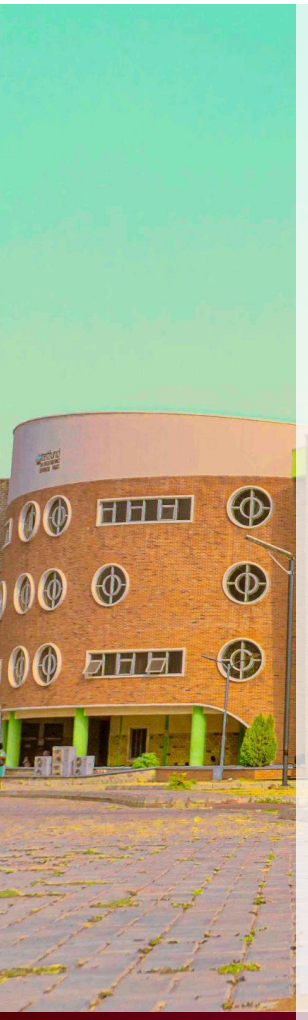
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ICOMSS 2024

Theme
SUSTAINABLE DEVELOPMENT
BEYOND BORDERS
Exploring the Global Perspectives

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NOVEMBER 18 – 20, 2024

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KWARA STATE UNIVERSITY, MALETE

1st International Conference of Management and Social Sciences

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Sustainable Development

Beyond Borders

Exploring the Global Perspectives

Kwara State University, Malete

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Foreword



Distinguished Guests, Honored Delegates, and Esteemed Colleagues, It is with profound pleasure and a deep sense of responsibility that I welcome you to the 1st International Conference of Management and Social Sciences (ICOMSS 2024), themed *"Sustainable Development Beyond Borders: Exploring Global Perspectives."*

This conference marks a milestone in our shared journey to examine and address the most pressing global issues that transcend national and regional boundaries.

Our theme, focusing on sustainability in an interconnected world, invites each of us to think beyond conventional limits, to embrace diverse perspectives, and to engage in meaningful dialogue on how we can collectively shape a future that is both prosperous and sustainable. Through this gathering, we will explore a wide range of topics, from trade integration, poverty, structural transformation, international relations and environmental diplomacy, politics of climate change, social innovation and environmental stewardship, development financing to technology and eco-tourism, examining them through the lens of sustainable development.

The organizing committee has worked tirelessly to bring together a distinguished roster of keynote speakers, panelists, and researchers who will share cutting-edge insights and forward-thinking solutions. We are especially grateful for the support and commitment of our partners, sponsors, and volunteers, whose contributions have made this gathering possible. Their dedication has allowed us to create a platform for collaboration, learning, and inspiration.

I encourage each participant to make the most of this opportunity to engage, network, and collaborate. Let us use this forum to deepen our understanding, broaden our perspectives, and forge partnerships that will extend well beyond this conference. Together, we can inspire positive change that reaches across borders and into the future.

Thank you for being part of ICOMSS 2024. May this conference ignite ideas, inspire actions, and strengthen our shared commitment to sustainable development for all.
Warm regards,

Lukman Adebayo-Oke Abdulrauf, **PhD., ACA, ACS, ACTI**
Chairman, Local Organizing Committee. ICOMSS 2024

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All manuscripts included in this Conference Proceedings for ICOMSS 2024 underwent thorough evaluation and peer review. However, the views and interpretations presented are solely those of the authors and are intended to provide insights into their areas of study. Authors bear full responsibility for the accuracy and validity of their content. The organizing committee of ICOMSS 2024 has accepted these abstracts in good faith but does not assume liability for any decisions made based on the information provided herein.

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ASSESSING THE IMPACT OF CLIMATE CHANGE ON GOVERNANCE: A COMPREHENSIVE ANALYSIS OF FLOODING IN BORNO STATE, NIGERIA

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Abstract

The Sustainable development goals (SDG), 13 goals lay emphasize on strengthen resilience and adaptive capacity to climate related hazards and natural disasters in all countries. As climate change intensifies, its impacts become increasingly evident, affecting environmental stability, economic livelihoods, and social cohesion. Severe flooding has impacted West and Central Africa this year, affecting an estimated 4 million people across countries such as Liberia, Nigeria, Mali, Niger, Chad, the Central African Republic, and the Democratic Republic of Congo. The weather events are increasingly affecting this region, making the environment more challenging for citizens who are already struggling to realize their basic rights to survival, safety, and education. This study i) Identify the Causes of Flooding in Borno State, *ii)* examine the Impact of Flooding on Governance, *iii)* evaluate the effectiveness solution to improve governance strategies on Climate resilience response to flooding in Borno State. *This study employs qualitative approach, which involves an extensive review of peer-reviewed journals, conference papers, and official reports from credible sources, ensuring a well-rounded and reliable analysis. The study therefore recommends the need for adaptive governance strategies that integrate climate resilience into local planning and decision-making processes, Implement comprehensive early warning systems to provide timely information about impending flooding, enabling communities to take proactive measures and Invest in resilient infrastructure, such as improved drainage systems and flood barriers, to mitigate the impacts of flooding on vulnerable communities.*

