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Assessing the Impact of Climate Change Induced Flooding on Human Security in Nigeria's Middle Belt

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Abstract

Climate change has exacerbated flooding in Nigeria's Middle Belt, resulting in a complex human security crisis that extends beyond environmental degradation. The issue is rooted in the ongoing failure of governance systems and local institutions to address the socio-economic and health impacts of recurring floods, which consistently undermine livelihoods and human well-being. This study analyses the impact of flooding on various dimensions of security, including economic, food, health, environmental, personal, community, and political aspects within the region. Utilising the UNDP (1994) Human Security framework, this study employs a qualitative design that involves document analysis of thirty-six institutional reports, policy papers, and peer- reviewed studies from 2020 to 2025. Thematic analysis was conducted to identify recurring patterns and interconnections among the impacts of flooding. The findings indicate that flooding adversely affects livelihoods, disrupts food systems, facilitates the spread of disease, degrades ecosystems, displaces populations, fractures communities, and highlights significant governance deficiencies. Vulnerability is characterised by intersectionality, with women, children, and the elderly facing increased risks, while responses are often fragmented and reactive. The research indicates that flooding caused by climate change negatively impacts human development and socio-political stability in the Middle Belt. The recommendations include, first, enhancing community-based adaptation and early warning systems; second, investing in resilient infrastructure and social protection; and third, incorporating human security principles into national and local climate policies.

Keywords: Climate Change, Flooding, Human Security, Nigeria's Middle Belt.

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1. Introduction

Background of the Study

Climate change constitutes one of the most profound challenges of the twenty-first century, reshaping ecological systems, economic structures, and patterns of human settlement across the globe. Rising temperatures, erratic rainfall, sea-level rise, and the increasing frequency of extreme weather events have transformed climate change from a predominantly environmental concern into a critical human security issue. Among climate-related hazards, flooding remains the most widespread and destructive, accounting for nearly half of all recorded natural disasters globally over the past two decades (World Meteorological Organisation, 2023). Beyond physical destruction and loss of life, flooding undermines livelihoods, disrupts health systems, and displaces populations, thereby threatening fundamental dimensions of human well-being.

The concept of human security, as articulated by the United Nations Development Programme (UNDP, 1994), encompasses freedom from fear, want, and indignity, integrating economic, food, health, environmental, personal, community, and political dimensions. From this perspective, climate-induced flooding represents not merely an environmental hazard but a complex social phenomenon with far-reaching implications for human welfare and societal stability, particularly in developing regions with limited adaptive capacity.

Sub-Saharan Africa has emerged as one of the regions most vulnerable to the impacts of climate change. Over the past two decades, the region has experienced increased rainfall variability and intensity, leading to recurrent flooding and heightened livelihood insecurity (Serdeczny et al., 2017). West Africa, in particular, has witnessed pronounced hydrological fluctuations associated with global warming, resulting in increasingly unpredictable precipitation patterns (Niang et al., 2022). Nigeria, as Africa's most populous country, is centrally implicated in these dynamics. Its diverse geography; ranging from coastal lowlands to semi-arid hinterlands exposes the country to multiple climate-induced hazards, with flooding identified as the most frequent and persistent natural disaster (NEMA, 2023).

Within Nigeria, the Middle Belt region comprising Benue, Kogi, Plateau, Nasarawa, Niger, and Taraba states has become a focal point of climate vulnerability. This transitional ecological zone between the humid south and arid north supports millions of smallholder farmers through its fertile soils and river systems. However, the convergence of the Niger and Benue rivers, combined with changing rainfall regimes and infrastructural deficiencies, has rendered the region highly susceptible to seasonal and recurrent flooding. The 2022 floods, among the most devastating in Nigeria's history, displaced over two million people and submerged extensive agricultural land across the Middle Belt, a crisis exacerbated by the release of excess water from Cameroon's Lagdo Dam (Stromsta, 2024).

Statement of the Problem

Despite the growing frequency and severity of flooding in Nigeria's Middle Belt, existing responses remain largely reactive and sector-specific. Flooding is often framed narrowly as an environmental or agricultural problem, with policy attention concentrated on crop losses and emergency relief. This approach obscures the broader human security implications of flooding, including public health crises, prolonged displacement, social fragmentation, and governance challenges. Recurrent flooding has contributed to the spread of water-borne diseases, disruption of education and employment, heightened exposure to gender-based violence, and renewed competition over land and humanitarian resources, occasionally intensifying communal tensions (WHO, 2023; UNHCR, 2025; Hillert, 2025).

Institutions such as the National Emergency Management Agency (NEMA) and the Nigeria Hydrological Services Agency (NIHSA) play central roles in flood management; however, their interventions are predominantly emergency-oriented, with limited emphasis on prevention, early warning, and long-term resilience building. Weak inter-agency coordination, insufficient infrastructural preparedness, and policy frameworks that overlook the specific ecological and socio-cultural contexts of the Middle Belt further perpetuate cycles of vulnerability. Consequently, affected communities remain exposed to repeated shocks without sustainable recovery mechanisms.

A critical gap therefore exists in the integration of human security perspectives into climate change and disaster governance in Nigeria. There is limited empirical research that systematically examines how climate-induced flooding interacts with economic, health, social, and institutional dimensions of security in the Middle

Belt. Addressing this gap is essential for developing more holistic, inclusive, and context-responsive adaptation strategies.

