Sustainability of the Landscape in the North Central States of Nigeria: Challenges and Prospects

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Abstract: Sustainable landscape development remains a critical issue in Nigeria's North Central states due to increasing anthropogenic pressures, land degradation, climate variability, and rapid urbanization. This study investigates the landscape sustainability of the region, highlighting key challenges and identifying viable prospects for sustainable management. The research employed mixed methods, including spatial analysis, surveys, and expert interviews. Findings revealed significant threats such as deforestation, overgrazing, and poor land use planning, while opportunities lie in agro-ecology, green infrastructure, afforestation, and community-led conservation efforts. The study recommends integrated landscape approaches, policy reforms, and grassroots environmental education for sustainable landscape management in the region.

Keywords: Landscape Sustainability, North Central Nigeria, Land Degradation, Conservation Policy, Sustainable Development.

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I. INTRODUCTION

Sustainable landscapes are essential for maintaining ecosystem services, supporting food systems, regulating climate, and sustaining the livelihoods of communities. Globally, landscapes are facing increasing pressures according to Aliyu (2022), due to a combination of human and natural drivers such as rapid urbanization, deforestation, soil degradation, unsustainable agricultural practices, and climate change. These pressures threaten biodiversity, water resources, and soil fertility, undermining the long-term viability of ecosystems and the well-being of human populations. As a result, achieving landscape sustainability has become a core objective in international development frameworks such as the Sustainable Development Goals (SDGs), particularly SDG 15 (Life on Land), which emphasizes the protection, restoration, and sustainable use of terrestrial ecosystems. Landscapes represent the physical fabric of a nation's identity shaped by natural processes and human interactions and they play a critical role in sustaining biodiversity, food production, water regulation, and socio-economic development. Across the globe, increasing pressure from urban expansion, agricultural intensification, resource extraction, and climate change is placing landscapes under severe stress. Eze & Lawal (2024) explained that this growing concern has prompted scholars, policymakers, and development practitioners to advocate for more integrated and sustainable landscape management approaches. The concept of landscape sustainability seeks to harmonize environmental integrity with human needs over time by promoting land use systems that are productive, resilient, and equitable. As landscapes form the foundation of natural capital and ecosystem services, their sustainability is crucial for national development, especially in developing countries where livelihoods are heavily land-dependent.

In Africa, and particularly in Nigeria, the challenge of managing landscapes sustainably is increasingly urgent. The continent faces some of the highest rates of land degradation in the world, with millions of hectares of land becoming unproductive due to deforestation, desertification, mining, and unsustainable land use. Nigeria's North Central region is a critical ecological zone characterized by a mix of savanna, forest, river valleys, and hilly terrains. Danjuma & Ikyernum, (2023) explained that the region supports a predominantly agrarian population and is known for its diverse land uses including farming, grazing, urban expansion, and mineral extraction. However, these activities often undertaken without environmental safeguards have contributed to the rapid transformation and degradation of the landscape.

Adefolalu (2020) corroborates that the North Central states, comprising Benue, Plateau, Kogi, Kwara, Nasarawa, Niger, and the Federal Capital Territory (FCT), are currently experiencing rising landscape pressures. Soil erosion, flooding, deforestation, and gully formation have become widespread due to unsustainable farming techniques, overgrazing, uncontrolled urbanization, and the effects of climate variability. Landscape fragmentation is on the rise, with natural habitats being replaced by built-up areas and degraded lands. This degradation according to Yusuf & Bello (2021) not only impacts biodiversity and environmental health but also undermines food security, water availability, and community resilience especially for rural and peri-urban populations who depend directly on the land for their livelihoods. Despite the gravity of these challenges, the region also presents opportunities for implementing sustainable landscape practices. Emerging strategies such as climate-smart agriculture, afforestation, integrated land use planning, and community-based resource management offer hope for reversing degradation and improving landscape resilience. Furthermore, national and international initiatives such as the Great Green Wall, AFR100, and Nigeria's national reforestation program provide frameworks for restoring degraded lands and promoting inclusive, multi-stakeholder governance. However, these initiatives require proper localization, policy coherence, funding, and community buy-in to be effective in the North Central region.

