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Flooding in Nigeria: An Assessment of the Laws and Institutions

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Abstract

Flooding has almost become an annual occurrence in Nigeria, with the intensity increasing yearly. With the extensive and catastrophic flood events experienced in the nation in 2012 and 2022, the country needs to take proactive steps to gear up and ameliorate such experiences. This article assessed the laws and institutions set up to address the incidences of flood and control. The study adopted the desk approach by reviewing laws and secondary materials that were subjected to content analysis. Presently, the country has a framework in place for prevention and response to flooding, yet the impacts are not felt with the level of non-compliance with the laws. The institutions saddled with the responsibilities of enforcing the laws for compliance are also not forthcoming in their duties. Some of the factors hampering the effectiveness of the laws include non-implementation of laws at the state and local government levels, the culture of impunity among citizens exacerbating incidences of flooding, lack of adequate funding for institutions, unhealthy competition, and lack of cooperation among agencies and corrupt tendencies among officials. it is recommended that states should implement federal laws to suit their peculiar circumstances, fund necessary agencies for prevention and engage citizens continually by creating awareness and sensitisation to reduce flood incidences.

Keywords

Assessment, Flooding, Institutions, Laws, Nigeria

1. Introduction

Floods are surges of high intensity water that takes over dry land either gradually or rapidly, thereby overwhelming their flow channels. (Kundzewicz, 2014) According to the Intergovernmental Panel on Climate Change (IPCC, 2012), flooding is the overflow of water above the natural holding capacity of the water body. Global

statistics indicate that flooding is the largest source of destruction due to natural disasters in history. (Sena & Michael, 2006). Flood occurrences have diverse modes of presentation. In some instances, it could be a local presentation affecting an enclosed geographical area like a neighborhood, maybe due to clogged drainages, which seldom make it to mainstream media. Also, it can be high-level flooding that overruns its natural channels, impacting entire river basins and multiple states like Nigeria, which experienced this in 2012 and 2022. Nigeria is located in West Africa and has varying eco-region attributes. The country experiences both dry and rainy seasons at different times of the year; the dry season spans November to March, while the wet season commences from April to October. (Ibebuchi & Abu, 2023). The almost annual occurrence of flooding is an indication of the country's vulnerability to natural disasters and the risk of natural disasters. (NESREA, 2016)

Flooding is a well-documented anthropogenic, environmental, and climatic occurrence; unlike other natural disasters, the factors responsible for flooding are well established, and it has almost become an annual event associated with the rainy season in Nigeria and many parts of the world. In recent times, it has been observed that precipitation has become heavier, leading to more rainfall and flooding. Flooding can be due to unusually higher precipitation rates resulting in flash floods, storm surge, and a high rate of runoff occasioned by low infiltration and the presence of eroded material in the water due to a higher rate of sedimentation. Flood incidence has become more frequent, with catastrophic outcomes in different parts of the globe. Flooding can be localized as a result of blocked drainages/canal and small rivers at city centres rising rapidly after heavy rainfall channeled under narrow drainages and culverts. Also, instances of overwhelmed rivers and tributaries flowing through city centres, wet season flooding in floodplains, and lowlands and coastal areas are becoming more frequent with intensifying weather and climatic conditions. (Agbonkhese et al., 2014).

Extensive flooding is becoming an annual occurrence in the country. As much as some flooding can be attributable to climate change issues ravaging the world, other human-induced factors contribute to flood incidence in the country. The floods that ravaged the country in 2012 and 2022 were pointers to the fact that Nigeria does not have the wherewithal to cope with the magnitude of flood incidences.

2. Factors Responsible for Flooding in Nigeria

Several factors are responsible for flooding in Nigeria. While some are natural occurrences that man has no control over, like increased frequency and heavier than normal rainfall, many of the floodings experienced in the country are actually a result of man's act of omission or commission. Unsustainable urban development patterns, erection of illegal structures on canals and waterways, clogged drainages, non-provision of drains and sewers. (Umar & Gray, 2022). In addition, Unsustainable land use practices like deforestation for purposes of construction

agriculture are varied reasons for mowing large tracts of land, sand filling, and dredging of rivers and sand filling of wetlands to give way for development that man earnestly desires, are executed at a greater expense to man and the environment. Urban centres, low-lying and coastal areas, are particularly susceptible to floods resulting from hydrological changes within river systems or changes in base flows. (Adedeji, Odufuwa, & Adebayo, 2012). Urban centres especially have greater exposure to flooding, which can be traced to the excessive runoff of storm waters due to construction using impervious materials like concrete. (Oladokun & Proverbs, 2016) Concrete floors prevent water infiltration into the soil, aiding runoff and flooding in conjunction with other factors like blocked drainages. (Obiakor et al., 2012; Adetoro et al., 2022). Many houses (residential, commercial, industrial), especially in urban centres, for aesthetics and avoidance of muddy environments during rainy seasons concrete their compounds with cement, paved and interlocking stones (Bezboruah et al., 2021), which aids excessive runoff of storm waters. Through research, people have been developing pervious concrete that acts like a sponge; it soaks rainwater. (Bhattarai & Bhattarai, 2023)

