

RESEARCH ARTICLE

Reframing Farmer–Herder Conflict in Nigeria: A Multilevel Conceptual Model of Environmental Stress, Institutional Fragility and Social Interaction

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ABSTRACT

Farmer–herder conflict has become one of the most persistent forms of rural insecurity in Nigeria. Although widely studied, existing explanations tend to isolate either environmental pressures, governance failures or identity-based grievances rather than examining how these elements combine to produce conflict. This paper develops a conceptual model that integrates three interacting levels of analysis: environmental stress, institutional fragility and micro-level social interactions. Drawing on regional scholarship from West Africa, the model proposes that conflict emerges when ecological pressures alter resource availability, institutions fail to mediate these pressures effectively, and everyday interactions between farmers and herders become shaped by distrust, boundary violations and competing livelihood claims. The paper argues that farmer–herder conflict is neither a purely ecological outcome nor a purely political one. Instead, it is the product of a dynamic system in which social relations and material conditions continuously shape each other. The conceptual model provides a framework for interpreting current patterns of conflict in Nigeria and offers a foundation for future empirical research and policy design.

KEY WORDS

Farmer–herder relations, conflict theory, environmental change, rural governance, Nigeria, conceptual model

INTRODUCTION

Farmer–herder conflict has become a defining feature of rural life in Nigeria, particularly across the northern savannah and the central belt. What was once a seasonal and largely manageable interaction between pastoralists and sedentary farmers has evolved into recurrent and often violent disputes. The conflict is commonly described as an outcome of climate-related pressures, rapid population growth, weak land governance and deteriorating relations between pastoralists and farming communities. Yet explanations often privilege one set of drivers at the expense of others. Much of the academic debate is divided between environmental determinism, which emphasises shrinking resources and ecological stress, and political or institutional arguments, which highlight governance failures, contested land tenure and the erosion of regulatory systems (Benjaminsen & Ba, 2021; Okoli & Lenshie, 2023). What remains underdeveloped is a theory that connects ecological pressures, institutional weaknesses and interpersonal interactions in rural communities.

Environmental accounts emphasise how climate variability,

desertification and declining rainfall have reduced the availability of pasture and water, pushing herders southwards into farming zones. This perspective highlights the structural scarcity that intensifies competition over land and water resources (Issah et al., 2024). Political and institutional explanations, by contrast, stress the weakness of Nigeria’s land governance frameworks, the encroachment of grazing reserves and the limited capacity of state institutions to mediate disputes (Onuoha, 2024). While both perspectives capture important dimensions of the conflict, they often operate in isolation, leaving little room for understanding how environmental stress interacts with fragile institutions and strained social relations at the community level.

This paper responds to that gap by developing a conceptual model that explains how conflict emerges and escalates when ecological pressures intersect with governance failures and interpersonal mistrust. The aim is not to replace existing interpretations, but to integrate them into a coherent multilevel framework. The model draws on literature from rural sociology,

political ecology, conflict studies and African development studies. It builds on insights from West African research on resource competition and pastoral systems, while also engaging with broader theoretical debates about how environmental change shapes social behaviour and institutional responses (Brottem, 2022; Herrero et al., 2021). By situating farmer–herder conflict within this integrative lens, the paper seeks to advance both theoretical clarity and practical relevance.

The argument is developed in four parts. The next section reviews dominant explanations of farmer–herder conflict and identifies the limitations of single-level approaches. This is followed by the development of a multilevel conceptual model that connects ecological scarcity, institutional fragility and livelihood adaptation. The paper then discusses the implications of this model for interpreting rural violence in Nigeria, highlighting how structural pressures translate into everyday disputes. The conclusion outlines pathways for empirical testing and for the design of interventions, emphasising the need for hybrid governance approaches that combine formal institutions with community-based mechanisms. In doing so, the paper contributes to a growing body of work that seeks to move beyond reductionist accounts and to situate farmer–herder conflict within the broader challenges of rural transformation and environmental change in West Africa.

