MKAR JOURNAL OF ECONOMICS AND DEVELOPMENT VOL. 1 NO. 1 2022.

ISSN 3043-5110 journals.umm.edu.ng

CLIMATE CHANGE, FORCED MIGRATION AND BANDITRY IN CONTEMPORARY AFRICA: PATHWAYS, GOVERNANCE GAPS AND POLICY RESPONSES

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Abstract

Climate change is intensifying environmental pressures on livelihoods across parts of Africa, where rain-fed agriculture, pastoralism, fisheries and other climate-sensitive activities support large populations. Drought, irregular rainfall, floods, heat stress and land degradation can reduce household income, undermine food security and contribute to mobility. In settings where public institutions are weak, land and water access is contested, livelihoods are insecure and armed actors operate with limited accountability, these pressures may interact with displacement and violent insecurity. This article examines the pathways connecting climate change, forced migration and banditry in contemporary Africa, with particular attention to the Sahel and Nigeria. It adopts a conceptual, narrative-review approach, synthesising pre-2022 climate assessments, migration research and scholarship on climate-conflict relationships. The analysis distinguishes environmental stress as a risk multiplier from direct explanations of criminal violence: climate change does not automatically produce migration, banditry or armed conflict. Outcomes depend on exposure, livelihood sensitivity, adaptive capacity, mobility options, political marginalisation, land governance, security provision and the political economy of violence. The article argues that treating mobile pastoralists or displaced people as inherently criminal is analytically inaccurate and can aggravate exclusion. Effective responses should combine climate adaptation, livelihood protection, negotiated land and water governance, accountable security, support for displaced communities, youth employment and cross-border cooperation. Long-term mitigation is also necessary, but emissions reduction alone cannot address immediate insecurity. The article concludes that climate-sensitive peacebuilding requires integrated policies that address both environmental vulnerability and the institutions that shape access to resources, protection and economic opportunity.

Keywords: climate change; forced migration; environmental mobility; banditry; pastoralism; resource governance; Africa; Nigeria

JEL classifications: Q54; J61; D74; O55

1. Introduction

Climate change has become a major development challenge because it affects the natural systems on which households, firms and governments depend. Rising temperatures, shifts in precipitation, sea-level rise and changes in the intensity or frequency of some extreme events threaten food production, water security, infrastructure and public health. The Intergovernmental Panel on Climate Change (IPCC, 2021) concluded that human influence has unequivocally warmed the atmosphere, ocean and land, and that human-induced climate change is already affecting weather and climate extremes in every region. These effects are not experienced uniformly: exposure and the capacity to respond vary across countries, sectors, communities and households.

In many African economies, a substantial share of rural livelihoods remains sensitive to rainfall and temperature. Farmers depend on seasonal precipitation and soil moisture; pastoralists rely on access to pasture and water across variable ecological zones; and fishing and coastal communities face pressures from changes in aquatic ecosystems, storms and flooding. When environmental shocks occur alongside poverty, limited infrastructure, insecure land tenure and weak social protection, households may lose productive assets or be unable to recover quickly. Migration can then become a coping strategy, an adaptation choice, or a consequence of displacement.

The relationship between environmental stress and insecurity, however, is neither automatic nor uniform. Research on climate and conflict identifies plausible pathways linking climate variability to violence but cautions against treating climate as a sufficient or universal cause. Koubi (2019) finds that climate-related effects on conflict depend heavily on socioeconomic and political conditions, while Benjaminsen et al. (2012), in their study of land-use conflicts in Mali, show that institutional failures, agricultural encroachment, corruption and political opportunity may explain violence better than climate scarcity alone. The central question is therefore not whether climate change independently causes banditry, but how climate-related livelihood pressures interact with governance, inequality, conflict histories and criminal networks.

This article revisits the relationship between climate change, forced migration and banditry in contemporary Africa, focusing on the Sahel and Nigeria. It contributes a more cautious and integrated framework than accounts that attribute criminality directly to environmental displacement. It first clarifies the core concepts and analytical approach, then reviews climate

pressures and mobility, examines the pathways through which insecurity and banditry can emerge, and proposes policy responses.