Aim and Objectives of the Study

The study aims to assess the effects of climate change-induced flooding on human security in Nigeria's Middle Belt.

The specific objectives are to:

1. Analyse the impact of climate-induced flooding on key dimensions of human security, including livelihoods, health, displacement, and social cohesion in the Middle Belt.

2. Identify spatial and demographic patterns of vulnerability, highlighting populations and locations most at risk.

3. Examine existing adaptation strategies and governance responses to flooding, assessing their effectiveness and inclusivity.

Research Questions

1. How does climate change-induced flooding affect livelihoods, health outcomes, displacement patterns, and social cohesion in Nigeria's Middle Belt?

2. Which populations and geographic areas within the Middle Belt are most vulnerable to flooding, and why?

3. How effective and inclusive are current adaptation and governance responses to flooding in addressing human security challenges in the region?

Significance of the Study

This study is significant for policymakers and government institutions, as it provides a comprehensive human-centred analysis of flooding that extends beyond infrastructural damage and agricultural losses. By highlighting governance gaps and institutional limitations, the findings can inform the design of more integrated climate adaptation and disaster risk reduction policies tailored to the Middle Belt's specific realities. For disaster management agencies and humanitarian actors, the study offers evidence-based insights into the social and health dimensions of flooding, supporting more proactive, preventive, and community-responsive interventions. The human security framework enhances understanding of how displacement, health risks, and social tensions intersect during flood events.

The study also contributes to academic scholarship by advancing interdisciplinary analysis of climate change, disasters, and human security in Nigeria. It enriches empirical literature on climate vulnerability in West Africa and provides a conceptual basis for future research examining the nexus between environmental hazards and human well-being. Finally, the findings are relevant to international development partners, supporting alignment between local adaptation strategies and global development agendas, particularly the Sustainable Development Goals on poverty reduction, health, climate action, and peaceful institutions.

Scope of the Study

The study focuses on six states in Nigeria's Middle Belt: Benue, Kogi, Plateau, Nasarawa, Niger, and Taraba. These states capture the ecological diversity and socio-political complexity of the region. The analysis covers a fifteen-year period (2010–2025), enabling examination of trends in flooding events, vulnerability patterns, and policy responses over time. While geographically concentrated, the study's insights are nationally and regionally relevant, offering lessons applicable to other flood-prone areas in Nigeria and West Africa.

Conceptual Review

Climate Change, Flooding, and the Human Security Paradigm

Climate change represents a significant global challenge of the 21st century, influencing environmental, economic, and social systems across the globe. One of the most prominent and damaging effects is flooding, which has increased as a result of elevated global temperatures and unpredictable precipitation patterns. The Intergovernmental Panel on Climate Change (IPCC, 2023) indicates that the frequency and severity of extreme weather events have escalated worldwide, with developing nations, especially in sub-Saharan Africa, experiencing the most significant effects. African nations, while contributing minimally to global greenhouse gas emissions, experience significant environmental and socio-economic challenges, such as loss of livelihoods, public health crises, and increasing insecurity (World Meteorological Organisation [WMO], 2024).

Nigeria illustrates the contradiction of minimal emissions coupled with significant vulnerability. Nigeria,

as Africa's most populous nation, exhibits significant ecological diversity and is increasingly vulnerable to various climate-related hazards due to rapid urbanisation. The Middle Belt, situated between the humid southern region and the arid northern region, has emerged as a significant area of climate vulnerability owing to its transitional ecology, reliance on rain-fed agriculture, and closeness to major river systems (United Nations Economic Commission for Africa [UNECA], 2024). Climate change has altered established rainfall patterns, leading to increased intensity and unpredictability of floods that jeopardise the human security of millions in this region.

Trends and Patterns of Flooding in the Middle Belt (2020–2025)

Empirical evidence indicates an increase in the frequency and severity of flood events in Nigeria's Middle Belt from 2020 to 2025. According to reports from the Nigerian Meteorological Agency (NiMet, 2023), there is an observed increase in rainfall intensity and a reduction in the duration of dry spells, which are contributing factors to flash floods and river overflows. The floods of 2022 constituted one of the most severe disasters in the nation's history, impacting 34 states, displacing more than 2.4 million individuals, and causing significant damage to infrastructure and agricultural lands (UNDP, 2023). In Bayelsa State, over 700,000 individuals were displaced, while Middle Belt states, including Benue and Kogi, experienced significant agricultural losses (UNICEF, 2022).

The floods result from a combination of factors, including climate variability, poor land-use practices, deforestation, and the release of excess water from Cameroon's Lagdo Dam, compounded by insufficient urban drainage and ineffective planning systems (NiMet, 2024). The intersection of environmental stressors and governance failures has rendered flooding a persistent human security concern, as posited by Hillert (2025), who characterises climate change as a "threat multiplier" that exacerbates social, economic, and political instability.

Flooding and the Seven Dimensions of Human Security

The concept of human security, as articulated by the United Nations Development Programme (UNDP, 1994), comprises seven interrelated dimensions; economic, food, health, environmental, personal, community, and political security. Flooding in Nigeria's Middle Belt undermines each of these dimensions in complex and mutually reinforcing ways.

Economic Security: Floods impede agricultural output and informal trade, which are fundamental to the economy of the Middle Belt. The devastation of agricultural lands and market facilities leads to financial losses and heightened unemployment (Oyabambi et al., 2025). The floods of 2022 caused economic losses estimated at ₦700 billion, disproportionately affecting smallholder farmers who lacked insurance or credit (UNDP, 2023).

