EPRA International Journal of Economic Growth and Environmental Issues- Peer Reviewed Journal
ISSN: 2321-6247
Volume: 14 | Issue: 2 | February 2026 | Journal DOI: 10.36713/epra0713 | SJIF Impact Factor (2026): 8.844

NATURE-BASED ECONOMIES AND THE POLITICS OF VALUE IN RURAL NIGERIA

Joy Uzezi Onowakpor

Article DOI: https://doi.org/10.36713/epra25998
DOI No: 10.36713/epra25998

ABSTRACT----------
This paper explores nature-based economies (NbEs) and the politics of value in rural Nigeria, positioning everyday livelihood practices within wider debates on sustainability, governance, and development. It examines how rural populations rely on land, water, forests, and biodiversity for economic survival, while simultaneously engaging with contested political and institutional processes that determine access to, and control over, natural resources. Drawing on secondary data, the study synthesises interdisciplinary scholarship on NbEs, nature-based solutions, and rural governance, alongside a comparative review of local, national, and global frameworks for valuing nature. The study is informed by Political Ecology, which emphasises that environmental outcomes are inseparable from power, inequality, and governance. Findings indicate that NbEs underpin rural livelihoods, yet their benefits are unevenly distributed due to weak governance, elite capture, and policies prioritising commercial or extractive interests. The study also shows that practices such as agroforestry and ecosystem restoration enhance livelihood security and support climate adaptation; however, their transformative potential is constrained by conflict dynamics, institutional fragmentation, and limited integration into development planning. Furthermore, the paper demonstrates that the valuation of nature is inherently political, shaped by competing livelihood claims, conservation objectives, and development priorities. It concludes by recommending more robust participatory governance, closer integration of NbEs into rural development and conflict-prevention strategies, and the establishment of sustainable financing and regulatory mechanisms to promote equitable, inclusive, and environmentally sustainable outcomes.

KEYWORDS: *Community-Based Management, Governance, Nature-Based Economies, Rural Livelihoods, Sustainable Development----------*

I. INTRODUCTION

Rural regions remain central to national economies and global sustainability, supplying food, water, energy, and raw materials while sustaining some of the world's most diverse ecosystems. In Nigeria, rural livelihoods are deeply intertwined with agriculture, small-scale forestry, fishing, and pastoralism, sectors that underpin national development and contribute to wider climate and sustainability agendas (Bitrus, 2023; Hanachor & Olumati, 2018). Internationally, rural landscapes are increasingly recognised as critical reservoirs of biodiversity and ecosystem services. However, the economic and political significance of the natural resources that sustain these areas is frequently contested, reflecting long-standing tensions between conservation goals, development priorities, and social equity.

Within this context, the concept of nature-based economies (NbEs) has emerged as an alternative to extractive and environmentally degrading development models. NbEs emphasise economic activities that derive value from nature while maintaining or restoring ecological integrity, aligning closely with the principles of nature-based solutions (NbS). Globally, such approaches have been deployed to address climate adaptation, disaster risk reduction, and rural poverty (Seddon et al., 2020; United Nations Environment Programme / Environment Assembly [UNEP/EA], 2022; International Union for Conservation of Nature [IUCN], 2021). Experiences from countries such as the Netherlands, where green infrastructure reduces flood risk while enhancing urban liveability, and Kenya, where agroforestry strengthens soil fertility and household incomes, demonstrate the potential of NbEs to reconcile economic productivity with environmental stewardship (Boelee et al., 2017; Mwangi et al., 2020).

Despite this growing recognition, the valuation of nature remains politically fraught. Across Africa, Asia, and Latin America, weak governance, unequal access to resources, and institutional fragmentation continue to undermine both

livelihoods and ecosystems (Osawe & Osimen, 2023; Sule et al., 2024). In Nigeria, deforestation, oil pollution in the Niger Delta, and unsustainable farming practices have accelerated land degradation, biodiversity loss, and food insecurity (Sabiu & Magaji, 2024; Sule et al., 2024).

The politics of value surrounding nature extends beyond material resources to include ecosystem services, cultural meanings, and social relations. Conventional market-based valuation systems frequently fail to capture these dimensions, prompting international efforts to adopt more inclusive frameworks. Initiatives such as the Sustainable Development Goals and the IUCN NbS framework stress that nature delivers economic, cultural, and regulatory benefits that must be reflected in policy and governance (IUCN, 2021; UNEP/EA, 2022). In rural Nigeria, this challenge is particularly pronounced, as communities operate within layered governance systems involving statutory institutions, customary authorities, and local associations, all of which shape access to and control over natural resources.

Nature-based economies provide practical avenues for aligning environmental sustainability with socioeconomic development. International examples illustrate this potential: watershed restoration in Ghana has improved water quality and agricultural productivity, while green infrastructure in European cities has reduced flood risks and supported local economies (Adams et al., 2021; Boelee et al., 2017). In East Africa, agroforestry systems have enhanced food security, increased incomes, and contributed to climate mitigation through carbon sequestration (Mwangi et al., 2020). These experiences offer valuable lessons for Nigeria, where similar interventions can be adapted to diverse ecological and social conditions.

Conceptually, NbEs signal a shift away from extractive growth models towards development pathways that recognise natural capital as foundational to economic and social wellbeing (Faivre et al., 2017; Seddon et al., 2020). Practically, they offer tools for policymakers and development practitioners seeking to address climate vulnerability, resource conflicts, and rural poverty. In Nigeria, where climate variability, deforestation, and overgrazing increasingly threaten rural livelihoods, NbEs hold potential to transform environmental pressures into opportunities for sustainable development.

Climate change and environmental degradation are global processes with deeply localised consequences. Nature-based interventions such as reforestation, wetland rehabilitation, and community-managed conservation have been implemented worldwide to enhance resilience, support food systems, and generate income (Calliari et al., 2019; Geneletti et al., 2020). In northern Nigeria, where declining rainfall and soil exhaustion undermine traditional farming and pastoral systems, NbEs can play a critical role in supporting adaptation while contributing to broader international climate objectives.

The political economy of natural resource use remains central to debates on governance and development. Conflicts over land, forests, and water frequently arise from competing claims by state institutions, private actors, and local communities (Osawe & Osimen, 2023). International experience suggests that participatory governance arrangements, benefit-sharing mechanisms, and ecosystem service valuation tools can help mediate such conflicts and align economic incentives with conservation goals. Applying these approaches in Nigeria offers opportunities to strengthen rural governance and ensure that NbEs deliver tangible social and ecological benefits.

Rural Nigeria thus confronts the dual imperative of sustaining livelihoods while safeguarding ecological integrity (Bitrus, 2023; Hanachor & Olumati, 2018). Integrating nature-based economies into rural development strategies provides a means of reconciling these objectives, framing resource management as a negotiated process shaped by political, economic, and environmental considerations (IUCN, 2021; UNEP/EA, 2022). By situating Nigeria's rural experience within the wider global discourse on NbEs, this study highlights the connections between local practices, national policy, and international sustainability commitments.