2. Conceptual Clarifications

2.1 Climate change and climate-related hazards

Climate change refers to long-term shifts in the state of the climate, including changes in averages and variability that persist over extended periods. It should be distinguished from day-to-day weather and from individual disasters. A flood, drought or heatwave is an event or hazard; climate change can alter the probability, intensity or duration of some hazards, while exposure and vulnerability determine much of the resulting loss. The IPCC (2021) reports strong evidence of human-caused warming and changes in several climate extremes, but the attribution of any particular local event requires appropriate scientific evidence.

2.2 Forced migration and environmental mobility

Human mobility includes temporary or seasonal movement, labour migration, pastoral mobility, planned relocation, evacuation and displacement. These forms should not be collapsed into one category. Forced migration generally describes movement under coercive conditions or serious threats, while environmental mobility is a broader analytical term covering movement associated with environmental change and disasters. The International Organization for Migration (IOM, 2019) notes that environmental change can influence mobility through both sudden-onset events, such as floods and storms, and slow-onset processes, such as drought, changing rainfall and sea-level rise. Environmental conditions rarely act alone; economic opportunity, family networks, policy, conflict and the ability to move also shape decisions.

Migration may reduce vulnerability when people can move safely and voluntarily, diversify income and send remittances. Conversely, households without resources may become trapped in hazardous places, while those who move may encounter insecure housing, labour exploitation or competition over services and resources. It is therefore inaccurate to assume that all climate-related mobility is forced, that all displaced people cross international borders, or that migration necessarily leads to insecurity.

2.3 Banditry and violent insecurity

Banditry is used here to describe organised or recurrent predatory violence, including armed robbery, kidnapping for ransom, cattle rustling and attacks on communities or transport routes. The term covers different actors and motives and should not be treated as a synonym for pastoralism, migration or communal conflict. In any particular setting, the causes and organisation of banditry must be established through evidence about armed groups, illicit markets, weapons, local power relations, state response and incentives for violence. Climate stress may affect the setting in which violence occurs, but it does not by itself identify perpetrators or explain why individuals and groups engage in organised crime.

3. Method and Scope

The article uses a conceptual narrative-review approach. It synthesises selected peer-reviewed studies and institutional reports published no later than 2021 on climate science, environmental mobility, climate-conflict relationships and African livelihood systems. The sources include the IPCC's 2021 physical-science assessment, the IOM's review of environmental change and human mobility, the World Bank's 2018 and 2021 Groundswell reports, and research on climate-conflict relationships and land-use disputes. The paper does not report original fieldwork, estimate a causal model or present a systematic review protocol. Its claims should consequently be read as a theory-informed synthesis rather than as new empirical proof that climate change causes banditry.

The geographical focus is Africa, with discussion of the Sahel and Nigeria where climate-sensitive livelihoods, internal displacement, farmer–herder relations and armed insecurity overlap. Because countries and subregions differ substantially, the analysis avoids generalising a single causal pattern to the whole continent.

4. Climate Change and Livelihood Vulnerability in Africa

The physical effects of climate change interact with social and economic conditions. The IPCC (2021) identifies human influence as the principal driver of observed global warming and documents changes in heat extremes and heavy precipitation, among other climate-system changes. In Africa, vulnerability is shaped not only by exposure to climate hazards but also by dependence on climate-sensitive production, limited irrigation, inadequate storage and transport, constrained access to credit, and uneven access to information and public services.

Agriculture is particularly exposed where production relies on rainfall and farmers have limited capacity to adjust planting dates, crop varieties, irrigation or soil-management practices. Drought can reduce yields and livestock condition; intense rainfall and flooding can destroy crops, homes, roads and stored food; and heat stress can reduce labour productivity and animal health. Such shocks may lower household income, raise food prices and erode assets. These effects can contribute to food insecurity, but the magnitude depends on local ecology, adaptation, markets, conflict and public policy.

Pastoral systems also depend on mobility. Seasonal movement between grazing areas and water points is a long-standing livelihood strategy, not a novel phenomenon created by climate change. Climate variability can change the timing and location of pasture and water, increasing the value of access routes and negotiated arrangements. However, the consequences depend on land-use rules, settlement patterns, the availability of corridors, livestock markets and relationships between pastoralists, farmers and local authorities. Turner (2004) cautions that so-called resource conflicts are often socially and politically produced, rather than being simple consequences of absolute scarcity.

