CLIMATE CHANGE ADAPTATION AND ENVIRONMENTAL HAZARD MANAGEMENT IN NIGERIA: INTEGRATING INDIGENOUS KNOWLEDGE SYSTEMS AND ENVIRONMENTAL EDUCATION FOR RESILIENCE

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Abstract
Significant influence exists between man, climate, and the environment. Recent happenings have emphatically demonstrated humanity's growing vulnerability to climate change and its threats to human survival, calling for a proactive approach to halt the envisaged ruin. Man's environment is dependent on climatic and environmental conditions, which either ease or complicate human existence. This paper examined how vulnerability to climate change and environmental hazards in Nigeria could be reduced by drawing jointly on indigenous knowledge systems (IKS) and formal climate science, with a particular interest in the complementary role that IKS can play alongside environmental education. The paper is aimed at creating awareness and educating Nigerians on environmental issues and empowering them to protect the environment, since national development cannot be achieved without the environmental protection that environmental education fosters. Given increasing climatic instability, the study synthesizes awareness-raising and mitigation and adaptation solutions to aid and reinforce resilience in Nigerian cities and rural communities. The paper demonstrated that climate-change-induced displacement is a determinant of conflict and a major threat to security in Nigeria, and that such conflicts have become a yardstick for internal migration in the country. This study adopted a qualitative documentary research design. The design was considered appropriate because the study seeks to critically examine the relationship between climate change adaptation, environmental hazard management, indigenous knowledge systems (IKS), and environmental education in Nigeria through the synthesis and analysis of existing literature and documented evidence. The approach enabled the study to draw together findings from previous scholarly studies, policy documents, institutional reports, and other relevant secondary sources to develop an integrated understanding of climate vulnerability and resilience in Nigeria. The paper concludes with recommendations on how indigenous knowledge and scientific-educational approaches can be woven together to strengthen coping capacity in Nigeria.

Keywords: Climate, Climate change, Environmental hazards, Environmental education, Indigenous knowledge systems

Introduction
Climate and environment are not peripheral to human affairs; they are the very stage upon which human existence unfolds. Farming, water supply, health, and where people settle are all shaped by what is happening in the atmosphere and on the land. When that stage becomes unsteady, as it increasingly is worldwide, the effects spread into every corner of society. Nigeria, whose economy and cultural life remain closely tied to land, rainfall, and natural resources, is among the countries most exposed. Its ecological range, from the Sahelian fringe in the far north to the mangrove coastline of the Niger Delta, means there is no single story to tell about climate impact here: desertification, drought, and shrinking grazing land dominate the north; flooding, coastal erosion,

and rising seas dominate the south; and gully erosion tears through the south-east (Okon et al., 2021).

The science on a warming, destabilising climate is no longer seriously disputed. The Intergovernmental Panel on Climate Change have bluntly stated that human activity has warmed the atmosphere, ocean, and land, and that the resulting extremes have already caused widespread, sometimes irreversible harm (IPCC, 2023). For Nigeria, this plays out as recurrent floods, rainfall that no longer follows its old patterns, longer dry spells, and desert-like conditions creeping further south, all chipping away at agricultural output, water and food security, and livelihoods (Akatah et al., 2025; Okon et al., 2021).

The central claim of this paper is that Nigeria cannot cope with climate change and environmental hazards through climate science and formal education alone, nor can it rely purely on inherited practices. Resilience is most achievable where the two traditions reinforce each other: where indigenous early-warning cues are strengthened by satellite forecasting, traditional land management is backed by climate-smart agronomy, and oral wisdom is amplified through environmental education curricula and public campaigns. This departs from treating indigenous knowledge as folklore, or scientific knowledge as the only legitimate basis for policy. National development depends on the kind of environmental protection environmental education fosters, and such education works best when it takes seriously the knowledge communities already hold.

The urgency here is sharpened by Nigeria's demographics. With a population above two hundred million, a large share of whom rely directly on rain-fed farming, artisanal fishing, or herding, climate variability translates almost immediately into pressure on human welfare. Agriculture still employs much of Nigeria's rural workforce and remains a significant part of GDP, so disruptions to rainfall timing, soil fertility, and water availability are direct threats to income and food security, not abstract environmental worries (Okon et al., 2021). At the same time, rapid, often unplanned urban growth has pushed more people into flood-prone lowlands and erosion-prone slopes, adding to the human cost of extreme weather that climate change is expected to make more frequent (IPCC, 2023).

