



Article

Climate Change-Induced Herder-Farmer Conflicts: Implications for Food Security, in Ondo State, Nigeria.

Nnamdi Azikiwe Journal of
Political Science (NAJOPS).
2025, Vol. 10(4)
ISSN: 2992-5924
©NAJOPS 2025
Reprints and permissions:
www.najops.org.ng

Daniel Esem GBEREVBIE,
Department of Political Science and International Relations,
Covenant University, Canaan Land, Ota,
Ogun State, Nigeria.

Oluwayemisi Esther AFORIJIKU
Department of Political Science and International Relations,
Covenant University, Canaan Land, Ota,
Ogun State, Nigeria.

Abstract

Climate change poses significant threats to environmental stability, livelihoods, and food security, particularly in Nigeria, rising temperatures, erratic rainfall, and desertification have intensified resource scarcity, driving conflicts between nomadic herders and sedentary farmers. This study examines climate change-induced herder-farmer conflicts in Ondo State and their impacts on agricultural productivity, food security, and rural livelihoods. The study employed qualitative descriptive design, data were collected through in-depth interviews with 20 stakeholders (7 farmers, 6 government officials, and 7 herders) and analyzed thematically. The findings revealed that prolonged droughts and irregular precipitation patterns force herders southward, leading to farmland encroachment, crop destruction, and violent confrontations. This has resulted in reduced crop yields (e.g., tomatoes and cassava), heightened food prices, widespread displacement, and economic hardship. Also, existing policies, such as anti-open grazing laws and security initiatives like Amotekun, show promise but suffer from weak enforcement and inadequate funding. This study concludes that climate change is a critical underlying driver of herder-farmer conflict in Ondo State, operating through prolonged droughts, irregular rainfall, and environmental degradation that intensify competition over land and water resources. The study recommends integrated interventions, including climate-smart agriculture, designated grazing zones, strengthened security, and community-based peacebuilding, to enhance agricultural productivity, food security, and sustainable rural livelihoods.

Keywords: Climate change, herder-farmer conflict, food security, agricultural productivity, rural livelihood.

Corresponding Author:

Oluwayemisi Esther AFORIJIKU, Department of Political Science and International Relations, Covenant University, KM 10, Idiroko Road, Canaan Land, Ota, Ogun State, Nigeria. Email: oluwayemisi.aforijikupgs@stu.cu.edu.ng

Introduction

Climate change represents one of the most pressing global challenges of the 21st century, manifesting in rising temperatures, erratic precipitation, and an increasing frequency of extreme weather events (IPCC, 2007). In Africa, these impacts are particularly severe due to the continent's heavy dependence on rain-fed agriculture and natural resources for livelihoods and economic development (FAO, 2018). Nigeria, as Africa's most populous nation and a predominantly agrarian economy, exemplifies this vulnerability. Climate-induced desertification and prolonged droughts in the northern regions have forced pastoralists to migrate southward in search of pasture and water, intensifying competition and conflict with sedentary farming communities over land and water resources (Udoh et al., 2025). Africa's exposure to climate risks is further underscored by its reliance on agriculture, with over 60% of the workforce employed in the sector and smallholder farmers producing more than 80% of the continent's food supply (Agoungbome et al., 2023; FAO, 2018). Rain-fed farming systems in sub-Saharan Africa are highly sensitive to climate variability, posing serious threats to food availability, water resources, and rural economies (Sharmake et al., 2022). In Nigeria, a key agricultural nation, these challenges are most evident in the northern Sahelian zones where persistent droughts and advancing desertification have reduced grazing lands, compelling Fulani pastoralists to migrate southward in search of more favorable ecological conditions (Aroyehun, 2023; Utsev et al., 2023). This movement into southwestern agricultural regions, including Ondo State, has resulted in overgrazing, crop destruction, and recurrent violent conflicts between herders and farmers (Peñuelas et al., 2023; Singh et al., 2023).

Ondo State in southwestern Nigeria has consequently emerged as a hotspot of herder–farmer conflict. Traditionally recognized as an agricultural hub producing crops such as cocoa, cassava, and maize, the state now experiences disrupted farming calendars, degraded pastures, and frequent violent confrontations (Aroyehun, 2023; Olutumise, 2023). These conflicts have led to the loss of lives and property, displacement of rural populations, and destruction of agricultural infrastructure, thereby threatening both local livelihoods and national food security. This is particularly concerning given that agriculture employs over 60% of Nigeria's workforce and contributes significantly to the country's gross domestic product (FAO, 2018).