The World Bank's Groundswell assessment projected that, without early and concerted climate and development action, climate change could contribute to substantial internal migration by 2050. Its 2021 report estimated that up to 86 million internal climate migrants could emerge in Sub-Saharan Africa under its scenarios (Clement et al., 2021). This is a scenario-based projection, not a count of people already displaced, nor a prediction that all such movement will be involuntary. It highlights the importance of reducing vulnerability and planning for mobility rather than presenting migration itself as a security threat.

5. Climate Change, Migration and Displacement

Climate-related hazards can affect mobility through several connected pathways. First, sudden-onset disasters may destroy housing, infrastructure, crops and livestock, producing immediate displacement. Second, slow-onset environmental changes can gradually weaken livelihoods and make continued residence less viable. Third, environmental stress may interact with armed conflict: insecurity can prevent planting, restrict access to markets and water, disrupt humanitarian assistance, and force people to flee. Finally, climate impacts can influence where people move by

changing the relative attractiveness of rural and urban areas or of particular grazing and farming zones.

The IOM (2019) emphasises that migration is both a response to environmental stress and, in some circumstances, a means of adaptation. This dual character matters for policy. When movement is safe and voluntary, it can diversify household income and reduce exposure. When people are displaced without adequate protection, or when movement is blocked by conflict or administrative barriers, vulnerability can deepen. People who remain in high-risk areas may do so because they lack money, information, networks or legal permission to move; immobility can be as important as migration.

Climate-related migration should therefore not be framed as a simple conveyor belt from drought to displacement and then to crime. The outcome depends on the assets households possess, the institutions governing land and work, the availability of social protection, and the conditions in receiving communities. Policies that provide early warning, insurance, livelihood diversification, secure land access and support for host communities can reduce the risk that mobility results in acute deprivation or local tension.

6. From Environmental Stress to Conflict and Banditry: Possible Pathways

6.1 Livelihood loss, economic shocks and recruitment vulnerability

Where households lose crops, livestock or employment, some members may face prolonged income insecurity. This can increase vulnerability to exploitation by armed actors, particularly where lawful work is scarce, public services are weak and criminal networks offer money, protection or status. Yet economic deprivation does not make people inherently violent. Recruitment into armed groups is mediated by individual choices, coercion, social networks, grievances, ideology, local political arrangements and the expected costs and benefits of participation. A defensible account should therefore treat livelihood loss as a possible enabling condition, not as a sufficient explanation for banditry.

6.2 Competition, access and resource governance

Climate stress may increase pressure on land, water, grazing areas and migration corridors, particularly when institutions do not manage competing claims fairly. Disputes can escalate when boundaries are unclear, customary and statutory rights conflict, crop damage is not compensated,

or security and judicial systems are perceived as biased. Benjaminsen et al. (2012) found that land-use violence in Mali could not be explained adequately by climate variability and resource scarcity alone; agricultural encroachment, political vacuum, corruption and rent-seeking were central to their analysis. The implication is that the governance of access can be more consequential than scarcity considered in isolation.

6.3 Political marginalisation and weak state presence

Climate shocks can be especially destabilising where communities already experience marginalisation, limited infrastructure, poor representation or distrust of state institutions. If public authorities cannot provide security, resolve disputes or support recovery after disasters, local conflicts may persist and armed groups may exploit the resulting vacuum. Conversely, accountable institutions can mediate resource disputes, protect civilians and help communities adapt. Climate risk is thus conditioned by the quality and legitimacy of governance.

6.4 Criminal markets, arms and the political economy of violence

Banditry is sustained by organisational and material conditions that cannot be reduced to environmental change. Kidnapping for ransom, cattle rustling, illicit trade, access to firearms, extortion and the ability to evade prosecution can make violence profitable. Conflict entrepreneurs may exploit communal grievances or resource disputes to expand control over territory and revenue. Even when climate-related pressures contribute to livelihood stress, the emergence and persistence of organised banditry require attention to these markets, networks and incentives.