Keywords: Climate Change, Governance Strategies, Flooding, Sustainable Development

Introduction

Climate change has become one of the most pressing global challenges, influencing not only environmental systems but also governance structures and socioeconomic stability. Its environmental impacts, from rising sea levels and extreme weather events to loss of biodiversity, create complex issues that require urgent governance responses. Governments face mounting pressure to adopt policies for climate resilience, manage resource scarcity, and respond to crises such as flooding, drought, and wildfires. These demands often stretch existing political and administrative capacities, particularly in regions already grappling with socioeconomic instability. In Bangladesh, unpredictable cyclones and other water-related disasters displaced over 1.8 million people in 2023, severely damaging infrastructure such as schools, markets, and other essential services (Oxfam International, 2024).

Moreover, climate change exacerbates social and economic inequalities, as vulnerable communities and nations face disproportionate impacts while often having fewer resources for adaptation. Economic disruptions caused by climate-induced events affect food security, livelihoods, and health, forcing populations into cycles of poverty and displacement. Addressing climate change, therefore, calls for comprehensive strategies integrating environmental management, equitable governance, and socioeconomic stability to protect both ecosystems and human well-being. On World Refugee Day, Oxfam reported that severe hunger levels in five of these countries have nearly tripled over the past decade. According to the Global Internal Displacement Database, Somalia, China, the Philippines, Pakistan, Kenya, Ethiopia, India, Brazil, Bangladesh, and Malaysia experienced the highest levels of displacement due to floods and droughts last year. In these countries, the number of displacements surged from 3.5 million in 2013 to 7.9 million in 2023 (Oxfam International, 2024). Climate change has significantly increased the frequency and severity of floods and droughts. Oxfam's data shows that flood and drought related disasters in the ten worst-affected countries escalated from 24 in 2013 to 656 in 2023.

Developing climate solutions is a complex, global-scale process that involves and impacts all sectors of society. Climate change governance is closely tied to a country's development as well as to the well-being of both people and the natural environment. In South Sudan, extensive flooding is impacting more than 735,000 people, the majority of whom are already experiencing severe food insecurity (World Food Programme, 2024).

On 9 September 2024, heavy rain and structural damage caused the Alau Dam in Konduga local government area (LGA), Borno state, to collapse. The dam collapse caused flash flooding in neighbouring Maiduguri and Jere LGAs. By 10 September, the floods had affected an estimated 240,000 people across both LGAs (OCHA, 2024; IMC, 2024). Though, the number of affected people varies according to different sources, with OCHA also reporting more than 122,750 people affected as of 18 September (OCHA, 2024). By 18 September, the floods had killed at least 37 people, injured 58, and displaced at least 414,000 in Borno state (IMC, 2024).The effects of the floods are worst in Maiduguri town. Maiduguri LGA is the state capital of Borno and the largest city in northeastern Nigeria. By 10 September, floodwater covered over 40% of Maiduguri Municipal Council, which had an estimated population of more than 870,000 people, including at least 230,000 IDPs (IMC, 2024). The most affected areas were Bama Road, Budum, Customs/Gamboru areas, Gwange, and Lagos Street (OCHA, 2024). (https://reliefweb.int/node/4095270)

On September 14, 2024, Dr. Walter Kazadi Mulombo, the World Health Organization (WHO) Representative, visited the Governor of Borno State, Professor Babagana Umara Zulum; the Shehu of Borno, Alhaji Garbai El-Kenemi; officials from the Ministry of Reconstruction, Rehabilitation, and Resettlement; as well as representatives from the University of Maiduguri Teaching Hospital and Internally Displaced Persons (IDP) camps. During the visit, Dr. Mulombo affirmed that:

> "On behalf of WHO, I extend my heartfelt sympathy to the people of Borno State affected by this devastating flood. WHO stands with you during this difficult time, and we are committed to ensuring essential health services reach those in need, especially those displaced by the crisis. "We are deeply shocked by the scale of this disaster, but we are here to assess the needs and support both state and federal governments in tackling the challenges posed by this sudden emergency." (WHO, 2024)

In regions like Borno State, Nigeria, where climate-induced events such as flooding are increasingly frequent and severe, the impacts extend beyond environmental damage, disrupting essential governance functions, community resilience, and public services. (https://reliefweb.int/node/4095270)

Assessing climate change impacts on governance in Borno State, Nigeria, is essential for improving disaster response, guiding sustainable policy, and protecting communities from flood risks. It strengthens local resilience, aids in resource management, and supports conflict prevention, ultimately enhancing governance capacity to manage climate-driven challenges in vulnerable regions.