This study, therefore, seeks to investigate the current state of landscapes in the North Central states, identify the key environmental and human-induced challenges affecting sustainability, and explore potential strategies and prospects for sustainable landscape development. The research is guided by a landscape sustainability framework that integrates ecological health, socio-economic viability, and institutional effectiveness. By examining land use trends, stakeholder roles, policy frameworks, and local perceptions, the paper aims to provide evidence-based recommendations for achieving sustainable land management in the region. Ultimately, it contributes to the broader discourse on environmental sustainability and sustainable development in Nigeria.

➤ *Statement of the Problem*
The landscapes of Nigeria's North Central states are increasingly under threat from a combination of natural and human-induced factors. Rapid urbanization, deforestation, unregulated mining, unsustainable agricultural practices, and weak institutional frameworks have contributed significantly to land degradation, loss of biodiversity, and declining ecosystem services in the region. Despite the existence of environmental policies and strategies at both federal and state levels, landscape sustainability remains elusive due to inadequate implementation, limited community participation, and lack of coordinated landscape planning. Furthermore, the absence of a comprehensive, integrated approach to land use has exacerbated competition among agricultural, residential, industrial, and conservation needs. This growing ecological imbalance poses serious risks to food security, water availability, and overall environmental resilience in the region. Therefore, it is critical to assess the current state of

the landscape, understand the underlying challenges, and explore sustainable and context-appropriate strategies for restoring and preserving the landscape of the North Central states.

➤ *Aim and Objectives of the Study*
To assess the sustainability of the landscape in Nigeria's North Central states by identifying the key challenges, evaluating current land use and environmental practices, and proposing viable strategies and prospects for sustainable landscape development.

• *Objectives of the Study Includes;*

✓ To examine the current status and trends of land use and landscape changes in the North Central region of Nigeria.
✓ To identify the major environmental and anthropogenic challenges affecting landscape sustainability in the study area.
✓ To evaluate existing policies, practices, and stakeholder roles related to land and environmental management.
✓ To assess community perceptions and local responses to landscape degradation.
✓ To propose strategic, policy-driven, and community-based prospects for achieving sustainable landscape development in the North Central states.

II. LITERATURE REVIEW

➤ *Landscape Sustainability: A Global and Regional Perspective*
Landscape sustainability has become a crucial component of global environmental governance, especially as nations grapple with the dual demands of ecological preservation and socio-economic development. At the global level, Ajayi & Mafongoya (2022) asserted that the concept encompasses the long-term maintenance of ecosystem services, biodiversity, and human well-being within dynamic and multifunctional landscapes. International frameworks such as the Sustainable Development Goals (SDGs), particularly Goal 15 (Life on Land), and initiatives like the UN Decade on Ecosystem Restoration (2021–2030), underscore the importance of sustainable land use, afforestation, and restoration. Wu (2013) highlighted that countries in Europe, Asia, and South America have implemented landscape-scale interventions ranging from agroforestry and green infrastructure to climate-smart agriculture to balance development with environmental resilience.

In the African context, landscape sustainability presents both urgent challenges and transformative opportunities. Sayer *etal* (2013) points out that Sub-Saharan Africa, including Nigeria, faces severe land degradation due to deforestation, overgrazing, climate change, and weak governance structures. Regional initiatives such as the African Forest Landscape Restoration Initiative (AFR100) and the Great Green Wall aim to restore millions of hectares of degraded land through community-based and nature-based approaches. However, progress remains uneven due to limited financial resources, land tenure conflicts, and policy

fragmentation. Despite these constraints, countries like Ethiopia and Rwanda have demonstrated that integrating national policies with grassroots participation can yield measurable results in soil conservation and land restoration.

In Nigeria and the broader West African region, landscape sustainability is gradually gaining traction through donor-supported reforestation projects, environmental education, and policy reforms. Nevertheless, many challenges persist, particularly in rural and peri-urban areas where land use is often unregulated, and traditional stewardship practices are eroding. For regions like North Central Nigeria rich in biodiversity but increasingly threatened by human activity adopting a sustainable landscape approach is vital. Reed etal (2016) explains that this requires coordinated planning, stakeholder collaboration, and the integration of traditional ecological knowledge with modern environmental practices to ensure that landscapes continue to support both nature and livelihoods in a changing climate.