Persistent droughts across Nigeria, especially in the northern regions, have made violent confrontations between herders and farmers increasingly common, resulting in high casualties on both sides (Singh et al., 2023). The destruction of farmlands, grazing areas, and rural infrastructure undermines agricultural and livestock productivity, deepens rural poverty, and exacerbates hunger. Sociopolitical and religious divides—particularly between predominantly Muslim Fulani herders and largely Christian farming communities—further intensify tensions and fuel competition over scarce resources (Olutumise, 2023). These dynamics align with resource scarcity theory, which explains conflict as a consequence of competition over declining environmental resources, intensified by climate-induced migration (Homer-Dixon, 1999). In Ondo State, the southward movement of Fulani herders has increasingly brought them into conflict with Yoruba farming communities, a situation worsened by open grazing practices, weak governance structures, and unresolved ethnic tensions (Aroyehun, 2023; Olutumise, 2023).

As a result, agricultural production in conflict-affected areas stagnates or declines, leading to food scarcity, rising prices, and increased vulnerability among rural households (Lin et al., 2023). Insecurity restricts farmers' access to farmlands and markets, disrupts food distribution systems, and transforms

productive agricultural zones into contested spaces. Although government responses—such as anti-grazing policies and the establishment of grazing reserves—have been implemented, these interventions have largely failed to address the root causes of the conflict, particularly environmental degradation and climate variability (Peñuelas et al., 2023). Consequently, Nigeria faces critical challenges in sustaining food supplies, resolving persistent herder–farmer disputes, and promoting peaceful coexistence in environmentally degraded regions.

Against this backdrop, this study seeks to address an important gap in knowledge by examining the complex interplay between climate change, herder–farmer conflicts, agricultural productivity, and food security in Ondo State, Nigeria. The research questions follow thus:

- a. In what ways has climate change contributed to herder-farmer clashes in Ondo State?
- b. How has climate change influenced agricultural production and food security?
- c. What are the livelihood implications of these conflicts?

Climate Change in Africa and Nigeria

Africa bears disproportionate climate impacts, with projections of 1.5–3°C warming by 2050 (IPCC, 2007). In Nigeria, desertification affects northern regions, reducing arable land and forcing herder migration (Mekonnen & Hoekstra, 2016). Erratic rainfall disrupts rain-fed agriculture, which employs 75% of the population (MPH, 2010). Studies link these changes to biodiversity loss, water scarcity, and socio-economic instability (Nwaiwu, 2012; Awojobi, 2017). The subject of global warming together with climate change currently receives substantial focus from the public alongside scientists as well as political leaders including academics (MPH, 2010). African nations currently experience major adverse effects of climate change which causes both severe water scarcity and crop destruction and massive changes to local economies. The main source of employment for approximately 75 percent of Africa’s population comes from rain-fed agricultural activities. Extreme droughts together with flooding alongside desertification and soil erosion reduce crop production while dropping animal livestock stock causing serious damage to rural and pastoralist populations (MPH, 2010). Mainly rural populations handle the effects from their residences since rural settlements remain affordable for people seeking to live there. The rural communities face persistent exposure to flooding while they remain without basic amenities such as proper water supply, suitable food supply and healthcare systems combined with poor sanitary facilities and waste collection services (Anthonia et al., 2021). The living conditions suffer further deterioration from environmental change causing people to move within and across national borders which combines to weaken societal systems and hurts economic stability all across Africa (Matose & Sonnenfeld, 2024). Climate change affects the agricultural sector specifically because it constitutes the principal economic base for numerous African economies. East African and Horn of African farmers face extended drought spells together with intensified destructive floods. Farmers experience difficulties estimating planting times because irregular weather patterns cause agricultural failures together with food shortages (FAO 2018). Smallholder farmers now seek irrigation systems together with drought-tolerant crops to maintain food supply after climate change forced them to do so.

Food Security and Agricultural Productivity

Food security entails access to sufficient, safe, nutritious food (FAO, 2018). In sub-Saharan Africa, 250 million face malnutrition, exacerbated by climate variability (Wheeler & von Braun, 2013). In Nigeria, irregular rainfall reduces yields of staples like maize and cassava (Agoungbome et al., 2023). Conflicts amplify this, destroying infrastructure and displacing farmers (Maxwell & Fitzpatrick, 2012). The ongoing conflicts together with political turmoil that plague numerous African countries strongly affect food safety in these regions. The nations South Sudan Somalia and Democratic Republic of the Congo have sustained long-term conflicts which forced millions of people from their homes while damaging essential agricultural establishments. These disputes trigger market breakdowns while pushing farmers off their land and destroying agricultural properties thus causing major food shortage reductions (Maxwell & Fitzpatrick, 2012). Food insecurity created by conflict forms a destructive pattern which both hunger and insecurity accelerate violent behavior so the situation worsens for communities facing vulnerability. The cyclical pattern between conflict and food shortages endangers both individual wealth survival together with complete national economic vulnerability of affected countries (Von et al., 2018). The continuous status of poor agricultural production acts as a substantial obstacle to attaining food security across Africa.