EXISTING EXPLANATIONS AND LIMITATIONS

Environmental stress and resource competition

A substantial body of scholarship highlights the role of environmental change in shaping pastoral mobility and farmer–herder relations. Desertification, irregular rainfall and declining forage quality have been linked to the southward movement of pastoralists and increased pressure on farmlands (Niang et al., 2022). This perspective suggests that conflict is primarily a product of climate stress and competition over scarce resources. The evidence is compelling, particularly given the accelerating pace of climate variability across the Sahel and northern Nigeria. However, the explanation often appears deterministic. Environmental conditions can create pressure, but they do not automatically lead to violence. Communities sometimes adapt cooperatively to environmental change, through negotiated access to water points, rotational grazing or reciprocal labour arrangements (Okunade & Kohon, 2023). Violent conflict is therefore neither universal nor inevitable. The environmental stress perspective risks overlooking the agency of communities and the mediating role of institutions in shaping outcomes.

Institutional breakdown and governance failures

A second strand of literature focuses on land governance, weak enforcement of grazing reserves, ambiguous land tenure arrangements and declining legitimacy of traditional authorities. Nigeria’s grazing reserve system, once intended to reduce contact between farmers and herders, has been undermined by encroachment, underfunding and political contestation (Higazi, 2022). Institutional analyses emphasise the role of the state and governance structures, highlighting how weak enforcement and fragmented authority exacerbate disputes (Lind et al., 2020). While persuasive, these accounts do not fully explain why conflicts escalate in some settings but remain manageable in others with similar administrative conditions. They also tend to treat institutions as static rather than as dynamic social arenas shaped by everyday interactions. Evidence from Katsina and Plateau States shows that local committees and traditional rulers can mediate disputes effectively when they retain legitimacy, but fail when perceived as biased or corrupt (Onuoha, 2024). This suggests that institutional strength is relational and contingent, rather than fixed.

Identity, mistrust and social boundary making

A third strand of literature focuses on social identity, cultural differences and narratives of belonging. These studies show that perceptions of threat, historical grievances and stereotypes influence how communities interpret interactions between farmers and herders (Turner, 2021; Tonah, 2021). Identity-based explanations highlight how mistrust and boundary-making processes can transform resource disputes into ethnicised or religiously framed conflicts. This literature is useful for understanding grievances and the symbolic dimensions of violence. However, on its own it does not account for the material conditions that make identity salient in the first place. Nor does it explain why tensions flare at particular moments rather than persisting continuously. Identity becomes politically charged when ecological scarcity and institutional weakness create conditions in which narratives of belonging and exclusion resonate more strongly (Okopi et al., 2024).

Conceptual Integration

Each approach illuminates part of the picture. Environmental stress explains scarcity, institutional breakdown highlights governance failures, and identity-based accounts capture grievances and mistrust. None, however, fully explains the dynamic interplay between ecological pressures, institutional behaviour and social relations. This creates the need for a conceptual model that integrates these levels, recognising that farmer–herder conflict emerges from the intersection of structural scarcity, fragile governance and contested identities. Such a model can move beyond reductionist accounts and provide a more comprehensive framework for interpreting rural

violence in Nigeria.

A MULTILEVEL CONCEPTUAL MODEL OF FARMER-HERDER CONFLICT

The model proposed in this paper is built on the idea that conflict emerges from the interaction of three levels: environmental conditions, institutional responses and micro-level social interactions. These levels are analytically distinct, yet they operate simultaneously and shape one another. Understanding farmer–herder conflict therefore requires a framework that captures how structural pressures, governance failures and relational dynamics intersect to produce recurrent disputes.

Level One: Environmental stress

Environmental change alters the distribution, timing and availability of land, water and vegetation. These ecological shifts influence where and when pastoralists move, the intensity of land use by farmers and the likelihood of unintended boundary violations. Resource scarcity heightens the possibility of negative encounters. However, scarcity alone does not produce violence. It only creates the conditions in which conflict is possible.

