraip.com/2022/08/26/the-lake-chad-basin-region-conflicts-crises-and-contemporary-developments.

AFP. 2022. "Chad Death Toll in Clashes between Herders and Farmers Rises to 19." *Guardian*, September 20. https://guardian.ng/news/chad-death-toll-in-clashes-between-herders-and-farmers-rises-to-19/.

Akinyetun, Tope S. 2023a. "Demography and insecurity: Youth bulge and the Lake Chad Basin security quandary." *African Security Review*. DOI: 10.1080/10246029.2023.2179413

Akinyetun, Tope S. 2023b. "Insecurity around Lake Chad is fuelled by the exclusion and grievances of its youth." *Africa@LSE Blog*, March 22, London School of Economics and Political Science. https://blogs.lse.ac.uk/africaatlse/2023/03/23/insecurity-around-lake-chad-is-fuelled-by-the-exclusion-and-grievances-of-its-youth/

Amnesty International. 2018. "Harvest of Ddeath: Three Years of Bloody Clashes between Farmers and Herders in Nigeria." AFR 44/9503/2018. https://www.amnesty.org/en/wp-content/uploads/2021/05/AFR4495032018ENGLISH.pdf.

Associated Press. 2023. "Report: Climate Change Fueling Conflict in Lake Chad Basin." *Voice of Africa*, January 19. https://www.voanews.com/a/report-climate-change-fueling-conflict-in-lake-chad-basin-/6925853.html.

Awash, Beniam. 2014. *Political Ecology of Climate Change and Conflict Research: Methodological Pathways*. New York: Binghamton University

Bala, Aminu. 2022. "Climate Change trends in the Lake Chad Basin, its impacts on the water cycle and the subsequent consequences on Agriculture." Global Workshop on Water, Agriculture and Climate Change 17-18 October 2022, Geneva and online. https://unece.org/sites/default/files/2022--10/1.4_LCBC_Magaji%20Bala%20%281%29_0.pdf.

Balekage, Alexis. 2022. "Chad Floods Deepen Humanitarian Crisis with High Risk of Disease Outbreaks." *Reliefweb*, December 6. https://reliefweb.int/report/chad/chad-floods-deepen-humanitarian-crisis-high-risk-disease-outbreaks.

Bassett, Thomas J, and Alex W. Peimer. 2015. "Political Ecological Perspectives on Socioecological Relations." *Natures Sciences Sociétés* 23: 157–65. https://doi.org/10.1051/nss/2015029.

Bello, Bashir, and Mustapha M. Abdullahi. 2021. "Farmers–Herdsmen Conflict, Cattle Rustling, and Banditry: The Dialectics of Insecurity in Anka and Maradun Local Government Area of Zamfara State, Nigeria." *SAGE Open* 11 (October). https://doi.org/10.1177/21582440211040117.

Benjaminsen, Tor A., and Ba Boubacar. 2021. "Fulani-Dogon killings in Mali: Farmer-Herder Conflicts as Insurgency and Counter insurgency." *African Security* 14 (May): 4-26. https://doi.org/10.1080/19392206.2021.1925035.

Brottem, Leif, and Andrew McDonnell. 2020. "Pastoralism and Conflict in the Sudano-Sahel: A Review of the Literature." *Search for Common Ground*, July. https://www.sfcg.org/wp-content/uploads/2020/08/Pastoralism_and_Conflict_in_the_Sudano-Sahel_Jul_2020.pdf.

Chunwate, B. T., Yerima S. Y.erima, and Samuel Ademu. 2021. "Analysis of Land-Use Conflict between Farmers and Pasturalists in Gwagwalada Area Council of Abuja, Nigeria." *Global Journal of Science Frontier Research* 21 (3): 49–55.

Climate Diplomacy. n.d. "Pastoralist and Farmer-Herder Conflicts in the Sahel." *Climate Diplomacy*. https://climate-diplomacy.org/case-studies/pastoralist-and-farmer-herder-conflicts-sahel.

Crisis Group. 2019. "Avoiding the Resurgence of Intercommunal Violence in Eastern Chad." *Crisis Group*, December 30. Report No 284. https://www.crisisgroup.org/africa/central-africa/chad/284-eviter-la-reprise-des-violences-communautaires-lest-du-tchad.

Daniel, Ojemire B. 2021. "Climate Change and Farmers-Herders Conflict in Nigeria." *News Security Beat*, November 15. https://www.newsecuritybeat.org/2021/11/climate-change-farmers-herders-conflict-nigeria/.