In addition to the above is the challenge of administrative and regulatory lapses evidenced by building on canals, clogged drainages, and indiscriminate municipal waste disposal, which are pieces of evidence that attest to regulatory inefficiencies on the part of law enforcement agents. Also, the state and local government authorities have failed in their duties of providing appropriate and sustainable waste disposal outlets for citizens, as provided under the 1999 constitution, to provide adequate waste disposal facilities for the citizens, and are often left with limited options.[1] There is the challenge of orientation among the populace. It is a common occurrence that residents dispose of their household wastes indiscriminately during episodes of rainfall. (Akoni, 2012)

The release of water from dams due to heavy rainfall is also a cause of flooding in the country. The Cameroon Lardo dam discharge in 2022 was a major contributor to the extensive and catastrophic flooding witnessed in the year. (Daily Post, 2023) Climate change is another factor exacerbating flood issues in Nigeria. The rising global temperatures and melting of glaciers are factors making sea levels rise, and their ripple effects are felt across the globe. (Echendu, 2023)

3. Recent Flooding Incidences in Nigeria

Climate change consequences is also affecting the country. This has played out in the last fifteen years as torrential rains has resulted in extensive flooding incidents that have devastating effects on lives and livelihoods. (Echendu, 2020; Ndimele et al., 2024) Sokoto State was flooded in September 2010, leaving significant impacts on the people. (Etuonovbe, 2011) The floods destroyed everything on its part due to water released from a dam in Kagara village to prevent the dam from failing after heavy rains. Farms, villages, store barns, and roads were quickly submerged, leading to various losses to the villagers. (Etuonovbe, 2011) In that flood alone, eleven local

[1]4th schedule, section 7 (1) (h) 1999 Constitution of the Federal Republic of Nigeria.

government areas of the state were affected, and unconfirmed reports put the death toll at forty-nine, while about fifty villages were submerged, and more than one hundred and thirty thousand people were displaced. (Etuonovbe, 2011)

The flash floods in some parts of the country in 2011 resulted in extensive damage. The city of Ibadan was overwhelmed as the fury of nature was unleashed when the Eleyele Dam that served the city potable water overflowed into the city, killing at least one hundred and twenty people and destroyed houses and everything along its part. It left a story of woes as families mourn their loved ones, loss of properties and sources of livelihood (Fisher, 2011) Lagos State also had its fair share of troubles with flooding after a seventeen-hour heavy downpour in July 2011. Many parts of the states were flooded, resulting in the loss of lives (The Nation, 2012), farmlands, businesses, and infrastructure.

Nigeria is experiencing its share of the consequences of global warming as several states experience excessive rain; many coastal states have whole villages inundated. (Ajani, 2012) In the year 2012, thirty-three states of the federation were flooded (IFRC, 2012), and farms were extensively destroyed; in Kwara State in central Nigeria, about a million hectares of rice and maize farm were submerged. (Akinyemi, 2012) Many farmlands in Benue State, the food basket of the nation, also counted losses due to excessive floods. Many of the coastal communities were deserted as floods took over, with water levels rising as high as 3 meters. In a worst-case scenario, it is projected that coastal states like Lagos, Rivers, Delta, and Bayelsa can be extensively flooded, occasioning loss of lives and properties, infrastructural devastation, and increased poverty due to rise in sea levels occasioned by melting glaciers and weather change traceable to climate change. The rate of coastal erosion occurring is quite alarming, and for many communities along the coast, inundation is inevitable. In 2022, Nigeria was hit with a devastating flood disaster that swirled around thirty-four out of the thirty-six states of the federation, bringing along tales of woes, sorrow, loss, and grief.

4. Impacts of Flooding

Floods bring with their occurrence an array of challenges that can engender economic, social, and public health challenges; they occasion the loss of lives, damage or destruction of properties—educational, health facilities, and infrastructures (roads, electric poles, bridge collapse), religious and cultural properties.