Most agricultural workers in Africa are smallholder farmers who encounter multiple obstacles to boost their productivity. The absence of contemporary farming methods together with missing irrigation systems and enhanced seed varieties prevents farmers from improving their yields (Nkonya et al., 2016). Productivity has not improved enough due to this situation so many smallholder farmers produce less than needed to feed themselves and to sell in markets. The combination of poor productivity levels drives food prices upward because it impacts low-income families who must allocate large portions of their income toward basic sustenance. Ever since the Nigerian climate crisis began, rainfall irregularity has swept over during a region near Ondo, Kaduna, and extend its range to Nasarawa. Farming systems within this vicinity have been hit by ever changing precipitation patterns, and erratic rainy seasons. Aside from these changes, long dry spells accompanied by flooding and shift in sowing and harvesting rhythms (Agoungbome et al., 2023; Awojobi & Tetteh, 2017). These obstacles pose a threat to farmers, as they are unable to accurately identify ideal sowing timings and place their trust into the reality of successful germination driven crop yields under perilously low total harvest summer scenarios.

These weather extremes do not only impact crop production. The livestock industry is threatened equally. Pastoralist societies, mainly Fulani herders, are told regarding the new difficulties which face them when once dependable grazing areas become wastelands due to desertion and drought (Akinyemi and Adedayo, 2016; Blench, 2013). As Fumagalli and Marithee associating grasslands concerning herds undergo a shrinkage, herders are forced to travel south bound in search of pasture and water where they frequently cross to agrarian domains where strife fueled by resources escalates (Abimiku et al., 2023, Adamu, 2017).

Climate Change and Herders–Farmer's Conflict

Conflicts arise from resource competition, intensified by climate-induced migration (Homer-Dixon, 1999). In Nigeria, Fulani herders' southward movement clashes with Yoruba farmers in Ondo State (Aroyehun, 2023). Factors include open grazing, weak governance, and ethnic tensions (Olutumise, 2023). The most urgent issue affecting Sub-Saharan Africa is climate triggered resource scarcity because

it fuels almost all forms of communal violence. In Nigeria and many parts of West Africa, competition over scarce resources such as water, cultivated land, and grazing land has escalated greatly between communities, especially between pastoral and agrarian communities (Adamu, 2017; Adebayo & Olaniyi, 2008).

The impact of climate change on societal conflict is worsened by the non-maintenance of symbiotic relationship between the ecosystem and climate on long cropping and animal husbandry. Changes in rainfall, floods, droughts, and other severe weather pattern changes directly bear consequences to agriculture and livestock rearing, raising the potential for conflicts (FAO, 2018). Climate change is viewed as one of the “global amplifiers” of conflicts, be it between scarce resources or wildlife. In several societies, mainly in Northern and Central Nigeria, the shrinking scope of grazing reserves coupled with the desertification of pasturelands has driven the herders southward which borders farmlands, leading to fierce encounters (Akinyemi & Adedayo, 2016; Adebayo, 2018). Turner (2004) argues that this migration induced by resources is not only physical, but historical and socio-political as well, since it alters patterns of land use and puts considerable pressure on customary forms of conflict resolution. Shukla et al. (2019)’s IPCC report explains how climate change is a contributor to land degradation and desertification. This is also mentioned in the report as agricultural people are pushed further towards the margins, which increases the chances of internal, inter-communal conflicts. Agoungbome et al. (2023) emphasize how the absence of rainfall and longer periods of drought delay optimal planting times, resulting in crop failures, destabilizing farmers further.

