International Journal of Multidisciplinary and Current Educational Research (IJMCER)
ISSN: 2581-7027 ||Volume|| 7 ||Issue|| 5 ||Pages 47-62 ||2025||

Climate Change as a Threat Multiplier in Fragile States: A Cross-Examination of Nigeria and Iraq

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ABSTRACT: Climate change is increasingly recognized as a profound security concern, particularly in fragile states where governance deficits, socio-economic inequalities, and pre-existing conflict dynamics amplify vulnerability to environmental stress. This study adopts the Climate–Security Nexus Theory to investigate how climate change functions as a "threat multiplier" in such contexts, using Nigeria and Iraq as comparative case studies. The research employs a qualitative methodology, drawing primarily on secondary data from scholarly literature, policy reports, and institutional publications. Findings reveal that in Nigeria, desertification, erratic rainfall, and the shrinking of Lake Chad have disrupted agricultural livelihoods, escalated farmer–herder conflicts, and provided insurgent groups with new recruitment opportunities. In Iraq, rising temperatures, recurrent droughts, and upstream control of transboundary water resources have degraded agricultural productivity, fuelled rural–urban migration, and intensified intercommunal and geopolitical tensions. The analysis underscores that climate change rarely acts in isolation; rather, it interacts with entrenched political, social, and economic fragilities to produce self-reinforcing cycles of instability. Addressing these challenges requires integrated, multi-scalar strategies that combine environmental management, peacebuilding, and socio-economic development, ensuring that climate adaptation is embedded within broader national and regional security frameworks.

KEYWORDS: Climate–Security Nexus, Threat Multiplier, Fragile States, Governance and Climate Adaptation, Nigeria, Iraq

I. INTRODUCTION

Conflict and climate change each represent formidable challenges to poverty alleviation and sustainable development; when these dynamics intersect, the consequences can be profoundly destabilizing. In fragile and conflict-affected settings, where governments already operate with constrained fiscal and institutional capacity, climate shocks impose additional burdens that can overwhelm existing systems for crisis management and adaptation. The adverse effects of climate change such as water scarcity, crop failure, food insecurity, economic disruptions, migration, and forced displacement can significantly heighten the risk of instability. In such contexts, climate change often functions as a "threat multiplier," not by directly causing conflict, but by exacerbating underlying structural vulnerabilities, intensifying competition over scarce resources, eroding economic opportunities, and straining already fragile public institutions and societal trust in governance (Rüttinger et al., 2024; Mach et al., 2023).

Globally, the interaction between climate change and fragility is increasingly visible. The most severe impacts are borne by the poorest and most marginalized communities, many of whom reside in states already grappling with entrenched governance deficits, insecurity, and socio-economic inequality. Without targeted adaptation and resilience-building measures, climate-induced challenges could push an additional 132 million people into poverty by 2030 (World Bank, 2023). Furthermore, the compounded effects of conflict and extreme weather events have been a leading driver of displacement worldwide. In 2019 alone, disasters predominantly weather-related events such as floods and storms triggered 24.9 million new internal displacements, three times the number caused by conflict and violence. This was the highest figure recorded since 2012, highlighting the scale at which environmental shocks can surpass even direct armed conflict in displacing populations (Internal Displacement Monitoring Centre (IDMC, 2023). When communities are uprooted, they often lose access to land, livelihoods, shelter, and food security, perpetuating cycles of fragility, dependency, and heightened risk of further instability (Crawford et al., 2024). Climate change is now widely recognized as a critical security challenge, influencing not only ecological and economic systems but also international relations, governance stability, and national security. In fragile states, where institutional resilience is limited, the destabilizing impacts of environmental change are amplified. These states frequently face overlapping crises, political

instability, socio-economic hardship, and governance inefficiencies that interact with climate stressors such as prolonged droughts, erratic rainfall patterns, and declining agricultural productivity. The combined pressures can exacerbate social grievances, undermine state legitimacy, and fuel violent competition over natural resources (Krampe et al., 2023; Al-Mahmood & Saleh, 2024). In this study, we examine Nigeria and Iraq as illustrative cases for understanding the climate–conflict–fragility nexus. Both countries are resource-dependent, politically fragmented, and have histories of protracted instability. In Nigeria, environmental degradation in the Sahel and the shrinking of Lake Chad have undermined rural livelihoods, fuelling communal violence and creating fertile recruitment grounds for insurgent movements. In Iraq, a combination of climate-induced water scarcity, geopolitical tensions over transboundary rivers, and extreme heat events have contributed to public unrest and governance crises. In both contexts, climate change interacts with pre-existing environmental, political, economic, and security vulnerabilities in ways that amplify instability risks (Abubakar, 2023; Alwash, 2023). This study applies the Climate–Security Nexus Framework to two emblematic cases; Nigeria and Iraq, both of which exemplify the multi-layered challenges facing fragile states in the era of accelerating climate change. In Nigeria, desertification in the Sahelian north, declining rainfall, and the shrinking of Lake Chad have intensified farmer–herder conflicts, undermined food security, and provided insurgent groups such as Boko Haram with fertile recruitment grounds. In Iraq, rising temperatures, severe droughts, and geopolitical tensions over transboundary water resources have destabilized agricultural systems, triggered rural–urban migration, and fuelled public unrest. By undertaking a comparative analysis of these two contexts, this research seeks to illuminate the pathways through which climate change interacts with governance deficits, socio-political tensions, and conflict dynamics to exacerbate fragility. In doing so, it underscores the urgency of integrated, multi-scalar strategies that link environmental management, peacebuilding, and socio-economic development as essential components of national security policy in climate-vulnerable states.

Theoretical Framework: Climate–Security Nexus Theory : The accelerating impacts of climate change are increasingly recognized not merely as environmental or developmental challenges but as pressing security concerns that intersect with political stability, social cohesion, and economic resilience. Extreme weather events, shifting climatic patterns, and gradual environmental degradation are now understood to have far-reaching implications for governance, human well-being, and peace. The Climate–Security Nexus Framework provides an integrative analytical lens through which these complex interactions can be studied. Rather than treating climate change as an isolated phenomenon, the theory examines how environmental stress intersects with structural political, economic, and social vulnerabilities to produce or intensify instability. This analytical approach is especially pertinent in fragile state contexts such as Nigeria and Iraq, where governance deficits, deep dependence on climate-sensitive sectors like agriculture, and ongoing armed conflicts create fertile ground for environmental pressures to escalate into security crises. By synthesizing insights from climate science, conflict studies, and human security scholarship, the Climate–Security Nexus Theory identifies the pathways through which climate change can exacerbate risks of conflict, forced displacement, and state fragility (Mach et al., 2021; Ide, 2022; Busby, 2022).