4.1. Economic Impact

Floods result in a slowdown of business activities and retardation of business ventures, loss of economic activities, and loss of economic hours due to traffic gridlocks as flooded roads, destroyed bridges cut off people from transiting for business and other activities. Flooded factories and business places lead to damage to machines and equipment, operational vehicles, and loss of income and profits, which may result in debts, especially where there is no insurance facility to cover the loss. Such can have a significant impact on the rate of job loss, spik-

ing the rate of unemployment, which can result in other social vices, such as robbery and fraudulent activities. Floods are also renowned causes of damage to and loss of personal properties like houses, cars, and personal belongings. Nigeria was reported by the National Bureau of Statistics (NBS) to have experienced devastation of economic and commercial assets to the tune of $16.9b in damaged properties due to 2012 flood events alone. (NBS, NEMA, & UNDP, 2023; Amangbara & Obenade, 2015; Egbenta et al., 2015). The federal government spent N17.6 billion naira as an intervention fund for emergency disaster relief. The 2022 flood was estimated at a median loss of $6.68 billion. (Oke et al., 2023)

4.2. Impact on Agriculture

Farmlands, ancillary damages—loss of crops and farmland giving rise to poor yield and harvest reduced yield, food scarcity, famine, fish farms were washed away, and livestock perish—all of these have impacts on food availability, leading to other auxiliary impacts like loss of livelihoods, which deepens poverty, especially among the rural dwellers and urban poor. Food scarcity, malnutrition, and wasting in children all impinge on the achievement of sustainable development goals (SDGs). The 2022 flood effect on agriculture, according to the NBS, had unquantifiable impact on agriculture to the tune of N700 billion.

4.3. Impact on Public Health

Diseases are rampant after flooding; health issues emanating from the pollution of water storage, underground aquifers, breakage of sewers or overflow and contamination of wells with feces, exposure of graves and displacement of corpses, animal carcasses, and many more are all precursors to the outbreak of diseases like: cholera, diarrhea, malaria, typhoid fever (Adesola et al., 2024) leading to fatalities in some instances. The 2022 flood recorded about three hundred fatalities from cholera in Bornu, Adamawa, and Yobe states alone. (Abdulrakib et al., 2022) The incidence of disease outbreaks is more pertinent in rural areas and amidst the urban poor, whose sanitary conditions before the flood were less than desirable.

The impacts of flooding, whenever it occurs, portend serious consequences in the aftermath. Oftentimes, critical infrastructures like roads and bridges are washed away with negative impacts on the socio-economic lives of the affected communities and states. Destruction of infrastructure like telecommunication facilities and health centres, breakdown of roads and bridges, and destruction of school buildings are rampant when flooding occurs.

4.4. Impact on Educational Facilities

School buildings and facilities are significantly impacted when a flood occurs, as school buildings may collapse, roofs blown off, and learning materials destroyed, occasioning absenteeism and loss of productive learning hours. Many children may never return to school due to relocation or lack of funds to send them back to school,

which could be caused by the parents' inability to pay for repairs to destroyed school facilities as required by school authorities. This event adds to the growing numbers of out-of-school children, as children engage in work (farming, hawking) to support their parents, especially in female-headed homes. (Ogunribido & Ogunribido, 2024) Thereby retarding the modest gains already achieved on SDG 4; quality education.

4.5. Psychological Impacts

The psychological impacts of flooding (Eyimoga et al., 2024; Ogunribido & Ogunribido, 2024) cannot be overestimated among the populace. In as much as the government may give relief materials and palliative, the question is how much relief can assuage the pain of the grieving families of loved ones whose lives were cut short during the floods? Or people who lost all of their life savings, like houses and businesses to the floods without any social safety nets. It was reported that two persons displaced in the 2012 floods committed suicide at the Kogi state relief camp; they could not bear the enormity of their loss (Ajani, 2012). Children and women are often major casualties in issues of floods as they are more vulnerable and at risk during disasters. (Ajibade, McBean, & Bezner-Kerr, 2013) Many of the fatalities during the Ibadan flooding in 2011, 2012, and 2022 floods were mainly women and children.

Another consequence in the aftermath of a flood is the displacement of people and the need to relocate.[2] Relocation can be temporary for some people, while for some people, it will be permanent; this can result in the loss of relationships that have been built over many years. Can there be an end to flood disasters? No! Yet factors exacerbating the risks and vulnerabilities can be identified and controlled, as already discussed, to mitigate the aftermath on people and social and business environment through a versatile legal and institutional framework.

5. Legal Framework for Disaster Risk Reduction and Management

Nigeria is not in want of laws that will address the control and management of flood incidences. However, there are challenges that hinders the operational effectiveness of the laws and institutions. In this section, the laws discussed were segmented into preventive and response-oriented. The preventive laws include the Nigeria Meteorological Agency Establishment (NIMET) Act 2004, Nigeria Hydrological Services Agency (Establishment) Act 2010 (NIHSA), Urban and Regional Planning (URP) Act, National Environmental Standards Regulation and Enforcement Agency (NESREA) Act, Environmental Impact Assessment (EIA) Act, while the National Emergency Management Agency (NEMA) Act is catego-

[2]Relocation of vulnerable citizens to safer places is always a major consideration in flood incidences. Often times temporary shelter is provided at relief camps under control of emergency agencies. Arising from weather forecasts are clear indications of rising intensity and frequency of rainfall, therefore, the onus lies on every agency on prevention and response to brace up to reduce catastrophic outcomes into the future.

rized as a response agency.