The objectives of this study is to Identify the Causes of Flooding in Borno State, Examine the Impact of Flooding on Governance and Evaluate the effectiveness solution to improve governance strategies on Climate resilience response to flooding in Borno State. The rationale is to provide insights for building climate-resilient governance, addressing food insecurity, and supporting stability in a region facing both environmental and socio-political challenges.

This paper provides a comprehensive analysis of how flooding, exacerbated by climate change, affects governance in Borno State, exploring the implications for local administration, public health, economic stability, and the management of internally displaced persons. By assessing the multifaceted effects of climate-driven flooding, this study aims to offer insights into adaptive governance strategies and policy responses that can strengthen resilience in climate-vulnerable regions like Borno State.

Conceptual Clarification and Literature Review

Climate change refers to any shift in climate patterns over time, whether from natural variability or human influence (Nnaji, 2012). Specifically, it describes climate changes that are directly or indirectly caused by human activities, which alter the composition of the global atmosphere beyond natural variations observed over comparable time periods (Intergovernmental Panel on Climate Change (IPCC), 2007).

Climate change refers to shifts in the average and variability of climate characteristics that persist over extended periods, typically decades or longer. Climate itself describes the atmospheric conditions of a specific location over a long duration. It represents the long-term summary of atmospheric elements such as solar radiation, temperature, relative humidity, and precipitation, along with their variations over time.

Governance is crucial for understanding how to achieve transformational changes in policies, institutions, and behaviors (Rahman et al., 2018). In the context of Climate change , flooding, forests and trees, governance is relevant at all scales, from global policies and challenges to local land-use practices, and involves multiple actors and levels.

The World Health Organization projects that climate change will lead to an additional 250,000 deaths globally each year between 2030 and 2050 (WHO, 2018). It is estimated that 80% of the world's population is already impacted by water and food insecurity resulting from climate change effects (Climate Council, 2015). For millions, climate change threatens food and water supplies, physical security, and increases the risks of diarrheal disease, malaria, vector-borne illnesses, and other climate-sensitive infections. These impacts can also have mental health consequences due to climate-related trauma.

Climate change amplifies certain hazards impacting social systems and reduces resilience in managing uncertainty and disasters (O'Brien et al., 2006). Climate projections indicate that water resources are highly vulnerable and can be significantly affected by climate variability, with extensive implications for both human populations and ecosystems (Oki, 2006, Haddeland et al, 2023). For instance, climate change has contributed to flooding, water scarcity, erosion, declining water quality, droughts, saltwater intrusion, and the depletion of groundwater sources, thereby increasing the vulnerability of communities and both living and non-living elements of the environment (UNECE, 2010).

Climate change leads to shifts in many environmental factors, affecting both urban and rural areas (Tian et al, 2013). With global warming as its primary symptom, climate change is a well-established reality (IPCC, 2014, IPCC, 2018, Field, 2012). It is also recognized as one of the most critical challenges facing humanity today (IPCC, 2014, & Wu, & Shen, 2019). The Intergovernmental Panel on Climate Change's Fifth Assessment Report highlights that global climate change is driven by rising concentrations of greenhouse gases linked to global warming and presents a significant challenge to the sustainable development and management of global and regional water resources (IPCC, 2014, Lo et al, 2016 & Gironás et al, 2010).

As Bates et al. (2008) noted, flooding is influenced by various characteristics of the climate system, especially precipitation (its intensity, duration, amount, timing, and whether it falls as rain or snow), as well as temperature patterns, which impact soil freezing, snow and ice melt, and ice jam formation. Flooding is also shaped by conditions within drainage basins, such as pre-existing river water levels, snow and ice cover, soil characteristics (permeability, moisture content, and distribution), urbanization rates, and the presence of infrastructure like dikes, dams, and reservoirs. In low-lying areas, river flooding may coincide with storm surges or extreme tide events (Brakenridge et al., 2013).
In Nigeria, climate change receives relatively minimal attention compared to waste management, which has limited its inclusion in the country's development agenda (Bouwer,

2018 & DellaSala et al, 2018). Key climate-related issues in Nigeria include drying water bodies, the spread of arid land, erosion, irregular rainfall, and reduced crop yield due to deregulation (Almar, 2015). Prioritizing waste management over climate change risks sidelining crucial climate action in this era of global environmental awareness. Government needs to take a drastic action against climate change.