Accordingly, this paper pursues three core objectives: first, to examine how nature-based economies are understood and implemented within rural Nigeria; second, to analyse how the economic and ecological value of natural resources is negotiated across local, regional, and national governance structures; and third, to assess the social and environmental implications of NbEs, drawing on Nigerian and international experiences to inform policy and practice.

EPRA International Journal of Economic Growth and Environmental Issues- Peer Reviewed Journal
ISSN: 2321-6247
Volume: 14 | Issue: 2 | February 2026 | Journal DOI: 10.36713/epra0713 | SJIF Impact Factor (2026): 8.844

2.0 LITERATURE REVIEW

2. 1. Nature-Based Solutions (NbS) in Nigeria

Nature-based solutions (NbS) have gained prominence internationally as integrated approaches to climate adaptation, environmental governance, and sustainable development. By working with natural systems rather than against them, NbS seek to reduce exposure to climate risks while delivering social and economic co-benefits (Cohen-Shacham et al., 2019; UNEP/EA, 2022; Ayuba & Oruonye, 2023). At a global scale, NbS foreground the multifunctional character of ecosystems, linking ecological restoration with livelihood support, resilience building, and income generation (Raymond et al., 2017; Seddon et al., 2020). European experiences illustrate this well, where green infrastructure, landscape-scale reforestation, and integrated agroforestry schemes have mitigated flooding, reduced urban heat stress, enhanced biodiversity, and contributed to employment and social wellbeing (Faivre et al., 2017; Kabisch et al., 2017; Geneletti etal, 2020).

In Nigeria, NbS have increasingly been mobilised to respond to pressing environmental challenges, including flooding, desertification, soil erosion, and ecosystem degradation. Agroforestry represents one of the most widely adopted approaches, particularly in northern regions, where the integration of trees into agricultural systems improves soil fertility, provides fodder and fuelwood, and diversifies household income sources (Mwangi etal, 2020). Comparable initiatives in Kaduna and Plateau States demonstrate the potential of watershed restoration to enhance water retention, reduce flood risk, and support agricultural productivity (Adams etal, 2021; Boelee et al., 2017). These interventions reflect broader global NbS principles, underscoring the relevance of ecosystem-based management for rural livelihoods.

Building on NbS, the concept of nature-based economies (NbEs) extends the role of ecosystems beyond protection and restoration, framing them as active contributors to wealth creation and livelihood security. NbEs encompass economic systems in which ecological processes underpin income generation, climate resilience, and social wellbeing (Raymond et al., 2017; Seddon et al., 2020). In northern Nigeria, for example, community-led wetland rehabilitation has simultaneously reduced flood exposure, improved water quality, and supported local fisheries, illustrating the close interdependence between ecological recovery and economic benefit (Ahmad et al., 2025). Similar outcomes have been reported in Kenya, where agroforestry enhances biodiversity while supplying timber, fruit, and fodder, and in Ghana, where watershed rehabilitation has strengthened crop yields and community resilience (Mwangi etal, 2020; Adams etal, 2021).

NbEs also play a significant role in livelihood diversification, particularly for women and young people who are often most vulnerable to environmental and economic shocks. In north-west Nigeria, activities such as afforestation, beekeeping, and community-managed irrigation schemes have created alternative income streams, reducing reliance on single livelihood sources and increasing adaptive capacity (Ahmad et al., 2025). Reforestation initiatives in Kaduna State further demonstrate how the production of timber and non-timber forest products can generate household income while advancing broader environmental objectives (Olusola etal., 2025). This deliberate coupling of ecological management with economic empowerment is a defining feature of NbEs.

International scholarship highlights governance and participation as critical determinants of NbS effectiveness. Evidence from Europe suggests that coordination across local, regional, and national levels, combined with meaningful stakeholder engagement, enhances long-term sustainability and maximises social and ecological co-benefits (Kabisch et al., 2017). Decision-support tools, including impact assessment frameworks widely applied in European agroforestry and urban green infrastructure projects, help balance trade-offs between income generation, biodiversity conservation, and climate resilience (Geneletti etal, 2020). Such approaches offer useful insights for Nigeria, particularly in guiding community participation in wetland restoration, sustainable agriculture, and reforestation programmes.

Beyond environmental restoration, NbS and NbEs generate wide-ranging co-benefits. Ecologically, interventions such as agroforestry and wetland rehabilitation improve soil quality, water regulation, and biodiversity. Socially, they support employment creation, strengthen community cohesion, and enhance the agency of marginalised groups. Economically, they diversify livelihoods through crops, timber, honey, and fisheries, reducing vulnerability to climate and market volatility (Raymond et al., 2017; Frantzeskaki et al., 2019; Ahmad et al., 2025). By positioning ecosystems

as productive assets rather than passive resources, NbEs challenge extractive development models and offer a globally informed yet locally grounded pathway for sustainable rural development in Nigeria.

2.2. Socioeconomic Impacts

The implementation of NbS in Nigeria has significant implications for poverty alleviation and income generation. Ahmad et al. (2025) report that local communities in Northwest Nigeria who engage in tree planting, wetland restoration, and community-based irrigation schemes have improved household incomes and reduced economic vulnerability. Similarly, Yakubu, Magaji, and Magaji (2025) demonstrate that agroforestry and sustainable land management initiatives in Jigawa State enhance food security while generating supplementary income through timber, fruits, and fodder.

NbS also have gendered and vulnerable-group impacts. Women and marginalised households often rely directly on ecosystem services for sustenance and income. Oyekale (2014) highlights that climate change disproportionately affects women and female-headed households in Northern Nigeria due to their dependence on rain-fed agriculture. Abiola etal. (2025) further emphasise that indigenous groups in Kaduna State face compounded vulnerabilities to climate-induced resource scarcity, making participation in NbS projects critical for improving their resilience and livelihoods. Programs such as community forestry and beekeeping have been particularly empowering for women, providing both financial independence and social recognition.

Beyond economic outcomes, NbS influence insecurity and conflict dynamics. Magaji etal. (2022) demonstrate that environmental degradation and resource scarcity contribute to youth unemployment and social unrest, while climate-peace hubs in Northwest Nigeria illustrate how NbS can reduce tensions over natural resources by creating alternative livelihoods (Climate Diplomacy, 2024). For instance, watershed restoration projects in Kaduna and Plateau States have helped mediate farmer–pastoralist conflicts by providing communal grazing areas and reliable water sources, reducing competition over scarce resources.

2.3. Politics of Value

The politics of value within nature-based economies centres on how natural resources are valued, governed, and distributed among competing actors. In rural Nigeria, land, water, and ecosystems hold multiple forms of value. Economically, they provide the basis for farming, fishing, and livestock production; socially, they sustain cultural practices and community cohesion; ecologically, they underpin biodiversity conservation and climate regulation (Osawe & Ikhayere, 2021). Decisions about access and use are therefore deeply political, shaping who benefits from nature-based economic activities and who bears the associated costs.