5.1. Nigeria Meteorological Agency Establishment (NIMET) Act 2004

NIMET is a preventive institution saddled with the responsibility of weather forecasting and early warning of weather conditions. The functions of the agency relevant to flooding include advising the Federal Government on all aspects of meteorology, projecting, preparing, and interpreting Government policy in the field of meteorology, and providing meteorological services in operational hydrology and water resources activities. This is to ensure that information is disseminated to citizens so they can make informed choices. This will help them to make decisions, either to relocate temporarily where there is a forecast of floods or any other disaster, to minimize destruction and fatalities. Different forms of information dissemination are utilised. However, the idea of receiving and acting on weather forecasts to promote preventive actions is not yet thoroughly diffused and accepted by citizens due to the level of literacy, and the bias to attribute such occurrences to religious and supernatural are prevalent instead of embracing science-oriented findings for prompt actions.

NIMET's roles in developing an early warning system for effective communication and response may reduce fatalities through disaster awareness education and personal hazard experience as important contributors to mitigate vulnerability and enhance the adaptive capacity of the community. Mapping out areas prone to erosion and flooding should be done with the active participation of the people whose lives will be impacted by solutions brought to the table, and the locals, too, can offer their input for better outcomes. In order to achieve sustainable solutions to environmental problems, policymakers must adopt both the Bottom-Up and Top-Down approach in appropriate situations to achieve sustainable environmental solutions. It is observed that the involvement of the public or benefiting communities will help to checkmate corruption and unnecessary leakages. It equally gives room for the discovery of indigenous techniques and local resources that can be utilized to prevent, mitigate, and adapt in varied situations.

5.2. Nigeria Hydrological Services Agency (Establishment) Act 2010 (NIHSA)

The Nigeria Hydrological Services Agency (NIHSA, 2010) was established to provide hydrological services in Nigeria. Its functions include advising the Federal and States Governments on all aspects of hydrology; projecting, preparing, and interpreting Government policy in the field of hydrology; and working with the meteorological services to issue forecasts for floods and planning to ameliorate the risks involved (Section 7 (1) (a-c), NIHS Act). The requirement to work with NIMET is critical, and the sister agencies must cooperate and shun interagency rivalry for the good of the nation by sharing data and all necessary technical skills to achieve the purpose of their establishment. The Annual Flood Outlook (AFO) normally

published by NIHSA, stating specific areas that are prone to flooding each year, is a laudable initiative. However, there is a need to disseminate information to appropriate agencies and citizens for action. This makes it is important to also collaborate with the National Orientation Agency (NOA) for information dissemination.

5.3. Urban and Regional Planning (URP)Act 2004

The URP Act stipulates the roles of the federal government and those relevant to the discourse at hand, including drawing up policies for urban and regional planning and development, creating and enforcing the National Physical Development Plan and regional plans, mapping out urban and regional planning standards for Nigeria, facilitating the education and training of town planners and support staff, and creating an enabling environment for cooperation and coordination among States and local governments in the preparation and implementation of urban and regional plans. (Section 2 URP Act)

While state governments are expected to develop their laws and policies on urban and regional planning, they must be in tandem with the provisions of the federal law. However, it is a sad reality that thirty-three years after the enactment of the law, not up to 35% of the states have implemented the Act. (Sani, 2022) The inability of the law to achieve its purpose includes the failure of states to implement the law and, invariably, the local governments to develop their Local Planning Authorities (LPAs) and necessary departments like the Development Control Department (DCD) which is a major challenge to urban and regional planning in the states. (Sani, 2022) Also, the over-centralization of power at the federal level through the Constitution makes it difficult for the states to make laws relevant to their circumstances, considering the doctrine of covering the field. Also, the suffocation of the local governments by the state governors before the recent intervention of the federal government grant of financial autonomy is a major factor limiting LPA from actualizing their roles. Although town planning is not part of the constitutional roles of local government as spelled out under Schedule 4, section 7 of the 1999 Constitution, the omnibus clause empowers the House of Assembly of a state to assign functions to the local government.