This violence-inducing issue is framed within the context of social-ecological resilience by Adger et al. (2005). Communities that become incapable of absorbing or adapting to environmental shocks due to lack of institutional support, poverty, or welfare infrastructure are prone to violent conflict. Affected areas include some parts of Nasarawa and Oyo States where more contained clashes between herder and farmer communities have developed into long-lasting crises (Adelakun, Adurogbangba and Akinbile, 2015; Abimiku, Hassan, & Bawa, 2023). The economic consequences of these conflicts are severe. As noted by Adelakun et al. (2015) and Adebayo (2018), the repeated clashes between herders and farmers leads to the disruption of agriculture, food availability, and displacement of people from rural areas. These impacts increase food deprivation, greater poverty, and weak rural economies. Addae et al. (2021) reported that the poorly managed natural resources, institutional weakness, and limited capacity for conflict resolution are some of the intricate undeveloped seams throughout several communal disputes across West Africa. Such disputes are also chronicled in FAO reports (2017, 2020) detailing the interplay and relationship between food security and degradation of the environment as well as social unrest.

Theoretical Framework

This study is grounded in Environmental Conflict Theory (Homer-Dixon, 1994), complemented by Eco-violence Theory and the Systems Theory of Food Security (Ericksen, 2008). Together, these frameworks explain how climate change-induced environmental stress translates into herder-farmer conflicts and undermines agricultural productivity, food security, and rural livelihoods in Ondo State, Nigeria. Environmental Conflict Theory posits that environmental degradation—manifesting as land scarcity, water shortages, and declining agricultural productivity—creates resource scarcity that intensifies competition among social groups. Homer-Dixon (1994) identifies supply-induced, demand-induced, and

structural scarcity as key pathways through which environmental stress escalates into violence, particularly in contexts with weak institutions. In Nigeria, prolonged droughts and desertification in the northern regions have reduced grazing resources, forcing Fulani pastoralists to migrate southward into farming communities such as those in Ondo State. This migration heightens competition over land and water, resulting in recurrent herder–farmer conflicts that disrupt agricultural production and rural livelihoods (Aroyehun, 2023; Okoli & Atelhe, 2014).

Eco-violence Theory extends this perspective by emphasizing how ecological disruptions—such as deforestation and ecosystem degradation—interact with socio-economic vulnerability to intensify conflict. In Ondo State, weakened environmental resilience and ineffective land-use governance, including poorly implemented grazing policies, have amplified tensions between herders and farmers (Peñuelas et al., 2023). This theory assumes that communities with limited adaptive capacity are more susceptible to conflict when ecological systems are destabilized. In Ondo State, deforestation, soil degradation, and climate variability have weakened the resilience of both farming and pastoral systems, increasing the likelihood of confrontation as groups struggle to secure survival resources (Peñuelas et al., 2023). The failure of grazing reserves and other environmental management policies further reflects the inability of institutional structures to absorb or manage ecological shocks effectively.

The Systems Theory of Food Security conceptualizes food systems as interconnected and highly vulnerable to external shocks (Ericksen, 2008). Violent conflict disrupts agricultural production, market access, and food distribution, leading to reduced food availability and affordability. In Ondo State, herder–farmer conflicts have contributed to declining crop yields, displacement of farmers, and heightened food insecurity (Olutumise, 2023; Singh et al., 2023).

The application of these theories to the present study underscores the interconnectedness of climate change, environmental degradation, conflict, and food insecurity. Environmental Conflict Theory explains the root causes of herder–farmer clashes as outcomes of climate-induced resource scarcity; Eco-violence Theory highlights the role of ecological instability and weak adaptive capacity in intensifying violence; while Systems Theory of Food Security elucidates how these conflicts destabilize agricultural productivity and food systems. Empirical evidence from Ondo State supports these theoretical assumptions, demonstrating that climate-induced pastoral migration, weak policy implementation, and fragile institutions have collectively intensified conflict and undermined rural livelihoods (Olutumise, 2023; Singh et al., 2023). By integrating these theoretical perspectives, this study provides a comprehensive framework for analyzing climate change–induced herder–farmer conflicts and their implications for agricultural productivity, food security, and rural livelihoods in Ondo State. The framework also highlights the necessity of integrated policy responses that combine climate adaptation, sustainable resource management, effective land-use governance, and conflict-resolution mechanisms to address the root causes of these conflicts and promote long-term food system resilience.

Methodology

This study adopted a qualitative descriptive design to examine lived experiences of climate change–induced herder–farmer conflicts in Ondo State, Nigeria. Primary data were collected through in-depth interviews with 20 purposively selected participants comprising farmers ($n = 7$), herders ($n = 7$), and

government officials (n = 6). Interviews explored perceptions of climate variability, conflict dynamics, agricultural productivity, and food security. Secondary data were drawn from peer-reviewed journals, policy reports, and relevant online sources to enhance contextual depth. Data were analysed thematically following Braun and Clarke’s (2023) approach, involving data familiarisation, coding, theme development, and interpretation. Research credibility was strengthened through triangulation, peer review, member checking, and audit trails (Creswell & Poth, 2018). Ethical standards were upheld through informed consent, confidentiality, and voluntary participation. Ondo State, characterised by a rainforest–savannah transition and an agriculture-based economy, provided an appropriate context for examining climate–conflict interactions (Akinyemi & Adedayo, 2016).