Conceptual Clarifications

Climate and Climate Change

Climate is the long-term pattern of weather, temperature, precipitation, humidity, wind, which defines a region over an extended stretch, usually thirty years or more. It differs from weather, which is what is happening at a given place and moment; an unusually cool morning is weather, while a decades-long shift in when the rains typically begin is climate. Climate change is a statistically significant, lasting shift in these patterns, whether from natural causes like volcanic activity or solar cycles, or, as is now overwhelmingly the case, from human activity, chiefly greenhouse gas emissions from burning fossil fuels, deforestation, and land-use change (IPCC, 2023).

The IPCC's Sixth Assessment Report (2023) states that human influence has warmed the climate system at a pace unmatched in at least two thousand years, bringing more frequent heat waves, heavier rainfall punctuated by longer dry spells, and faster sea-level rise. In Nigeria, this shows up less as a distant statistic and more as lived disruption: planting seasons that no longer follow the old calendar, flood levels no one has seen before, and dry land pushing further south (Okon et al., 2021). Getting the concepts straight matters, because without a shared sense of what separates ordinary weather fluctuation from a genuine climatic shift, public conversation risks either dismissing long-term trends as passing anomalies or blaming every bad-weather day on climate change without

evidence.

Environmental Hazards

Environmental hazards are natural or anthropogenic events or conditions that can cause damage to life, property, or the functioning of an ecosystem. A hazard could usefully be considered as the latent or underlying risk and a disaster as that risk manifesting in a form that overwhelms local coping mechanisms, and that is why a hazard transforming into a disaster comes down so much to adaptive capacity, and includes indigenous knowledge. The major hazards in Nigeria which include flooding, gully and coastal erosion, desertification, drought, deforestation, and land degradation are all being exacerbated by the dual threat of climate change and poor land management (Okon et al., 2021; Osakwe et al., 2025). These hazards can hardly remain isolated: long-term drought in the north, for that matter, tends to trigger desertification, farmer–herder conflict, and distress migration in its wake (Osakwe et al., 2025) which explains why any mitigation that addresses a single hazard in isolation from its cascade effects likewise tends to provide incomplete, temporary relief.

Indigenous Knowledge Systems

Indigenous knowledge systems are the cumulative body of knowledge, practices, and beliefs that evolves through adaptive processes and passes across generations by cultural means, concerning how living beings, humans included, relate to one another and to their environment (Berkes et al., 2000). This knowledge is holistic rather than divided into disciplines, rooted in local cosmology, oral tradition, and communal governance, and tested through lived experience rather than controlled experiment (Berkes, 1999). In Nigeria, it includes traditional weather forecasting based on animal and plant behaviour, indigenous soil and water conservation techniques, communal land-tenure arrangements, and taboos protecting sacred groves and water catchments (Ajibade & Eche, 2017). It typically travels through oral narratives, proverbs, rituals, and apprenticeship within family and age-grade structures rather than classroom-based transmission, a distinction that matters for how it might be respectfully folded into formal environmental education without stripping away the relational qualities that give it meaning within the community.

Theoretical Framework

This paper leans on two complementary theories: Traditional Ecological Knowledge (TEK) theory, associated with Berkes, Colding, and Folke (2000), and Vulnerability Theory, associated with Adger (2006).

Traditional Ecological Knowledge Theory

Berkes et al. (2000) describe traditional ecological knowledge as a cumulative body of knowledge, practices, and beliefs that evolves through adaptive processes and passes down through generations by cultural transmission. Central to their argument is that indigenous management systems work much like formal adaptive management: both rely on continuous feedback from the environment, both tolerate and respond to uncertainty, and both embed learning within institutions that regulate resource use over time. Berkes (1999) breaks TEK into four connected levels: local knowledge of species and landscapes; resource-management practices; social institutions of governance; and worldviews encoding ethics about the human–nature relationship. Applied to Nigeria, this gives conceptual grounding for treating practices like reading cloud patterns or timing planting to a tree's flowering not as superstition but as an empirically grounded understanding capable of working alongside formal climate science.

A further point that matters here is that the social mechanisms through which indigenous knowledge is generated and passed on, local leadership, customary rules of access, embedded worldviews, are themselves part of what makes the knowledge work (Berkes et al., 2000). It cannot simply be

extracted as a stock of discrete facts to slot into scientific frameworks; the institutional and cultural context surrounding it is essential to its reliability and needs to be respected, not bypassed.