Fasona, Mayowa, Eniola Fabusoro, Comfort Sodiya, Vide Adedayo, Felix Olorunfemi, P. Elias, and J Oyedepo. 2015. "Some Dimensions of Farmers-Pastoralists Conflicts in the Nigerian Savanna." *5th International Conflict Management Conference: Livelihoods, Sustainability and Conflict*, Kennesaw State University, Georgia, USA, 17-18 April 2015.

George, Justin, Adesoji Adelaja, and Titus O. Awokuse. 2020. "The Agricultural Impacts of Armed Conflicts: The Case of Fulani Militia." *European Review of Agricultural Economics* 48 (July): 538–72. https://doi.org/10.1093/erae/jbaa022.

International Atomic Energy Agency. 2017. "Lake Chad Basin: Report of the IAEA-supported regional technical cooperation project RAF/7/011." https://www.iaea.org/sites/default/files/raf7011_lake_chad_basin.pdf.

International Organization for Migration. 2022. "Displacement Tracking Matrix Lake Chad Basin Crisis." https://displacement.iom.int/sites/g/files/tmzbdl1461/files/reports/LCBC_EN_December_2022_v1.pdf.

Jedwab, Remi, Federico Haslop, Takaaki Masaki, and Carlos Rodriquez-Castelan. 2021. "Climate Change, Rural Livelihoods, and Urbanization: Evidence from the Permanent Shrinking of Lake Chad." *Development for Peace*. https://openknowledge.worldbank.org/bitstream/handle/10986/36573/Technical-Paper-Two-Climate-

Change-Rural-Livelihoods-and-Urbanization-Evidence-from-the-Permanent-Shrinking-of-Lake-Chad.pdf.

Jobbins, Mike, and Andrew McDonnell. 2021. "Pastoralism and Conflict: Tools for Prevention and Response in the Sudano-Sahel." Washington DC: Search for Common Ground. https://www.sfcg.org/wp-content/uploads/2021/03/Pastoralism_and_Conflict_Toolkit_Search_for_Common_Ground_2021.pdf.

Kindzeka, Moki E. 2021. "Cameroon Says Fight Over Water Leaves Many Dead or Wounded." *VOA News*, August 14. https://www.voanews.com/a/africa_cameroon-says-fight-over-water-leaves-many-dead-or-wounded/6209578.html.

Kouagheu, Josiane, and Mahamat Ramadane. 2021. "North Cameroon Violence between Farmers, Herders Kills 22; Rresidents Flee." *Reuters*, December 9. https://www.reuters.com/world/africa/violence-between-farmers-herders-kills-least-22-northern-cameroon-2021-12-09/.

Liverman, Diana. 2015. "Reading Climate Change and Climate Governance as Political Ecologies." In *The Routledge Handbook of Political Ecology*, edited by Tom Perreault, Gavin Bridge, James McCarthy, Routledge. https://liverman.faculty.arizona.edu/sites/liverman.faculty.arizona.edu/files/2018-06/Liverman%202015%20Reading%20climate%20as%20political%20ecology_1.pdf.

Liversage, Harold, and Antonio Rota. 2020. "How to Prevent Land Use Conflicts in Pastoral Areas." Italy: International Fund for Agricultural Development. https://www.ifad.org/documents/38714170/40184028/LandUseConflicts.pdf/4da68519-6c21-bc00-67df-d7e75aba9543.

Mbih, Richard A. 2020. "The politics of farmer–herder conflicts and alternative conflict management in Northwest Cameroon." *African Geographical Review* 39 (January): 324–44. https://doi.org/10.1080/19376812.2020.1720755.

McCarthy, Patrick. 2020. "Preventing Transhumance-related Intercommunity Conflict in Chad: Towards a Climate-sensitive Conflict Analysis." *UNDP Issue* 20. https://www.undp.org/sites/g/files/zskgke326/files/migration/oslo_governance_centre/47dbce82b234c4d9395b95de590ff69bf8ae34775e9125397fc2b704d0eaf44f.pdf.

Nnaji, Amaka, Wanglin Ma, Nazmun Ratna, and Alan Renwick. 2022. "Farmer-Herder Conflicts and Food Insecurity: Evidence from Rural Nigeria." Agricultural and Resource Economics Review, 51 (2): 391–421. https://doi.org/10.1017/age.2022.9.

