
Effect of Flooding and the Effectiveness of Emergency Management Agencies in Nigeria: Anambra State in Focus

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Abstract

Flooding in Nigeria has been a recurrent issue, often leading to significant economic, environmental, and social consequences. The effectiveness of emergency management agencies in Nigeria in tackling the menace of flooding has varied over time and across different regions. This paper examines the effect of flooding in Nigeria and the effectiveness of emergency management agencies in mitigating the effects in Nigeria with focus on Anambra State, considering factors such as preparedness, coordination and public awareness, aiming to provide insights into improving flood response strategies and enhancing resilience in the face of future incidents. In this regard, the paper adopted the qualitative research design and applied Emergency Management Theory as its theoretical framework of analysis, while data were gathered through secondary sources. The paper found out among others that there is no proper management of flood in most communities in Anambra state, occasioned by poor funding, lack of disaster management equipment and facilities in ANSEMA in carrying out their assigned disaster management functions. More so, communities are not used to the proactive measures of flood management, hence they wait for the commencement of flooding and their possible evacuation to displacement camps at the upland or at other parts of the state where flooding was not endemic. Hence recommends well-equipped ANSEMA and compulsory compliance policy be formulated and enforced to compel the members of the public to abide by ANSEMA's advice on disasters. Also, building of dams across the river channels could help in the effective management of flooding in Anambra State.

Keywords: Disaster, Flood, Disaster Management, Climate change, Emergency Management, Disaster Response.

Introduction

Flood is an overflow of water that submerges or "drowns" land. The European Union (EU) Floods Directive, defines a flood as a covering by water of land not normally covered by water. Flooding may result from the volume of water within a body of water, such as a river or lake, which overflows or breaks levees, with the result that some of the water escapes its usual boundaries; it is not a significant flood unless such escapes of water endanger land areas used by man like a village, city or other inhabited area. In developing countries it occurs as a result of blocking of natural and manmade drainages and poor maintenance of water dams/ reservoirs which seldom give way after persistent heavy down pours. In coastal lowlands and swamp lands, flooding is aided mainly by blocked channels and indiscriminate sand fling of coastal swamp areas and natural drainage channel for urban development/constructions.

In this paper, the causes of flood, the effects of flood and the economic impacts of flood disaster on the growth and development of Anambra State and the effectiveness of emergency management agencies shall be examined. Most times flooding is caused by climate change, especially in the developed economy where scientific mitigating options are highly employed. Researchers have identified Green Houses Gases (GHG) as the cause of global climate change. The recent flood disaster in Anambra State which caused physical damage to structures, social dislocation, contamination of clean drinking water, spread of water-borne diseases, shortage of crops and food supplies, death of non-tolerant tree species, disruption in transportation system, serious economic loss and psychological trauma is a function of climate change. The need to encourage proper management of our drainage systems and good maintenance of our dams are good options towards saving the environment and generation of renewable energy sources. Flooding can lead to severe damage, including property destruction, displacement, and loss of lives. Emergency management agencies play a crucial role in preparing for, responding to, and recovering from such disasters. In Nigeria and Anambra State in particular, flood management and control is a sole responsibility of the Anambra State Emergency Management Agency (ANSEMA).

Anambra State Emergency Management Agency is charged with the responsibility to respond to and protect against flood in the State, established in 2005 under Governor Chris Nwabueze Ngige's administration (Handbook of Anambra State Emergency Management Agency, 2013). The foundation of this Agency was laid by National Emergency Management Agency (NEMA) establishment Decree No. 12 of 1999 which mandated all state governments to establish State Emergency Management Agencies.

Consequent upon that, Anambra state government established its state emergency management agency to work hand-in-glove with the state fire service department, the national emergency management agency, Disaster Response Units (DRU's) of the Military, Paramilitary and Police, Civil society organizations, International organizations (e.g. UNICEF, RUWASSA and WHO), Development partners, private sectors, and relevant Ministries, Departments and Agencies (MDA's) (e.g. Ministry of Local Government and Chieftaincy Matters, Ministry of Health, Ministry of Environment, Ministry of Works etc.). ANSEMA as an agency is established under the office of the Deputy Governor of Anambra State and has the vision of reducing to the barest minimum occurrences of disasters in Anambra state and provision of urgent assistance to victims when disaster occurs. It has the mission of providing leadership and coordination for mobilization of resources, relief materials and personnel towards effective and efficient disaster prevention, preparedness, mitigation and response in Anambra state.