Vulnerability Theory

Adger (2006) defines vulnerability as susceptibility to harm from exposure to environmental and social stress combined with a lack of capacity to adapt. It is not just a matter of physical exposure to hazards; it is produced jointly by social, economic, and institutional conditions that determine who can anticipate, cope with, resist, and recover from hazard impacts. Adger draws attention to differential vulnerability: the same flood or drought can devastate one community while leaving a better-resourced or better-informed one relatively unscathed. This lens is essential for understanding Nigeria's experience, because it pulls attention away from the hazard alone and toward the social and institutional factors that determine harm, including whether communities can draw on inherited ecological knowledge as part of their adaptive capacity. This is especially useful for a country as regionally varied as Nigeria, where the north's exposure to desertification, the south's exposure to flooding and erosion, and the Middle Belt's exposure to farmer–herder conflict each call for context-specific responses rather than a single national template.

Taken together, these two theories suggest indigenous knowledge functions as a latent adaptive resource whose value is only realised when it is recognised, supported, and, where appropriate, integrated with scientific knowledge and formal education rather than displaced by them. This directly feeds into the conceptual framework below.

Environmental Education and Climate Change Awareness in Nigeria

A related strand of research looks at the state of environmental and climate change education in Nigeria, generally reporting a troubling gap between the scale of the threat and the level of public awareness. Oruonye et al. (2023), reviewing Nigeria's basic education system, argue that a dedicated climate change and environmental education curriculum would strengthen the system's resilience while empowering youth to lead environmental action, and recommend translating such a curriculum into Nigerian local languages. Eneji et al. (2021), studying rural farmers in Northern Cross River State, found that environmental education significantly shaped farmers' climate change awareness and capacity to adopt sound coping strategies, though this relationship was mediated by gender, with women carrying disproportionate adaptive burdens despite often having less access to formal education.

Mailumo et al. (2018), reviewing climate change education for sustainable development in Nigeria, similarly conclude that although the country has made policy commitments in this area, implementation stays fragmented across ministries and educational levels, with weak teacher training undermining classroom delivery. Together, this literature suggests Nigeria's environmental education deficit is less about missing policy and more about weak translation into classroom practice and language-appropriate materials, a gap into which indigenous knowledge, already trusted and locally understood, could usefully be inserted.

Broader awareness surveys corroborate these curriculum-focused findings. National surveys cited in the Nigerian climate education literature report that most Nigerians remain largely unaware of the technical dimensions of climate change even as they experience its effects directly through altered rainfall, flooding, and rising temperatures, a disconnect that suggests the barrier to climate literacy is not a lack of relevant experience to build from, but an absence of structured educational engagement connecting that experience to broader conceptual frameworks, scientific and, this paper argues, indigenous alike. Evidences from tertiary institutions adds nuance: surveys of

university, polytechnic, and college of education students and staff show general, if uneven, awareness of climate change terminology, but persistent gaps in deeper engagement and practical application outside environmental science departments narrowly defined. Climate and environmental literacy in Nigeria, in other words, remains largely confined to specialist audiences rather than diffused across the wider educated population, let alone the rural and peri-urban communities most exposed to climate hazards.

Socio-Economic Impacts of Climate Change and Environmental Hazards

Empirical assessments of climate impacts in Nigeria consistently document extensive socio-economic disruption. Okon et al. (2021), reviewing climate change impact research across the country, catalogue desert encroachment, wetland loss, declining surface water, soil degradation, flooding, and coastal erosion across Nigeria's geopolitical zones, with the south-east experiencing particularly severe flooding and gully erosion alongside falling crop yields. Akatah et al. (2025) document intensifying heatwaves nationwide, with risks to health, labour productivity, and energy demand, calling for coordinated strategies spanning urban planning, public health, and early-warning systems. Aborode et al. (2025), focusing on flooding in Borno State, report that climate-induced floods have been accompanied by water-related disease outbreaks and worsening malnutrition, showing how environmental hazards compound existing humanitarian vulnerability in conflict-affected regions.

Osakwe et al. (2025) extend this picture by linking climate-induced environmental degradation directly to natural resource conflict, arguing that intensifying desertification in the north, coastal erosion and flooding in the south, and erratic rainfall nationwide function not merely as environmental problems but as real drivers of conflict, displacement, and livelihood insecurity. Together, this evidence shows the socio-economic consequences of climate change in Nigeria are neither hypothetical nor confined to the future; they are already visible in reduced agricultural output, worsening public health, and heightened social tension.