➤ *Landscape Challenges in North Central Nigeria*

The North Central region of Nigeria, comprising states such as Benue, Kogi, Kwara, Nasarawa, Niger, Plateau, and the Federal Capital Territory (FCT), faces a growing array of landscape challenges driven by rapid population growth, unsustainable land use, and weak environmental governance. Salau et.al (2021) corroborated that one of the most pressing issues is deforestation, largely caused by fuel wood collection, agricultural expansion, and illegal logging. Forests and natural vegetation are being cleared at alarming rates, leading to biodiversity loss, soil erosion, and the disruption of hydrological cycles. In addition, urbanization in areas like Abuja and Jos is encroaching upon agricultural and ecologically sensitive lands, increasing land-use conflicts and landscape fragmentation. Soil degradation is another widespread problem, fueled by overgrazing, poor farming practices, and erosion from torrential rains. This degradation according to Adebayo & Ifabiyi (2020) reduces soil fertility, undermines agricultural productivity, and accelerates rural poverty. Mining activities, especially in Niger, Kogi, and Plateau states, have further exacerbated land degradation by stripping topsoil, polluting rivers, and leaving behind un-rehabilitated pits and wastelands. Unregulated sand mining and quarrying have scarred the landscape and altered natural drainage patterns, making many communities more vulnerable to flooding and droughts. In addition, bush burning and poor waste disposal practices continue to degrade the land and reduce ecosystem services. Compounding these physical challenges are institutional and policy gaps. Land-use planning according to Onyekuru & Marchant (2020) is weak, with overlapping responsibilities among government agencies and poor enforcement of existing environmental regulations. Many local communities lack awareness and resources for sustainable land management, while traditional conservation knowledge is declining. Conflicts between farmers and herders over dwindling land resources further complicate the landscape's sustainability. Without coordinated, multi-sectoral intervention, these challenges threaten the region's ecological balance, food security, and socio-economic stability. North

Central Nigeria according to Abah et al. (2021), faces widespread landscape challenges, including soil erosion deforestation, mining, and urban sprawl Poor land tenure systems and inadequate enforcement of environmental regulations exacerbate these issues.

➤ *Prospects for Sustainable Landscapes*

Despite the mounting challenges facing landscapes, especially in developing regions like North Central Nigeria, numerous prospects exist for achieving sustainable landscape development. One major opportunity lies in the adoption of integrated landscape management (ILM), which harmonizes environmental, agricultural, and socio-economic interests across spatial and institutional scales. ILM encourages multi-stakeholder participation bringing together government, local communities, private actors, and civil society to jointly plan and manage land resources. Additionally, climate-smart agricultural practices such as agroforestry, organic farming, and crop rotation can enhance soil fertility, reduce deforestation pressure, and improve resilience to climate variability. Nnabue et al. (2023) in another development alluded that the increasing availability of geospatial tools and satellite imagery also allows for real-time monitoring of land use changes, enabling data-driven decision-making.

Another promising prospect according to Aliyu (2022) and Eze & Lawal (2024) is the rising global and national attention to ecosystem restoration and green growth, which has created avenues for technical and financial support. Initiatives such as the Great Green Wall, the UN Decade on Ecosystem Restoration (2021–2030), and Nigeria's participation in the AFR100 offer platforms for scaling up reforestation, watershed protection, and land rehabilitation projects. Moreover, the growing emphasis on environmental education and community-based resource management empowers local populations to take ownership of conservation efforts. By integrating indigenous knowledge with modern conservation science, Danjuma & Ikyernum (2023) believe that communities can foster sustainable land use that aligns with cultural values and ecological needs. Strengthening policy frameworks, land tenure security, and institutional collaboration will further unlock the potential for resilient and productive landscapes across Nigeria.

III. STUDY AREA AND METHODOLOGY

➤ *Geographical Scope of the Study Area*

The North Central geopolitical zone of Nigeria comprises seven states: Benue, Kogi, Kwara, Nasarawa, Niger, Plateau, and the Federal Capital Territory (Abuja). Adefolalu (2020) explained that the region lies between latitudes 6° and 10°N and longitudes 4° and 10°E. It is centrally located within Nigeria and serves as a physical and political bridge between the northern and southern regions of the country. It features varied landscapes including forest savannah, grasslands, rocky outcrops, and river valleys (notably the Niger and Benue Rivers). Its economy is mainly agrarian, and its ecosystem supports diverse flora and fauna, though increasingly threatened by land-use changes and environmental exploitation.