Food Security: The Middle Belt, frequently referred to as Nigeria's "food basket," experiences recurrent crop losses attributed to flooded agricultural lands. The Food and Agriculture Organisation (FAO, 2023) indicated that more than 300,000 hectares of agricultural land were lost due to the floods in 2022, significantly diminishing the yields of maize, yam, and rice. This has intensified food insecurity, increased dependence on food assistance, and raised food prices, worsening poverty among rural households (Oyabambi et al., 2025).

Health Security: Flooding compromises water quality and promotes the transmission of diseases including cholera, typhoid, and malaria (World Health Organisation [WHO], 2024). The deterioration of sanitation infrastructure, along with the inadequate condition of health facilities, exacerbates the crisis. Otorkpa et al. (2024) highlight that psychological distress and trauma related to displacement and loss are frequently overlooked in Nigeria's disaster response frameworks.

Environmental Security: Deforestation, inadequate land management, and unregulated urban expansion have compromised ecosystems and increased vulnerability to flooding in the Middle Belt. Flooding increases soil erosion and sedimentation, leading to the destruction of wetlands and a decrease in the land's absorptive capacity (Adelekan & Fashona, 2023). Environmental disruptions impair access to potable water and weaken the inherent resilience of ecosystems.

Personal and Community Security: Personal and community security is compromised by displacement and overcrowded camps, which increase vulnerability to gender-based violence, exploitation, and overall insecurity (UNHCR, 2024). The disintegration of social networks and community structures during flooding

diminishes collective resilience. Conflicts regarding land and humanitarian assistance further undermine social cohesion. Hillert (2025) observes that these tensions frequently exacerbate ethnic and communal conflicts in the already unstable Middle Belt.

Political Security: The persistent inability of governmental institutions to manage floods effectively undermines public trust and diminishes political legitimacy. Inadequate early warning systems, insufficient inter-agency coordination, and unequal distribution of relief aid indicate underlying governance shortcomings (Oluyemi et al., 2025). The politicisation of disaster response compromises transparency and accountability, thereby diminishing citizens' trust in state institutions.

Spatial and Demographic Vulnerability

The vulnerability to flooding in the Middle Belt exhibits spatial and demographic disparities. Riverine settlements in the Niger and Benue basins are subject to frequent inundation, whereas urban areas such as Lokoja and Makurdi encounter flash floods attributed to obstructed drainage systems and habitation on floodplains (UNDP, 2023). Vulnerability is influenced by socio- demographic factors; women, children, and the elderly experience greater hardship due to restricted mobility, limited access to resources, and diminished decision-making authority (UNHCR, 2024). Geospatial analyses have identified flood-prone areas; however, numerous local governments are unable to effectively employ this data for early warning and evacuation purposes (Adelekan & Fashona, 2023). Poverty, low educational attainment, and insufficient infrastructure exacerbate exposure, highlighting the relationship between spatial inequality and climate vulnerability.

Adaptive Strategies and Governance Responses

Communities in the Middle Belt have implemented adaptive strategies, including elevated housing, seasonal migration, and mutual aid systems. Nonetheless, these measures are becoming inadequate in addressing the scale of flooding events (Esri, 2023). The integration of traditional knowledge with scientific forecasting, contemporary engineering, and institutional support is crucial for achieving long-term resilience.

Governmental agencies, including the National Emergency Management Agency (NEMA) and the Nigeria Hydrological Services Agency (NIHSA), have advanced in flood response; however, their initiatives are hindered by insufficient funding, inadequate coordination, and ineffective enforcement mechanisms (UNDP, 2023). The inadequate management of the Lagdo Dam water release in 2022 highlights significant shortcomings in regional water governance and early warning communication systems.

Nigeria's National Climate Change Policy (2021–2030) prioritises adaptation and resilience; however, its execution is constrained, especially at subnational tiers (Federal Ministry of Environment, 2021). International organisations, including the UNDP and IOM, have facilitated capacity building and disaster risk reduction initiatives; however, these interventions frequently exhibit donor-driven characteristics and insufficient sustainability (IOM, 2024). Effective adaptation in the Middle Belt necessitates institutional reform, decentralised governance, and the integration of climate risk into both national and local development planning.

2. Theoretical Framework

This study is grounded in the Human Security Theory, initially presented by the United Nations Development Programme (UNDP) in its significant Human Development Report (1994). The concept represents a significant departure from the conventional, state-centric view of security, which focusses on military and territorial defence, towards a more human-centered perspective that prioritises the safety and dignity of individuals. The central premise of the theory posits that the genuine measure of security is found not in the state's strength but in safeguarding individuals from persistent threats, including hunger, disease, and repression, as well as from abrupt disruptions in their lives. The human security framework expands the analytical perspective of security studies by incorporating economic, food, health, environmental, personal, community, and political dimensions.

Advocates of the theory, such as Amartya Sen (1999) and Mahbub ul Haq (1995), contend that development and security are interdependent; human insecurity in any manifestation hinders development, whereas sustainable development promotes human security. Sen posits that human freedom and capability are fundamental to security; individuals must be liberated from want, fear, and indignity to pursue meaningful lives. King and Murray (2001) further developed the framework by defining human security as the capacity of individuals to exist without significant threats to their rights, safety, and livelihoods. In the context of climate change, this

viewpoint has developed to include environmental stressors as essential factors influencing security.