5.4. National Environmental Standards Regulation and Enforcement Agency (NESREA) Act

NESREA, as the pivotal Agency in environmental management and control in Nigeria, is the mandate to make regulations, guidelines, and standards for the protection and enhancement of the quality of land resources, natural watersheds, coastal zones, dams, and reservoirs, including prevention of flood and erosion, to serve the purpose of this Act. (Section 26, NESREA Act) To draw proposals for such regulations, guidelines, or standards, the Agency shall take into consideration the Zoning Acts, Municipal Development Guidelines, and Building Codes to prevent the siting of essential facilities on flood plains. (Section 26 (2), NESREA

Act). The Agency is obligated to enforce compliance with international agreements, protocols, conventions, and treaties on the environment as it has done in the case of producing the disaster risk management policy in line with the global response agreement: Yokohama, Hyogo, and Sendai framework for disaster risk reduction 2015-2030.[3]

Sequel to the powers conferred on the minister of environment in section 34 of the NESREA Act, to wit make regulations, the Soil Erosion and Flood Control Regulations, 2010 was made:

> "The main objectives of the regulation include to: (a) protect human life and the environment; (b) minimize loss due to flood and erosion and their effects on vulnerable areas by regulating land-distributing activities; and (c) control accelerated soil erosion, flooding, and sediment deposition in water bodies and water courses in order to prevent pollution of these water resources".

Since flooding has become a major environmental challenge in Nigeria, the Council, concerned with incessant flood incidences in the country, urged all tiers of government to include an early warning system, create awareness, enforce development, control guidelines, and intensify mitigation efforts. The federal, state, and local governments, as a matter of urgency, need to intervene in solving flood problems in the affected States as the annual flood issues hasbecome a cause for concern. Considering the need for proactive actions for the management of floods in the country, the Council urged the Ecological Funds Office (EFO) to provide the necessary funds for the installation of automated Flood Early Warning (FEW) Devices nationwide.

5.5. Environmental Impact Assessment (EIA) Act

The EIA Act is a preventive piece of legislation that stipulates that a development project that will have a substantial impact on the environment should go through an environmental impact assessment. Even though the full effect of the damage or impact that may be experienced is not yet known, it is not a reason not to take measures to reduce or remove the impacts. The law places the responsibility of executing the right policies on federal lands in consonance with relevant laws for land management to actualize obligations of section (1a) of the Act. Unfortunately, quite a number of development projects with significant impacts have been embarked upon without an EIA.

5.6. The National Emergency Management Agency (NEMA) Act

NEMA was established to: formulate policy on all activities relating to disaster management in Nigeria and coordinate the plans and programmes for efficient and effective response to disasters at national level; coordinate and promote research activities relating to disaster management at the national level; monitor the state of preparedness of all organisations or agencies which may contribute to disaster

[3]Even though flooding was not mentioned in section 7 (c) NESREA Act, the omnibus clause had covered the field to formulate policies in line with the international declarations on DRM.

management in Nigeria; collate data from relevant agencies so as to enhance forecasting, planning and field operation of disaster management; educate and inform the public on disaster prevention and control measures coordinate and facilitate the provision of necessary resources for search and rescue and other types of disaster curtailment activities in response to distress call; distribute emergency relief materials to victims of natural or other disasters and assist in the rehabilitation of the victims where necessary; liaise with State Emergency Management Committees established under section 8 of this Act to assess and monitor, where necessary, the distribution of relief materials to disaster victims."

NEMA has been able to achieve some of the purposes of its establishment, especially in relation to providing relief materials to victims of flood disasters in the country, through collaborations with stakeholders. The Agency has been able to coordinate the establishment of states' emergency management agencies in some states (Chukwuemeka & Azubuike, 2017), while some are yet to establish their SEMA. It is largely a reactionary agency, not always proactive in dealing with its core mandate of having to identify flood-prone areas, prevent, anticipate, plan, prepare, and respond to reduce disaster outcomes. Focusing on data collation, research, development of expertise, use of appropriate technologies, and collaboration with sister agencies like NIMET and NIHSA will go a long way to aid the effectiveness of the Agency in delivering on its responsibilities. The establishment of NEMA as a response outfit makes it inadequate to work proactively, because its mandate was to coordinate response and relief to disasters and not to enforce any law.

5.7. National Disaster Risk Management Policy (NDRMP) 2018

The National Disaster Risk Management Policy (National Emergency Management Act, 2018) is the culmination of the implementation of the Sendai Framework for Disaster Risk Reduction; the policy is to be reviewed every five years. The policy is aimed at realising the government's plan for disaster risk reduction and management at the three tiers of government (federal, state, and local government) to combat established disaster risk challenges facing the country and to strengthen the resilience of citizens, business entities, organizations while reducing risk exposures and vulnerability by formulation of necessary guidelines for future risks within the context of sustainable development. The objectives of the NDRMP include strengthening the governance framework on disaster risk management at the three levels of government in the country, efficiently mainstreaming risk planning into the development of humanitarian policies, and building and increasing the capacity of indigent citizens to reduce their risk exposure and build resilience.