6.5 What the climate-conflict evidence can and cannot establish

The research literature does not support a single, universal conclusion. Hsiang, Burke, and Miguel (2013) synthesised quantitative studies and reported evidence of associations between climatic changes and several forms of human conflict. In contrast, Koubi (2019) concluded that the literature had not established a robust, general effect of climate on conflict onset and stressed the importance of socioeconomic and political conditions. Benjaminsen et al. (2012) similarly demonstrate why local institutional explanations matter. These findings are not necessarily irreconcilable: climate can influence risks in some contexts and through some mechanisms without being either necessary or sufficient for violence everywhere.

The appropriate conclusion is that climate change can act as a risk multiplier where it compounds existing vulnerabilities. It is not sound to claim, without specific evidence, that climate change has caused a particular banditry incident, that forced migrants are likely to become criminals, or that pastoralists as a group are responsible for insecurity. Such claims risk stigmatising vulnerable populations and obscuring the responsibility of armed perpetrators and institutions.

7. Nigeria and the Wider Sahel: Implications for Analysis

Nigeria illustrates the need to examine climate, mobility and insecurity together without conflating them. Northern areas include semi-arid and seasonally dry environments in which pastoral and farming livelihoods depend on variable rainfall and access to land and water. In other parts of the country, floods, coastal erosion and other environmental pressures affect homes, infrastructure and productive activity. The national picture is therefore diverse, and climate-related risks differ by region and livelihood.

In parts of the Sahel and Nigeria, farmer–herder tensions have been discussed in relation to changing rainfall, pasture availability and southward or seasonal movement. These explanations may capture one element of the context, but they are incomplete when they ignore land tenure, the loss or obstruction of stock routes, demographic and land-use change, weapons availability, weak dispute resolution and failures of law enforcement. The evidence from Mali analysed by Benjaminsen et al. (2012) is a warning against treating environmental scarcity as a universal explanation for farmer–herder violence.

Banditry in Nigeria should likewise be analysed as a specific form of organised violence with its own histories, actors, economic incentives and local political relationships. Climate stress may affect household resilience and the context in which armed groups operate, but a direct causal claim requires evidence that links particular climatic exposures to livelihood effects and then to identifiable changes in violent behaviour, while accounting for confounding factors. The present conceptual review does not establish that causal chain empirically.

Displacement data also require careful interpretation. UNHCR's Global Trends reporting documents large-scale forced displacement driven principally by conflict, violence, persecution and human-rights violations; disaster displacement is measured through different systems and definitions. The categories should not be merged casually. Reliable analysis needs to distinguish

people displaced by conflict, people evacuated or displaced by disasters, seasonal migrants, and people who move through a combination of environmental and security pressures.

8. Policy Responses

8.1 Climate adaptation and resilient livelihoods

Governments should expand climate information services, local early-warning systems, drought- and flood-resilient infrastructure, water harvesting, irrigation where sustainable, soil conservation, climate-resilient crop and livestock practices, storage facilities and accessible agricultural extension. Adaptation packages should be tailored to local livelihoods and designed with farmers, pastoralists, women, youth and other affected groups. Social protection, emergency cash transfers, insurance and recovery grants can prevent a temporary shock from becoming irreversible asset loss.

8.2 Land, water and mobility governance

States and local authorities should clarify and enforce fair rules for land and water access, protect lawful pastoral corridors where relevant, strengthen community-based dispute-resolution mechanisms, and establish transparent procedures for compensation following crop damage or livestock loss. Negotiated arrangements should include farmers, pastoralists, traditional authorities, local governments, women and youth. Resource governance should recognise seasonal mobility as a legitimate livelihood practice while holding individuals accountable for violence and unlawful conduct.

8.3 Civilian protection and accountable security

Security responses should focus on protecting civilians, disrupting criminal networks, improving intelligence and lawful investigation, controlling illicit arms flows, and ensuring that allegations of abuse are investigated. Collective punishment and ethnic or occupational profiling can undermine trust and increase grievances. Displaced people and mobile communities should have access to documentation, justice, education, health services and humanitarian assistance. Security operations should be coordinated with humanitarian and development agencies without making aid conditional on political or ethnic identity.

8.4 Employment, education and economic inclusion

Employment programmes, vocational training, rural infrastructure, market access, affordable education and support for small enterprises can reduce the opportunity costs of participation in criminal economies. These policies should not be presented as a substitute for policing or justice; rather, they complement efforts to weaken recruitment opportunities and strengthen the resilience of communities affected by violence. Targeting should be based on transparent vulnerability criteria and should include host communities as well as displaced households.