The Environmental Security perspective, as articulated by scholars like Homer-Dixon (1999) and Barnett (2003), enhances the human security framework by establishing connections between ecological degradation, resource scarcity, and social instability. This theoretical convergence frames climate change as an environmental concern and a security threat, undermining livelihoods, displacing populations, and weakening governance structures. Flooding is a significant indicator of climate change, compromising economic frameworks, disrupting healthcare systems, and displacing communities, therefore challenging the resilience of persons and organisations.

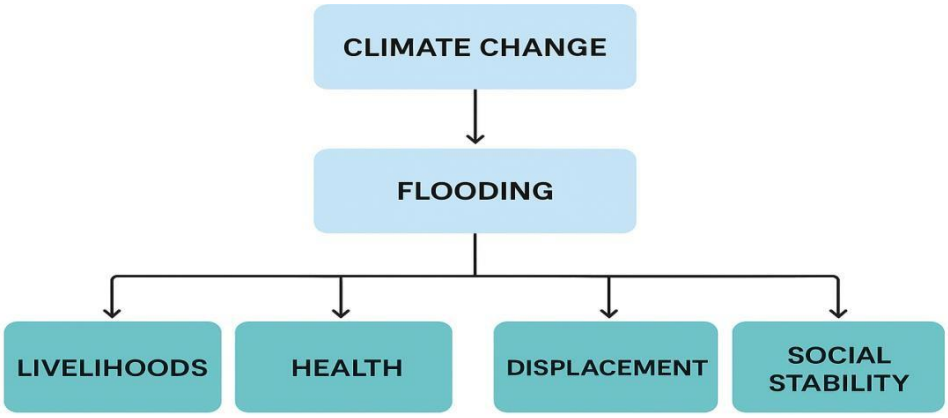
The application of the human security framework to Nigeria's Middle Belt offers a comprehensive perspective for analysing the intricate and interconnected effects of climate- induced flooding. The socio-ecological landscape of the Middle Belt, characterised by agrarian livelihoods, ethnic diversity, and fragile governance, makes it particularly susceptible to environmental shocks. In this context, flooding poses a threat to various aspects of human security concurrently. The economic dimension is undermined due to the loss of farmland and assets, resulting in decreased incomes and exacerbated poverty. The health dimension is compromised by waterborne diseases, malnutrition, and mental health issues related to displacement. The community dimension is undermined as resource scarcity and displacement provoke social tensions and conflict. Weak institutional capacity hinders effective disaster response, consequently undermining trust in governance and political stability.

The theoretical strength of the human security framework is rooted in its multidimensional and cross-sectoral adaptability. In contrast to conventional disaster management frameworks that prioritise immediate humanitarian interventions, human security theory underscores the importance of prevention, resilience, and long-term adaptation. This analysis establishes a conceptual framework for comprehending the flooding in the Middle Belt as more than a mere physical occurrence of water overflow; it signifies a cumulative crisis that jeopardises the essential well-being of individuals and communities. By contextualising flooding within the wider framework of human vulnerability, the theory facilitates the integration of environmental science, development policy, and social governance.

The framework enhances the study's analytical structure by corresponding with its four primary dimensions of analysis: livelihoods, health, displacement, and social cohesion. Each dimension represents a fundamental component of the human security model. For example, diminished agricultural productivity resulting from frequent flooding indicates economic instability; cholera and malaria outbreaks highlight health vulnerabilities; forced displacement points to community and individual instability; and the increase in intercommunal conflict emphasises political and social instability. The framework offers both a conceptual foundation and an analytical structure for a comprehensive examination of the impacts of flooding.

The human security approach aligns with the United Nations' Sustainable Development Goals (SDGs), specifically SDG 13 (Climate Action), SDG 1 (No Poverty), and SDG 3 (Good Health and Well-Being). This is consistent with Nigeria's National Climate Change Policy (2021) and National Adaptation Plan (2022), which highlight the importance of community resilience and social inclusion in disaster management. By situating the study within human security theory, this research enhances both scholarly discussion and practical policy formulation by reconceptualising flooding as a complex issue of development and governance rather than merely an environmental threat.

CONCEPTUAL FRAMEWORK



Authors' Conceptual Framework

3. Methodology

This study examined how climate change-induced flooding affected human security in Nigeria's Middle Belt using qualitative document analysis as described by Bowen (2009). The method was chosen because it can extract nuanced, context-rich insights from policy papers, institutional reports, and scholarly literature. Given the complexity of flood-related security issues and the region's lack of granular data, document analysis provided a systematic and transparent way to synthesise information across temporal and institutional boundaries.

The relevancy, trustworthiness, and publication date of 36 documents from 2010 to 2025 were carefully chosen. These included national policy instruments like the National Climate Change Policy (2021) and NEMA Flood Reports (2015–2023), international and non-governmental organisation reports (e.g., UNDP, World Bank, IOM), peer-reviewed journal articles, and verified national media sources. Each document was to cover at least one UNDP (1994) human security dimension in relation to flooding and climate change.

Manual coding began with deductive codes from the seven UNDP human security factors. Iterative reading and topic clustering revealed more codes. We looked for vulnerability, governance response, and adaptation story patterns in each document. Cross-document comparison improved theme saturation and interpretative validity. The study used source triangulation, reflexive memoing, and transparent coding for methodological rigour. To guarantee consistency and theoretical coherence, findings were cross-validated with existing literature. This method allowed a thorough analysis of how institutional and policy discourses affect human security in Nigeria's flood-prone Middle Belt.