This review suggests that environmental research in Nigeria should concentrate on understanding the primary drivers of recent rapid climate change, with a focus on human-induced causes, the societal impacts of policy, and a comprehensive analysis of environmental issues beyond solely natural causes (Lau, 2010). Research on climate change should address key areas such as the risks of reduced income and adaptation efforts, which are essential for identifying effective response options (Danladi , 2017, Ayanlade et al, 2018, Liobikienė, 2018). The primary driver of current climate change is the human-induced intensification of the greenhouse effect (IPCC, 2014). Human activity continues to increase greenhouse gas and aerosol concentrations, both of which affect the climate (Enete, 2000).

Methodology

This research utilizes a systematic literature review to thoroughly examine the impacts of climate change on governance. This approach involves an extensive review of peer-reviewed journals, conference papers, and official reports from credible sources, ensuring a well-rounded and reliable analysis. By systematically gathering and analyzing existing studies, the research aims to provide a comprehensive understanding of how climate change influences governance structures, policies, and practices across various levels.

Causes of Flooding in Borno State

Flooding in Borno State, Nigeria, has become a serious environmental and social issue with far-reaching consequences for the local population, agriculture, infrastructure, and ecosystem. The causes of flooding in the region are multifaceted, stemming from both natural and human-induced factors.

Geographic and Climatic Factors: Borno is largely flat, particularly in areas like the Lake Chad Basin, where low-lying terrain and poor drainage make it prone to water accumulation. These conditions facilitate the overflow of rivers and lakes during heavy rains, leading to flooding. In Nigeria, including Borno State has experienced increasingly erratic and intense rainfall patterns due to climate change. Prolonged heavy rains saturate the soil, making it unable to absorb excess water, which results in surface runoff and flooding. Flooding in Nigeria is exacerbated by climate change and poor urban planning, requiring more robust and scientific approaches to reduce risk (Nkwunonwo, 2016).

Hydrological Factors: The shrinking and periodic resurgence of Lake Chad is a significant factor in Borno's flooding. When water levels in the lake rise during the rainy season, they overflow into nearby communities, causing seasonal flooding. Rivers and streams, particularly the Yedseram and Ngadda Rivers in Borno, frequently overflow due to heavy rains, leading to riverine flooding in adjacent areas.

Environmental Degradation and Deforestation: Widespread deforestation has reduced vegetation cover, which normally helps absorb rainfall. Without sufficient vegetation, water runoff increases, elevating flood risks. Deforestation in Borno has been fueled by logging for

firewood and other human activities. The removal of vegetation also contributes to soil erosion. Eroded soil can block natural waterways, which obstructs water flow and contributes to flooding.

Urbanization and Poor Drainage Infrastructure: Unplanned Urban Expansion: Rapid population growth in Borno, especially in cities like Maiduguri, has led to unplanned and congested urban development. New settlements are often built in flood-prone areas without adequate drainage systems, which increase the risk of urban flooding. Lack of efficient drainage infrastructure exacerbates flooding. Drains, where they exist, are often clogged with debris and waste, which blocks water flow during rains, leading to stagnant water and floods in urban areas. Regular drainage clearance and environmental awareness reduce traffic congestion and accidents caused by flash floods in Akure, Nigeria (Ogunbodede, & Sunmola, 2014).

Socioeconomic and Policy-Related Factors: Inadequate Flood Management Policies: There is limited coordination among relevant agencies in Borno to effectively plan and implement flood control measures. Additionally, insufficient funding and inadequate disaster preparedness hinder flood prevention efforts. Agricultural activities close to rivers and floodplains, such as irrigation farming, increase vulnerability to flooding. Such practices, while beneficial for crop production, can interfere with natural water flow, exacerbating flood risks.

Impact of Conflict and Displacement: The Internally Displaced Populations (IDPs) in Borno State has been heavily affected by the Boko Haram insurgency, leading to the displacement of large numbers of people into camps often located in flood-prone areas. The overcrowded conditions, combined with poor drainage infrastructure, heighten the risk of floods in these camps. The conflict has also damaged critical infrastructure, including flood protection systems and drainage channels, which makes areas more susceptible to flooding.

Cross-Border Water Management Issues: Borno State's proximity to Lake Chad Basin Commission, which is shared with neighboring countries, requires coordinated water management efforts across borders. However, limited collaboration and conflicting water-use policies among these nations affect water levels, impacting flood risks in Borno. Flooding in Nigeria is caused by natural factors and human activities, requiring proper environmental management, development control, and environmental education to prevent its negative effects (Mfon et al, 2022)

Impact of Flooding on Governance

Flooding has significant impacts on governance, affecting the state's ability to provide services, maintain infrastructure, support public safety, and manage resources effectively. These impacts stem from the increased strain on local government capacities, financial burdens, disruption of public services, and challenges to policy implementation.