The agricultural dimension deserves particular attention given how central farming is to Nigerian livelihoods. Reviews of climate impacts on Nigerian agriculture consistently report that erratic rainfall, rising temperatures, and greater pest and disease pressure have cut yields of staple crops such as maize, cassava, and rice, while livestock producers face growing heat stress and feed scarcity, and fisheries face shrinking, increasingly contaminated water. These reviews note that farmers already combine coping strategies, crop diversification, adjusted planting calendars, and indigenous knowledge, alongside externally introduced measures such as improved irrigation, showing that formal adaptation programmes tend to operate alongside indigenous coping mechanisms rather than replacing them.

Beyond agriculture, the built environment and urban infrastructure carry substantial and growing costs. Recurrent flooding in Nigerian cities, driven by heavier rainfall meeting inadequate drainage, has repeatedly damaged roads, housing, and public utilities, while coastal erosion along the Atlantic seaboard threatens infrastructure and settlements in low-lying parts of the Niger Delta and Lagos. These impacts compound the agricultural and health effects already documented, producing a cumulative burden that falls hardest on lower-income households with little capacity to relocate or rebuild after a hazard event (Okon et al., 2021).

Climate-Induced Displacement, Migration and Conflict

A distinct but closely related literature addresses the security implications of climate-induced

displacement in Nigeria. Studies of the Lake Chad Basin and the wider Sahelian north document how desertification and shrinking water resources have forced large-scale pastoral and agrarian migration, intensifying competition between farmers and herders over dwindling land and water and, in several documented cases, sparking violent confrontation (Osakwe et al., 2025). Research on the Niger Delta similarly reports that flooding-induced displacement generates resource competition among host and displaced populations, with disputes over fishing grounds and farmland compounding pre-existing tensions (Osakwe et al., 2025).

In north-eastern Nigeria, the interaction between climate stress and the Boko Haram insurgency has produced a particularly severe humanitarian and security crisis: recurrent drought and resource scarcity have combined with conflict-driven displacement to leave millions in protracted vulnerability, with weakened state presence creating conditions insurgent groups have exploited for recruitment (Osakwe et al., 2025). This literature backs the claim that climate-induced displacement functions as a determinant of conflict in Nigeria, and that such conflict in turn becomes a further driver of internal migration, a cyclical dynamic that compounds rather than resolves vulnerability.

Displacement-focused studies further show that congested camps and informal settlements hosting climate-displaced populations often experience secondary public health crises, heightened tension between host and displaced communities, and reduced access to education and healthcare for displaced children, effects that persist well beyond the hazard event that triggered displacement. Governance responses have generally been described as fragmented, reactive, and under-resourced, with security-oriented interventions frequently pursued apart from the environmental and livelihood interventions that would address the underlying drivers of displacement, a disconnect this paper's proposed framework is meant to help bridge.
In fairness, not all scholars treat the relationship between climate stress and conflict in Nigeria as direct or deterministic. Several studies reviewed here caution that climate-induced migration functions as a threat multiplier rather than a sole cause of conflict, with weak governance, poverty, and pre-existing ethnic or religious tension mediating whether resource competition escalates into violence. This cautious framing matters because it implies that strengthening governance and community-level adaptive capacity, including through the kind of indigenous knowledge integration this paper advocates, may do more to prevent conflict than security-focused interventions addressing displacement alone.

Although **the herdsmen-farmers crisis** is a problem that dates back to the pre-colonial period, the frequency of farmers/herdsmen conflicts appears to be on the increase in recent times. There also seem to be no clear consensus among scholars to show time-series evidence and the factor(s) responsible for this rise in violent conflicts between the farmers and the herdsmen (Egbule & Okonta, 2024 in Adigun, 2019). Recently, several claims have been made as to the factors that have given rise to the seeming rising incidence of violent attacks between the herders and the farmers in Nigeria with serious national security implications. The herdsmen-farmers crisis has deep historical roots, but recent shifts in climate patterns have amplified the competition for dwindling natural resources, particularly arable land and water.