Tensions frequently emerge between local and external valuations of ecosystems. While rural communities may prioritise land and water for subsistence agriculture or grazing, national governments and international actors may emphasise conservation objectives, carbon markets, or large-scale commercial agriculture. In Nigeria, foreign and domestic agricultural investments have, in some cases, restricted access to land for smallholder farmers, raising concerns about equity, displacement, and social justice (World Bank, 2010). These dynamics reveal persistent conflicts between immediate livelihood needs and longer-term environmental or economic agendas.

NbEs also involve complex trade-offs and co-benefits. For example, wetland restoration in Kaduna not only improves water availability and flood mitigation but also supports fish farming, which contributes to household income (Ahmad et al., 2025). Similarly, agroforestry in Kenya has enhanced soil fertility and provided timber, fodder, and fruit (Mwangi et al., 2020). The politics of value lies in recognising these multiple functions and negotiating whose interests are prioritised in policy and management decisions.

Equity remains a central concern in the valuation of nature. Decisions regarding resource use and conservation can advantage certain groups while marginalising others. Intergenerational equity is particularly relevant in NbEs, as unsustainable practices today can compromise the livelihoods of future generations (Osawe & Ikhayere, 2021). For instance, overgrazing or illegal logging in Nigeria's Middle Belt has led to resource degradation, impacting both present and future community incomes.

2.4. Rural Development and Natural Resource Governance

Rural communities are central to the success of NbEs, acting as both custodians of natural resources and beneficiaries of ecosystem services. Effective rural development under NbEs involves empowering communities to manage forests, farmlands, and water systems sustainably while integrating livelihood diversification and climate adaptation strategies (Hanachor & Olumati, 2018). For example, in Gwagwalada, Abuja, community-based interventions linking reforestation to small-scale farming have strengthened local food security while preserving soil quality (Jafaru etal., 2024).

Governance is critical to ensuring that NbEs deliver sustainable benefits. Osawe (2020) and Yila etal (2020) highlight that inequitable resource distribution and unresolved conflicts between farmers and pastoralists in Northern Nigeria undermine agricultural productivity and ecosystem health. For example, disputes over grazing routes in Kaduna and Plateau States have occasionally escalated into violent clashes, illustrating how governance failures can erode both social cohesion and economic resilience.

A political ecology perspective helps to understand these dynamics by revealing how power shapes access to, and control over, resources. Land tenure systems, customary authority structures, and state policies often determine who benefits from NbEs. In Nigeria, elite capture of community forest management projects has sometimes excluded smallholders from decision-making and revenue streams (Osawe & Ikhayere, 2021). Understanding these power asymmetries is essential for designing NbEs that are inclusive and sustainable.

Institutional capacity and regulatory frameworks play a decisive role. Well-structured governance systems support conflict resolution, monitor ecosystem health, and ensure equitable benefit-sharing. Conversely, weak regulatory oversight can lead to illegal logging, overgrazing, and inequitable access to land or water, undermining the sustainability of NbEs (Osawe, 2020). Successful NbEs therefore require governance that is participatory, accountable, and adaptive to local conditions.

Finally, rural development within NbEs emphasises co-benefits and multifunctionality. Nature-based economic strategies that simultaneously enhance livelihoods, strengthen climate resilience, and maintain ecosystem services provide a holistic approach to rural prosperity. In Kaduna State, agroforestry and wetland restoration projects have improved household incomes, reduced vulnerability to floods, and sustained biodiversity, demonstrating how NbEs integrate development and conservation objectives (Ahmad et al., 2025; Olusola et al., 2025).

2.5. Challenges and Limitations

Despite their potential, NbS in Nigeria face significant challenges. Governance failures, unequal resource distribution, and unresolved conflicts frequently undermine their effectiveness. Osawe and Osimen (2023) highlight that overlapping responsibilities among local governments and traditional authorities create institutional gaps, while Yila e tal (2020) note that disputes between farmers and pastoralists often limit access to restored ecosystems. Such conflicts reduce the sustainability of NbS interventions and may discourage community participation.

Environmental degradation remains a pressing limitation. Deforestation, pollution, and climate variability compromise the effectiveness of NbS. Sule et al. (2024) describe how deforestation in Lagos and Ogun States exacerbates flooding and urban heat, while Sabiu and Magaji (2024) argue that oil exploration and climate change in the Niger Delta region have significantly reduced ecosystem capacity to provide co-benefits. In these contexts, NbS must contend with both human-induced pressures and climate variability.

Political and market barriers also limit the adoption of NbEs. World Bank (2016a; 2016b) emphasise that weak regulatory frameworks, lack of incentives, and limited access to finance often prevent communities from investing in sustainable land management and ecosystem-based enterprises. For example, smallholder farmers in Northern Nigeria may be aware of agroforestry benefits but lack the capital to purchase seedlings or establish irrigation systems. All things considered, while NbS offer promising avenues for climate adaptation and rural development, their success is contingent on robust governance, community engagement, and integrated planning that addresses both environmental and socio-economic challenges.

EPRA International Journal of Economic Growth and Environmental Issues- Peer Reviewed Journal
ISSN: 2321-6247
Volume: 14 | Issue: 2 | February 2026 | Journal DOI: 10.36713/epra0713 | SJIF Impact Factor (2026): 8.844

3.0. ANALYTICAL THEMES

3.1. Valuation of Nature

The valuation of nature in rural Nigeria is deeply intertwined with the livelihoods, culture, and survival strategies of local communities. Natural resources such as farmland, forests, rivers, and grazing lands constitute the primary source of subsistence and income for rural households (Abiola etal., 2025; Magaji & Musa, 2024). For example, in Kaduna State, indigenous farming communities rely heavily on rain-fed agriculture and forest products for food, fuel, and small-scale trade, making environmental changes directly influential on economic security (Olusola etal., 2025). The depletion of these resources due to climate change, desertification, or over-extraction diminishes both their material value and the social security they provide, highlighting that nature's worth is not only ecological but also socio-economic.