Environmental stress therefore acts as a structural pressure. It pushes communities into closer proximity and increases the complexity of negotiating everyday land use. This view aligns with political ecology, which argues that environmental change interacts with social and political systems rather than acting independently of them (Schwartz & Nichols, 2021; Okunade & Kohon, 2023). Recent studies show that climate variability in northern Nigeria has accelerated pastoral migration southwards, intensifying contact with farming communities and raising the probability of disputes (Issah et al., 2024). Yet, as evidence from cooperative adaptation initiatives demonstrates, scarcity can also foster collaboration when institutions and trust mechanisms are strong (CGIAR, 2025).

Level Two: Institutional fragility

Institutions mediate the effects of environmental pressures. In the Nigerian context, institutional fragility is often expressed through weak enforcement of grazing routes, ambiguous boundaries, underdeveloped grazing reserves and inconsistent compensation mechanisms. Traditional authorities that once resolved disputes informally have seen their influence weaken

in some regions due to political interference, generational shifts and competing structures of authority.

Institutional fragility matters because it shapes incentives and expectations. When local institutions fail to regulate land access or effectively settle disputes, actors have fewer reasons to restrain harmful behaviour. This accelerates the erosion of trust and reduces the likelihood that peaceful negotiation will hold. Institutional weaknesses also influence how communities interpret environmental pressures, since the absence of effective mediation encourages parties to frame scarcity as evidence of hostile intent (Higazi, 2022; Lind et al., 2020). The erosion of legitimacy among both state and customary institutions has been repeatedly identified as a critical factor in the escalation of farmer–herder disputes (Onuoha, 2024).

Level Three: Social interaction and relational dynamics

Micro-level interactions are the immediate point at which conflict flares. Encounters in fields, cattle routes or water points are interpreted through existing narratives of mistrust. A single incident of crop damage or boundary trespass may trigger conflict if it resonates with broader perceptions of threat.

Social interactions depend not only on what individuals do, but on the meanings, they attach to behaviour. This is where identity becomes relevant. Farmers and herders often view each other through lenses shaped by history, insecurity and economic pressure. These interpretations influence how quickly disputes escalate. Where trust is low, actors expect hostility and react preemptively. Where trust is stronger, small incidents are more likely to be resolved informally (Turner, 2021; Tonah, 2021). Identity-based mistrust therefore acts as a relational amplifier, transforming resource disputes into ethnicised or politicised conflicts.

Interaction across levels

Conflict does not emerge from any single level. The relationship between levels is circular and mutually reinforcing. Environmental stress increases the number of potential flashpoints. Institutional weakness reduces the capacity to prevent or resolve disputes. Social interactions, already strained by livelihood pressures, become interpreted through narratives of blame. The result is a self-reinforcing cycle in which ecological and governance challenges intensify the relational dynamics that drive conflict (Figure 1).



Figure 1: Multilevel Conceptual Model of Farmer-Herder Conflict

This diagram illustrates how farmer–herder conflict emerges from the interaction of three analytically distinct but mutually reinforcing levels: environmental stress, institutional fragility and social interaction. Environmental pressures such as climate variability and land scarcity increase the likelihood of resource competition. Institutional weaknesses—such as poor land governance and eroded authority—reduce the capacity to mediate disputes. Social interactions, shaped by mistrust and identity narratives, determine how everyday encounters are interpreted and escalated. Arrows indicate feedback loops across levels, highlighting the cyclical nature of conflict escalation.

This multilevel framework aligns with contemporary theories of conflict that emphasise complexity, feedback loops and the interplay between structural and relational factors (Justino et al., 2022). It highlights how violence can become embedded in everyday rural life when pressures at different levels begin to interact. By integrating environmental, institutional and relational dimensions, the model provides a more comprehensive lens for interpreting farmer–herder conflict and for designing interventions that address root causes rather than symptoms.

IMPLICATIONS OF THE MODEL FOR UNDERSTANDING CONFLICT IN NIGERIA

The multilevel conceptual model developed in this paper offers

a more nuanced lens for interpreting farmer–herder conflict in Nigeria. Moving beyond linear causation, it highlights how ecological pressures, institutional fragility and relational dynamics interact to produce violence. Three key implications follow.