Strain on Public Resources and Financial Burdens: Frequent flooding requires the government to allocate funds to disaster response and relief efforts, including rescuing affected communities, providing shelter and food, and facilitating healthcare services. This diverts resources from other critical governance areas, weakening overall public administration. The Rehabilitation and Reconstruction Expenses such as the damage to infrastructure roads, bridges, schools, and health facilities requires substantial investment in repairs and rebuilding. This recurring need puts considerable financial strain on the state, reducing funds available for development projects, education, and healthcare, which are crucial for long-term governance and stability.

Disruption of Public Services and Infrastructure: Flooding damages roads, bridges, and other transportation infrastructure, hindering the mobility of goods, services, and people. This disruption impacts government service delivery, such as health, education, and emergency response, while also affecting trade and economic activity, which are essential for maintaining state revenue. Many health facilities and schools in flood-prone areas suffer from flooding, either through direct damage or loss of accessibility. This reduces the government's ability to provide basic services, undermining public trust and the state's perceived legitimacy. Moreover, the spread of waterborne diseases during floods further burdens the healthcare system, demanding more resources and personnel.

Weakening of Security and Law Enforcement; Borno State has a history of conflict due to the Boko Haram insurgency, likewise flooding complicates security operations by making affected areas harder to access and control. Flood-damaged roads and communication disruptions hinder law enforcement and military activities, giving insurgents an opportunity to exploit weakened government control, especially in rural areas. Flooding exacerbates socioeconomic vulnerabilities, leading to a rise in crime and social unrest. Displaced persons, faced with loss of livelihoods and property, may turn to theft, looting, or join armed groups, which destabilizes the state further and requires more law enforcement resources, often beyond the capacity of local governance structures.

Displacement and Pressure on Social Services: Flooding displaces thousands of people who often seek refuge in temporary camps or urban areas, putting pressure on the government to provide housing, healthcare, sanitation, and other services. This adds strain to an already resource-limited system and complicates governance, as officials must manage both the needs of Internally Displaced Persons (IDPs) and those of the host communities. Large-scale displacement can lead to tensions between host communities and displaced populations, with limited resources like food, water, and shelter further straining relations. This division complicates local governance efforts to maintain order and provide equitable services, which are essential for long-term stability.

Impacts on Agricultural Productivity and Food Security: Flooding destroys crops and farmland, leading to significant losses in agricultural productivity. As agriculture is a mainstay for Borno's rural population, this loss affects food security and the income of thousands of families, putting additional pressure on the government to provide relief and food aid. The loss of agricultural productivity forces more people to rely on government aid, stretching state resources even thinner. Food insecurity can also lead to malnutrition and increase the need for healthcare services, further taxing the government's resources and complicating efforts to promote self-sufficiency and resilience.

Challenges to Effective Policy Implementation: Flooding damages infrastructure and resources required for the implementation of governance policies, from building schools and hospitals to implementing road and power projects. The constant need to address immediate flood-related emergencies delays or even halts planned development initiatives, slowing economic progress. The frequent flooding highlights gaps in Borno State's flood management policies, including the need for better land use planning, early warning systems, and emergency response coordination. The government's limited capacity to address these issues weakens public confidence in its ability to manage environmental risks effectively and address people's needs.

Erosion of Public Trust and Institutional Credibility: When government responses to recurrent flooding are inadequate, slow, or mismanaged, public trust erodes. People may perceive the government as ineffective or incapable of protecting their lives and property, which impacts the legitimacy of local leaders and institutions. Frustration over repeated losses and inadequate

support can increase public discontent, potentially leading to protests or challenges to local governance. The government's inability to respond effectively to the needs of flood-affected populations can foster resentment and weaken social cohesion, undermining political stability in Borno State.

The Effectiveness Solution to Improve Governance Strategies on Climate Resilience Response to Flooding in Borno State

The complex challenge of governance towards climate change demanding comprehensive, sustainable solutions to mitigate impacts on people's livelihoods, infrastructure, and service delivery. Effective flood management strategies require governmental intervention, infrastructure improvements, policy reforms, and community involvement.