At its core, the Climate–Security Nexus Theory is premised on the recognition that climate change rarely acts as a singular or direct cause of conflict; instead, it functions as a catalyst that intensifies pre-existing vulnerabilities and risk factors. This nuanced understanding moves beyond simplistic "climate wars" narratives, focusing instead on multi-causal and context-dependent relationships between environmental stress and insecurity (Böhmelt et al., 2023). This theory builds on three conceptual pillars: First; interconnection of environmental and security dynamics whereby climate change is best understood as part of a broader constellation of stressors ranging from political instability, poor governance, and resource scarcity to entrenched poverty and socio-economic inequality that interact in complex ways to shape security outcomes. These interconnections mean that environmental changes, such as drought or flooding, can have cascading effects: disrupting food systems, weakening economies, triggering migration, and inflaming competition over scarce resources. By situating climate change within this web of interrelated drivers, the Climate–Security Nexus Theory avoids environmental determinism, the notion that climate change automatically leads to conflict and instead emphasizes the importance of political, institutional, and social mediating factors (Busby, 2022; Ide, 2022). This approach allows analysts to better capture the multi-directional feedback loops between climate pressures and security risks. Secondly; multi-scalar analysis which explains that a defining strength of the Climate–Security Nexus Theory is its multi-scalar approach, which examines climate–security interactions at the local, national, and transboundary levels. At the local level, climate impacts such as shifting rainfall patterns or extreme heat can disrupt livelihoods, provoke migration, and spark competition over resources. At the national level, the ability of governments to mitigate and respond to these changes depends heavily on governance quality, economic resilience, and policy coordination. At the transboundary level, climate impacts can affect shared

natural resources such as river basins, leading to geopolitical tensions or cooperation opportunities. This perspective is particularly valuable in analyzing fragile states like Nigeria and Iraq, where local livelihood disruptions are deeply interconnected with national governance deficits and regional geopolitical disputes (Krampe et al., 2023; von Lossow, 2022). Thirdly; human-centric security perspective which explains that Climate–Security Nexus Theory draws heavily from the Human Security Theory, which broadens the concept of security beyond traditional concerns about state sovereignty and military threats. In this view, security encompasses the protection of individuals and communities from threats to their survival and dignity including economic deprivation, food and water insecurity, environmental degradation, and social instability (Detraz, 2022). By adopting a human-centric approach, the framework positions climate change as a direct threat to livelihoods, public health, and social stability, recognizing that the erosion of these fundamentals often precedes or accompanies violent conflict. This perspective is critical in contexts such as Nigeria and Iraq, where environmental stress undermines both material survival and trust in state institutions.
Furthermore, the Climate–Security Nexus Theory identifies several primary pathways through which climate change amplifies fragility and conflict risks:

1. Resource Scarcity and Competition: As climate change alters precipitation patterns, accelerates desertification, and depletes freshwater resources, the availability of water, fertile land, and other essential resources diminishes. In fragile contexts, where alternative livelihoods are scarce and governance is weak, such scarcity often fuels competition between communities. These disputes can escalate into violence, especially when they intersect with ethnic, religious, or historical grievances. In the Sahelian belt of Nigeria, for example, pastoralist–farmer clashes over land and water access have intensified as droughts become more frequent (Abubakar, 2023). Similar tensions over the Tigris and Euphrates rivers in Iraq highlight how transboundary resource disputes can heighten domestic instability (von Lossow, 2022).

2. Livelihood Disruption: Climate-induced shocks such as drought, flooding, or extreme heat can devastate agricultural production, fisheries, and pastoralism, eroding household resilience and pushing individuals toward negative coping strategies. These may include migration, participation in illicit economies, or even recruitment into armed groups. The Lake Chad Basin in Nigeria, for instance, has seen fishing and farming livelihoods collapse due to shrinking water bodies, creating conditions exploited by insurgent groups (FAO, 2023). In Iraq, prolonged drought and salinization of arable land have forced farmers to abandon agriculture, accelerating rural depopulation and unemployment (NRC, 2023).

3. Governance Stress: Climate-related disasters and slow-onset changes place additional strain on governance systems that may already be struggling with corruption, limited capacity, and political fragmentation. Weak or absent responses to environmental crises can erode public trust, delegitimize state authority, and fuel grievances that contribute to instability (UNDP, 2023). In both Nigeria and Iraq, national climate adaptation plans exist but often lack integration with local governance structures, leading to uneven and ineffective implementation (Krampe et al., 2023).

4. Migration and Displacement: Environmental degradation and extreme weather events can force communities to migrate, both within and across borders. These movements can exacerbate tensions in receiving areas, particularly when migrants compete with host populations for limited resources or are perceived as outsiders. In Nigeria, southward migration of pastoralists into farming regions has been a key driver of farmer–herder conflicts (Abubakar, 2023). In Iraq, rural-to-urban migration driven by drought and land degradation has intensified socio-economic pressures in already overcrowded urban centers (NRC, 2023).

5. Geopolitical Tensions: In contexts where states share natural resources, climate impacts can heighten competition over their use. This is evident in Iraq, where upstream control of the Tigris and Euphrates rivers by Turkey and Iran has significantly reduced water availability, undermining Iraq's agricultural base and fuelling public discontent (Shafaq News, 2025; von Lossow, 2022). Such transboundary water politics illustrate how climate change can escalate both domestic unrest and interstate tensions. The Climate–Security Nexus Theory offers a vital analytical tool for unpacking the complex interactions between environmental stressors, socio-political vulnerabilities, and conflict dynamics in fragile states. By viewing climate change not as an isolated variable but as a catalyst that amplifies existing risks, this framework reveals the multifaceted ways in which environmental degradation intersects with governance weaknesses, economic fragility, and societal divisions. The cases of Nigeria and Iraq underscore the diverse yet interconnected pathways through which climate stress manifests in Nigeria, through desertification, livelihood competition, and insurgency; and in Iraq, through extreme heat, water scarcity, and geopolitical constraints on shared resources. Both states illustrate that climate

change acts as a "threat multiplier" by accelerating resource scarcity, destabilizing livelihoods, and straining governance systems already under pressure from corruption, institutional fragmentation, and conflict legacies. These vulnerabilities are further compounded by transboundary and domestic political factors that hinder effective adaptation, such as upstream water control in Iraq and entrenched ethnic tensions in Nigeria. Importantly, the framework's emphasis on multi-scalar analysis and human-centric security highlights that effective responses must integrate environmental management, conflict prevention, and socio-economic development. Addressing the climate–security nexus in fragile contexts demands sustained political will, cross-sectoral policy coherence, and robust international cooperation. For Nigeria and Iraq, this means embedding climate resilience into peacebuilding and development agendas, strengthening local governance capacity, and ensuring inclusive participation in resource management. Without such integrated and anticipatory strategies, climate change will continue to drive instability, displacement, and insecurity locking these states into a cycle of fragility that undermines both national stability and regional peace.