Economic valuation of natural resources in rural areas is closely linked to market dynamics and state policies. Timber exploitation, irrigation schemes, and local fisheries in regions such as Lagos and the Niger Delta illustrate how natural resources are commoditised and integrated into regional economies (Adegun & Olokesusi, 2021; Osawe & Osimen, 2023). However, the benefits of such exploitation are often unevenly distributed. Wealthier farmers or political elites may capture the majority of profits, while marginalised groups, such as women or pastoralists, receive minimal returns despite their reliance on these resources for survival (Adekoya et al., 2025). This dual economy where nature serves both subsistence and capital accumulation demonstrates the political stakes in how resources are valued and accessed. Nature-based solutions (NbS) have emerged as a way to enhance the economic and ecological value of natural systems in rural Nigeria. For instance, agroforestry projects in Jigawa State integrate tree planting with crop cultivation, improving soil fertility and diversifying farmers' income through fruit, timber, and fodder (Mwangi et al, 2020). Similarly, watershed rehabilitation initiatives in Ghana and northern Nigeria have improved water availability for irrigation while supporting local economies through employment and community-led management (Adams et al., 2021; Ahmad et al., 2025). These examples show that the economic valuation of nature is not merely about extraction but can include restoration and sustainable management practices that create long-term material and social benefits.
Cultural and social perceptions of nature also shape its valuation in rural Nigerian contexts. Sacred groves, traditional grazing lands, and ritual rivers are protected not simply for economic reasons but for cultural heritage and social cohesion (Hanachor & Olumati, 2018; Osawe, 2020). In northern Nigeria, pastoralist communities often preserve specific grazing corridors and water points, recognising their significance for intergenerational livelihoods. These practices highlight that the worth of nature is multi-dimensional: it encompasses ecological services, economic utility, and social identity, and cannot be captured fully through market-based measures alone.

The politics of natural resource valuation becomes apparent in conflicts over land and water. Farmer–herder clashes in Plateau and Benue States, for instance, reveal competing claims over the economic and symbolic value of land and water resources (Yila etal., 2020; Osawe & Ikhayere, 2021). Here, nature is both a resource to be exploited and a political instrument, with control over land determining bargaining power, access to state protection, and social influence. Such conflicts illustrate that the value of natural resources is often contested, and that political and social hierarchies influence which actors benefit from ecological wealth.

Finally, efforts to formalise nature's value through policy frameworks have begun to shape rural economies in Nigeria. Initiatives by IUCN, UNEP, and local governments advocate recognising ecosystem services such as soil fertility, carbon sequestration, and flood mitigation in decision-making (IUCN, 2021; UNEP/EA, 2022; Seddon et al., 2020). In practice, however, these frameworks often favour communities with institutional access or governmental connections, while more vulnerable populations remain excluded from benefits. For example, climate-resilient agricultural schemes in Zango Kataf, Kaduna State, have increased local income but primarily for farmers who can participate in official programmes, leaving smaller-scale or subsistence farmers marginalised (Abiola etal., 2025; Olusola etal., 2025). Thus, the valuation of nature is inseparable from questions of equity, governance, and political power in rural Nigeria.

3.2. Nature-Based Economies as Livelihood Strategies

Nature-based economies constitute a central livelihood strategy for rural populations across Nigeria, particularly in regions where formal employment opportunities are limited. Agriculture, pastoralism, forestry, and fishing remain the primary means through which households generate income and secure food (Magaji & Musa, 2024; Hanachor &

Olumati, 2018). In northern Nigeria, for example, smallholder farmers depend on rain-fed cultivation of maize, millet, and sorghum, while pastoral communities rely on access to grazing lands and water resources to sustain livestock-based economies (Osawe, 2020). These livelihood systems are deeply embedded in local ecosystems, making environmental stability a critical determinant of rural economic survival.

Climate change has intensified reliance on nature-based livelihoods while simultaneously undermining their viability. Rising temperatures, erratic rainfall, and land degradation have reduced agricultural productivity and increased livelihood insecurity in states such as Kaduna, Jigawa, and Katsina (Abiola et al., 2025; Yakubu et al., 2025). As farming and pastoral systems become more vulnerable, rural households increasingly diversify their nature-based activities, combining crop production with forest product harvesting, seasonal migration, or informal trade in natural resources. These adaptive strategies reflect the dynamic character of nature-based economies, where livelihoods are continually reshaped in response to environmental stressors (Olusola etal., 2025).

Nature-based solutions (NbS) have emerged as an important mechanism for strengthening rural livelihood resilience. Agroforestry, soil conservation, and watershed rehabilitation initiatives demonstrate how environmental restoration can support income generation and food security (Ayuba & Oruonye, 2023; Ahmad etal., 2025). In northwest Nigeria, agroforestry practices that integrate trees into farmland have improved soil fertility and provided additional income streams through fruit harvesting, fuelwood, and fodder (Mwangi etal, 2020). Such interventions illustrate how nature-based economies can move beyond subsistence towards more diversified and sustainable livelihood models.

Beyond income generation, nature-based economies contribute to social stability and community resilience. Evidence from ecosystem restoration projects indicates that collective management of natural resources strengthens social cohesion and reduces vulnerability to conflict (Adams etal., 2021; Yila etal., 2020). In rural Nigerian communities, shared reliance on water points, grazing corridors, and forest reserves often encourages cooperation and informal governance structures. However, when these resources become scarce or unevenly managed, the same nature-based systems can become sources of tension, particularly between farmers and pastoralists competing for land and water (Osawe & Ikhayere, 2021).

The political economy of nature-based livelihoods is shaped by unequal access to resources and institutional support. While rural populations depend heavily on ecosystems for survival, state policies and development interventions frequently prioritise large-scale agricultural or extractive projects that marginalise smallholder farmers and pastoralists (Osawe & Osimen, 2023). For instance, land acquisition for commercial farming or infrastructure development can disrupt local livelihood systems without adequate compensation, undermining traditional nature-based economies. These dynamics reveal how the politics of value determine whose livelihoods are recognised, protected, or sacrificed in the pursuit of economic development.

Nature-based livelihoods are also closely linked to issues of poverty, insecurity, and economic exclusion. Studies show that environmental degradation and declining agricultural productivity contribute to youth unemployment and rural-urban migration, increasing social and economic insecurity (Magaji etal., 2022; Jafaru etal., 2024). In this context, nature-based economies serve as both a safety net and a site of vulnerability. While access to land and natural resources can mitigate poverty, insecurity and weak governance structures often limit the capacity of rural households to fully benefit from these assets (Adekoya etal., 2025).

Finally, the sustainability of nature-based economies in rural Nigeria depends on how ecological value is integrated into development planning and governance. International and national frameworks increasingly recognise ecosystem services as critical to sustainable development and climate adaptation (IUCN, 2021; UNEP/EA, 2022; Seddon et al., 2020). However, translating these frameworks into meaningful livelihood improvements remains uneven. Where policies fail to account for local knowledge and power relations, nature-based economies risk being instrumentalised for external interests rather than serving as inclusive livelihood strategies for rural populations (Calliari etal., 2019). This underscores the need to situate nature-based livelihoods within broader debates on equity, governance, and the politics of value in rural Nigeria.

EPRA International Journal of Economic Growth and Environmental Issues- Peer Reviewed Journal
ISSN: 2321-6247
Volume: 14 | Issue: 2 | February 2026 | Journal DOI: 10.36713/epra0713 | SJIF Impact Factor (2026): 8.844

3.3. Conflict, Governance, and Equity

Nature-based economies in rural Nigeria are increasingly shaped by conflict dynamics that arise from competition over land, water, forests, and grazing resources. As livelihoods remain heavily dependent on natural ecosystems, environmental stressors such as climate change and land degradation intensify struggles over access and control (Abiola etal., 2025; Yakubu etal., 2025). In northern Nigeria, declining pasture and water availability have heightened tensions between farming and pastoral communities, turning nature-based livelihood systems into arenas of contestation rather than cooperation (Osawe, 2020). These conflicts reflect deeper structural issues in how natural resources are governed and valued.