Development and Implementation of Comprehensive Flood Management Policies: Adopting an Integrated Flood Management (IFM) approach could enhance governance by coordinating policies on flood prevention, mitigation, and response. This framework involves collaboration across agencies, ensuring water, land, and disaster management policies are aligned, and encourage the use of natural resources to reduce flood risks. Enforcing stricter land use policies can prevent development in flood-prone areas. The government could implement zoning laws that restrict residential and commercial construction in floodplains and redirect urban expansion to safer regions. This strategy would reduce vulnerability and minimize future flood damage. A preparedness plan, like the one developed by Lagos state, can significantly improve flood disaster management in Nigeria by reducing damage potentials and enhancing response and recovery efforts (Obeta, 2014).

Investment in Flood-Resilient Infrastructure: Poor drainage infrastructure is a significant contributor to urban flooding. Investing in efficient and well-maintained drainage networks can prevent water from accumulating in urban areas. This includes building new drainage systems and rehabilitating existing ones to prevent clogging and improve water flow. Upgrading roads and bridges to be flood-resistant would ensure that transportation networks remain functional during and after flooding. Elevating roadways, reinforcing bridges, and constructing culverts to channel floodwaters can protect vital infrastructure, supporting the continuous delivery of essential services. Constructing levees, embankments, and floodwalls around high-risk communities, particularly those near Lake Chad and major rivers, would protect these areas from floodwaters. This physical infrastructure can act as a first line of defense, reducing flood impacts on residential, agricultural, and commercial zones.

Early Warning Systems and Disaster Preparedness: Establishing early warning systems is critical for reducing the human and economic costs of floods. Local governments can partner with meteorological agencies to provide timely flood forecasts. Community-based alert systems, combined with SMS and radio messaging, can alert residents to evacuate or prepare for floods. Training local emergency responders and equipping them with boats, medical supplies, and rescue tools would enhance the government's capacity to respond to floods quickly. Additionally, developing community shelters on higher ground can serve as safe evacuation centers, providing temporary housing for displaced persons.

Ecosystem-Based Adaptation (EbA) and Reforestation Initiatives: Deforestation is a significant factor in increasing runoff, making areas more prone to flooding. The government

could implement reforestation programs to restore natural vegetation, particularly in high-risk watersheds. Trees and plants help absorb water and reduce surface runoff, mitigating the risk of flooding. Wetlands act as natural buffers against floods, absorbing and slowing down water flow. Protecting existing wetlands and restoring degraded ones, especially around Lake Chad, can help manage excess water during heavy rains and protect surrounding communities.

Community Engagement and Education Programs: Educating the public about flood risks, safety measures, and evacuation procedures can significantly improve community preparedness and reduce losses. Governance should focus on creating awareness programs that teach residents about responsible waste disposal, proper land use, and how to protect themselves during floods. Engaging communities in assessing local flood risks and creating response plans helps build trust and cooperation between the government and residents. By involving community members, local leaders can also ensure that policies and measures are tailored to local needs and circumstances, increasing their effectiveness and sustainability.

Policy Reform and Institutional Strengthening: Borno State needs strong disaster management institutions that can coordinate flood prevention, mitigation, and response efforts. Building the capacity of local agencies, providing adequate funding, and ensuring they have the tools and resources to manage flood-related challenges are essential steps for better governance. Effective flood management often requires collaboration between various sectors, including environmental, agricultural, and public works departments. The government could set up inter-agency task forces dedicated to flood management to streamline efforts and reduce redundancies. Partnerships with NGOs, private sectors, and international organizations can also provide additional resources and expertise. A single flood policy is needed in Nigeria, with synergy and coordination among institutions, to address flood governance, prevention, control, and management, while decentralizing policy to state and local governments (Danhassan et al, 2023)

Building Financial Resilience for Flood Management: Creating a dedicated fund for flood management, relief, and recovery would ensure that resources are readily available during emergencies. This fund could be sourced from state budgets, federal grants, and international aid, ensuring timely support for affected communities and reconstruction efforts. Flooding often disrupts livelihoods and affects low-income households severely. Microfinance programs and insurance schemes can provide financial support to vulnerable populations, allowing them to recover faster and reducing their dependency on government aid.

Research and Data Collection for Informed Policy Making: Collecting data on flood-prone areas and conducting regular risk assessments enable informed decision-making. The government could use geographic information systems (GIS) and remote sensing technology to monitor flood patterns, identify vulnerable areas, and implement targeted flood management measures. Understanding how climate change affects rainfall patterns and flooding risk is essential for proactive governance. Borno's government could integrate climate-responsive strategies into policies to ensure that flood management plans are adaptable to changing environmental conditions.

Recommendations / Conclusion

Addressing flooding in Borno State requires a holistic approach that integrates governance reform, infrastructure development, and community involvement. Taking a proactive, inclusive approach to flood management, governance in Borno State can reduce the long-term impacts of flooding, build resilience, and improve the welfare and safety of its residents.