Yusuf & Bello (2021) opined that landscape is diverse and includes undulating hills, plateaus, plains, rivers, valleys, and scattered rock outcrops. The Jos Plateau in Plateau State is a notable highland, with an average elevation of over 1,200 meters above sea level. The Niger and Benue Rivers intersect within the region, providing rich alluvial soils and supporting agricultural activities. Other major rivers include River Gongola, River Katsina-Ala (in Benue), and River Kaduna (in Niger). The region experiences a tropical wet and dry climate (Aw), characterized by distinct wet (April–October) and dry (November–March) seasons. Annual rainfall ranges between 1,000 mm to 1,800 mm, depending on proximity to the southern belt. Temperature averages between 21°C to 35°C, with higher elevations like Jos being cooler. The region in the words of Eze & Lawal (2024) lies within the Guinea Savannah and Derived Savannah zones, which support both arable and pastoral farming. Vegetation is typically characterized by grasses, shrubs, and scattered trees, though large portions have been cleared for farming, settlement, and industrial activities. Predominantly agrarian and major crops include yams, cassava, maize, millet, and rice. Animal husbandry is widespread, particularly cattle rearing. There is also mineral mining, notably in Kogi (coal, iron ore), Plateau (tin, columbite), and Niger (gold). The FCT functions as the administrative and political center of Nigeria, with a rapidly expanding urban landscape. The region faces severe land degradation, deforestation, soil erosion, unregulated mining, and urban encroachment. Climate variability and increasing population pressures have intensified unsustainable land use practices, threatening biodiversity and ecosystem services.
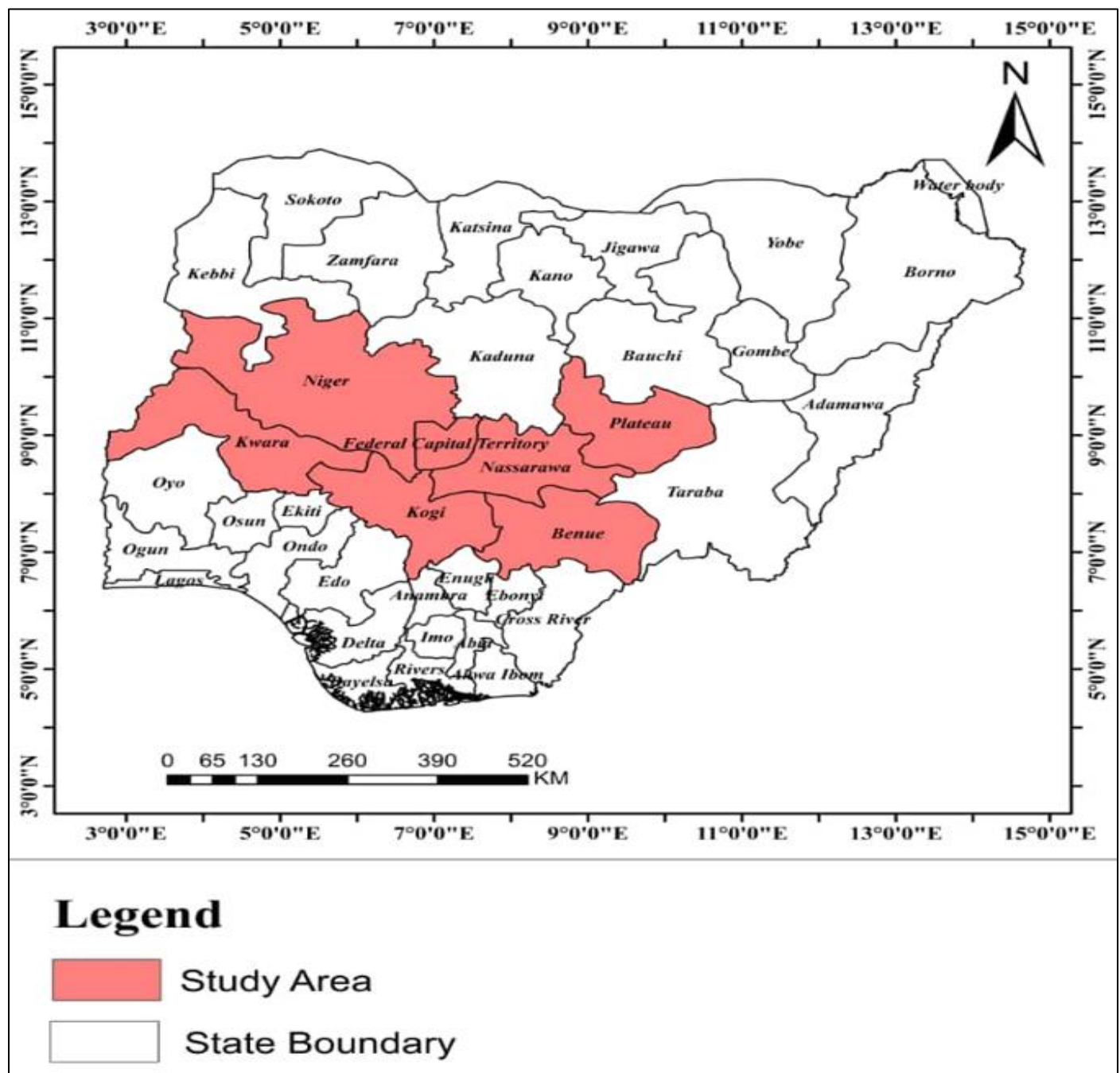