In the light of the existence of Anambra State Emergency Management Agency (ANSEMA), with its full responsibility of management of flood and other disaster related issues, the issue of flood and its disastrous effects remains green. It is in the light of the above that the paper adopts descriptive design and Emergency Management Theory to x-tray the problematic.

Conceptual Framework

Flooding

Flooding refers to the overflow of water onto normally dry land, often caused by heavy rainfall, rapid snowmelt, or the failure of dams or levees. Floods generally develop over periods of days when there is too much rain water to fit in the rivers and water spreads over the land next to it (the flood plain). However, they can happen very quickly when lots of heavy rain falls over a short period of time. These “flash floods” occur with little or no warning and cause the biggest loss of human life than any other type. (https://en.wikipedia.org/wiki/flood_control 12 August, 2023). It can lead to extensive damage to property, infrastructure, and ecosystems. According to (<http://www.environment-agency.gov.uk/flood> (August, 2023) Floodwater can seriously disrupt public and personal transport by cutting off roads and railway lines, as well as communication links when telephone lines are damaged. Floods disrupt normal drainage systems in cities, and sewage spills are common, which represents a serious health hazard, along with standing water and wet materials in the home. Bacteria mould and viruses, cause disease, trigger allergic reactions, and continue to damage materials long after a flood. Again, soil can be eroded by large amount of fast flowing water ruining crops, destroying agricultural land/buildings and drowning farm animals. Severe floods not only ruin home/businesses and destroy personal property, but the effects of the aftermath causes further damage to property. The environment and wildlife is also at risk when damage to industrial sites cause the accidental release of toxic materials like paints, pesticides, gasoline etc. But in all these, effective and early control of flood remains the best approach.

Flooding can be classified into various types, such as river flooding, coastal flooding, urban flooding, and flash flooding. Effective flood management involves a combination of measures like building flood-resistant infrastructure, improving drainage systems, implementing early warning systems, and proper land-use planning.

Theoretical Framework

The Emergency Management Theory was adopted to provide the necessary analytical system in such a manner that enhances the explications of the subject matter of our study. Emergency Management theory is a theory of disaster and risk management propounded in 2004 by David McEntine an American expert in Emergency Administration. The theory was formulated in a bid to provide a pragmatic, proactive and reactive all-in-one paradigm for management of disruptive and hazardous phenomena after the terrorist attacks in the United States of America.

The theory holds that disastrous emergencies are inevitable in the society and have the tendency of causing unrecoverable effects unless responsible, immediate and urgent measures are taken in the dimension of preventing, mitigating, recovering and responding to issues of these emergencies. Hence unless these measures and the strategies and means of executing them are put in place, the society is doomed to be marred by unrecoverable emergency situations that will threaten its existence. David was of the opinion that if the human species and society do not want to be likened to the extinct animal species, then they should evolve proactive, reactive and post-emergency occurrence measures and plans that will combat

disastrous emergencies and its effects head-on. He added that the measures to be adopted should be in line with the nature of the disaster and must conform to the following fundamental principles: Preparedness, Mitigation, Response and Recovery.

This is to say that measures to be taken to curtail disasters and its effects from ravaging and ruining the society should be strategic measures, taken pre-disaster occurrence in readiness for any eventuality of disastrous nature; measures taken to eliminate, suppress and/or reduce the effects of an already occurred disaster; measures taken to help the victims of disaster as at the time of disaster occurrence in terms of disaster rescue; and measures taken to normalize the disaster affected area as well as disaster affected victims.

In cognizance of the above, it is worthwhile to state herein that David McEntine's theory of emergency management is premised upon some fundamental tenets which the theory upholds. It is these tenets that provide the framework of operation and application of this theory to different varying situations and phenomena.

These tenets amongst others include:

1. Disaster is an inevitable societal phenomenon and has the tendency of wreaking havoc to the society and its existence.
2. The society is marked for extinction in the face of disaster unless it evolves disaster management mechanisms.
3. There is no universal or one best way of managing disaster, rather appropriate form depends on the nature of disaster occurrence and the environment in which it occurred.
4. Any evolved mechanism of disaster management must have within its framework disastrous emergency planning which will be geared towards identifying disaster risks, evaluating these risks, responding to it, monitoring the risk performance and reviewing the risk management framework afterwards.
5. For a society to effectively manage disaster, they will have to develop an instrument (organization) to study previous disasters and present disasters as they occur so as to evolve suitable disaster management framework.
6. Emergency managers and employees should be trained, equipped and prepared for disastrous emergency management in line with different natures of disaster situations, else they become ineffective.
7. Disaster management should cover four important phases: preparedness, mitigation, response and recovery and each phase has its distinctiveness.