Farmer–herder conflicts represent one of the most visible manifestations of nature-based conflict in rural Nigeria. Studies show that shifting climatic patterns and expanding agricultural frontiers have reduced traditional grazing routes, undermining pastoral livelihoods and provoking violent confrontations (Yila etal., 2020). In states such as Benue, Plateau, and Kaduna, disputes over farmland and water points are not merely environmental but political, involving questions of land tenure, citizenship, and authority. The unequal enforcement of land-use regulations often exacerbates these tensions, privileging settled agricultural communities over mobile pastoralists (Osawe & Ikhayere, 2021).

Governance failures play a central role in escalating resource-based conflicts. Weak institutional frameworks, overlapping land-use laws, and inconsistent policy implementation undermine effective natural resource management (Osawe & Osimen, 2023). In many rural areas, customary institutions operate alongside formal state systems, creating ambiguity over rights and responsibilities. Where governance structures fail to mediate competing claims fairly, local actors resort to self-help and violence, particularly in regions where state security presence is limited (Climate Diplomacy, 2024). This governance gap highlights how the politics of value determines which claims to nature are recognised and protected.

Nature-based solutions (NbS) have been promoted as tools for reducing conflict and strengthening governance by fostering cooperative resource management. Ecosystem restoration, watershed management, and community-based land-use planning initiatives have demonstrated potential to reduce tensions by improving resource availability and encouraging shared stewardship (Adams etal., 2021; Ahmad etal., 2025). In northwest Nigeria, NbS projects linked to livelihood support have helped rebuild trust between communities by aligning environmental restoration with economic incentives. However, their effectiveness depends on inclusive participation and equitable benefit-sharing.
Equity remains a critical challenge in the governance of nature-based economies. Marginalised groups, particularly women, youth, and pastoralists often have limited access to land, credit, and decision-making processes, despite their dependence on natural resources for survival (Hanachor & Olumati, 2018; Magaji etal., 2022). Development interventions frequently reinforce existing power hierarchies by engaging local elites or landowners while excluding vulnerable populations. This uneven distribution of benefits underscores how governance systems reproduce social inequality within nature-based economies.

The political economy of natural resource governance also influences patterns of insecurity and economic exclusion. Studies linking insecurity to economic outcomes in Nigeria demonstrate that conflict disrupts agricultural production, discourages investment, and deepens poverty in rural areas (Adekoya etal., 2025; Jafaru etal., 2024). Where governance structures fail to address environmental grievances, nature-based economies become fragile, pushing rural youth towards migration or informal and sometimes illicit economic activities. Conflict thus reshapes the value of nature from a livelihood asset into a source of risk.

International and national policy frameworks increasingly recognise the role of environmental governance in peacebuilding and equity. Organisations such as IUCN and UNEP advocate integrated approaches that link ecosystem management with social justice and conflict prevention (IUCN, 2021; UNEP/EA, 2022). Similarly, climate–security initiatives in northern Nigeria highlight the need to embed peacebuilding within climate adaptation strategies (Climate Diplomacy, 2024). While these frameworks provide normative guidance, their translation into local governance remains uneven and often constrained by institutional capacity.

In the final analysis, conflict, governance, and equity are inseparable in shaping the politics of value within rural Nigeria's nature-based economies. How land, water, and ecosystems are governed determines who benefits from nature and who bears the costs of environmental change. Without inclusive governance mechanisms that recognise diverse livelihood systems and power relations, nature-based economies risk perpetuating conflict and inequality rather than fostering resilience and peace (Calliari etal., 2019; Seddon et al., 2020).

3.4. Integration into Policy and Development Planning

The integration of nature-based economies into policy and development planning in rural Nigeria has gained increasing attention as climate change, insecurity, and rural poverty intensify. Rural livelihoods remain heavily dependent on land, water, forests, and biodiversity, yet these assets are often weakly reflected in formal development strategies (Magaji & Musa, 2024; Hanachor & Olumati, 2018). Development planning has traditionally prioritised infrastructural growth and extractive activities, frequently overlooking the ecological foundations of rural economies. As a result, the value of nature-based livelihoods is often marginalised within national and sub-national policy frameworks.

Recent policy discourse has begun to recognise nature-based solutions (NbS) as viable tools for climate adaptation and rural development. International organisations such as IUCN and UNEP promote the integration of ecosystem services into planning processes, emphasising benefits such as food security, flood control, and livelihood resilience (IUCN, 2021; UNEP/EA, 2022). In Nigeria, this approach aligns with efforts to address environmental degradation in vulnerable regions such as the Niger Delta and northern savannah zones (Sabiu & Magaji, 2024; Ayuba & Oruonye, 2023). However, while NbS feature prominently in policy rhetoric, their operationalisation within rural development plans remains uneven.

Agricultural and climate-related policies provide key entry points for integrating nature-based economies into development planning. Studies from Kaduna and Jigawa States show that climate-resilient agricultural initiatives, including soil conservation and agroforestry, can enhance productivity while preserving ecosystem functions (Olusola etal., 2025; Yakubu etal., 2025). Nevertheless, such initiatives are often implemented as short-term projects rather than embedded within long-term planning frameworks. This project-based approach limits scalability and fails to institutionalise nature-based economic strategies within rural governance systems.

The politics of value becomes evident in how policy frameworks prioritise certain uses of nature over others. Large-scale commercial agriculture, mining, and oil exploration are frequently favoured in national development plans, often at the expense of smallholder farmers and pastoralists who depend on ecosystems for subsistence (Osawe & Osimen, 2023; Sabiu & Magaji, 2024). These policy choices reflect power asymmetries in decision-making processes, where the economic value of nature is defined through revenue generation rather than livelihood security or ecological sustainability. Consequently, rural communities are frequently excluded from planning processes that directly affect their resource base.

Development planning that fails to integrate local knowledge and customary governance structures further undermines the effectiveness of nature-based policies. In many rural Nigerian communities, land and natural resources are managed through informal institutions that shape access, use, and conflict resolution (Osawe, 2020; Osawe & Ikhayere, 2021). When formal policies ignore these systems, they risk generating resistance, exclusion, or conflict. Inclusive planning that recognises customary tenure arrangements and participatory decision-making is therefore essential for aligning policy objectives with local realities.

There is growing evidence that integrating nature-based economies into development planning can also contribute to peacebuilding and security objectives. Climate–security initiatives in northern Nigeria highlight the importance of linking ecosystem management with conflict prevention and livelihood support (Climate Diplomacy, 2024). Similarly, ecosystem restoration and watershed management projects have demonstrated potential to strengthen community resilience and reduce resource-based tensions when embedded within broader development strategies (Adams etal., 2021; Ahmad etal., 2025). These examples illustrate the multifunctional value of nature when coherently integrated into policy.