Research Gap

Although the literature reviewed here offers considerable insight into indigenous knowledge, climate impacts, environmental education, and climate-induced displacement in Nigeria as separate lines of inquiry, three related gaps remain. First, studies on indigenous knowledge systems tend to document their existence and continuing use but rarely examine how such knowledge might be

deliberately built into environmental education curricula and public climate communication, rather than sitting alongside formal systems on parallel, largely unconnected tracks (Ajibade & Eche, 2017; Oruonye et al., 2023). Second, the literature on environmental education and the literature on climate-induced displacement and conflict have developed largely independently of each other, with little attention paid to whether stronger environmental education, especially education grounded in locally trusted indigenous knowledge, could reduce the vulnerability that turns environmental hazard into displacement and conflict. Third, existing studies rarely frame indigenous knowledge and scientific climate information as complementary rather than competing, leaving a gap around how the two might actually be operationalised together in policy and practice within Nigerian. This paper addresses that composite gap by positioning indigenous knowledge not as an alternative to climate science and environmental education but as a necessary complement for building coping capacity in Nigeria.

There is also a methodological dimension to this gap. Much of the Nigerian literature on indigenous knowledge and climate adaptation is descriptive, documenting the existence of indigenous practices without systematically assessing their comparative effectiveness against, or in combination with, scientific alternatives. Similarly, most environmental education research in Nigeria measures awareness levels or curriculum content rather than testing whether interventions that explicitly incorporate indigenous knowledge produce measurably different adaptive outcomes than conventional, science-only instruction. This paper does not resolve that methodological gap through primary research, which lies beyond its scope as a literature-based synthesis; it simply names the gap and argues that future Nigerian research should prioritise comparative, integrative study designs capable of testing the complementary model advanced here.

Critical Synthesis: The Complementary Role of Indigenous Knowledge Systems

Read through TEK theory and vulnerability theory, the evidence reviewed above supports a central argument: indigenous knowledge systems can meaningfully strengthen Nigeria's capacity to cope with climate change and environmental hazards, but only where they are deliberately woven into, rather than left parallel to, formal climate science and environmental education.

First, indigenous knowledge carries legitimacy and interpretive accessibility that purely technical climate information often lacks. A satellite-derived seasonal forecast may land with rural communities as an abstract, externally imposed pronouncement, whereas a forecast cross-validated against locally recognised indicators, the flowering of familiar trees, the behaviour of local birds, is more likely to be trusted and acted upon (Ajibade & Eche, 2017; Basdew et al., 2017). Environmental education programmes stand to gain by training teachers and extension workers not simply to transmit scientific climate information but to draw out and incorporate the indigenous ecological indicators already familiar to their communities, increasing both credibility and retention.

Second, indigenous knowledge systems encode place-specific adaptive practices, fallowing, agroforestry, communal water governance, that address the same vulnerabilities documented by Okon et al. (2021) and Osakwe et al. (2025): soil degradation, water scarcity, resource competition. These practices are frequently under-resourced in formal policy, yet Adger's (2006) framework suggests that strengthening this kind of locally embedded adaptive capacity offers a more durable route to reducing harm than relying solely on externally designed interventions. Extension and education services could usefully shift from simply supplying new techniques toward validating and reinforcing indigenous ones that already work, supplementing them with scientific inputs such

as soil testing and climate-smart agronomic advice.

Third, the literature on climate-induced displacement and conflict shows that where adaptive capacity, including indigenous knowledge, breaks down under unprecedented climatic stress, communities are pushed toward migration and, often, conflict (Osakwe et al., 2025). Environmental education that strengthens indigenous adaptive capacity, particularly around early warning, water and land management, and dispute-resolution mechanisms embedded in indigenous governance, may function not only as an environmental intervention but as an indirect contribution to conflict prevention in vulnerable regions such as the Lake Chad Basin, the Niger Delta, and the Middle Belt, an under-examined pathway and one of the more significant implications of treating indigenous knowledge as complementary rather than peripheral.

Fourth, and more cautiously, the evidence indicates indigenous knowledge alone cannot carry the full weight of adaptation, given that climate change now increasingly exceeds the range of historical variability upon which indigenous forecasting was built (Ajibade & Eche, 2017). The complementary framing advanced here is not a romanticisation of indigenous knowledge as sufficient in itself, but a recognition, consistent with Berkes et al.'s (2000) theorisation of TEK as an adaptive management system, that it works best as one input within a broader knowledge ecosystem that also includes scientific forecasting and structured environmental education.
Fifth, the regional variety in Nigeria's climate and hazard profile reinforces the case for a complementary rather than uniform national approach. The specific indigenous practices, hazard patterns, and educational needs of the arid north differ substantially from the humid south and the erosion-prone south-east, so any programme integrating indigenous knowledge with formal environmental education needs to be regionally differentiated rather than applied as a single template.