Results

Table 1: Demographic Analysis of Research questions, major themes and key respondents

Research Questions	Major Themes	Key Respondents
In what ways has climate change contributed to herder-farmer clashes in Ondo State?	Grazing pressure, Encroachment, Weak regulation	Farmers 2, 3, 4, Gov. Official 2, 3, and 6.
How has climate change influenced agricultural production and food security?	Rainfall variability, Pests, Food scarcity	Farmers 1–6, Gov. Officials 3,4 and 5
What are the livelihood implications of these conflicts?	Livelihood loss, Displacement, Insecurity	Farmers 1–6, Gov. Officials 1,2, 4 and, Herders 1, 2, 4 and 6

Source: *Researcher Survey, 2025*

The results from the table above identified some of the complex relationships among climate Change-induced herder-farmer conflicts, food security and agricultural productivity, rural livelihood and policy challenges that characterised the herder-farmer conflicts of Fulani Herdsmen in Ondo state. Each of the key themes is summarized below, reflecting the direct observations and insights derived from the respondent interviews reviewed and data analysis;

Research Question One: In What Ways Has Climate Change Contributed to Herder–Farmer Clashes in Ondo State?

Respondents’ responses on Climate change -induced herder-farmer conflicts in Nigeria

Respondents consistently described prolonged droughts, irregular rainfall, and declining soil and pasture quality as factors that have increased pressure on available natural resources. These climatic stresses have reduced the capacity of the environment to support both farming and pastoral activities, creating conditions conducive to conflict. Farmers reported that insufficient rainfall and prolonged dry spells have diminished pasture availability in traditional grazing areas, forcing herders to move into cultivated farmlands in search of water and fodder. This encroachment was widely perceived as a major trigger of conflict, leading to crop destruction, heightened tensions, and, in some cases, violent confrontations.

Competition over scarce water sources further exacerbated these tensions, as both farmers and herders depend on the same limited resources for their livelihoods.

While some respondents attributed the clashes primarily to herders' actions, the broader interpretation of the data suggests that these actions are largely driven by climate-induced environmental stress rather than deliberate aggression. The changing climatic conditions have narrowed livelihood options for both groups, compelling them to compete over shrinking land and water resources. This competition has resulted in the displacement of rural households, reduced agricultural productivity, and increased food insecurity.

Research question two: How has climate change influenced agricultural production and food security?

Respondents Responses on climate change influenced agricultural production and food security

The interviews with six farmers across Ondo State revealed that climate change, combined with herder–farmer conflict, has significantly reduced agricultural productivity and food availability. Farmers reported declining crop yields, unstable farming seasons, and rising food prices, making food less accessible and affordable for local communities. Many households that previously depended on local farm production now rely on food transported from other regions, increasing costs and deepening food insecurity. In addition, reduced pasture and water availability caused by drought and heat has intensified pressure on farmlands, leading to frequent encroachment by herders and heightened conflict. These conditions have destroyed already weakened crops and increased insecurity in rural areas, discouraging farmers from continuing agricultural activities. As a result, some farmers have withdrawn from farming altogether, further weakening food supply systems. Overall, farmers' experiences show that climate change has disrupted agricultural livelihoods, undermined food security, and destabilized rural economies in Ondo State.

Research question Three: What are the livelihood implications of these conflicts?

Respondents Responses on the livelihood implications of these conflicts

The field interviews indicated that herder–farmer conflict in Ondo State has severely disrupted rural livelihoods, particularly among farming households. Farmers reported economic losses, social instability, and psychological distress arising from farmland destruction, displacement, and repeated interruptions to agricultural activities. These disruptions have undermined household income, reduced food production, and weakened the overall resilience of rural communities that depend on stable land access and peaceful conditions for survival.

Beyond immediate crop losses, the conflict has deepened long-term economic hardship. Many farmers reported difficulty repaying agricultural loans, increased indebtedness, and reluctance to reinvest in farming due to heightened risk and insecurity. Female farmers were especially vulnerable, as repeated crop destruction reduced their market income and threatened household subsistence, particularly for widows and single mothers. Overall, the conflict has eroded productive capacity, increased poverty, and reinforced livelihood insecurity across affected farming communities.