Ultimately, the integration of nature-based economies into policy and development planning in rural Nigeria remains constrained by institutional fragmentation, limited capacity, and unequal power relations. While global frameworks provide guidance on valuing ecosystem services and promoting sustainability, their local implementation often reproduces existing inequalities (Calliari etal., 2019; Seddon et al., 2020). For nature-based economies to be meaningfully integrated, development planning must move beyond symbolic inclusion towards genuine recognition of rural livelihoods, ecological limits, and the politics of value that shape who benefits from nature and how.

4.0. THEORETICAL FRAMEWORK

4.1. Political Ecology

Political Ecology is an interdisciplinary theoretical framework that was formally developed in the mid-1980s, notably through Piers Blaikie and Harold Brookfield. Its key moment is the 1987 publication of Land Degradation and Society, which integrated political economy and ecological analysis to explain environmental change. Political Ecology emerged as a critique of explanations that treated environmental problems as purely technical or natural, ignoring social and political factors. Instead, it highlights how historical processes, colonial legacies, and economic structures shape environmental practices and degradation (Blaikie & Brookfield, 1987; Robbins, 2020). Earlier influences, such as Eric Wolf (1982) and Michael Watts (1983), emphasised the role of global power relations in local ecological outcomes.

The main proponents of Political Ecology include Blaikie, Brookfield, Watts, Susanna Hecht, and Arturo Escobar, with later consolidation by Paul Robbins. Blaikie challenged narratives blaming local farmers for soil erosion, showing instead the role of state policies and global economic pressures (Blaikie, 1985). Watts argued that environmental crises, including famine, arise from capitalist structures and state power rather than scarcity alone (Watts, 1983). Escobar (1995) and Hecht and Cockburn (1990) later broadened the theory by incorporating post-structural and cultural perspectives, critiquing development discourse, and questioning standard accounts of deforestation.

Political Ecology assumes that environmental issues are inseparable from power, inequality, and governance. It argues that degradation and resource conflicts are produced through unequal social relations, contested knowledge, and multi-scale political and economic processes (Robbins, 2020). The theory also recognises that scientific and policy narratives are rarely neutral, often reflecting dominant interests while marginalising local and Indigenous knowledge (Forsyth, 2003). By rejecting a strict nature–society divide, Political Ecology frames environmental problems as questions of justice, emphasising the inseparability of ecological outcomes from social and political contexts (Blaikie & Brookfield, 1987).

Political Ecology is relevant to Nigeria's nature-based solutions (NbS) and nature-based economies (NbEs) as it highlights how power, governance, and social inequality shape environmental outcomes. For instance, the effectiveness of agroforestry, wetland restoration, and watershed management relies not only on ecological conditions but also on local land tenure, state policies, and elite capture, which determine who benefits and who is excluded. Conflicts between farmers and pastoralists, the marginalisation of women, and limited access for indigenous groups show that ecosystem management is inseparable from social and political relations. A Political Ecology perspective makes clear that NbS and NbEs support livelihoods and resilience only when local knowledge is valued, access to resources is fair, and structural inequalities are addressed (Blaikie & Brookfield, 1987; Robbins, 2020).

5.0. RESEARCH METHOD

This study adopts a conceptual methodological approach grounded in qualitative analysis, drawing on a systematic synthesis of existing scholarship on nature-based economies, the politics of value, and rural governance in Nigeria. Through conceptual analysis, the paper compares how local, national, and global approaches frame the role of nature in economic development, livelihood security, and environmental management, highlighting points of convergence and tension across scales.

6.0. DISCUSSION OF FINDINGS

The findings of this study corroborate existing evidence that nature-based economies (NbEs) constitute the backbone of rural livelihoods in Nigeria. The continued reliance on agriculture, pastoralism, forestry, and water-dependent activities is consistent with earlier studies highlighting rural areas as primary sites of food production and ecological

stewardship (Bitrus, 2023; Hanachor & Olumati, 2018). This study's analysis aligns with findings from northern Nigeria showing that environmental stability directly influences household income, food security, and social wellbeing (Abiola etal., 2025; Yakubu etal., 2025). Taken together, these results support the view that NbEs are not peripheral economic activities but foundational systems that sustain rural economies and national development.

The study further finds that the valuation of nature in rural Nigeria is deeply contested, a finding that is in line with broader political ecology perspectives on resource governance. The evidence supports earlier arguments that state policies and development frameworks tend to prioritise extractive and revenue-generating uses of land and natural resources over subsistence and livelihood-based values (Osawe & Osimen, 2023; Sabiu & Magaji, 2024). This corroborates observations that smallholder farmers, pastoralists, women, and youth often experience restricted access to resources despite their dependence on them (Magaji etal., 2022; Oyekale, 2014). The findings therefore reinforce the argument that nature's value is politically negotiated and shaped by power relations rather than neutral economic calculations.

The results are also consistent with studies demonstrating that nature-based solutions (NbS) can enhance livelihood resilience when embedded within local economic systems. Evidence from agroforestry, watershed restoration, and ecosystem rehabilitation initiatives supports the claim that NbEs generate co-benefits such as income diversification, improved food security, and climate adaptation (Ahmad etal., 2025; Olusola etal., 2025). These findings align with international experiences from Kenya and Ghana, where ecosystem-based interventions simultaneously improved ecological outcomes and household incomes (Mwangi etal., 2020; Adams etal., 2021). However, the study also supports concerns that many NbS interventions remain project-based and unevenly scaled, limiting their long-term impact.

In relation to conflict and governance, the findings strongly support existing literature linking environmental stress, weak institutions, and resource-based conflict in rural Nigeria. The persistence of farmer–herder conflicts corroborate earlier analyses that attribute these tensions to declining resource availability, overlapping governance systems, and unequal enforcement of land-use regulations (Osawe, 2020; Yila etal., 2020). At the same time, the findings are in support of evidence showing that NbS initiatives integrated with livelihood support and peacebuilding can reduce tensions and foster cooperation (Climate Diplomacy, 2024; Ahmad etal, 2025). This suggests that governance quality is a decisive factor in determining whether NbEs function as sources of resilience or insecurity.

Finally, the study's findings align with global and national critiques regarding the limited integration of NbEs into development planning. While international frameworks increasingly recognise ecosystem services as central to sustainable development, the findings corroborate concerns that implementation in Nigeria remains fragmented and shaped by unequal power relations (IUCN, 2021; UNEP/EA, 2022). Development priorities continue to favour large-scale commercial and extractive activities, often at the expense of participatory and locally grounded approaches (Osawe & Ikhayere, 2021). This supports the conclusion that without addressing institutional capacity, equity, and political inclusion, NbEs risk reinforcing existing inequalities rather than transforming rural development pathways (Seddon et al., 2020; Calliari etal, 2019).