- Government need to Conduct Hydrological Studies; Support detailed hydrological and meteorological studies to map and understand the primary causes of flooding in Borno State. These studies should assess factors such as rainfall patterns, river flow rates, soil permeability, land use changes, and climate variability. More so, Government should engage with local communities to gather knowledge on historical flood patterns, practices contributing to land degradation (e.g., deforestation), and identify human activities that may exacerbate flooding, such as construction in flood-prone areas or poor waste disposal practices.
- Assess Resource Allocation and Disaster Response: Investigate how flooding affects the allocation of state resources and the ability of local government bodies to respond to emergencies. This includes evaluating emergency preparedness, response times, and the effectiveness of disaster relief mechanisms. Likewise government needs to investigate how flooding disrupts essential public services such as healthcare, education, and transportation, as well as infrastructure damage and the costs incurred by state institutions.
- Enhance Policy and Regulatory Frameworks: Recommend strengthening local and state-level policies on flood management and climate adaptation. Encourage policies that protect wetlands, restrict construction in flood-prone zones, and promote sustainable agriculture and deforestation prevention. In addition, the government should establish a Flood Resilience Fund that is creating a dedicated fund to support flood resilience projects, emergency response, and recovery efforts. This fund could provide immediate financial assistance for repair and recovery and be allocated to preventive measures.

- Develop Inter-Governmental and NGO Partnerships to encourage partnerships between state and federal agencies, NGOs, and international organizations to share expertise, resources, and funding. Such partnerships could help address the complex and resource-intensive challenges associated with flood resilience.

References

ACAPS Briefing Note (2024) Nigeria Humanitarian impact of floods in Borno state https://www.acaps.org/fileadmin/Data_Product/Main_media/20240924_ACAPS_Nigeria_-_Humanitarian_impact_of_floods_in_Borno_state__01.pdf

Almar R, Kestenare E, Reyns J, Jouanno J, Anthony EJ, Laibi R, et al (2015). Response of the Bight of Benin (Gulf of Guinea, West Africa) coastline to anthropogenic and natural forcing, Part 1: Wave climate variability and impacts on the longshore sediment transport. Cont Shelf Res 2015; 110:48–59.

Ayanlade A, Radeny M, Morton JF, Muchaba T (2018). Rainfall variability and drought characteristics in two agro-climatic zones: An assessment of climate change challenges in Africa. Sci Total Environ 2018;630:728–37.

Bates, B.C., et al., (2008). Climate change and water. Technical paper of the Intergovernmental Panel on Climate Change. Geneva: IPCC Secretariat.

Bouwer L, Capriolo A, Chiabai A, Foudi S, Garrote L, Harmáčková ZV (2018). Chapter 4 – Upscaling the impacts of climate change in different sectors and adaptation strategies. In: Sanderson H, Hildén M, Russel D, Penha-Lopes G, Capriolo A, editors. Adapting to climate change in Europe. Elsevier Netherlands: Elsevier, 2018:173–243.

Brakenridge, G.R., et al., (2013). Global mapping of storm surges, 2002– present and the assessment of coastal vulnerability. Natural Hazards, 66 (3), 1295–1312. doi:10.1007/s11069- 012-0317-z

Climate Council (2015). *Climate Change, Security and Australia's Defence Force.* Australia: Climate Council of Australia Limited; 2015.

Danhassan, S., Abubakar, A., Zangina, A., Ahmad, M., Hazaea, S., Ishak, M., & Zhang, J. (2023). Flood Policy and Governance: A Pathway for Policy Coherence in Nigeria. Sustainability https://doi.org/10.3390/su15032392

Danladi IB, Kore BM, Gül M (2017). Vulnerability of the Nigerian coast: An insight into sea level rise owing to climate change and anthropogenic activities. J Afr Earth Sci 2017;134:493–503.

DellaSala DA, Middelveen MJ, Liegner KB, Luche-Thayer J.(2018). Lyme disease epidemic increasing globally due to climate change and human activities. In: Dellasala DA, Goldstein MI, editors. Encyclopedia of the anthropocene. Elsevier Netherlands, Oxford: Elsevier, 2018:441–51.

Enete, C.I. (2000), "Climate and climate change", in Obasikene J.I., et al. (Eds),Man and the Environment, Computer Edge Publishers, Enugu.

Field, C.B.; Barros, V.; Stocker, T.F.; Qin, D.; Dokken, D.J.; Ebi, K.L.; Mastrandrea, M.D.; Mach, K.J.; Plattner, G.-K.; Allen, S.K.; et al (2012). Climate Change. In Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation; IPCC: Cambridge, UK; Cambridge University Press: London, UK, 2012.