8.5 Planned mobility and protection for displaced populations

Authorities should plan for internal mobility by improving settlement planning, access to basic services, housing and livelihoods in receiving areas. Where return is unsafe or impossible, durable solutions may include local integration or relocation conducted with meaningful consultation and safeguards. Mobility policies should recognise that not everyone can or wishes to move. Support for people who remain in exposed areas is equally important.

8.6 Climate mitigation and regional cooperation

Mitigation requires reductions in greenhouse-gas emissions through cleaner energy, energy efficiency, protection and restoration of ecosystems, and changes in land-use practices. Because African countries differ in emissions, resources and development needs, climate action should be consistent with equity and international climate commitments. At the same time, cross-border pastoral mobility, shared river basins, displacement and armed networks require cooperation among neighbouring states. Regional early warning, data sharing, joint resource-management arrangements and coordinated protection mechanisms can reduce the likelihood that environmental stress spills across borders.

9. Discussion

The reviewed literature supports an integrated explanation in which climate change affects the distribution and reliability of livelihood resources, but social institutions determine how those pressures are experienced and managed. Environmental stress can increase the costs of farming or herding, influence migration decisions and exacerbate existing grievances. Whether these processes result in cooperation, adaptation, displacement or violence depends on access to assets, public services, political inclusion, resource rules and the organisation of armed actors.

This perspective challenges two opposite simplifications. The first is environmental determinism: the claim that scarcity inevitably produces conflict or that displaced people become bandits. The second is to disregard climate change entirely because conflict has political and economic causes. A more rigorous approach recognises that climate-related hazards can matter without being the only or principal cause in every case. This approach also improves policy design by linking adaptation to justice, livelihoods and civilian protection.

For future empirical research, the pathways proposed here could be tested using subnational data on rainfall and temperature anomalies, crop and livestock outcomes, displacement events, violent incidents, market access, land-use change and state capacity. Designs should distinguish sudden-onset disasters from slow-onset climatic trends, account for conflict-driven displacement and reverse causality, and avoid inferring individual criminal behaviour from aggregate climate or migration statistics. Qualitative fieldwork would also be valuable for identifying local mechanisms, especially how land access, informal institutions and armed-group strategies shape outcomes.

10. Conclusion

Climate change is a serious threat to livelihoods and human security across vulnerable parts of Africa. Through drought, erratic rainfall, heat and flooding, it can undermine agricultural and pastoral production, damage assets and contribute to mobility or displacement. However, climate change should not be treated as a direct or sufficient cause of banditry. Violent insecurity emerges through the interaction of environmental pressures with governance failures, political marginalisation, contested land access, weak justice systems, arms availability and criminal economic incentives.

A credible response must therefore move beyond a narrow security framing. It should strengthen climate adaptation and social protection, support safe and dignified mobility, improve land and water governance, protect civilians, address criminal markets and provide inclusive economic opportunities. Long-term emissions reduction is essential, but it must be accompanied by immediate measures that reduce vulnerability and strengthen institutions. Treating climate change as a risk multiplier—rather than as a deterministic explanation—offers a more accurate basis for scholarship and public policy.

Policy Recommendations

1. Integrate climate-risk assessments into agricultural, pastoral, land-use, displacement and local-security planning.
2. Invest in locally appropriate adaptation, including early warning, water management, resilient infrastructure, extension services and livelihood diversification.
3. Strengthen transparent land and water governance, protect legitimate seasonal mobility, and improve accessible mechanisms for resolving farmer–herder and other resource disputes.
4. Prioritise civilian protection, accountable policing, lawful prosecution and disruption of illicit arms and ransom economies; reject collective blame against displaced people or occupational groups.
5. Provide displaced households and host communities with education, health care, documentation, housing, income support and pathways to durable solutions.
6. Expand youth employment, vocational skills, rural connectivity and small-business support in underserved areas, while evaluating programmes for measurable results.
7. Improve regional cooperation on climate information, cross-border mobility, shared ecosystems, displacement protection and security threats.
8. Support further empirical research that tests causal mechanisms and distinguishes climate exposure, migration, displacement, communal conflict and organised banditry.

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