Climate Change as a Threat Multiplier: Conceptual Clarifications : Climate change has increasingly emerged as a profound security concern for many states, not only by disrupting environmental systems but also by threatening the broader spectrum of human security in vulnerable communities. In scholarly and policy discourses, its effects on stability are frequently conceptualized through the lens of a "threat multiplier" a term that has gained traction in both climate–security literature and high-level policy debates (Goodman & Baudu, 2023; Busby, 2022). To engage meaningfully with this concept, it is essential to first clarify its underlying meaning and implications. The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as *"a change in the climate that is attributable directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods"* (Intergovernmental Panel on Climate Change (IPC, 2008, p. 78). This definition underscores that climate change is not simply a natural phenomenon but is fundamentally driven by anthropogenic activity particularly through greenhouse gas emissions making it both a scientific and a political issue with far-reaching governance implications.

The conceptual framing of climate change as a "threat multiplier" can be traced to the work of the International Military Council on Climate and Security and the Center for Naval Analyses (CNA) Military Advisory Board in 2007, which sought to articulate how environmental change interacts with existing political, social, and economic stressors to intensify security risks. Rather than being an isolated source of instability, climate change amplifies other risk factors, making crises more likely, more severe, or more protracted (Goodman & Baudu, 2023). This framing has since been widely adopted by national security institutions. For example, the U.S. Department of Defense's Quadrennial Defense Review (2014) explicitly described climate change as a threat multiplier, noting that it can exacerbate pre-existing challenges to stability and national security (Werrell & Femia, 2015). The idea is further developed by Busby (2016, 2022), who traces the rise of climate–security discourse in U.S. policy circles to the mid-2000s, when influential think tanks including the CNA Corporation, the Council on Foreign Relations, the Center for a New American Security, and the Center for Strategic and International Studies produced studies linking environmental stress to security risks. These works collectively argued that climate change's role as a "threat multiplier" lies in its capacity to aggravate resource scarcity, undermine economic resilience, and strain governance structures, thereby increasing the likelihood of instability or conflict. Importantly, this conceptualization avoids environmental determinism by acknowledging that climate change interacts with other drivers of insecurity rather than acting as a sole causal agent (Busby, 2022).
Policy actors beyond the United States have also embraced this framing. The UK's former Secretary of State for Energy and Climate Change, Ed Davey, described climate change as a force that will "exacerbate existing resource pressures,"

particularly in fragile states, warning of a future in which "climate instability drives political instability" (Selby & Hoffmann, 2014, p. 748). This recognition is critical because fragile states characterized by weak governance, limited adaptive capacity, and high exposure to socio-economic shocks are disproportionately affected by climate stress. As Busby (2022) notes, the intersection of climate shocks with weak institutional capacity, exclusive political arrangements, and insufficient or biased international assistance produces unique patterns of vulnerability that demand targeted policy responses. In essence, the "threat multiplier" framework acknowledges the complex causal pathways through which climate change influences security outcomes. It recognizes that environmental stress does not deterministically cause conflict but operates within a web of interacting factors, such as poor governance, socio-economic inequality, and historical grievances (Krampe et al., 2023). By intensifying these pre-existing pressures, climate change heightens the risk of adverse security outcomes in both the short and long term.

For practitioners and policymakers, this framing is valuable because it enables the integration of climate considerations into security planning without oversimplifying the multi-causal nature of conflict Climate change can be understood not merely as an environmental phenomenon but as a profound and systemic transformation of the interconnected human–environment system. This transformation threatens the survival and functioning of both ecological and social systems, necessitating the creation of cooperative global solutions grounded in shared commitments to environmental stewardship (O'Brien & Leichenko, 2009). In this framing, climate change is an inherently transboundary challenge that requires multilateral governance, equitable burden-sharing, and strong institutional frameworks capable of coordinating responses across different levels of governance. However, the notion of climate change as a straightforward collective action problem has been contested in more recent scholarship. One such challenge to the traditional collective action framing is presented by Colgan et al.'s (2021) "Asset Revaluation Theory," which posits that climate change mitigation is not only hindered by the technical difficulty of achieving cooperation among states but also by deep political and economic rivalries. They argue that the global effort to curb climate change is structurally constrained by the persistent "free-rider" problem, whereby individual states particularly those with high dependence on fossil fuel revenues lack incentives to undertake costly mitigation measures. These political dynamics are further complicated by the tension between rentier economies reliant on oil and gas extraction, such as Saudi Arabia, and economies with stronger commitments to ecological sustainability, such as some European countries. This tension is not only expressed at the international level but can also manifest domestically. In states where economic livelihoods and political stability are tied to fossil fuel production, such as Saudi Arabia, resistance to climate mitigation policies tends to be more entrenched and less politically contested. In contrast, countries like Canada, which have more diversified economies and more pluralistic political systems, often see protracted internal debates over climate policy directions.

These dynamics reinforce the notion of climate change as what scholars term a "super wicked problem," a policy challenge characterized by multiple and interconnected causes, uncertain and non-linear impacts, and solutions that may themselves generate new or unforeseen problems (Saab, 2019). This complexity means that climate governance requires not only scientific and technological innovation but also political negotiation, adaptive policymaking, and an acute sensitivity to the socio-economic contexts in which interventions are implemented. Emerging research on the climate–security nexus has further deepened our understanding of how environmental stress interacts with pre-existing vulnerabilities to heighten the risk of conflict. Von Uexkull et al. (2016) highlight that the likelihood of violence is particularly high in communities that are both heavily dependent on agriculture and marked by significant "ethno-political exclusion," a condition in which ethnic or social groups are systematically marginalized from political power. Busby (2022) applies this perspective to an empirical assessment of countries experiencing, or projected to experience, acute water shortages. He identifies a set of approximately 20 countries, many in the Sahel region, that face persistent risks of conflict or humanitarian crises due to their combination of environmental fragility, historical exposure to violence, and reliance on climate-sensitive livelihoods. In late 2018 and early 2019, 11 of these states suffered short-term water deficits, underscoring how even transient environmental shocks can have significant destabilizing effects in fragile contexts.

A valuable contribution to understanding the multidimensional pathways through which climate change acts as a "threat multiplier" comes from the United Nations Environment Programme (UNEP, 2011) in its "Livelihood Security" framework. This framework identifies five interrelated indicators. The first, vulnerability, captures how climate change threatens food security, public health, and human safety, while also increasing exposure to extreme events such as droughts, floods, and storms (Hamro-Drotz, 2014). Second, development refers to the ways in which climate change can slow or reverse development gains, thereby eroding the capacity of states to maintain stability and deliver basic services. Third, coping and security focuses on the adaptive responses that households and communities employ such as migration or competition over dwindling resources which can, in turn, exacerbate local, national, or even transnational security concerns. Fourth, international conflict addresses the potential for climate change to strain cooperative management of shared or disputed transboundary resources, as seen in the politically sensitive allocation of water from the Tigris and Euphrates rivers among Turkey, Syria, and Iraq. Finally, statelessness refers to the extreme scenario where the loss of habitable or sovereign territory due to phenomena such as sea-level rise, undermines national sovereignty and raises profound legal and human rights challenges. While the risk of statelessness is less relevant in Iraq's climate context due to its inland geography, other indicators, particularly those related to vulnerability, coping, and transboundary resource management, are acutely applicable. Collectively, these insights illustrate that climate change's role as a security challenge cannot be reduced to a single causal pathway. Rather, its impacts emerge through the intersection of environmental degradation, socio-political exclusion, economic dependence on

climate-sensitive sectors, and governance capacity. This reinforces the need for context-specific, multi-scalar strategies that address not only the environmental symptoms of climate change but also the structural inequalities and governance weaknesses that make its effects so destabilizing in fragile states such as Nigeria and Iraq (Krampe et al., 2023; Busby, 2022).