7.0. CONCLUSION

This study concludes that nature-based economies (NbEs) are central to understanding rural livelihoods, development trajectories, and environmental governance in Nigeria. The analysis demonstrates that rural economies are deeply embedded in ecological systems, with land, water, forests, and biodiversity functioning not only as economic assets but also as sources of social security, cultural identity, and political contestation. By situating NbEs within the politics of value, the paper shows that the benefits derived from nature are unevenly distributed and shaped by power relations, governance structures, and policy priorities. The findings corroborate the view that nature's value in rural Nigeria is neither neutral nor purely economic; rather, it is actively negotiated across local, national, and global scales, often privileging extractive and commercial interests over subsistence livelihoods and ecological sustainability.

The paper further concludes that while nature-based solutions offer significant potential to enhance livelihood resilience, reduce conflict, and support sustainable development, their effectiveness depends on inclusive governance, equitable valuation, and meaningful integration into development planning. Fragmented policies, weak institutional

capacity, and persistent power asymmetries continue to limit the transformative potential of NbEs in rural Nigeria. Addressing these challenges requires reframing development to recognise ecosystems as foundational to economic wellbeing, peacebuilding, and intergenerational equity. By linking rural Nigeria's experience to global debates on nature-based economies, this study underscores that sustainable development outcomes hinge not only on ecological interventions but on resolving the political and institutional dynamics that determine who benefits from nature and how its value is defined

8.0. POLICY RECOMMENDATIONS

First, strengthening local participation should be central to the design and implementation of nature-based economies (NbEs) in rural Nigeria. The findings of this study support the view that rural communities are not passive beneficiaries but active custodians of ecosystems whose knowledge, labour, and social institutions are critical to sustainability outcomes. Policy frameworks should therefore institutionalise participatory decision-making by formally recognising customary authorities, community cooperatives, women's groups, and pastoral associations in NbE planning and management. Inclusive participation can reduce elite capture, enhance accountability, and ensure that the valuation of nature reflects local livelihood priorities rather than externally imposed economic metrics. Strengthening community ownership over land, forests, and water resources is also likely to improve compliance, reduce conflict, and enhance long-term stewardship of ecosystems.

Second, NbEs should be systematically integrated into rural development planning and conflict-prevention strategies at local, state, and national levels. The evidence presented in this study corroborates the argument that environmental degradation, livelihood insecurity, and violent conflict are deeply interconnected. Development planning should therefore move beyond sectoral silos by embedding NbEs within agricultural policy, climate adaptation strategies, land-use planning, and peacebuilding frameworks. Integrating ecosystem restoration, agroforestry, watershed management, and sustainable grazing systems into development plans can simultaneously support food security, employment, and social stability. In conflict-prone regions, particularly in northern Nigeria, NbEs should be explicitly linked to conflict-sensitive programming that addresses competing resource claims and promotes cooperative resource governance among farmers, pastoralists, and other stakeholders.

Lastly, supporting sustainable financing mechanisms and robust regulatory frameworks is essential for scaling and sustaining NbEs. The study aligns with existing critiques that project-based and short-term funding undermines the long-term impact of nature-based interventions. Policymakers should therefore promote blended financing models that combine public investment, climate finance, private sector participation, and community-based funding mechanisms. Regulatory frameworks must also be strengthened to ensure transparency, environmental safeguards, and equitable benefit-sharing, particularly in contexts where commercial agriculture, extractive industries, or conservation initiatives intersect with local livelihoods. Clear land-tenure arrangements, enforceable environmental regulations, and monitoring systems are necessary to prevent exploitation and ensure that NbEs contribute to inclusive and sustainable rural development.

REFERENCES

1. *Abiola, T. O., Magaji, S., & Musa, I. (2025). Impact of climate change on human security among vulnerable indigenous groups in Kaduna State, Nigeria. International Journal of Innovative Human Ecology and Nature Studies, 13(2), 80–97. https://doi.org/10.5281/zenodo.15529981*
2. *Adams, M., Carter, J., & Nsiah, E. (2021). Watershed rehabilitation and community resilience in Ghana: Exploring the socio-economic and security benefits of ecosystem restoration. International Journal of Sustainable Development & World Ecology, 28(6), 529–542. https://doi.org/10.1080/13504509.2021.1906734*
3. *Adegun, O., & Olokesusi, F. (2021). Nature-based solutions for flood resilience in Lagos, Nigeria: Opportunities and challenges. Environmental Management, 68(4), 502–517. https://doi.org/10.1007/s00267-021-01484-1*
4. *Adekoya, A. A., Magaji, S., & Ismail, Y. (2025). Impact of insecurity on economic growth in Nigeria: 1990–2023. International Journal of Research and Scientific Innovation (IJRSI), 12(4), 1258–1271. https://doi.org/10.51244/IJRSI.2025.12040146*
5. *Ahmad, S. S., Sule, M., & Yakubu, J. (2025). The impact of nature-based solutions (NbS) on local livelihoods, security, and income generation in Northwest Nigeria. International Journal of Research and Innovation in Social Science, 9(9). https://doi.org/10.47772/IJRISS.2025.909000420*