Fig 1 Map of the Study Area Showing North Central

➢ *Study Area*

The research was conducted across selected Local Government Areas (LGAs) in the seven states of the North Central zone of Nigeria: Benue (Otukpo & Kwande LGA's), Kogi (Dekina &Okene LGA's), Kwara (Patigi & Ilorin South LGA's), Nasarawa (Lafia & Toto LGA's), Niger (Mokwa &Bida LGA's), Plateau (Jos South &Barkin-Ladi LGA's), and the Federal Capital Territory (Abaji & Abuja Municipal Area Council). These areas were purposively selected to represent a diversity of landscapes, including highland regions (Plateau), riverine and flood-prone zones (Benue and Kogi), urban and peri-urban sprawl (FCT and Nasarawa), and agricultural belts (Kwara and Niger). The selection was based on accessibility, severity of landscape degradation, and socio-economic relevance.

➢ *Research Design*

This study adopted a mixed-methods research design, combining both qualitative and quantitative approaches to comprehensively assess the state of landscape sustainability in North Central Nigeria. The design allowed for triangulation of data from multiple sources, including satellite imagery, field observations, surveys, interviews, and secondary literature, ensuring a robust analysis of the complex environmental, socio-economic, and governance dimensions of landscape sustainability. The study was structured around the five specific objectives, each of which informed the data collection and analysis process.

➢ *Data Collection Instruments*

Primary data were collected through structured household surveys, key informant interviews, and focus group discussions. A total of 300 questionnaires were administered to farmers, pastoralists, urban residents, and local leaders using stratified random sampling. Key informants included officials from the Federal Ministry of Environment, State Ministries of Lands and Survey, NESREA, traditional rulers, and environmental NGOs. The interviews explored perceptions of landscape changes, policy effectiveness, challenges faced, and community-led practices. Focus group discussions were held in four states (Benue, Plateau, Nasarawa, and Niger) to assess grassroots perspectives on landscape governance. Secondary data were sourced from the Nigerian Meteorological Agency (NiMet), the National Bureau of Statistics (NBS), and satellite-based land cover datasets from Landsat (2000–2024). Geographic Information Systems (GIS) and remote sensing tools (ArcGIS 10.8 and QGIS 3.30) were used to analyze land use changes, deforestation rates, urban expansion, and soil erosion trends. Policy documents, environmental reports, and academic literature were reviewed to understand the regulatory context and institutional frameworks governing land use and landscape sustainability.

➢ *Data Analysis*

Quantitative data were analyzed using SPSS version 26 for descriptive statistics (frequencies, means, percentages). Inferential statistics such as chi-square tests and correlation analysis were used to determine relationships between landscape challenges and socio-demographic variables. The

GIS outputs were used to generate land use/land cover (LULC) change maps and vegetation indices (ND).

IV.   FINDINGS AND DISCUSSION

➢ *Objective 1: To Examine the Current Status and Trends of Land use and Landscape Changes in the North Central Region of Nigeria*

• *Findings*

Satellite imagery (Landsat and MODIS) and NDVI data analyzed from 2000 to 2024 revealed significant land cover transformations. Forested areas declined by approximately 27.6%, while agricultural land expanded by 34.2%. Urban sprawl increased significantly in the Federal Capital Territory (FCT), Nasarawa, and Niger states. This expansion was largely unplanned, leading to landscape fragmentation. Large-scale mechanized farming and the conversion of wetlands in Benue and Kogi further disrupted the ecological balance.