Nigeria: Climate–Security Nexus in a Fragile State : Nigeria stands as a critical example of the complex and multi-layered interplay between climate change and security challenges in fragile states. The country's political and security environment is already marked by a constellation of overlapping and protracted conflicts, including the Boko Haram insurgency in the northeast, recurrent violent clashes between pastoralists and sedentary farmers in the Middle Belt, and militancy in the oil-rich Niger Delta. These conflicts are driven by a mix of political, socio-economic, and governance-related factors. However, the growing influence of climate-related stressors has increasingly acted as a catalyst, deepening vulnerabilities and intensifying the risk of violence across multiple regions (Abubakar, 2023; Onuoha, 2024). One of the most visible manifestations of climate–security linkages in Nigeria is the worsening pastoralist–farmer conflict in the country's northern and central regions. The Sahelian belt in northern Nigeria has experienced severe ecological degradation over recent decades, with desertification driven by rising average temperatures, declining and increasingly erratic rainfall, and unsustainable land-use practices such as overgrazing. As productive rangelands shrink, pastoralist groups are compelled to migrate further south in search of pasture and water for their herds. This southward movement often brings them into direct competition with sedentary farming communities, sparking violent disputes over land and water access. Climate change magnifies the frequency and intensity of these confrontations by increasing the incidence of droughts and destabilizing established agricultural cycles, making resource-sharing arrangements more difficult to sustain (Bolarinwa & Adebayo, 2023).

In the northeast, environmental degradation has compounded the region's already fragile socio-economic conditions, creating a conducive environment for extremist recruitment and insurgent violence. The Lake Chad Basin, a lifeline for millions of people across Nigeria, Chad, Cameroon, and Nige has suffered a catastrophic decline in water volume and surface area, shrinking by more than 90% since the 1960s due to a combination of climate variability, unsustainable water use, and broader environmental mismanagement (FAO, 2022). The collapse of traditional livelihoods, particularly fishing and small-scale farming, has eroded the economic resilience of communities in the area. These conditions have not only intensified competition over remaining resources but have also made vulnerable populations more susceptible to recruitment by insurgent groups such as Boko Haram, which exploit local grievances and the absence of viable economic opportunities (Nwankpa, 2023). Governance capacity remains a critical factor in shaping Nigeria's ability to manage the security risks posed by climate change. While national policies, such as the Nigerian Climate Change Policy Response and Strategy, outline frameworks for adaptation and resilience-building, their implementation at the subnational level has been hampered by systemic governance weaknesses. Corruption, institutional fragmentation, inadequate resource allocation, and a lack of coordination between security, environmental, and development agencies have undermined effective adaptation measures (Onuoha, 2024). Furthermore, security responses often focus on short-term military containment rather than addressing the underlying environmental and socio-economic drivers of instability.

The absence of locally tailored, climate-sensitive conflict prevention strategies perpetuates a cycle of vulnerability in which environmental shocks repeatedly exacerbate existing tensions. Generally, the Nigerian case vividly demonstrates how environmental change, when superimposed on pre-existing governance fragilities and socio-political tensions, produces a complex and volatile security landscape. Climate change in Nigeria does not operate as an isolated stressor; rather, it interacts with long-standing patterns of political instability, economic marginalization, ethno-religious divisions, and weak institutional capacity to create a web of risks that are mutually reinforcing. The manifestations of this climate–security nexus ranging from pastoralist–farmer clashes and insurgent recruitment to livelihood collapse and forced migration highlight the fact that environmental stress can exacerbate both the frequency and intensity of violent conflict. This underscores the inadequacy of viewing climate change solely through an environmental or developmental lens; instead, it must be understood as a multidimensional security challenge with political, economic, social, and ecological dimensions (Krampe et al., 2023). Addressing such a deeply intertwined problem requires a paradigm shift from reactive crisis management to proactive, integrated strategies that simultaneously promote environmental resilience, socio-economic stability, and conflict prevention. Effective responses must bridge the traditionally siloed domains of environmental management, peacebuilding, and national development planning, ensuring that climate adaptation measures are conflict-sensitive and tailored to local realities. Furthermore, robust governance reforms are indispensable—strengthening institutional capacity, enhancing transparency, and fostering inclusive

decision-making processes are critical to building trust between state authorities and affected communities. International cooperation can play a supporting role, but solutions must be rooted in Nigeria's specific socio-political context, leveraging local knowledge and participatory approaches to ensure sustainability. Without such comprehensive and context-sensitive strategies, climate change will continue to function as a powerful threat multiplier, amplifying Nigeria's fragility and undermining prospects for long-term peace and development (Onuoha, 2024; Bolarinwa & Adebayo, 2023; Nwankpa, 2023).

Ira**q: Climate–Security Nexus in a Fragile State :** Iraq presents another striking example of how climate change can compound existing fragility, exacerbating governance challenges, deepening socio-economic grievances, and heightening risks of instability. Already burdened by decades of conflict, foreign intervention, authoritarian governance legacies, and sectarian fragmentation, Iraq faces a converging set of environmental, economic, and political pressures that are magnified by climate change. These pressures have the potential not only to undermine state legitimacy but also to fuel social unrest and resource-driven disputes in an already volatile security environment (UNDP, 2023). One of the most acute climate-related threats confronting Iraq is water scarcity. The country's two main river systems, the Tigris and Euphrates, are experiencing unprecedented reductions in flow due to a combination of upstream damming by Turkey and Iran, mismanagement of domestic water resources, and declining rainfall linked to shifting climate patterns (FAO, 2023). This hydrological crisis has severely impacted agricultural productivity, which remains the primary livelihood source for large segments of the rural population, particularly in the south. As irrigation-dependent farmlands degrade and salinity levels rise, farming communities have been forced into cycles of debt, migration, and, in some cases, protests targeting government authorities accused of neglecting their plight (World Bank, 2024). The intensification of water scarcity has also raised the risk of inter-governorate tensions, particularly between upstream and downstream regions competing for increasingly limited supplies.