Findings

The document analysis integrated evidence from institutional reports (NEMA, UNDP, FAO, WHO, IOM, UNHCR), peer-reviewed literature (2020–2025), and relevant policy documents to examine the multidimensional implications of climate change–induced flooding on human security in Nigeria's Middle Belt. The analysis yielded seven major themes corresponding to the UNDP's (1994) seven dimensions of human security. These themes capture the intricate interconnections between environmental vulnerability, socio-economic fragility, and governance inefficiencies in the region.

Livelihood Disruption and Economic Fragility

Flooding has persistently compromised economic stability in the Middle Belt, disrupting rural and informal livelihoods that are essential to the regional economy. Reports from various institutions and scholarly sources (NEMA, 2015–2023; UNDP, 2023; Oyabambi et al., 2025) demonstrate that farmlands adjacent to the Benue and Niger riverbanks are frequently inundated, resulting in the loss of both staple and cash crops. Mortality rates among livestock increase significantly due to drowning and waterborne diseases, exacerbating household losses. In addition to its impact on agriculture, flooding impedes trade routes by damaging infrastructure such as roads and bridges, which restricts market access and increases transportation costs. Informal market traders, primarily women, are significantly impacted, suffering losses of stored goods and capital due to floodwaters. The disintegration of these informal networks undermines

local economies and exacerbates income disparities. The lack of formal financial safety nets, including agricultural insurance, microcredit, and recovery grants, exacerbates vulnerability and constrains economic recovery. The economic fragility in the Middle Belt is both cyclical and structural, stemming from climatic shocks as well as systemic governance and infrastructural deficiencies.

Food Insecurity and Agricultural Instability

The Middle Belt, frequently referred to as Nigeria's "food basket," is experiencing increasing food insecurity due to the recurring flooding that severely impacts agricultural systems. Floodwaters interfere with planting and harvesting timelines, resulting in extensive crop failure and decreased yields. Reports from the FAO and UNICEF (2022) indicate significant farmland destruction and post-harvest losses, while research by Ani et al. (2022) and Akinkuolie et al. (2025) illustrates the prolonged erosion of food system resilience. Floods adversely affect storage facilities and warehouses, resulting in contamination, spoilage, and mould growth. These losses reduce both the quantity and quality of food, leading to scarcity in local markets. Supply shortages result in increased food prices, rendering essential commodities unaffordable for low- income households and exacerbating malnutrition. Affected communities often engage in early harvesting or rely on humanitarian food aid, which undermines local self-reliance. This pattern indicates that food insecurity in the Middle Belt has evolved from an episodic crisis to a chronic condition, driven by environmental instability, insufficient adaptive farming practices, and a lack of institutional support.

Public Health Emergencies and Infrastructure Breakdown

Flooding presents both immediate and long-term risks to public health security, converting environmental hazards into significant humanitarian crises. Evidence from WHO (2024) and Otorkpa et al. (2024) indicates that floodwaters often contaminate drinking water sources, leading to outbreaks of cholera, typhoid, and hepatitis A. Stagnant water acts as a breeding habitat for mosquitoes, resulting in increased malaria rates during and following flood occurrences. Displacement and loss of assets cause a lot of psychological stress, which can show up as trauma, anxiety, and depression. These are areas that aren't well covered by current disaster management plans. The health infrastructure in numerous Middle Belt communities is precarious; flooding severs access to clinics and hospitals, while compromised roads and bridges obstruct medical response efforts. Internally Displaced Persons (IDP) camps heighten public health risks owing to insufficient Water, Sanitation, and Hygiene (WASH) facilities, leading to elevated disease transmission and child mortality rates. The conditions indicate that health insecurity during flooding is multidimensional, involving disease outbreaks, structural neglect of health systems, and psychosocial well-being.

Environmental Degradation and Land-Use Conflict

Flooding and environmental degradation mutually reinforce each other, creating a destructive cycle that exacerbates ecological vulnerability throughout the Middle Belt. Research conducted by Adelekan and Fashona (2023) and Esri (2023) indicates that inadequate urban planning, deforestation, and agricultural encroachment on wetlands have contributed to the expansion of flood-prone areas. Floodwaters erode fertile topsoil, leading to a decline in land productivity, while sediment accumulation in river channels heightens the risk of future flooding. The reduction of vegetation cover due to logging and land clearing exacerbates surface runoff and diminishes the land's inherent absorptive capacity. Environmental changes undermine agricultural productivity and generate competition for diminishing resources. As the availability of fertile land and freshwater resources decreases, tensions emerge among farmers, herders, and displaced individuals regarding access to resources and land utilisation. The increasing ecological stress highlights the relationship between environmental insecurity and social instability, as the mismanagement of natural resources converts environmental hazards into catalysts for human conflict.

Displacement and Personal Insecurity

Recurrent flooding has emerged as a primary factor contributing to internal displacement in Nigeria’s Middle Belt, disrupting livelihoods and increasing the vulnerability of affected populations to insecurity. Data from the IOM (2024–2025) and UNHCR (2024) indicate that millions were displaced by the 2022 floods, with many individuals compelled to reside in overcrowded and unsanitary camps. In these temporary settlements, personal security declines due to the collapse of social order, rendering women and children especially susceptible to gender-based violence, sexual exploitation, and abuse. Overcrowding in camps and the

lack of essential resources, including clean water, healthcare, and food, lead to humanitarian crises that undermine dignity and safety. Displacement involves the loss of personal property, such as identity documents and financial assets, which hinders recovery and reintegration. The decline of personal security in these circumstances indicates significant deficiencies in governance, as state mechanisms are unable to provide protection and maintain the fundamental rights of displaced individuals.