Discussion of Findings

The findings indicate that climate change has profoundly transformed agricultural and pastoral systems in Ondo State by intensifying competition over land and water and thereby driving herder–farmer conflicts. Drought, irregular rainfall, and declining water availability have increased pressure on natural resources, leading to farmland destruction, rural displacement, reduced agricultural productivity, and heightened food insecurity, as farmers linked insufficient rainfall to herder encroachment and escalating water competition. These dynamics reflect broader structural patterns in which environmental degradation and desertification in northern Nigeria trigger southward pastoral migration into states such as Ondo, Ekiti, and Oyo, where conflicts with sedentary farmers are more frequent (Okoli & Atelhe, 2014). The resulting encroachment on cultivated land fuels crop destruction, retaliatory violence, and prolonged land disputes, reinforcing evidence that cattle migration–induced deforestation contributes to environmental stress, biodiversity loss, and social tension in southern Nigeria (Alliance, 2023). Consistent with this, climate-induced migration has been identified as a strong predictor of farmer–herder conflict, with many herders relocating due to deteriorating environmental conditions in their areas of origin (Ojo & Alabi, 2022), underscoring how climate variability amplifies structural vulnerabilities that sustain recurrent conflict in Ondo State.

Interviews with farmers across Ondo State indicate that climate change and herder–farmer conflict are jointly undermining agricultural productivity and food security by disrupting farming practices, reducing yields, and destabilizing local food systems. Farmers reported declining food availability and affordability, rising dependence on food imported from other regions, and persistently high prices linked to low yields and unreliable weather, reinforcing evidence that climate change drives food inflation through disrupted supply chains and reduced output (Adamu & Ben, 2019). Climatic stress has also reduced pasture and water availability, intensifying herder encroachment on farmlands and escalating conflict, a pattern associated with drought- and desertification-induced pastoral migration from northern Nigeria (Ofem & Inyang, 2014). Insecurity and repeated violent clashes have further discouraged farming, leading to withdrawal from agriculture and abandonment of farmlands, consistent with findings that climate-induced conflict accelerates displacement, erodes rural resilience, and reduces the number of active farmers in Nigeria (Okoli & Atelhe, 2014; Ogunbode & Ifatimehin, 2020).

The findings show that herder–farmer conflict in Ondo State has caused severe and multidimensional disruptions to rural livelihoods, particularly among farming communities that depend on secure land access and peaceful conditions for agricultural productivity. The conflict has resulted in farmland destruction, displacement, and prolonged interruptions to farming activities, with long-term consequences for food production and rural economic stability, consistent with evidence from Okoli and Atelhe (2014). Beyond immediate crop losses, farmers reported deepening financial hardship, including inability to repay agricultural loans, increased indebtedness, and reduced willingness to invest in farming due to heightened risk and insecurity, supporting earlier observations that conflict undermines rural investment and forces households to liquidate productive assets (Tonah, 2012; Fasona & Omojola, 2005). The impacts are particularly pronounced for female farmers, especially vegetable producers, whose crops are frequently destroyed before harvest, reducing market income and exacerbating vulnerability among widows and single mothers, reinforcing findings that rural conflicts disproportionately limit women’s access to productive resources and intensify gendered poverty in affected communities (Ajayi, 2018).

Conclusion

This study concludes that climate change is a critical underlying driver of herder–farmer conflict in Ondo State, operating through prolonged droughts, irregular rainfall, and environmental degradation that intensify competition over land and water resources. These climate-induced pressures have accelerated pastoral migration into farming communities, resulting in farmland encroachment, crop destruction, displacement, and recurrent violent clashes. Consequently, agricultural productivity has declined, food supply chains have been disrupted, and food insecurity has worsened, undermining both local livelihoods and broader food system stability in the state. Although government and non-governmental efforts are in place—including anti-open grazing laws, security interventions (e.g., Amotekun), and climate adaptation campaigns—enforcement and coordination remain weak. The economic impacts go beyond the loss of produce.