Conflict is a system outcome rather than a single cause

Dominant debates often attribute farmer–herder conflict to either climate change or governance failures. While both factors are significant, such singular explanations overlook the system through which these pressures interact. The model reframes conflict as an emergent property of a wider social–ecological system, in which environmental stress, institutional breakdown and social mistrust reinforce one another. This systems perspective shifts attention from identifying a primary cause to examining how pressures combine in particular localities. For example, climate-induced migration may not lead to violence unless institutions fail to mediate disputes and social relations are already strained (Justino et al., 2022; Schwartz & Nichols, 2021). Recognising conflict as a system outcome allows for more context-sensitive analysis and avoids the pitfalls of reductionism.

Policy interventions must operate across multiple levels

The model underscores the need for integrated policy

responses. Environmental pressures are real and intensifying, but institutional reforms are equally critical. Improving grazing infrastructure or restoring cattle routes is insufficient without credible dispute resolution mechanisms. Conversely, institutional reforms will struggle if climate-related pressures continue to destabilise mobility patterns and resource access. The model suggests that interventions must be coordinated across ecological management, land governance and community-level peacebuilding. Recent evidence from Taraba and Adamawa States shows that multi-stakeholder platforms—combining traditional leaders, pastoral associations and government officials—can reduce tensions when they address both resource scarcity and institutional legitimacy (Mercy Corps, 2024). This implies that siloed interventions are unlikely to succeed unless they are embedded within broader systems of cooperation and accountability.

Everyday social relations are central to conflict escalation

Much policy work focuses on large-scale security responses, such as military deployments or policing. While these may contain violence temporarily, they do not address the micro-level interactions where escalation often begins. The model highlights the importance of everyday encounters—at water points, grazing routes or farm boundaries—as sites of interpretation and meaning-making. Interventions that support cooperative land use, joint water management, shared early warning systems and local dialogue mechanisms are essential because they transform the social meaning of interaction. Where trust is low, even minor incidents can be interpreted as hostile and trigger retaliation. Where trust is stronger, disputes are more likely to be resolved informally (Tonah, 2021; Turner, 2021). This relational insight suggests that peacebuilding must engage with the social fabric of rural communities, not just their institutional architecture.

These implications reinforce the value of a multilevel framework for understanding and addressing farmer–herder conflict. They point to the need for holistic strategies that recognise the interconnected pressures shaping rural violence and that build resilience across ecological, institutional and social domains.

CONCLUSION

Farmer–herder conflict in Nigeria is a complex phenomenon involving environmental pressures, institutional weaknesses and tense social relations. This paper has developed a conceptual model that integrates these dimensions into a coherent analytical framework. Treating conflict as the product of interactions across levels, the model captures the dynamic nature of rural disputes and provides a clearer basis for empirical research and targeted interventions.

This approach offers a more dynamic and context-sensitive understanding of rural violence. It highlights the need to move beyond reactive security measures and toward integrated strategies that address the root causes of conflict. Strengthening grazing infrastructure, clarifying land tenure and rebuilding institutional legitimacy are necessary but insufficient unless accompanied by efforts to foster trust and cooperation at the community level.

Future research can draw on this model to develop testable hypotheses about when and where conflict is most likely to escalate, while also guiding empirical studies that trace how trajectories vary across regions and seasons. Beyond Nigeria, the framework offers a foundation for comparative analysis across West Africa, where similar patterns of pastoral mobility and land use change are reshaping rural relations and generating pressures that echo those observed in Katsina and other northern states.

The model does not claim to fully resolve the complexities of farmer–herder relations. Instead, it offers a structured way to interpret them, grounded in current scholarship and sensitive to the realities of rural life. It highlights the need for integrated responses that recognise the interconnected pressures that shape conflict, and it provides a framework for designing interventions that strengthen environmental resilience, institutional capacity and social cooperation.

AUTHOR CONTRIBUTION

A.J.E., G.O.I. and C.E.E. was responsible for the conceptualisation, study design, coordination, and primary drafting of the manuscript. The development of the theoretical framework was carried out by F.E.O. and K.O.O., who also contributed to the primary drafting of the manuscript. All authors contributed to the literature review, critical appraisal, interpretation of findings, and provided feedback on successive drafts. All authors approved the final version of the manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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