Community Fragmentation and Social Tension

Displacement caused by flooding significantly impacts community security, undermining social cohesion and exacerbating intergroup tensions. The dislocation of families and communities undermines traditional support systems that have historically facilitated collective resilience during crises. Research conducted by Hillert (2025) and UNDP (2024) indicates that competition for limited resources, especially land and humanitarian assistance, frequently results in conflicts between displaced populations and host communities. The tensions are exacerbated by perceptions of inequity in the distribution of relief resources. Displacement undermines the legitimacy of traditional authorities, who face challenges in maintaining social order and coordinating local recovery efforts. The deterioration of communal networks and the decline of social trust impede post-disaster recovery and increase the likelihood of localised conflict. Community fragmentation emerges as both a consequence and a catalyst of human insecurity, highlighting the social dimension of climate vulnerability in ethnically diverse regions such as the Middle Belt.

Governance Gaps and Policy Incoherence

Weaknesses in governance represent a fundamental connection among all dimensions of insecurity identified in this study. Although national frameworks like Nigeria's National Climate Change Policy (2021–2030) are in place, their implementation is characterised by inconsistency and inadequate localisation. NEMA (2023), NIHSA (2024), and media investigations (Channels TV, 2022; Punch, 2024) demonstrate ongoing underfunding, insufficient coordination, and disorganised disaster management responses. Early warning systems demonstrate inefficacy or inadequate communication, thereby constraining community preparedness. Funding limitations hinder the timely delivery of relief, whereas political interference frequently influences the allocation of aid, undermining public trust. Moreover, local governments often exhibit insufficient capacity and autonomy to implement climate adaptation policies, leading to responses that are reactive rather than proactive in nature. The existence of governance gaps illustrates the interconnectedness of political and human security, emphasising that institutional shortcomings exacerbate the human consequences of environmental crises.

4. Discussion

The examination of thirty-six documents reveals substantial evidence that flooding induced by climate change in Nigeria's Middle Belt represents a complex human security crisis. This finding reinforces the fundamental principle of the UNDP Human Security Framework (1994), which defines security as the absence of fear and want, encompassing economic, food, health, environmental, personal, community, and political aspects. Flooding in the Middle Belt represents more than environmental degradation; it constitutes a systemic threat that disrupts livelihoods, undermines governance, and destabilises social structures. This discussion synthesises thematic findings with existing literature and theoretical frameworks to situate the study within the wider scholarly and policy context.

Economic security is significantly impacted, as flooding persistently disrupts rural livelihoods and the informal economy that supports the population of the Middle Belt. The degradation of agricultural land, depletion of livestock, and disruption of market connections significantly undermine income generation and household resilience. This observation is consistent with findings from UNDP (2023) and NEMA (2022), which document the decline of economic resilience in communities vulnerable to flooding. The IPCC (2023) links the rising frequency of floods to heightened rainfall variability, exacerbating rural poverty and inequality. This study provides a detailed understanding by highlighting the decline of the informal sector, a topic frequently overlooked in existing literature. This research recontextualises flooding from being merely an environmental hazard to a component of structural vulnerability, highlighting how economic insecurity is sustained by weak institutions, insufficient safety nets, and restricted access to credit. The implication is that economic fragility in the Middle Belt is not merely a temporary result of climatic shocks but rather a persistent failure in governance and policy that exacerbates human insecurity.

The research identifies a significant transition in food security, evolving from seasonal disruptions to persistent vulnerability. The degradation of croplands, irregular planting cycles, and post-harvest losses have transformed Nigeria's agricultural core into a precarious area of dependency. This is consistent with the findings of FAO (2023) and UNICEF (2022) regarding the 2022 floods, which interrupted production in various states. Previous research, including Oyabambi et al. (2025), recognises the connection between flooding and food shortages. This study advances the discussion by demonstrating that recurrent flooding compromises both production and the long-term resilience of food systems. Food insecurity is framed as a governance challenge, resulting from inadequate adaptation planning and insufficient investment in flood-resilient agricultural practices. This interpretation supports the Human Security framework's claim that freedom from want is a fundamental aspect of security, and that access to food constitutes both a right and an indicator of a state's ability to safeguard citizens against environmental threats.

Flood events significantly compromise health security, an essential dimension of public safety. Floods in the region are consistently associated with contaminated water sources, outbreaks of cholera, malaria, and typhoid, as well as the deterioration of health infrastructure. The results support the findings of WHO (2024) and Otorkpa et al. (2024), which reported analogous health crises following floods. The current study significantly contributes by emphasising the psychological aspect of health insecurity. Loss of homes, livelihoods, and community ties causes trauma, anxiety, and depression in displaced populations; these issues are rarely addressed in disaster response frameworks. This nuance expands the definition of health security to encompass psychosocial resilience, thereby strengthening UNDP's human-centered approach to well-being. The study illustrates that effective recovery from flooding necessitates a comprehensive health strategy addressing both physical and mental aspects of vulnerability.