6. International Framework

6.1. Yokohama Strategy for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation and Its Plan of Action

Yokohama Strategy for a Safer World: Guidelines for Natural Disaster Prevention,

Preparedness and Mitigation and its Plan of Action 1994 was to ensure that damages caused by natural disasters have global repercussions that are beyond the means and capabilities of individual nation-states to cope with. The Yokohama Strategy and Plan of Action for a Safer World emphasises disaster prevention, reduction, preparedness, and relief. These strategies are proactive in nature. However, Nigeria is more of a reactive entity when it comes to disaster risk especially flooding, which is rampant. Instead of adopting all practicable steps to plan and prepare according to forecast, rather reactionary tendencies that engender wanton loss and destruction are preferred by distributing relief materials.

6.2. The Hyogo Framework for Action Building the Resilience of Nations and Communities to Disaster 2005-2015

Drawing on the conclusions of the review of the Yokohama Strategy and on the basis of deliberations at the World Conference on Disaster Reduction and especially the agreed expected outcome and strategic goals, the Conference adopted the following five priorities for action:

1) Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation. Nigeria has been able to put institutions and legislation in place as required under Hyogo's priorities for action; however, the legislation still needs to be reviewed to address the challenges in disaster risk management in the country. The country seems not to always be ready to prevent disasters and never able to really help those caught up in disasters, as preparedness sometimes seems inadequate due to factors like inadequate funding, lack of required capacity/expertise on the part of personnel, and operational and logistics issues.

2) Identify, assess, and monitor disaster risks and enhance early warning. With the establishment of NIMET and NIHSA, the country's institutional capacity for early warning has been able to forecast and give alerts on impending floods in collaboration with media houses. However, a lot still needs to be done in the area of response to warnings and forecasts. Also, the government needs to be totally committed to risk prevention above and beyond response to disasters.

3) Use knowledge, innovation, and education to build a culture of safety and resilience at all levels. It is critical that the basics of disaster risk and safety are taught from the cradle in order to imbibe the culture of safety by mainstreaming disaster risk and safety into the schools' curricula. Information is disseminated through the NOA in collaboration with religious and non-governmental organizations as information dissemination platforms while using other platforms, such as mainstream media.

4) Reduce the underlying risk factors. Reducing underlying risk factors for disasters like flooding, especially in urban centres of the country like Lagos, involves taking hardcore decisions that are unpopular yet critical to saving lives and properties in the future. (Adam 2024; Idowu, 2024) The government needs to develop the political will for enforcement without fear or favour. A case study is the demolition of houses built on waterways and canals in Lagos state. It has been given

political/ tribal colorations by the affected citizens (This Day, 2024; Lagos Today, 2024) even though it was a tough step to take due to the housing deficits in the country and humongous funds that crumbled under the weight of demolition caterpillars. However, a critical question is to the relevant permitting and approval authorities: who gave approvals for the buildings to be erected? This tells the complicity of government agencies in perpetuating the illegal construction of buildings on water channels, canals, flood plains, wetlands, and other unauthorized places. (Ajayi, 2022) These are pointers to weak implementation of town planning laws and corruption on the part of some officials. (Echendu, 2020) Investigations and appropriate sanctions should be handed down on officials who are discovered to be involved in corrupt practices that undermine the integrity of the process.

5) Strengthen disaster preparedness for effective response at all levels

Creating effective legal and institutional frameworks is critical to disaster risk management. In actualizing this, the frameworks must address the protection of lives and properties. NESREA, in the realization of the Sendai mandate, has rolled out the NDRPM, which has a ten-year cycle and five-yearly review requirements. The AFO publications by the NIHSA are commendable; however, without the domestication of urban and regional planning laws in the federation states, it is a labour in futility.

6.3. Sendai Framework for Disaster Risk Reduction 2015-2030

The Sendai framework for disaster risk reduction 2015-2030 is targeted at a substantial reduction in loss of lives, properties, livelihoods, and health in the economic, physical, social, cultural, and environmental assets of persons, businesses, communities, and countries. The priority areas for the Sendai framework were aimed at understanding disaster risk, strengthening disaster governance to manage disaster risk, investing in disaster risk reduction for resilience, enhancing disaster preparedness for effective response, and 'building back better' in recovery, rehabilitation, and reconstruction.