Ntumva, Mabebe. 2022. "Land Conflict Dynamics in Africa: A Critical Review on Farmer-Pastoralist Conflict Perspectives." *International Journal of Peace and Development Studies* 13 (January): 17–28. https://doi.org/10.5897/IJPDS2021.0412.

Obiezu, Timothy. 2023. "Reprisals Feared in Nigeria after Bombing of 40 Pastoralists." *VOA News*, January 27. https://www.voanews.com/a/reprisals-feared-in-nigeria-after-bombing-of-40-pastoralists-/6936946.html.

OCHA. 2022. "Nigeria - Floods Response: Flash Update 2." *Reliefweb*, November 2. https://reliefweb.int/report/nigeria/nigeria-floods-response-flash-update-2-last-updated-1-november-2022.

Okello, Anna L., Ayodele O. Majekodunmi, Adamu Malala, Susan C. Welburn, and James Smith. 2014. "Identifying Motivators for State-Pastoralist Dialogue: Exploring the Relationships between Livestock Services, Self-Organisation and Conflict in Nigeria's Pastoralist Fulani." *Pastoralism* 4 (September): 1–14. https://doi.org/10.1186/s13570-014-0012-7.

Olaniyan, Azeez, Michael Francis, and Ufo Okeke-Uzodike. 2015. "The Cattle are "Ghanaians" but the Herders are Strangers: Farmer Herder Conflicts, Expulsion Policy, and Pastoralist Question in Agogo, Ghana." *African Studies Quarterly* 15 (March): 53-7. https://asq.africa.ufl.edu/wp-content/uploads/sites/168/Volume-15-Issue-2-Olaniyan-Francis-and-Okeke-Uzodike.pdf.

Olufemi, Alfred. 2021. "Horrors on the Plateau: Inside Nigeria's farmer-herder conflict." *Aljazeera*, November 28. https://www.aljazeera.com/features/2021/11/28/horrors-on-the-plateau-inside-nigerias-farmer-herder-conflict.

Penu, Dennis A. K., and Sebastian A. Palo. 2021. "Institutions and Pastoralist Conflicts in Africa: A Conceptual Framework." *Journal*

of Peacebuilding & Development 16 (March): 224–41. https://doi.org/10.1177/1542316621995733.

Pflaum, Matthew. 2021. "Pastoralist Violence in North and West Africa." *West African Papers* 31. https://doi.org/10.1787/63dff519-en.

Scanes, Colin G. 2018. "The Neolithic Revolution, Animal Domestication, and Early Forms of Animal Agriculture." In *Animals and Human Society*, edited by Colin G. Scanes and Samia R. Toukhsati, 103–131. https://doi.org/10.1016/B978-0-12-805247-1.00006-X.

Schlein, Lisa. 2021. "Scarce Resources in Cameroon Trigger Deadly Clashes, Mass Displacement." *VOA News*, December 10. https://www.voanews.com/a/scarce-resources-in-cameroon-trigger-deadly-clashes-mass-displacement-/6349525.html.

Sone, P. M. 2012. "Conflict Over Landownership: The Case of Farmers and Cattle Graziers in the Northwest Region of Cameroon." *African Journal on Conflict Resolution* 12 (1): 83–101. https://www.ajol.info/index.php/ajcr/article/view/78702.

Tarif, Kheira. 2022. "Climate Change and Violent Conflict in West Africa: Assessing the Evidence." *SIPRI Insights on Peace and Security* 3 (February): 1–21. https://doi.org/10.55163/VHIY5372.

UNOWAS. 2018. "Pastoralism and Security in West Africa and the Sahel." *UNOWAS Study*. https://unowas.unmissions.org/sites/default/files/rapport_pastoralisme_eng-april_2019_-_online.pdf.

Venturi, Bernardo, and Luca Barana. 2021. "Lake Chad: Another Protracted Crisis in the Sahel or a Regional Exception?." *Istituto Affari Internazionali Papers* 3 (March): 1–19. https://www.iai.it/sites/default/files/iaip2110.pdf.

Zakinet, Dangbet. 2015. "Transhumant Arab Tribes Move between Alliances and Conflicts in Central Chad: The Salamat Sifera and Djaatné in the Batha Region." *Afrique contemporaine* 255 (3): 121–36. https://www.cairn-int.info/revue-afrique-contemporaine1-2015-3-page-121.htm.