• *Discussion*

These trends align with global patterns of land transformation in developing regions, where rural-to-urban transitions and agricultural intensification drive unsustainable landscape change (Wu, 2013). The expansion of built-up areas without environmental safeguards has led to the loss of vegetation cover, disruption of watershed integrity, and increased surface runoff. The absence of spatial planning policies has exacerbated land misuse, especially in peri-urban areas of Abuja and Jos. This underscores the need for integrated land use frameworks and stronger spatial governance.

➢ *Objective 2: To Identify the Major Environmental and Anthropogenic Challenges Affecting Landscape Sustainability in the Study Area*

• *Findings*

Field surveys (n=300) and interviews with local stakeholders (n=45) revealed several key challenges,

✓ Deforestation (84% of respondents) due to fuelwood harvesting and illegal logging
✓ Soil erosion and degradation (71%), particularly in Plateau and Kwara states
✓ Overgrazing and cattle encroachment (64%) in Kogi, Benue, and Niger
✓ Mining activities (58%) causing topsoil removal and contamination
✓ Unregulated urbanization (53%) leading to loss of arable land and biodiversity
✓ Bush burning and improper waste disposal were also frequently cited

• *Discussion*

These findings confirm earlier assertions by Onyekuru and Marchant (2020) that anthropogenic activities have surpassed natural processes in shaping land degradation in Nigeria. Deforestation, overgrazing, and mining represent interconnected issues driven by poverty, weak law

enforcement, and lack of sustainable alternatives. Without coordinated efforts to address these threats, landscape degradation will intensify, affecting food security, water systems, and climate resilience.

➢ *Objective 3: To evaluate existing policies, practices, and stakeholder roles related to land and environmental management*

• *Findings*

Policy evaluation revealed inconsistencies between federal and state-level environmental frameworks. While national environmental policies exist (e.g., NESREA Act, Land Use Act), implementation at the state level was found to be weak. Only 30% of surveyed respondents were aware of any local environmental law. Interviews with state ministry officials indicated:

✓ Poor inter-agency coordination
✓ Limited technical capacity for enforcement
✓ Low budget allocation to environmental agencies
✓ Minimal inclusion of traditional institutions or CSOs in policy formulation

• *Discussion*

The gap between policy formulation and execution is a recurring theme in Nigerian environmental governance (Aliyu, 2022). Decentralization without capacity-building has created fragmented responsibilities, while bureaucratic bottlenecks hinder progress. Stakeholder engagement is often top-down, leaving out critical actors such as farmers, pastoralists, and indigenous leaders who interact most closely with the landscape. Strengthening institutional frameworks, financing mechanisms, and participatory governance is key.

➢ *Objective 4: To Assess Community Perceptions and Local Responses to Landscape Degradation*

• *Findings*

The majority (68%) of community members perceived the landscape as "degraded" or "severely degraded." Major concerns included declining soil fertility, loss of native tree species, flooding, and irregular rainfall patterns. Local responses included:

✓ Traditional tree planting campaigns (notably in parts of Nasarawa and Plateau)
✓ Crop rotation and organic manure use
✓ Youth environmental clubs in secondary schools (observed in Kwara and Benue)
✓ Community forest guards (limited to few LGAs)
✓ However, these practices were not widespread or well-supported by formal institutions.

• *Discussion*

The community's environmental awareness is relatively high, yet their capacity to respond is constrained by limited access to resources and institutional support. These findings resonate with Danjuma & Ikyernum (2023), who argue that empowering local actors through technical training, funding, and legal recognition can catalyze grassroots-led

conservation. Traditional knowledge systems should be incorporated into broader sustainability frameworks to enhance landscape resilience.

➢ *Objective 5: To Propose Strategic, Policy-Driven, and Community-Based Prospects for Achieving Sustainable Landscape Development in the North Central States*

• *Findings*

From expert interviews and stakeholder workshops, the following strategies emerged:

✓ Integrated Landscape Planning (ILP) involving multi-stakeholder collaboration
✓ Agro-ecological practices, including contour farming, agroforestry, and biochar use
✓ Strengthening Environmental Education through school curricula and adult literacy programs
✓ Community-Based Forest Management (CBFM) models
✓ Policy reforms that decentralize land-use decisions and include traditional rulers

• *Discussion*

Sustainability prospects lie in merging top-down policy reforms with bottom-up practices. A landscape approach must incorporate ecological, social, and economic dimensions, as advocated by Sayer et al. (2013). The development of local land use plans backed by enforceable regulations will curb haphazard development. Additionally, investing in green infrastructure and nature-based solutions such as flood-buffer wetlands and riparian vegetation will help restore ecosystem services. Collaborative monitoring mechanisms should be established, with civil society, government, and private sector actors working together toward shared goals.