7. Challenges Limiting the Performance of Laws and Institutions on Flood Control in Nigeria

In many cities in Nigeria, there is a lack of or inadequate drainage infrastructure to curb flooding or to accommodate the volume of stormwater. Indiscriminate disposal of garbage in rivers, drainages, flood canals, and storm runoff is a common and unbridled practice among the populace. The lack of data is also a problem for adequate planning in the country. The population keeps growing without a corresponding response to the development of infrastructural facilities. While there have been various interventions in the past to address flood incidences, integrated and sustainable Flood Risk Management (FRM) systems and practices (Adedeji, Odufuwa & Adebayo) in Nigeria remain uncoordinated. A sustainable FRM system should reflect the ecological makeup, infrastructural development, institutional behaviour, and other techno-socio-economic characteristics of its environment (Stor-

björk, 2007). The deployment of technology in flood mitigation is critical to saving lives and properties and minimise impacts. Though there are a series of mechanisms like Geospatial/GIS approaches to hydrological and probability models for the measurement of flood risk disaster, it is posited that using machine learning and Bayesian approaches will aid the country's prospects of forecasting and planning towards enduring infrastructure for flood control. (Umar & Gray, 2022)

Wetlands act as natural buffers and sponges for the reception of flood waters, yet are being sand-filled and reclaimed for developmental purposes, government should devise strategies for the restoration and management of wetlands in conjunction with communities and ensure compliance with the National Environmental (Wetlands, Riverbanks, and Lakeshores) Regulations 2009.

7.1. Improper Delineation of Roles and Non-Establishment of SEMA and LEMC in some States

Lack of proper coordination between the Federal government (FG) agency for Disaster Management NEMA and state counterparts and of course, local government is undermining the overall success of the laws. NEMA, NESREA, NIHSA, NIMET, and NOA should engage in scheduled periodic inter-agency collaboration workshops for capacity development and see their agencies as complementary and not competitive to ensure the implementation and enforcement of relevant laws and policies in flood risk management. Such interactions would help agencies make proposals to reduce conflicting roles and overlapping functions and ways to amend laws for better service delivery devoid of rivalry and rancor by sharing data and resources for better outcomes that will improve flood control and disaster risk to achieve the overall goals of their establishment.

The NEMA director, in conjunction with NESREA, should lobby the commissioners for the environment of the different states that have not established their SEMA to work with the states' houses of assembly concerned to enact necessary laws to set them up. At the same time, At the same, the FG should incentivise the states to put necessary mechanisms in motion to actualise the set objectives. The FG will need to use command and control where necessary to make them do the right thing and let the SEMAs be aware that NEMA will only respond to states that have SEMA in place for coordination in case of emergencies that require intervention from NEMA.

7.2. Challenges with Recruitment and Human Capacity Development

Oftentimes, the problem of political interference in personnel recruitment exercises in every stratum of the Nigerian job space is a major challenge. The 'man know man connection syndrome' has made it difficult to recruit qualified experts

[4]The composition of the Government of the Federation or any of its agencies and the conduct of its affairs shall be carried out in such a manner as to reflect the federal character of Nigeria and the need to promote national unity and also to command national loyalty, thereby ensuring that there shall be no predominance of persons from a few States or from a few ethnic or other sectional groups in that Government or in any of its agencies.

in the field. The issue of federal character[4] should be deemphasized, when it comes to recruitment into critical job roles that require determined standards, expertise, and professionalism in agencies of government, institutions, and parastatals. Lack of training and retraining of staff members is a disservice, because knowledge and processes in flood and disaster risk management are constantly evolving.

7.3. Information Dissemination, Education and Public Participation

The lack of proper information dissemination channels is a factor in increased fatalities and extensive destruction during flood incidences in Nigeria. In order to reduce fatalities during flood incidents, citizens should be sensitized on how to respond to flood warnings. Considering the multi-language structure of the country, the National Orientation Agency should cooperate with relevant sister agencies to translate instructions to the various major languages. Negotiating with telecommunication industries at subsidized rates or special arrangements as part of their corporate social responsibilities for information dissemination about weather forecast and flood risks can be delivered to mobile phones with options to hear in different languages for flood warning, evacuation, and safety, especially for some rural areas where there is no connection to the national grid for electricity. The use of social media from verified media handles can also be a veritable tool for information dissemination in the age of the Internet of Things.