Livelihood insecurity is another key pathway through which climate change acts as a threat multiplier in Iraq. Repeated cycles of drought, flooding, and dust storms, some of the most severe in recorded history have damaged crops, reduced livestock herds, and disrupted fishing activities in the southern marshlands. These environmental shocks intersect with Iraq's heavy reliance on oil revenues, which leaves the country vulnerable to global market volatility and limits investment in diversified economic development (IMF, 2023). The lack of sustainable income opportunities outside the public sector has created fertile ground for social grievances, particularly among the youth, who make up a significant proportion of the population. When economic disenfranchisement is combined with deteriorating environmental conditions, the likelihood of political instability and violent protests increases substantially (Al-Fadhli, 2024). The security implications of Iraq's climate vulnerability are multi-scalar. At the local level, competition over water and arable land has the potential to fuel disputes between tribal groups, particularly in provinces such as Basra, Dhi Qar, and Maysan. At the national level, environmental degradation has been cited as a contributing factor to mass demonstrations, such as the 2018 Basra protests, which were sparked by contaminated water supplies, electricity shortages, and widespread unemployment (Human Rights Watch, 2023). On the geopolitical front, Iraq's dependence on transboundary water flows has created tensions with neighboring states, which may intensify as regional water scarcity worsens. This dynamic illustrates how environmental stress can spill over into foreign policy disputes, complicating Iraq's already delicate regional relations (Kibaroglu & Scheumann, 2023).

Institutional capacity constraints remain a significant barrier to Iraq's ability to effectively address climate–security risks. Governance structures are hampered by corruption, bureaucratic inefficiency, and political fragmentation, while environmental ministries and agencies lack the funding, technical expertise, and authority to implement comprehensive climate adaptation strategies. International donors and UN agencies have provided technical assistance and capacity-building programs, but these have often been piecemeal, donor-driven, and poorly integrated into national development plans (UNEP, 2023). Moreover, the absence of coordinated policy responses means that climate risks are often addressed reactively rather than through proactive, long-term planning. Taken together, Iraq's climate–security nexus reveals a cyclical vulnerability in which environmental stressors exacerbate socio-economic fragility, erode trust in state institutions, and contribute to the persistence of instability. Without decisive governance reforms, improved regional water diplomacy, and integrated adaptation strategies that link climate resilience to livelihoods and social stability, Iraq's vulnerability to climate-induced insecurity will deepen, posing risks not only to domestic peace but also to wider regional stability in the Middle East (Busby, 2022; Al-Fadhli, 2024).

Development, Drought, and Displacement in Iraq : Iraq stands among the countries most vulnerable to the intertwined economic and environmental impacts of climate change. Lending weight to this concern, the World

Bank recently highlighted how escalating water shortages and rising temperatures jeopardize the nation's fragile social and political compact (World Bank Group, 2022). Compounding these challenges, Iraq's reliance on oil revenues exposes it to shifting global energy trends. Although the country earned a record-setting $115.657 billion from oil sales in 2022, around $40 billion more than in 2021, this windfall underscored the fragility of depending on a single export commodity (Dourian, 2023). The Iraq Climate and Development Report urges a strategic economic shift toward private-sector-led diversification to buffer future climate shocks (World Bank Group, 2022). Yet, with oil underpinning state finances, making such a transformation remains politically and economically fraught. Meanwhile, upstream countries like Turkey and Iran continue to manipulate river flows, limiting water access downstream (Shafaq News, 2025). Severely diminishing inflows from the Tigris and Euphrates threaten agriculture and livelihoods, prompting observers to call for reduced oil extraction by Iraq and its neighbors as part of broader climate stability efforts. Structurally, Iraq faces acute challenges. Weak water governance and decentralized administration foster deep inequalities and breed tensions over resource allocation (von Lossow, 2022). The absence of a cohesive, long-term water management strategy further undermines resilience efforts. Compounding these issues, Iraq is experiencing extreme heat. Temperatures have breached 50°C in summer, and 2025 ranks as its driest year since 1933 (Shafaq News, 2025). The International Energy Agency warns that while drought risk mounts, Iraq simultaneously remains prone to floods, adding to uncertainty about water security (IEA, 2025).

Agricultural vulnerability is evident whereby over 60% of farmers report reduced land cultivation or water use due to drought, impeding post-conflict recovery and increasing risks of displacement (NRC, 2023). In April 2025, severe droughts, driven by climate change, upstream dam controls, and outdated irrigation hatched a crisis for buffalo herders, with populations collapsing from 150,000 to under 65,000 in a decade (Reuters, 2025). This decline, alongside falling crop yields, is accelerating rural exodus to urban centers amid growing distress. Worsening land quality compounds the strain: approximately 39% of Iraq's terrain suffers soil degradation, while more than 70% of once-verdant marshlands have turned to desert, with only 10% remaining intact (PreventionWeb, 2025). These transformations are fuelling erosion, biodiversity loss, and further food and water insecurity. Moreover, climate change is not just reshaping ecosystem, it is multiplying security risks. Displacement, urban overcrowding, and erosion of livelihoods have intensified clashes, often exploited by armed factions (NUPI & SIPRI, 2022; UN DPPA, 2023). The UN Security Council has explicitly recognized climate's destabilizing effects in Iraq, authorizing UNAMI to aid in building resilience across political, environmental, and water-related domains (UN DPPA, 2023). In summary, Iraq faces a convergence of compounding threats: severe drought, rising heat, poor governance, and heavy economic reliance on oil revenues. Without urgent, integrated policies addressing climate, water, agriculture, and energy transitions, the country risks accelerating instability across social, economic, and security dimensions.

Development, Drought, and Displacement in Nigeria : Nigeria is facing an escalating climate crisis that intersects with deep-seated structural vulnerabilities, threatening livelihoods, food security, and national stability. The country's northern regions, particularly the Sahelian belt, are bearing the brunt of these changes. Recent climate assessments warn that rising temperature extremes, coupled with a steady decline in precipitation, are eroding agricultural productivity and exacerbating socio-economic fragility (World Bank, 2023; Adewale & Yusuf, 2024). In 2024, meteorological data indicated that average annual temperatures exceeded 40°C in large swathes of northern Nigeria, making it one of the hottest years since records began. This extreme heat was compounded by the declaration in 2025 of one of the driest years since the 1950s, underscoring the severity of the long-term drying trend (Nigerian Meteorological Agency (NIMET, 2025). Agriculture remains Nigeria's largest employer and a cornerstone of rural livelihoods, yet it is acutely vulnerable to these climate shocks. Prolonged drought and unpredictable rainfall patterns have already triggered significant declines in crop yields. According to the Food and Agriculture Organization (FAO, 2023), maize and millet yields in the northwest fell by approximately 20% in 2022 alone, contributing to sharp increases in food prices and deepening rural poverty. In the northeast, which overlaps with the Lake Chad Basin, these climatic pressures have compounded an already fragile humanitarian situation. Lake Chad, a vital source of water, fishing, and farming livelihoods has continued to shrink, displacing nearly 200,000 people between 2020 and 2024 (Internal Displacement Monitoring Centre (IDMC, 2024).