V. CONCLUSION

The sustainability of landscapes in North Central Nigeria is at a critical crossroads, shaped by a complex interplay of environmental degradation, rapid population growth, weak land governance, and climate variability. The region's landscapes once rich in biodiversity and ecological stability are now under threat from unsustainable land use practices such as deforestation, overgrazing, mining, and unregulated urban expansion. This study has shown that without a deliberate shift towards integrated, inclusive, and ecologically sound land management strategies, the region risks facing severe consequences including food insecurity, water scarcity, biodiversity loss, and social conflict. The findings further underscore the urgency of addressing the institutional, policy, and community-level drivers of landscape degradation through a coordinated and participatory approach. Despite the challenges, significant prospects exist for promoting sustainable landscape development across the North Central zone. By leveraging national and global frameworks such as the Sustainable Development Goals, the Great Green Wall Initiative, and climate-smart land management practices there is an opportunity to restore degraded ecosystems, improve land productivity, and strengthen community resilience. The key

lies in aligning policies with local realities, empowering stakeholders through capacity building and environmental education, and integrating scientific knowledge with traditional land stewardship. If well-implemented, these strategies can ensure that landscapes in the region remain productive, resilient, and capable of supporting both human development and environmental sustainability for generations to come.

RECOMMENDATIONS

Based on the findings and analysis of Lansdscape challenges in North Central Nigeria, the following recommendations are hereby made;

➤ *Adopt Integrated Landscape Management (ILM)*

Government and relevant stakeholders should implement integrated landscape approaches that coordinate land use activities across sectors such as agriculture, mining, forestry, and urban development. This will help balance environmental conservation with socio-economic development and reduce land use conflicts.

➤ *Strengthen Land Use Planning and Enforcement*

States within the North Central region should develop and enforce comprehensive land use plans that reflect ecological zones, urban growth patterns, and agricultural suitability. Institutions responsible for environmental regulation must be empowered with legal authority, technical capacity, and adequate funding to carry out monitoring and enforcement.

➤ *Promote Climate-Smart and Sustainable Agricultural Practices*

Farmers should be supported through training, subsidies, and extension services to adopt sustainable practices such as agroforestry, cover cropping, conservation tillage, and organic farming. These practices will enhance soil fertility, reduce erosion, and increase resilience to climate change.

➤ *Invest in Reforestation and Ecosystem Restoration*

Federal and state governments, in collaboration with NGOs and community-based organizations, should intensify afforestation, reforestation, and wetland restoration efforts in degraded areas. The Great Green Wall and AFR100 programs should be localized with active community participation and long-term funding support.

➤ *Enhance Environmental Education and Community Engagement*

Public awareness campaigns, school curricula, and adult learning programs should be used to educate citizens about sustainable land use, ecosystem services, and environmental stewardship. Traditional leaders and local institutions should be engaged to revive indigenous conservation knowledge.

➤ *Improve Data Collection and Use of Geospatial Technologies*

Regular land cover assessments using GIS and remote sensing should be institutionalized to monitor landscape changes and guide planning decisions. This data should be made accessible to policymakers, researchers, and civil society for evidence-based interventions.

➤ *Address Land Tenure and Policy Gaps*

Reforms should be made to clarify land tenure rights and reduce conflicts between farmers, herders, and other land users. National and state-level environmental policies must be harmonized, updated, and implemented in a way that promotes transparency, inclusivity, and accountability.

➤ *Encourage Multi-Stakeholder Collaboration*

Landscape sustainability requires collaboration among government agencies, private sector actors, academia, civil society, and local communities. Platforms for dialogue, joint decision-making, and resource mobilization should be established to foster collective action.

➤ *Provide Financial Incentives and Green Investments*

Green investment schemes such as carbon credits, ecosystem service payments, and subsidies for eco-friendly practices should be introduced to motivate individuals and organizations to adopt sustainable land use practices.

➤ *Mainstream Sustainability in Regional Development Plans*

Landscape sustainability goals and indicators should be mainstreamed into regional and local development plans, with clear targets and mechanisms for monitoring and evaluation.

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