India is a developing country that is equally exposed to flooding and other disaster risks like landslides and earthquakes. It has been able to advance its mitigation and adaptation to disasters through disaster risk flood models. The Indian model of having national disaster management information and communication guidelines has been developed and should be adopted to help in the management of and mitigation of risks for pre-disaster, disaster phase, and post-disaster coverage. The guideline covers response lines for communication from prevention, mitigation, search and rescue, relief, recovery, and all the phases of disaster management. The Indian flood disaster risk management by flood plain zoning and proofing of flood-prone areas builds resilience by determining the locations and the extent of areas for developmental activities in such a fashion that the damage is reduced to a minimum, and the government determines the type of structures that will be built. It, therefore, envisages laying down limitations on the development of both the unprotected and protected areas. (NIDM, 2008)

7.4. Funding

Funding is grossly inadequate for the work of NEMA at the federal level to respond to flood disasters nationwide. The law provides for funding in Section 13 of the NEMA Act; statutory funding for the agency is an allocation from the Federal Government, another 20% from 2% of ecological funds from the management of ecological-related disasters, loans from federal, state or local government to NEMA and monies that are granted or donated by the private sector or donor agencies. The funds are not adequate to get the critical pool of equipment, operational vehicles,

and other logistics for optimum operation, and it is so depressing in some states that the SEMA can boast of only one operational vehicle (Adefisoye & Agagu, 2020)

Section 13 (3) (a & b) prescribes accountability and transparency in spending and disbursement of funds allocated for flood risk management and control from the ecology fund and other sources to be published and audited by independent bodies. Section 18 of the NEMA Act provides that expenditure of the Agency must be laid before the President, and the Council is to ensure proper accounting and auditing in respect of each year is carried out by accredited auditors not beyond 6 months after each year-end in accordance with guidelines approved by the Auditor-General for the Federation. The annual auditing and reporting should equally be carried out at the state and local government levels, too.

7.5. Lack of Proper Enforcement of Planning Laws

Lack of proper implementation of planning laws, exorbitant fees, exploitation by law enforcement officers, and corrupt tendencies on the part of citizens in their bid to cut corners connive with officers to circumvent designated plans. There is also a need to incorporate the requirements of international conventions like the Sendai on disaster risk management into the laws through necessary amendments to accommodate the dynamics of flood incidences, especially in a climate change era.

8. Conclusion and Recommendations

The article discussed the problem of flooding in Nigeria, the causes, and the impacts of flooding on the country and its citizens, such as loss of lives, livelihood, and property. It also assessed the laws and institutions for prevention and response to floods under the national and international legal frameworks and the challenges militating against the actualization of the objectives set out in the laws. Some of the challenges identified include: lack of proper delineation of roles among agencies, inadequate funding, and lack of necessary education and awareness on the part of the citizens. The study concluded by making recommendations to reduce flooding fatalities and fostering better responses going forward.

Some recommendations to address flooding issues in Nigeria include:

Deployment of technology in flood management, construction, maintenance, assessment, and repair of damaged structures like canals, bridges, embankments, reservoirs, and dams will include integrity testing and upgrades where and when necessary to factor in climate change dimension of extreme weather events, increased precipitation as each state takes its peculiarities into cognizance.

Nigeria should take proactive steps by including disaster risk education in schools' curricula from primary school to tertiary levels. Utilization of mobile phones and verified social media platforms to create awareness among citizens for flood warnings and response on the dangers of indiscriminate waste disposal (Healthwise, 2024) to the general public on their health, economic, social, finan-

cial, and mental well-being.

Improve funding to the agencies and monitor utilisation to enhance transparency and accountability to reduce corruption. Funding for research and development is also critical for disaster prevention and response; therefore, it is critical for the government and agencies to seek suitable funding options for disaster risk management and control at the state and local government levels beyond statutory funding.

In the recruitment of staff, the law should stipulate the qualifications and required expertise for the positions for appointment in the relevant institutions for disaster risk management. Development of structured and strategic training and re-training of members of staff tailored towards developing trends in disaster risk management when due is critical for the country in tandem with the implementation of the international obligation under the Sendai framework.

Conflicts among SEMAs and NEMA for incident response are counter-productive. Each state should ordinarily develop the capacity to act in emergencies like flooding, but where the disaster overwhelms the state agency, then they would have to liaise with the NEMA for containment and damage control. Also, better coordination among federal agencies, such as NEMA, NESREA, NIHSA, and NIMET, is crucial to achieving set objectives for flood risk reduction in the country. Local government areas should actively engage CDAs as partners for grassroots environmental management, communication, and enforcement channels.

Individuals and private entities may take up insurance policies to protect their buildings and properties and mitigate losses occasioned by flood incidences. Government agencies may factor insurance into their annual budgets to protect against flood risks.

Heavy rain and thunderstorm alerts are already being issued to states for 2025, and now is the appropriate time for stakeholders to take action to reduce the incidence of flooding in Nigeria.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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Appendix

Statutes and Regulations

Environmental Impact Assessment Act, Cap E12, LFN 1992, 2004

National Emergency Management Agency Act

National Environmental (Soil Erosion and Flood Control Regulations) 2010

National Environmental (Wetlands, Riverbanks and Lakeshores) Regulations 2009

National Environmental Standards Regulation and Enforcement Agency (Establishment) Act N27 Laws of the Federation 2007

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