Environmental security is closely linked to these outcomes. The analysis demonstrates that flooding exacerbates soil erosion, deforestation, and encroachment on floodplains, thereby further destabilising the ecological balance. The findings align with those of Adelekan and Fashona (2023), whose GIS-based research indicated that unregulated urban expansion and inadequate land management have increased flood-prone areas. Hillert (2025) characterised climate change as a "threat multiplier" that intensifies ecological and political fragility. This study advances the discourse by establishing a direct link between environmental degradation and resource-based conflict. As fertile land and clean water diminish, competition among communities escalates, resulting in conflicts over land use, grazing rights, and resettlement areas. This pattern highlights the environmental aspect of the Human Security framework, where ecosystem collapse leads to social tension and insecurity.

The human ramifications of displacement highlight the multifaceted nature of the crisis. Flooding has resulted in the displacement of tens of thousands in the Middle Belt, compelling many to seek refuge in overcrowded camps that lack sufficient protection and essential amenities. The findings of the study align with the reports from IOM (2024) and UNHCR (2024), which document analogous displacement patterns and humanitarian deficiencies. This research reconceptualises displacement as a breach of personal security and human dignity, rather than simply a logistical issue. Situating displacement within the Human Security paradigm reveals that personal insecurity signifies the failure of protective systems, resulting in the denial of shelter, safety, and autonomy for citizens. This viewpoint critiques technocratic responses to disasters and advocates for rights-based strategies that emphasise dignity and protection, especially for vulnerable groups such as women, children, and the elderly, who are at increased risk of exploitation and violence.

The findings indicate that flood-induced displacement negatively impacts social cohesion, undermines traditional authority, and increases intergroup tensions at the community level. This dynamic is consistent with the findings of Hillert (2025) and UNDP (2024), which indicate that climate stress exacerbates conflict in ethnically diverse societies. This study offers a nuanced understanding by demonstrating how social fragmentation constitutes a form of insecurity that undermines collective capacity for recovery and adaptation. Weakening community bonds leads to the failure of traditional dispute resolution and resource-sharing mechanisms, resulting in increased dependence on external aid and heightened vulnerability to conflict among affected populations. This underscores the Human Security principle that social cohesion is essential for resilience and that community stability should be regarded as a security issue in climate

adaptation planning.

Ultimately, political security constitutes the most fundamental dimension that supports all other aspects. Governance failure, characterised by poor coordination, delayed responses, insufficient funding, and politicised distribution of relief, intensifies the human consequences of flooding. This finding corroborates previous analyses by NIHSA (2024), NEMA (2023), and Oluyemi et al. (2025), which identified institutional inefficiency as a significant barrier to effective climate governance. This study enhances the argument by demonstrating that governance breakdown is systemic, affecting all dimensions of human security rather than being confined to specific sectors. In the absence of transparent, participatory, and decentralised governance structures, policy frameworks tend to be reactive and fragmented. This observation aligns with the Human Security theory's claim that governance is fundamental to comprehensive security. Enhancing institutional accountability, incorporating local knowledge, and investing in adaptive infrastructure are crucial for disrupting the cycle of vulnerability in Nigeria's Middle Belt.

5. Conclusion

This systematic document analysis of institutional reports, policy papers, and peer-reviewed research from 2020 to 2025 explored the complicated relationship between climate change, flooding, and human security in Nigeria's Middle Belt. The findings show that climate-induced flooding is a complex human security challenge affecting economic stability, food production, public health, personal safety, community cohesiveness, and governance legitimacy. The study shows how environmental and socio-political risks are linked by placing these dynamics in the Human Security framework (UNDP, 1994). Flooding exacerbates economic fragility, policy incoherence, and institutional inefficiency, which reduce residents' freedom from fear, want, and indignity.

Reimagining climate governance as human-centered, inclusive, and preventive rather than reactive would help Nigeria's Middle Belt become resilient. Only comprehensive environmental management policies that link socio-economic empowerment and institutional transformation can protect Nigerians from climate change and flooding. Research should refine these relationships and explore innovative governance models and community-based adaption methods to ensure no one is left behind in environmental unpredictability. The data shows that while various agencies identify the issue, fragmented governance, poor financing, and policy gaps impair resilience. A coordinated, human-centered, and evidence-based policy response is needed to protect regional residents' livelihoods and dignity.

6. Recommendations

Firstly, the study recommends localised and community-driven flood management and climate adaption policies. State and local institutions that recognise context-specific vulnerabilities must implement national frameworks like Nigeria's Climate Change Policy (2021–2030). Local governments and community leaders need resources and technical supports to create early warning systems, enforce land-use rules, and promote sustainable agriculture. Stronger community participation improves preparedness, ownership, and accountability in disaster response.

Second, resilient infrastructure and nature-based solutions must be funded. Reforestation, wetland preservation, and watershed management must accompany drainage system, river embankment, and transportation network repair. These measures reduce flood risks and protect biodiversity and the environment. Government collaborations with commercial investors and international development agencies can fund resilience projects, assuring scalability and sustainability.

Thirdly, catastrophe response and policy coherence require institutional coordination and governance transformation. NEMA, NIHSA, and the Ministry of Humanitarian Affairs must improve interagency cooperation and remove redundancy. An integrated national flood management system with defined mandates, real-time data exchange, and transparent funding will improve policy efficiency and accountability. To avoid politicisation and maintain equal support for vulnerable communities, disaster relief distribution must include anti-corruption measures.