Gironás, J.; Roesner, L.A.; Rossman, L.A.; Davis, J. (2010). A new applications manual for the Storm Water Management Model (SWMM). Environ. Model. Softw. 2010, 25, 813–814. [CrossRef]

Haddeland, I.; Heinke, J.; Biemans, H.; Eisner, S.; Flörke, M.; Hanasaki, N.; Konzmann, M.; Ludwig, F.; Masaki, Y.; Schewe, J.; et al. (2013) Global water resources a_ected by human interventions and climate change. Proc. Natl. Acad. Sci. USA 2013, 111, 3251–3256. [CrossRef] [PubMed]

Intergovernmental Panel on Climate Change (IPCC) *(2007). Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability.* Available at http://www.IPCC/cly/spnibavr.pdf. 13/11/07

International Medical Corps (2024) Nigeria Humanitarian Update: Situation Report #1 (September 18, 2024) (https://reliefweb.int/node/4095270)

IPCC Climate Change (2014). Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change; Cambridge University Press: Cambridge/London, UK, 2014.

Lau CL, Smythe LD, Craig SB, Weinstein P (2010). Climate change, flooding, urbanisation and leptospirosis: fuelling the fire? Trans R Soc Trop Med Hyg 2010;104(10):631–8.

Liobikienė G, Butkus M. (2018). The challenges and opportunities of climate change policy under different stages of economic development. Sci Total Environ 2018;642:999–1007.

Lo, A.Y.; Xu, B.; Chan, F.K.S.; Su, R (2016). Household economic resilience to catastrophic rainstorms and flooding in a chinese megacity. Geogr. Res. 2016, 54, 406–419. [CrossRef]

Mfon, I., Oguike, M., Eteng, S., & Etim, N. (2022). Causes and Effects of Flooding in Nigeria: A Review. International Journal of Social Science and Human Research. https://doi.org/10.47191/ijsshr/v5-i10-16

Nkwunonwo, U. (2016). A Review of Flooding and Flood Risk Reduction in Nigeria. *Global Journal of Human-Social Science Research*, 16.

Nnaji, C. E. (2012). *Effects of Climate Change on Household Water Sources in Benue State, Nigeria.* An M.SC. Project thesis submitted in the Department of Agricultural Extension, University of Nigeria, Nsukka

O'Brien, G., P. O'Keefe, J. Rose, and B. Wisner. (2006). Climate change and disaster management. Disasters 30(1):64–80.

Obeta, M. (2014). Institutional approach to flood disaster management in Nigeria: need for a preparedness plan. *British Journal of Applied Science and Technology* 4, 4575-4590.https://doi.org/10.9734/BJAST/2014/11844

Ogunbodede, E., & Sunmola, R. (2014). Flooding and Traffic Management In Akure (Nigeria) Metropolitan Environment. *International Journal of Innovation and Scientific Research* 7, 121-130.

Oki, T. (2006) Global Hydrological Cycles and World Water Resources. Science 2006, 313, 1068–1072. [CrossRef] [PubMed]

Rahman, M.S., Sarker, P.K., Sadath, M.N. & Giessen, L. (2018), 'Policy Changes Resulting in Power Changes? Quantitative Evidence from 25 Years of Forest Policy Development in Bangladesh', *Land Use Policy*, 70: 419–31. https://doi.org/10.1016/j.landusepol.2017.11.029

Tian, X.; Veldhuis, M.-C.T.; Schleiss, M.; Bouwens, C.; van de Giesen, N.(2019) Critical rainfall thresholds for urban pluvial flooding inferred from citizen observations. Sci. 2019, 689, 258–268. [CrossRef] [PubMed]

UNECE (United Nations Economic Commission for Europe) (2010). Guidance on water and adaptation to climate change. New York, NY, USA, 2010; p. 144.

UN Office for the Coordination of Humanitarian Affairs (OCHA) (2024) Nigeria: Floods – Maiduguri (MMC) and Jere Floods FlashUpdate 2 (15 September 2024) https://reliefweb.int/report/nigeria/nigeria-floods-maiduguri-mmc-and-jere-floods-flash- update 2-15-september-2024

World Health Organization. *Climate change and health*; 2018.

World Health Organization (2024) WHO pledges support to flood-displaced persons in Borno State as health facilities affected. https://www.afro.who.int/countries/nigeria/news/who- pledges-support-flood-displaced-persons-borno-state-health-facilities-affected

Wu, Z.; Shen, Y.; Wang, H. (2019) Assessing Urban Areas' Vulnerability to Flood Disaster Based on Text Data: A Case Study in Zhengzhou City. Sustainability 2019, 11, 4548. [CrossRef]