Application of the Emergency Management Theory

David McEntine's Emergency Management theory is analytically expedient for this paper because just as the theory assumes, disasters are inherent in all human societies including Anambra state and has the capability of wrecking a great deal of menace to societal life. Narrowing it down to Anambra state if disaster occurrence continues to grow asymmetrically in a geometric rate without a competent and functional management instrument and mechanisms evolved to tackle it then, the population of Anambra state is bound to face decrement continually, and probably extinction on a long run. Of course like the theory holds, Anambra state government has an instrument (organization) that not only studies past and present disasters but is responsible for disaster management within the state.

This instrument is none other than Anambra State Emergency Management Agency (ANSEMA) which has the legal mandate to carry out disaster management functions. Within the policy framework of its activity, this Agency as a subsidiary of NEMA has captured theoretically, McEntine's view on disastrous emergency management as they employ such disaster management plan and mechanisms as early warning and awareness generation, use of satellite technology to pick distress alerts and location data, search and rescue operations, geographic information system, mobile clinic, development of disaster response units (DRU's), collaboration with climatological and weather forecasting Agencies, employee training and capacity building, disaster advocacy, and post-disaster assessment. This is to say that in line with the opinion of McEntine, the agency has a disaster management plan that streamlines its actions toward disaster preparedness, mitigation, response, and recovery.

However, unlike what the theory holds that when all the above stated factors are in place that disaster management will be effective, disaster management is grossly ineffective in Anambra state. With the response from ANSEMA being a slow reactive one which can be best described as little or nothing. One begins to wonder if McEntines theory holds true or if the problem lies with ANSEMA. In the opinion of scholars like Nwabine (2015), Ejikeme et al. (2013) and Nwobodo, et al. (2018), the problem lies not with the theory but with ANSEMA. These scholars including as in the opinion of Efobi and Anierobi (2013), have critiqued ANSEMA on the fact that it doesn't manage all nature of disasters in as much as its mandate covers it all, it is slow responsive, ill-equipped and does nothing other than supply of relief materials. If the opinion of the above scholars holds true, then ANSEMA is inadequately prepared in terms of emergency planning and this limits to a large extent their level of readiness to disaster emergencies in the state. In regard to this, one has to find out the causatives of their functional inefficiency in disaster management which is nothing other than their challenges. This problem might be poor funding, lack of training and development of staff, poor remuneration, non-compliance of people to their advices and warnings, lack of equipment and facilities etc. It is in a bid to discover and proffer solutions to these problems that this research was embarked upon so as to ensure that the menace of disaster is curtailed and that the society is not handed over to the hands of extinction in the years to come.

Flood Management

Some flood management measures could be proactively taken by the state, local government and the communities alike, in order to combat the dangerous effects of flooding and bring about effective and proactive management of flood in Anambra State by emergency management agencies. Some of the measures include building of dams, Wing Dykes, Diversion Spillways, Afforestation and Artificial Levee:

Dams are the classic hard engineering solution to flooding problems. A dam is a giant wall built across a river's channel to impede its flow. Water builds up behind the dam and forms a reservoir which can then be steadily drained at a controlled rate over time. This helps keep discharge downstream of the dam low, even during prolonged heavy rainfall. Besides being highly effective at reducing the risk of flooding, dams can also be used to generate hydroelectric power that can bring economic benefits to an area by attracting manufacturing factories or being exported to other countries. The reservoir that develops behind a dam can be used as a drinking source or for leisure activities. Although dams are good flood control, its can as well pose a huge risk too. They store thousands of litres of water behind them so if they were to fail, they cause wide spread of death and damage downstream as all the water is released at once.

Wing Dykes are slats that are placed in a river's channel at 900 to the banks. Generally they will be placed in pairs on either side of the channel with a gap between them that allows boats to pass through them behind the dykes, sediment builds up and the channel is narrowed, forcing water to flow faster. This helps reduce the risk of flooding by getting water away from an area at risk of flooding as quickly as possible, preventing a buildup of water. They also aid navigation greatly.

Diversion spillways are artificial channels that a river can flow into when its discharge rises. These channel move water around an area at risk of flooding and send it either back into the river but further downstream, or into another river. Spillways generally have flood gates on them that can be used to control the volume of water in the spillway.

Afforestation involves the planting of trees in drainage basins to increase interception and storage while reducing surface runoff. This reduces a river's discharge and so makes it less likely to flood. Afforestation also prevents mass wasting which reduces the amount of soil entering the river and keeps the river's capacity high. Afforestation has the benefit of creating new habitats for animals and improving water quality by filtering pollutants out of rain water.