Challenges to Integrating Indigenous Knowledge with Science and Education
Despite its evident promise, integrating indigenous knowledge with climate science and environmental education in Nigeria faces real obstacles. Institutionally, climate and education policy has historically favoured scientific and technical framings, with indigenous knowledge given, at best, marginal acknowledgement rather than systematic incorporation into curricula, extension services, or early-warning systems (Oruonye et al., 2023; Mailumo et al., 2018). Epistemologically, it is often dismissed in formal educational settings as unscientific or superstitious, a bias that discourages both its serious documentation and its classroom use, notwithstanding the theoretical case, made by Berkes et al. (2000), that indigenous ecological knowledge is an empirically grounded body of understanding in its own right.

Generationally, rapid urbanisation, formal schooling that displaces traditional apprenticeship, and the erosion of oral transmission structures, age-grade systems and extended family networks, through which indigenous knowledge historically passed from elder to youth, threaten its continuity independent of any policy barrier (Ajibade & Eche, 2017). Practically, indigenous knowledge is highly localised and varies across Nigeria's ecological zones and ethnic groups, complicating efforts to standardise it in a national curriculum without diluting its specificity or excluding unrepresented communities. Finally, resource constraints, inadequate funding for teacher training, materials, and documentation, continue to hamper the translation of policy commitments into consistent practice (Mailumo et al., 2018; Oruonye et al., 2023).

There is also a risk of superficial or tokenistic integration, where indigenous knowledge is referenced in curricula or policy documents without genuine engagement with knowledge-holders, producing integration in name only. Guarding against this requires that integration efforts be participatory from the start, involving traditional rulers, elders, and community knowledge-holders as active partners in curriculum design rather than as passive sources consulted after key decisions have already been made. Without that grounding, well-intentioned efforts risk reproducing the very marginalisation of indigenous knowledge this paper argues against, while still claiming the language of complementarity.

Strategies for Coping/Recommendations

Building on the synthesis above, this paper proposes the following strategies for strengthening Nigeria's capacity to cope with climate change and environmental hazards through the complementary use of indigenous knowledge, climate science, and environmental education. First, environmental education curricula at the basic and tertiary levels should be redesigned to incorporate documented indigenous ecological knowledge alongside scientific climate content, translated into major Nigerian languages to widen accessibility, as recommended by Oruonye et al. (2023). Again, meteorological and extension services should establish routine arrangements–e.g., community climate forums–through which indigenous forecasting indicators can be cross-validated and communicated with scientific seasonal forecasts within the integrative framework akin to Basdew et al. (2017) Third, teacher education programmes in the Colleges and Faculties of Education need to have modules that focus on How to elicit and respectfully engage with local ecological knowledges in ways that teachers do not have to choose between or displace one knower within the other but can act as bridges between indigenous and scientific ways of knowing. Fourth, climate-related displacement and conflict in particular in the Lake Chad Basin, the Niger Delta and the Middle Belt require policy attention that focuses on building the capacity of indigenous institutions for land, water, and dispute resolution as a means of preventing conflict, rather than adopting the bifurcated approach of treating security response and environmental adaptation as divergent pathways (Osakwe et al., 2026). Fifth, comprehensive and community-based documentation of indigenous knowledges should be considered as an investment in research and policy formulation for its own sake for conserving knowledge at risk from discontinuities across generations and building the evidence base necessary for sound incorporation into the national planning. Finally, public awareness campaigns utilizing radio, community theatre, religious institutions and social media should be developed jointly with community elders to ensure delivery of climate messaging in idioms with which these communities already trust.

Conclusion

This paper investigates the contribution of indigenous knowledge to enhancing the capacity of Nigeria to adapt to climate change and environmental threats. Drawing upon traditional ecological knowledge and theories of vulnerability, it makes the case that indigenous knowledge, formal climate science, and environmental education are required to respond to the challenges of climate that Nigeria is facing. Indigenous knowledge offers locally trusted, place-based approaches that have sustained communities for generations and yet are being challenged by the accelerating pace of climate change. In contrast, climate science and environmental education provide comprehensive and scalable answers, but are frequently met with resistance when perceived as being at odds with local culture. It also shows that climate-related displacement causes conflict, yet conflict also causes displacement, a common cycle in places like the Lake Chad Basin and Niger Delta. Addressing these interrelated challenges will require advancing indigenous knowledge in environmental education within the context of Nigeria's overarching climate, security, and development framework. The integration provides a viable and culturally relevant means of

developing resilience.

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