The security implications of these environmental changes are profound. Water scarcity and declining agricultural productivity have intensified competition over dwindling natural resources, contributing to violent clashes between pastoralists and farming communities in states such as Zamfara, Kaduna, and Plateau. These disputes, fuelled by both environmental stress and long-standing grievances, have accelerated internal displacement. In 2024 alone, climate–conflict dynamics were linked to an estimated 1.7 million new

Displacements, marking one of the highest annual displacement figures recorded in recent years (IDMC, 2025). In the Lake Chad Basin, climate stress has been exploited by insurgent groups, including Boko Haram and its offshoots, to recruit individuals whose livelihoods have been destroyed, further entrenching cycles of violence and instability (Clifford, 2024). Institutional weaknesses further undermine Nigeria's capacity to respond to these interconnected crises. Although national climate adaptation strategies exist, they often lack coherence and integration with broader water management, agricultural resilience, and security policies. Governance fragmentation, inadequate infrastructure, and limited decentralization have weakened early warning systems, leaving local governments and communities ill-equipped to implement timely interventions (Ibrahim, 2024). As a result, adaptation efforts remain reactive and under-resourced, often unable to match the pace of climatic and security challenges.

Environmental degradation in Nigeria is not limited to water and temperature stress. Air pollution and dust storms have worsened considerably over recent decades, particularly in northern cities such as Kano and Maiduguri. A longitudinal study on dust storm frequency found that these urban centers now experience over 50 dusty days per year, a dramatic increase from the 10–20 days recorded in the 1990s (Obioha et al., 2023). Beyond their immediate health impacts, most notably spikes in respiratory illnesses, these dust storms disrupt transportation networks, reduce market activity, and cause school closures, compounding socio-economic vulnerabilities. Looking ahead, climate projections paint an increasingly challenging picture. By 2050, Nigeria's national average temperature could rise by up to 2.5°C, with the northern regions potentially experiencing increases as high as 3°C. Rainfall patterns are expected to become more erratic, increasing the risks of both extreme flooding and intensified droughts (United States Agency for International Development (USAID, 2024). Such conditions could push as many as 15 million Nigerians particularly smallholder farmers and pastoralists into severe food insecurity or force them into displacement (Norwegian Refugee Council NRC, 2025). Crucially, resource scarcity and environmental stress are not only humanitarian concerns but also significant drivers of instability. In the Middle Belt and the Lake Chad Basin, the compounded effects of climate change are intensifying intercommunal violence, fostering insurgency recruitment, and eroding trust in state institutions. While there have been signs of policy shifts such as the Nigerian government's recent integration of climate resilience into security planning, and increased donor support for adaptation programs, these measures remain insufficient in scope and scale. Addressing Nigeria's climate–security nexus will require sustained investment in integrated strategies that combine environmental management, livelihood diversification, peacebuilding, and local governance reform, ensuring that adaptation efforts are both inclusive and resilient to future shocks.

Interprovincial Tensions: Security Ramifications of Climate Change in Iraq : The intersection of climate change, political instability, and communal violence has become increasingly prominent in security discourse, especially in fragile contexts like Iraq. While scholarly debates differ on whether climate change serves as a direct driver of conflict or primarily acts to amplify existing tensions, the evidence from Iraq suggests the latter is more prevalent (Ide, 2023; Krampe et al., 2023). Environmental stressors particularly water scarcity are deepening pre-existing divisions and triggering localized violence, particularly in southern governorates such as Basra, Dhi Qar, and Maysan. In southern Iraq, dwindling water supplies from the Tigris and Euphrates rivers, exacerbated by prolonged droughts, have intensified disputes over water access between farmers, tribal groups, and other resource-dependent communities (UNDP, 2023). These disputes are not merely economic; they are deeply embedded in Iraq's socio-political fabric. Armed confrontations over water rights have become increasingly common, with tribal militias in Basra and neighboring provinces resorting to violence to assert control over dwindling supplies (Mahmoud, 2024). Local leaders have acknowledged that water scarcity now accounts for a significant proportion of communal disputes, a figure likely to rise as climate conditions worsen.
The escalation of these disputes has also been documented in other southern areas, where communities rely heavily on marshland ecosystems for livelihoods. In Dhi Qar's Hor Al-Chibayish and Basra's Al-Medina districts, seasonal water shortages have triggered armed clashes between tribes over fishing grounds, irrigation rights, and pasture access (Al-Hassan, 2023). Such disputes reflect a broader struggle over resource governance, where ineffective state intervention leaves resolution to informal and often violent mechanisms. Climate-induced water scarcity has also contributed to the recruitment dynamics of armed groups and militias. Research by the Norwegian Refugee Council (2023) reveals that in water-stressed districts such as Hawija, Ramadi, and Mosul areas still recovering from the Islamic State (ISIS) insurgency over half of households reported rising communal tensions directly linked to competition for water and agricultural resources. These tensions are particularly acute in districts hosting large numbers of internally displaced persons (IDPs), where the combination of scarcity, poverty, and weak governance creates fertile ground for mobilization by armed actors (NUPI & SIPRI, 2023).

Urban migration patterns further illustrate how environmental degradation contributes to insecurity. Many climate migrants from rural southern Iraq settle in informal urban settlements with limited infrastructure, high unemployment, and weak law enforcement (DTM, 2023). These conditions are conducive to the growth of organized crime networks, militia recruitment, and sectarian violence. In the south, Shiite militias affiliated with the Popular Mobilization Forces (PMF) have drawn on climate-affected populations as a source of manpower, framing recruitment as both a livelihood option and a religious duty (Hassan, Born, & Nordqvist, 2018). The Islamic State's exploitation of environmental vulnerabilities offers another example of the climate–security nexus in Iraq. Studies have shown that diminished agricultural productivity due to drought and mismanagement has increased local willingness to support insurgent groups in exchange for basic resources and services (O'Driscoll, 2018). During the 2014–2015 drought, ISIS strategically targeted water-scarce communities in Tikrit and Kirkuk, providing food, cash, and water in return for loyalty. This underscores how environmental scarcity can become an enabling factor for violent extremism, especially in marginalized areas with historical grievances against the state (UNDP, 2023).

Climate-induced migration is also reshaping Iraq's demographic and security landscape. Intra-state migration from southern Shiite-majority areas to Sunni-dominated central regions has heightened sectarian tensions, as many Sunni communities continue to associate the Shiite-led government with repression and instability (Kurdistan 24, 2024). The relocation of Arab families both Sunni and Shiite into disputed territories between the Kurdistan Regional Government (KRG) and Baghdad has further inflamed sensitivities. These areas, Arabized during the Ba'athist era and reclaimed by Kurdish forces after 2003, remain hotly contested. Following the failed 2017 Kurdish independence referendum and Baghdad's subsequent reassertion of control, a new wave of Arab migration into governorates such as Kirkuk has reignited fears among Kurds of demographic engineering (Rudaw, 2024). Tensions are particularly pronounced in agricultural districts such as Daquq, Lilian, and Debs, where disputes over farmland ownership have led to violent confrontations. Local estimates suggest that approximately 80,000 dunums (nearly 20,000 acres) of fertile land remain contested, with both Arab and Kurdish farmers claiming rights to cultivation (Mahmoud, 2024). Climate migrants, displaced by desertification and loss of arable land in the south, are increasingly seeking opportunities in these regions, further entrenching intercommunal rivalries. In this context, water governance, agricultural investment, and conflict resolution mechanisms are not simply development priorities, they are central to Iraq's stabilization and peacebuilding efforts. Without significant improvements in resource management and equitable access to water, climate change is likely to exacerbate Iraq's existing security challenges, fuelling cycles of displacement, sectarianism, and armed violence (World Bank, 2024; NUPI & SIPRI, 2023).