Fourth, prioritise social protection and livelihood rehabilitation. The study shows that affected households, especially smallholder farmers and informal traders, lack safety nets. Expanding agricultural insurance, microcredit, and livelihood subsidies can speed recovery and minimise aid dependence. Targeted skills training and income diversification for women and youth would boost household resilience and economic stability.

Fifth, public health preparedness should address physical and psychosocial security. Beyond disease prevention,

flood responses must include mental health, sanitation, and water safety. Mental health services in disaster response frameworks will address the invisible psychological burdens of displacement and loss. Disaster mortality and morbidity can be reduced by improving healthcare infrastructure in flood-prone areas and allowing mobile medical units to access distant communities.

Sixth, research and data systems must be institutionalised and linked to policymaking. Despite advances in flood predictions and climate modelling, research outputs and policy implementation remain disconnected. A central climate data repository for policymakers, researchers, and civil society will close this gap. Mixed-method research including spatial analysis, participatory mapping, and ethnographic inquiry should improve understanding of local adaption strategies and gendered climate insecurity.

Finally, climate governance must be considered a human security concern. Flooding is a complex hazard to life, livelihood, and dignity, thus policy responses might go beyond short- term assistance to structural change. Human security must be included into national development planning, education, and public awareness initiatives. Resilience is social and political when citizens realise their rights to safety, livelihood, and environmental stewardship.

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Appendix

Document Sources Used in the Study

No.	Source Title	Year	Type	Relevant UNDP Dimensions
1	National Climate Change Policy for Nigeria: 2021–2030	2021	National Policy	Environmental, Political
2	National Climate Change Policy and Response Strategy	2012	National Policy	Environmental, Economic
3	NEMA Annual Flood Preparedness Report	2015	Government Report	Personal, Community
4	NEMA Flood Risk Management Strategy	2018	Government Report	Environmental, Political
5	NEMA Flood Situation Report and Response Plan	2022	Government Report	Personal, Community
6	Nigeria Flood Impact, Recovery and Mitigation Assessment Report	2023	Government/UNDP Report	Economic, Health, Community
7	Nigeria Flood Impact, Recovery and Mitigation Assessment Report	2023	UNDP Report	Economic, Health, Community

8	Climate Adaptation and Human Security in Nigeria	2024	UNDP Report	All dimensions
9	Joint Post-Flood Assessment Report – FCT	2024	IOM Report	Personal, Health
10	Flood Situation Report – Adamawa State	2025	IOM Report	Personal, Community
11	Flood Situation Report – Yobe State	2025	IOM Report	Personal, Community
12	Climate Risk Country Profile: Nigeria	2021	World Bank Report	Environmental, Economic
13	Climate Change and Development in West Africa	2024	UNECA Report	Environmental, Economic
14	Climate Change Fuels Deadly Conflict in Nigeria's Middle Belt	2024	UNHCR Report	Community, Political
15	Nigeria Floods: Over 2.5 Million People Affected	2022	UNICEF Report	Health, Food, Personal
16	State of the Climate in Africa 2023	2024	WMO Report	Environmental
17	The Impact of Climate Change on Food and Human Security in Nigeria	2022	Peer-Reviewed Article	Food, Economic, Political
18	Impact of Climate Change on Food and Human Security in Nigeria	2025	Peer-Reviewed Article	Food, Economic

19	Resilience to Climate-Induced Food Insecurity in Nigeria	2025	Peer-Reviewed Article	Food, Community
20	Mitigating the Impact of Flooding in Nigeria	2025	Peer-Reviewed Article	Environmental, Political

21	Climate Change as a Threat Multiplier in Fragile States	2025	Peer-Reviewed Article	Political, Community
22	Poor Mental Health Among Nigeria's Displaced Youth	2024	Peer-Reviewed Article	Health, Personal
23	Flood Mapping in Nigeria Using GIS	2023	Peer-Reviewed Article	Environmental
24	Climate-Sensitive Peace Programming in Nigeria's Middle Belt	2025	Peer-Reviewed Article	Community, Political
25	Flooding in Nigeria: An Assessment of Laws and Institutions	2025	Peer-Reviewed Article	Political, Environmental
26	Geospatial Technology for Early Flood Warning in Nigeria	2023	Technical Report	Environmental, Personal
27	Nigeria Floods – Situation Report No. 3	2024	UN OCHA Media Report	Personal, Community
28	Deadly Flooding in Nigeria Displaces Thousands	2025	UN News Media Report	Personal, Health

29	Benue Floods Displace Thousands, Destroy Farmlands	2022	Premium Times Media Report	Economic, Food
30	Kogi Floods: Residents Cry for Help as River Overflows	2023	Guardian Nigeria Media	Personal, Community
31	Makurdi Floods: Over 10,000 Displaced in One Week	2021	Vanguard Media Report	Personal, Community
32	Floods Ravage Middle Belt, Government Response Criticized	2022	Channels TV Media Report	Political, Community
33	Flooding in Nasarawa: Schools Shut, Crops Destroyed	2023	Daily Trust Media Report	Food, Health
34	Climate Change and Flooding: Nigeria's Unpreparedness	2024	Punch Media Report	Political, Environmental
35	Flood Risk in Nigeria: Experts Call for Urgent Action	2025	Leadership News Media	Environmental, Political
36	Flood Victims in Taraba Demand Relief Materials	2023	Sahara Reporters Media	Personal, Community