The findings further demonstrate that the conflict has far-reaching livelihood implications, extending beyond agricultural losses to include economic hardship, social instability, and heightened vulnerability, particularly among smallholder and female farmers. Insecurity has discouraged continued engagement in farming, reduced investment in agriculture, and deepened rural poverty

Based on the findings of the study, the following recommendations were proposed;

1. Government and development partners should support the adoption of climate-smart agriculture, including drought-tolerant crop varieties, irrigation schemes, improved pasture management, and water-harvesting technologies. These measures will reduce dependence on rainfall, enhance productivity, and lessen competition over scarce land and water resources.
2. Clearly demarcated and well-regulated grazing zones or ranching systems should be developed, supported by adequate infrastructure such as water points and veterinary services. Proper implementation and monitoring will reduce indiscriminate movement of herders into farmlands and minimize crop destruction.
3. Existing policies, including anti-open grazing laws and land-use regulations, should be consistently enforced through transparent and inclusive institutional frameworks. Strengthening local land administration and clarifying land tenure arrangements can help prevent disputes and improve accountability.
4. Local conflict-resolution mechanisms involving traditional rulers, farmer and herder associations, and community leaders should be strengthened. Dialogue platforms, early-warning systems, and mediation structures can help address grievances before they escalate into violence.
5. Security agencies should increase their presence in vulnerable rural areas to protect farmers and herders, ensure safe access to farmlands and markets, and deter violence. This will encourage continued agricultural engagement and reduce fear-driven farm abandonment.
6. Affected farmers and households should be assisted through access to credit, loan restructuring, agricultural insurance, and livelihood diversification programs. Special attention should be given to vulnerable groups, particularly women farmers, whose livelihoods are disproportionately affected by conflict.

7. Long-term investments in reforestation, soil conservation, and watershed management are essential to reduce land degradation and restore ecosystems. Such interventions can expand available resources and reduce the structural drivers of conflict.
8. Effective collaboration between government agencies, non-governmental organizations, research institutions, and local communities is necessary to align climate adaptation, food security, and peacebuilding efforts. Integrated and well-coordinated responses will enhance policy effectiveness and sustainability.

References

- Abimiku, M., Hassan, A., & Bawa, H. (2023). Climate-induced pastoral migration and communal conflicts in West Africa. *Journal of Environmental Security*, 12(2), 45–60.
- Adamu, S., & Ben, T. (2019). Climate variability and food security in northern Nigeria. *Journal of Sustainable Agriculture*, 15(3), 215–230.
- Adamu, S. (2017). Pastoralism, land use, and conflict in sub-Saharan Africa. *African Journal of Social Studies*, 9(1), 34–48.
- Addae, S., Osei, K., & Mensah, P. (2021). Institutional weaknesses and natural resource conflicts in West Africa. *Journal of Peacebuilding and Development*, 16(4), 55–71.
- Adelakun, O., Adurogbangba, F., & Akinbile, L. (2015). Socioeconomic impacts of herder–farmer conflicts in Nigeria. *Nigerian Journal of Rural Development*, 7(2), 101–118.
- Adger, W., Hughes, T., Folke, C., Carpenter, S., & Rockström, J. (2005). Social-ecological resilience to coastal disasters. *Science*, 309(5737), 1036–1039.
- Adebayo, A. (2018). Climate change, resource scarcity, and communal conflicts in West Africa. *International Journal of Conflict Management*, 29(1), 12–27.
- Ajayi, O. (2018). Gendered effects of rural conflicts on women farmers in Nigeria. *African Journal of Gender Studies*, 5(1), 78–94.
- Akinyemi, A., & Adedayo, O. (2016). Pastoral migration, grazing practices, and conflict in Nigeria. *Journal of Agricultural and Environmental Ethics*, 29(3), 445–462.
- Alliance, F. (2023). Cattle migration, deforestation, and environmental stress in southern Nigeria. *African Environmental Review*, 10(2), 101–116.
- Anthonia, E., Chukwuma, O., & Ibrahim, A. (2021). Rural vulnerability and climate change in sub-Saharan Africa. *Sustainable Development Journal*, 14(3), 201–218.
- Aroyehun, T. (2023). Climate change and herder–farmer conflicts in Ondo State, Nigeria. *Journal of Environmental Studies*, 18(4), 89–105.
- Awojobi, O., & Tetteh, J. (2017). Agricultural productivity and climate variability in West Africa. *Journal of Climate Impact Studies*, 9(2), 123–139.
- Blench, R. (2013). The transformation of pastoralism in Nigeria. *Pastoralism: Research, Policy and Practice*, 3(1), 12–28.
- Braun, V., & Clarke, V. (2023). *Thematic analysis: A practical guide*. Sage Publications.

- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Sage Publications.
- Ericksen, P. (2008). Conceptualizing food systems for global environmental change research. *Global Environmental Change, 18*(1), 234–245.
- FAO. (2017). *The impact of conflict on food security and nutrition*. Food and Agriculture Organization of the United Nations.
- FAO. (2018). *Climate change and agriculture in Africa: Impacts and adaptation strategies*. Food and Agriculture Organization of the United Nations.
- Fasona, M., & Omojola, B. (2005). Climate change, human security, and migration in Nigeria. *Journal of Environmental Studies, 7*(1), 45–59.
- Homer-Dixon, T. (1999). *Environment, scarcity, and violence*. Princeton University Press.
- IPCC. (2007). *Climate change 2007: Impacts, adaptation, and vulnerability*. Cambridge University Press.
- Lin, D., Liu, J., & Wang, X. (2023). Climate variability and agricultural productivity in sub-Saharan Africa. *Journal of Agricultural Economics, 74*(1), 34–50.
- Maxwell, D., & Fitzpatrick, M. (2012). The complex relationship between food security and conflict. *Food Policy, 37*(6), 35–44.
- Matose, F., & Sonnenfeld, D. (2024). Human mobility and climate change in Africa. *Journal of Climate and Society, 12*(1), 67–83.
- Mekonnen, M., & Hoekstra, A. (2016). Water scarcity and agriculture in Africa. *Water Resources Management, 30*(4), 1201–1214.
- MPH. (2010). *Climate change and rural livelihoods in Africa*. Ministry of Public Health Press.
- Nkonya, E., Gerber, N., & von Braun, J. (2016). Agricultural productivity and food security in Africa. *Food Security, 8*(3), 491–507.
- Nwaiwu, F. (2012). Climate change adaptation strategies for Nigerian farmers. *Journal of Environmental Management, 101*(2), 123–132.
- Ogunbode, C., & Ifatimehin, O. (2020). Herder–farmer conflicts and food insecurity in Nigeria. *African Journal of Agricultural Economics, 15*(2), 201–218.
- Ojo, O., & Alabi, T. (2022). Climate-induced migration and farmer–herder conflicts in Nigeria. *Journal of Conflict Resolution, 66*(5), 1023–1041.

- Ofem, B., & Inyang, S. (2014). Pastoralist movements and agricultural conflicts in Nigeria. *African Journal of Peace and Conflict Studies*, 7(1), 67–81.
- Okoli, E., & Atelhe, G. (2014). Herding, land use, and conflict in Nigeria. *Journal of Rural Studies*, 36(2), 48–59.
- Olutumise, T. (2023). Governance and conflict resolution in Ondo State pastoral zones. *Nigerian Journal of Agricultural Policy*, 14(3), 77–91.
- Peñuelas, J., Shukla, P., & Turner, B. (2023). Climate change, agriculture, and social conflict. *Global Change Biology*, 29(2), 501–518.
- Sharmake, S., Ali, M., & Hussein, R. (2022). Climate variability and food systems in Africa. *Journal of Sustainable Development*, 15(4), 87–102.
- Singh, P., Kumar, S., & Adeyemi, T. (2023). Violent conflict, migration, and food security in Nigeria. *African Security Review*, 32(1), 45–63.
- Tonah, S. (2012). Land disputes and rural livelihoods in West Africa. *African Studies Quarterly*, 13(3), 33–51.
- Turner, B. L. (2004). Political ecology and climate change-induced migration. *Global Environmental Change*, 14(1), 21–30.
- Udoh, J., Okon, E., & Etim, S. (2025). Climate-induced herder–farmer conflict and adaptation in Nigeria. *Environmental Development*, 28(1), 55–73.
- Utsev, J., Okechukwu, P., & Nwafor, C. (2023). Pastoral migration and communal conflict in Nigeria. *African Journal of Environmental Studies*, 19(2), 90–108.
- Von, B., Nkonya, E., & Gerber, N. (2018). Food insecurity and conflict in Africa. *Food Security*, 10(4), 781–795.
- Wheeler, T., & von Braun, J. (2013). Climate change impacts on global food security. *Science*, 341(6145), 508–513.

Author's Bio:

Daniel Esem Gberevbie is a distinguished scholar with a research focus on organizational leadership, human resource management and governance within public sector. A prolific scholar, he has authored the textbook public administration: a conceptual perspective and published extensively on civil service performance and democratic stability in Africa.

Oluwayemisi Esther Aforijiku is a researcher specializing in climate change, sustainability, and development, with a focus on Africa's environmental and socio-economic challenges. Her work explores the intersection of policy, human behavior, and real-world outcomes. She has published and contributed pieces examining climate adaptation, resilience, and practical pathways for sustainable development.