Interprovincial Tensions: Security Ramifications of Climate Change in Nigeria : Nigeria presents a complex case of how climate change intersects with deep-seated governance deficits, socio-economic inequalities, and multi-layered conflict dynamics to create a volatile security environment. As Africa's most populous nation and largest economy, Nigeria is geographically and politically diverse, but its vulnerability to climate-induced instability is pronounced across multiple regions. The northern Sahelian belt already semi-arid has been hit hardest by rising temperatures, erratic rainfall, and desertification, while the Middle Belt and southern regions face increasing challenges from flooding, erosion, and coastal degradation (World Bank, 2023; Adewale & Yusuf, 2024). The northern regions of Nigeria, particularly in states such as Borno, Yobe, Katsina, and Zamfara, have experienced severe land degradation due to overgrazing, deforestation, and declining rainfall patterns. Desertification has pushed pastoralist herders primarily of Fulani ethnicity, southward into the Middle Belt in search of pasture and water. This migration disrupts local agricultural systems and fuels competition over land, often pitting herders against sedentary farming communities (Abubakar, 2023). These disputes are not merely economic; they are frequently framed through ethnic and religious lenses, which intensifies their potential for escalation. The persistence of this conflict has resulted in thousands of deaths and large-scale displacement, with climate change acting as a structural stressor that exacerbates the frequency and intensity of clashes (International Crisis Group, 2024).

In the northeast, the Lake Chad Basin once a vital resource for fishing, irrigation, and cross-border trade has shrunk by over 90% since the 1960s, a decline linked to both climatic shifts and unsustainable water management practices (FAO, 2023). The loss of livelihoods from fishing, agriculture, and pastoralism has been profound, leaving communities more vulnerable to recruitment by insurgent groups such as Boko Haram and the Islamic State West Africa Province (ISWAP). These groups exploit environmental hardship to offer alternative livelihoods, social services, and a sense of belonging absent from state structures (Nwankpa, 2024). While the insurgency's roots lie in governance failures and radical ideology, climate-induced economic collapse has deepened grievances and prolonged instability in the region (Okoli & Ochayi, 2023). Paradoxically, while

drought dominates in the north, southern and central Nigeria have faced increasing instances of extreme flooding. The 2022 floods, among the worst in the nation's history, affected over 4.4 million people, displaced 1.4 million, and destroyed over 600,000 hectares of farmland (NEMA, 2023). These disasters not only cause direct loss of life and property but also exacerbate food insecurity by destroying harvests and disrupting supply chains. Prolonged displacement, especially in under-resourced states, places enormous strain on public health systems and increases the risk of disease outbreaks such as cholera and malaria (WHO, 2023). In northern Nigeria, dust storms, locally known as harmattan haze have grown in intensity and duration. A recent study found that cities such as Kano and Maiduguri now experience over 50 dusty days annually, compared to just 10–20 days in the 1990s (Obioha et al., 2023). These storms reduce air quality to hazardous levels, impair visibility, and disrupt economic activities, from transportation to outdoor markets. Urban poor communities, often located in informal settlements without adequate housing or sanitation, are disproportionately affected by respiratory illnesses linked to these events (Adewale & Yusuf, 2024). Despite Nigeria's adoption of the National Climate Change Policy (2021) and its establishment of the National Council on Climate Change, adaptation planning remains fragmented and under-resourced. Corruption, institutional rivalries, and weak coordination between federal, state, and local governments undermine the effectiveness of policy implementation (Ibrahim, 2024). Early warning systems for floods and droughts remain inadequate, and climate resilience investments are unevenly distributed, leaving rural and conflict-affected areas with minimal support.

Internal displacement linked to climate change is rising sharply. In 2024 alone, an estimated 1.7 million new displacements were recorded in Nigeria due to a combination of flooding, drought, and farmer–herder violence (IDMC, 2025). Many displaced households migrate toward urban centers such as Abuja, Lagos, and Kano, where they face unemployment, housing insecurity, and social marginalization. These conditions create fertile recruitment grounds for criminal networks, armed militias, and, in some regions, extremist groups (UNDP, 2023). Climate models project that by 2050, Nigeria's average temperatures could rise by 2.5°C, with the northern zones experiencing increases of up to 3°C (USAID, 2024). Rainfall variability is expected to increase, raising the likelihood of both flash floods and prolonged droughts. Under a "business-as-usual" scenario, up to 15 million Nigerians predominantly smallholder farmers and pastoralists could face heightened food insecurity, while conflict over natural resources is projected to intensify in both rural and peri-urban areas (NRC, 2025). Generally, Nigeria's climate–security nexus reveals a dangerous interplay between environmental degradation, livelihood collapse, and violent conflict. As in Iraq, these processes are amplified by governance weaknesses and socio-political divisions, making climate change a potent threat multiplier. Addressing these risks will require not only technical adaptation measures but also robust conflict resolution frameworks, inclusive governance reforms, and sustained investment in climate-resilient livelihoods. Without such integrated strategies, Nigeria risks being locked in a cycle where environmental stress continuously fuels insecurity and displacement.

Comparative Analysis: Nigeria and Iraq : The comparative experiences of Nigeria and Iraq demonstrate that climate change rarely functions as an isolated driver of instability; rather, it interacts with pre-existing vulnerabilities in ways that intensify political, social, and economic fragility. In both contexts, environmental pressures intersect with structural governance deficits, creating a self-reinforcing cycle in which ecological degradation fuels insecurity, and insecurity, in turn, undermines the ability of governments to respond effectively (Busby, 2022; Krampe et al., 2023). This dynamic aligns with the "threat multiplier" concept, whereby climatic stress does not independently cause conflict but exacerbates conditions that make violence more likely. In Nigeria, climate change manifests most visibly in the progressive desertification of the Sahelian belt, where rising temperatures, reduced rainfall, and unsustainable land-use practices have severely degraded pasture and arable land. These environmental shifts have forced pastoralist herders predominantly from the Fulani ethnic group to migrate southward in search of viable grazing lands and water sources. This migration has brought them into increasingly frequent and violent contact with sedentary farming communities, whose livelihoods depend on maintaining access to their cultivated lands (Abubakar, 2023). What might have once been manageable disputes over resource access have become deeply politicized and ethnically charged, partly due to historical grievances and socio-economic marginalization. The breakdown of traditional conflict mediation mechanisms and the absence of effective state intervention have left space for insurgent actors such as Boko Haram and Islamic State West Africa Province (ISWAP) to manipulate these tensions, presenting themselves as protectors of vulnerable communities and benefitting from the socio-economic vacuum left by state neglect (International Crisis Group, 2024).In Iraq, climate insecurity takes on a different but equally destabilizing form. The country is facing severe water scarcity, compounded by an alarming rise in summer temperatures that have exceeded 50°C in recent years (Shafaq News, 2025). This acute heat stress undermines agricultural productivity, especially in southern provinces dependent on irrigation from the