6. *Ayuba, H. K., & Oruonye, E. D. (2023). Assessing the potentials of nature-based solutions to climate change adaptation in Nigeria. Journal of Ecology & Natural Resources, 7(1). https://doi.org/10.23880/jenr-160003*
7. *Blaikie, P. (1985). The political economy of soil erosion in developing countries. Longman.*
8. *Blaikie, P., & Brookfield, H. (1987). Land degradation and society. Methuen.*
9. *Bitrus, D. I. (2023). The role of rural areas on national development: The political economy of Oke-Ila Orangun. SSRN. https://doi.org/10.2139/ssrn.5190381*
10. *Boelee, E., Janse, J., Le Gal, A., Kok, M., Alkemade, R., & Ludwig, F. (2017). Overcoming water challenges through nature-based solutions. Water Policy, 19(5), 820–836. https://doi.org/10.2166/wp.2017.105*
11. *Calliari, E., Staccione, A., & Mysiak, J. (2019). An assessment framework for climate-proof nature-based solutions. Science of the Total Environment, 656, 691–700. https://doi.org/10.1016/j.scitotenv.2018.11.341*
12. *Cohen-Shacham, E., Andrade, A., Dalton, J., Dudley, N., Jones, M., Kumar, C., … Walters, G. (2019). Core principles for successfully implementing and upscaling nature-based solutions. Environmental Science & Policy, 98, 20–29.*
13. *Climate Diplomacy. (2024). North West climate-peace hubs: A climate security approach to conflict prevention. Retrieved from https://climate-diplomacy.org/north-west-climate-peace-hubs-climate-security-approach-conflict-prevention*
14. *Escobar, A. (1995). Encountering development: The making and unmaking of the Third World. Princeton University Press.*
15. *Forsyth, T. (2003). Critical political ecology: The politics of environmental science. Routledge.*
16. *Faivre, N., Fritz, M., Freitas, T., de Boissezon, B., & Vandewoestijne, S. (2017). Nature-based solutions in the EU: Innovating with nature to address social, economic, and environmental challenges. Environmental Research, 159, 509–518. https://doi.org/10.1016/j.envres.2017.08.032*
17. *Frantzeskaki, N., McPhearson, T., Collier, M. J., Kendal, D., Bulkeley, H., Dumitru, A., … Pintér, L. (2019). Nature-based solutions for urban climate change adaptation: Linking science, policy, and practice communities for evidence-based decision-making. BioScience, 69(6), 455–466. https://doi.org/10.1093/biosci/biz042*
18. *Geneletti, D., Zardo, L., & Cortinovis, C. (2020). Promoting nature-based solutions for climate adaptation in cities through impact assessment. Journal of Environmental Planning and Management, 63(4), 710–732. https://doi.org/10.1080/09640568.2019.1605899*
19. *Hanachor, M. E., & Olumati, E. S. (2018). Integrating rural communities for the achievement of sustainable development goals (1–3) in Nigeria. International Journal of Community and Cooperative Studies, 6(4), 28–38. https://www.eajournals.org*
20. *Hecht, S., & Cockburn, A. (1990). The fate of the forest: Developers, destroyers, and defenders of the Amazon. The University of Chicago Press.*
21. *International Union for Conservation of Nature. (2021). Nature-based solutions for climate change. Retrieved from https://www.iucn.org/commissions/commission-ecosystem-management/our-work/nature-based-solutions*
22. *Ismail, A., Musa, K. B., & Magaji, S. (2019). Socioeconomic and cost-effective deforestation compliance policies, as opposed to the pure deterrence model of regulatory compliance. European Scientific Journal, 15(28), 253–274.*
23. *Jafaru, Y., Magaji, S., & Abdullahi, I. A. (2024). Poverty, family status, and crime: Insights from Gwagwalada, Abuja, Nigeria. International Journal of Research Publication and Reviews, 5(5), 6745–6755.*
24. *Kabisch, N., Korn, H., Stadler, J., & Bonn, A. (Eds.). (2017). Nature-based solutions to climate change adaptation in urban areas: Linkages between science, policy, and practice. Springer. https://doi.org/10.1007/978-3-319-56091-5*
25. *Magaji, S., & Musa, I. (2024). Analysis of farmers' awareness of the impact of climate change on food security in Nigeria. International Journal of Humanities, Social Sciences and Management, 4(3), 439–454.*
26. *Magaji, S., Musa, I., & Salisu, A. (2022). Impact of insecurity on youth unemployment in Nigeria: OLS estimation technique. Indiana Journal of Economics and Business Management, 2(1), 4–9.*
27. *Mwangi, J. K., Ndunda, E. N., & Ouma, G. O. (2020). Agroforestry as a nature-based solution to climate change in Kenya: Impacts on food security and household income. Climate and Development, 12(8), 695–706. https://doi.org/10.1080/17565529.2019.1701974*
28. *Osawe, A. I. (2020). Geographic perspective on farmers–pastoralists' conflict. Ekpoma Political Review, 5(1), 41–66.*
29. *Osawe, A. I., & Ikhayere, A. S. (2021). Resources management and revenue distribution: Towards an intergenerational equity. NOUN International Journal of Peace Studies and Conflict Resolution, 1(1), 294–312.*
30. *Osawe, A. I., & Osimen, G. U. (2023). Natural resource governance and conflicts in Nigeria. British Journal of Multidisciplinary and Advanced Studies, 4(1), 17–35. https://doi.org/10.37745/bjmas.2022.0103*
31. *Olusola, A. T., Magaji, S., & Musa, I. (2025). Linking climate change to economic insecurity among vulnerable groups in Zango Kataf Local Government Area, Kaduna State, Nigeria. International Journal of Multidisciplinary Research and Growth Evaluation, 6(3).*
32. *Oyekale, A. S. (2014). Climate change and vulnerability in Northern Nigeria: A gender perspective. Journal of Development Studies, 50(5), 637–653.*

33. *Raymond, C. M., Frantzeskaki, N., Kabisch, N., Berry, P., Breil, M., Nita, M. R., … Calfapietra, C. (2017). A framework for assessing and implementing the co-benefits of nature-based solutions in urban areas. Environmental Science & Policy, 77, 15–24. https://doi.org/10.1016/j.envsci.2017.07.008*
34. *Robbins, P. (2020). Political ecology: A critical introduction (3rd ed.). Wiley-Blackwell.*
35. *Sabiu, S. B., & Magaji, S. (2024). Effect of oil exploration and climate change on the Niger Delta region of Nigeria. Journal of Development and Society, 6(1), 36–49.*
36. *Seddon, N., Chausson, A., Berry, P., Girardin, C. A. J., Smith, A., & Turner, B. (2020). Understanding the value and limits of nature-based solutions to climate change and other global challenges. Philosophical Transactions of the Royal Society B: Biological Sciences, 375(1794), 20190120. https://doi.org/10.1098/rstb.2019.0120*
37. *Sule, M., Ahmad, A. I., Sabiu, S. B., & Yunusa, A. A. (2024). From deforestation to pollution: Unravelling environmental challenges in Nigeria and Pakistan. International Journal of Social Science and Management, 4(2), 805–814.*
38. *United Nations Environment Programme / Environment Assembly. (2022). Nature-based solutions for supporting sustainable development. Retrieved from https://www.unep.org/*
39. *Watts, M. (1983). Silent violence: Food, famine and peasantry in northern Nigeria. University of California Press.*
40. *Wolf, E. R. (1982). Europe and the people without history. University of California Press.*
41. *World Bank. (2010). Rising global interest in farmland: Can it yield sustainable and equitable benefits? Washington, DC: World Bank.*
42. *World Bank. (2016a). The World Bank Group's response to illicit financial flows: A stock-taking. Washington, DC: World Bank.*
43. *World Bank. (2016b). The Niger basin climate resilience investment plan: A shared initiative for the benefit of the population overview [Working paper]. Washington, DC: World Bank. http://documents.worldbank.org/curated/en/945801467988882421/Le-plan-d-investissement-pour-la-résilience-climatique-du-bassin--fleuve-Niger-une-initiative-commune-au-profit-des-populations-resume*
44. *Yakubu, J., Magaji, D. A., & Magaji, S. (2025). Assessing the socioeconomic impact of climate change and poverty in Birnin Kudu Local Government, Jigawa State, Nigeria. African Journal of Social Sciences and Humanities Research, 8(2), 11–31.*
45. *Yila, J. O., Weber, R., & Neef, A. (2020). Nature-based solutions and farmer–herder conflicts in Nigeria: Pathways to resilience and peacebuilding. Sustainability, 12(22), 9449. https://doi.org/10.3390/su12229449*