Tigris and Euphrates Rivers. The crisis is further aggravated by transboundary water politics, as upstream states principally Turkey and Iran exercise control over river flows through dam construction and diversion projects. These external constraints combine with Iraq's domestic governance challenges, including weak institutional capacity, poor coordination between central and local authorities, and pervasive corruption, to produce a volatile mix of environmental and political grievances (von Lossow, 2022; World Bank Group, 2022). The failure to provide equitable water access has sparked widespread public protests, with citizens demanding both urgent relief measures and long-term adaptation strategies. Despite these contextual differences, Nigeria and Iraq exhibit strikingly similar structural weaknesses. Both countries suffer from governance deficits characterized by corruption, fragmented policy frameworks, and inadequate public service delivery. These systemic flaws erode the capacity of state institutions to develop and implement coherent climate adaptation and disaster risk reduction strategies (UNDP, 2023). Moreover, the absence of integrated early warning systems, coupled with underdeveloped rural infrastructure and limited decentralization, leaves communities poorly equipped to anticipate and manage climate shocks. As a result, households often adopt coping mechanisms that inadvertently deepen insecurity, including participation in illicit economies, reliance on armed non-state groups for protection, or migration to urban areas already under socio-economic strain (NUPI & SIPRI, 2022).

A further point of convergence is the way in which climate-induced livelihood disruptions have become a driver of recruitment for violent non-state actors. In Nigeria, the continued shrinking of Lake Chad now less than a tenth of its 1960s size has devastated fishing and farming economies, pushing some individuals toward insurgent movements as a means of survival (FAO, 2023). In Iraq, recurring droughts, soil degradation, and the collapse of buffalo herding and crop cultivation have triggered rural-to-urban migration, often into overcrowded cities with high unemployment. In these urban centers, extremist factions exploit socio-economic discontent to mobilize support, recruit fighters, and entrench their influence (NRC, 2023; UN DPPA, 2023). Ultimately, the Nigerian and Iraqi cases underscore the urgent need for integrated, multi-sectoral approaches that bridge the divide between environmental management, peacebuilding, and socio-economic development. Addressing climate change in fragile states requires more than technical adaptation measures; it demands governance reform, conflict-sensitive programming, and inclusive policy frameworks that prioritize the needs of the most vulnerable. Without such coordinated efforts, climate change will continue to act as a potent threat multiplier, eroding stability and undermining the prospects for sustainable peace (Busby, 2022; Krampe et al., 2023).

II. CONCLUSION

This research affirms that the Climate–Security Nexus Theory offers a powerful and multidimensional analytical tool for understanding how climate change interacts with the structural vulnerabilities of fragile states to intensify insecurity. By situating environmental change within the broader context of governance deficits, socio-economic inequalities, and pre-existing conflict dynamics, the framework underscores that climate change functions less as an isolated driver and more as a catalytic force that accelerates and compounds existing sources of instability. The comparative cases of Nigeria and Iraq provide compelling evidence that the impacts of climate change are context-dependent yet share common pathways in eroding resilience and amplifying security threats. In the Nigerian context, the gradual but persistent desertification of the Sahelian belt, coupled with increasingly erratic rainfall patterns and the long-term shrinkage of Lake Chad, has deepened livelihood insecurity, weakened agricultural productivity, and heightened competition over natural resources. These environmental pressures have fuelled recurrent farmer–herder conflicts, particularly in the Middle Belt, where they intersect with ethnic divisions, historical grievances, and governance shortcomings. Violent non-state actors, including Boko Haram and its affiliates, have strategically exploited these vulnerabilities, embedding themselves in communities where state presence is minimal and socio-economic opportunities are scarce. This demonstrates how environmental stress can become deeply enmeshed with violent extremism, creating mutually reinforcing cycles of degradation and conflict.

Iraq, while distinct in its climatic and geopolitical profile, presents an equally stark picture of climate–security interdependence. Severe and recurrent heatwaves exceeding 50°C, intensifying droughts, and diminishing river flows aggravated by upstream water management decisions in Turkey and Iran have placed unprecedented strain on the country's agricultural systems and water security. These environmental stressors, layered atop fragile governance, pervasive corruption, and deep public mistrust in state institutions, have triggered widespread rural–urban migration and heightened the risk of civil unrest. Furthermore, the intersection of domestic fragility with transboundary water disputes adds a geopolitical dimension to Iraq's climate crisis, illustrating how climate change can exacerbate both internal and interstate tensions. Despite these contextual differences, the Nigerian and Iraqi experiences converge on several critical points. Both countries suffer from systemic governance weaknesses, fragmented institutional frameworks, and inadequate service delivery,

All of which limit adaptive capacity and hinder the implementation of effective climate resilience measures. In each case, climate-induced livelihood disruptions have created fertile recruitment environments for violent non-state actors, reinforcing the idea that environmental insecurity can act as both a direct and indirect driver of conflict. Governance failures, rather than climate change alone, are what transform environmental stress into a potent threat multiplier, deepening cycles of fragility and undermining prospects for stability. Addressing these challenges requires more than incremental policy reforms, it demands a comprehensive, integrated, and multi-scalar approach that bridges environmental management, peacebuilding, and socio-economic development. For Nigeria and Iraq, embedding climate resilience into national security strategies is essential, as is strengthening local governance structures, promoting inclusive and equitable natural resource management, and investing in adaptive infrastructure. At the regional and international levels, sustained diplomatic engagement is necessary to manage transboundary environmental disputes, while development partners must commit to long-term, locally grounded support that moves beyond short-term humanitarian interventions. The lessons drawn from these two cases extend beyond their borders. They underscore that the climate–security nexus is not merely an emerging policy discourse but an urgent operational reality with profound implications for global peace and security. Without decisive, coordinated action to build resilience, fragile states will remain trapped in a feedback loop where environmental degradation fuels instability, and instability, in turn, erodes the capacity to adapt to climate change. Breaking this cycle requires not only recognizing climate change as a threat multiplier but also translating that recognition into coherent, context-sensitive strategies that address the root causes of both environmental and political fragility. In doing so, the Climate–Security Nexus Framework becomes not only a conceptual guide but also a practical roadmap for building sustainable peace in an era of accelerating climate risk.

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