A levee is a low wall built at the side of a river to prevent it from flooding, it can equally serve as a place where boats can let passengers on or off etc. unlike natural levees, artificial levees are larger and are generally constructed out of materials like concrete that is resistant to erosion. The main advantage of an artificial levee is that it allows the flood plain to build on. Furthermore, if they did fall, like the embankments along the Mississippi in 1972, the damage from the flood would be far worse than if the embankments didn't exist.

Furthermore, the government should enact laws that prohibit the building of house on water ways. This will in no small measure ameliorate the effects of flooding and also help in the proactive and effective management of flood in Anambra State.

Causes of Flooding

Emeriobeole (2015) asserts that floods are among the most devastating natural disasters in the world, claiming more lives and causing more property damage than anyone would imagine. In Nigeria, though not leading in claiming lives, flood affects and displaces more people than any other disaster. It also causes more damage to properties and at least 20 percent of the population is at the risk from one form of flooding or another. Despite all these enumerated facts, effective management of flood by either state, local government or communities in the endemic areas has not been witnessed in most states.

Anambra State is one of the states in Nigeria with the most number of towns with so many rivers and lakes; as a result, they are prone to experiencing flooding mostly in raining season. Almost all of the 21 Local government areas in the state are affected by flooding, with some towns affected more than the others, towns close to the River Niger like Ogbaru and Ayamelum. Whenever there is heavy rain in the wet season, the rivers normally overflow their banks and cause flooding. Furthermore, flooding happens when there is more water upstream than usual and as it flows down stream to the flood plain, there is a burst and water gets into the land. It is therefore against this background that this study was carried out in order to ascertain how effective management of flood in Nigeria, particularly communities in Anambra State could be achieved. And to recommend the measures that should be imbibed by both the state, local government and communities themselves in order to ameliorate the dangerous effect of flooding as well as bring about the effective management of floods in these communities.

Flooding wreaks havoc on infrastructure, disrupts daily life, and undermines economic stability, demanding a well-coordinated response. This study aims to delve into the intricate interplay between flooding's aftermath and the capability of emergency management agencies in Anambra State, shedding light on the measures in place, their effectiveness, and the potential for further enhancement. By scrutinizing these aspects, we can uncover insights to guide improvements in flood mitigation strategies and emergency response systems for the region.

Anambra state is well known for its high level of commercial activities in the state, However, with the recent increase in devastating disasters like the 2012, 2013 and 2018, 2020 and 2022 floods which affected almost all parts of the state especially Anambra West, Anambra East, Ayamelum, Onitsha North, Onitsha South, Awka North and Ogbaru local government areas of the state which has led to deaths and loss of properties, it begs the question; That is the development of the state not hampered by the grave flood disasters experienced in recent times and is the state not at risk of an economic crumble?.

A 2013 research survey carried out by Action Aid determined that 53.2% of the landmass of Anambra State are subjected to flood disaster on annual basis, little wonder the 2012 national flood disaster affected 8 out of 21 local governments in the state constituting 38.1% of the entire local government in the state.

The growing trends of disasters have implications for sustainability. This is because disasters, irrespective of the causal factors are associated with diverse externalities such as mortalities, loss of income, loss and depletion of farmlands, destruction of crops and farm yields, destruction of businesses, breach of social and relationship networks, loss of means of livelihood and infrastructural destruction. This is the case for Anambra state which is a negation of the resilient entrepreneurial, commercial and developmental spirit of the state.

Emergency Management Agencies in Nigeria

Nigeria has several emergency management agencies responsible for disaster response and preparedness, including the National Emergency Management Agency (NEMA), State Emergency Management Agencies (SEMAs) in each of the 36 states, and Local Government Area Emergency Management Committees (LGA-EMCs), the Nigeria Police Force, The Nigeria Fire Service, The Nigeria Army, among others. These agencies work to coordinate disaster relief efforts, provide assistance during emergencies, and enhance community resilience. The focus of our paper shall solely be on the Anambra State Emergency Management Agency (ANSEMA) and its effectiveness in emergency management in Anambra state.

Anambra State Emergency Management Agency and Disaster Management

To determine the natures of flood disasters managed by ANSEMA in Anambra State from its establishment till date, the theoretical postulates and research reports shall be analysed below:

Flood is one of the natures of disasters managed by ANSEMA in Anambra state from its inception till date. In carrying out the research on several articles, seminars papers and reviews of the effectiveness of ANSEMA in handling flood disasters in Anambra state by some scholars and researchers, the entire focus group interviewed by some researchers in Anambra West local government area stated that flood is one disaster that ANSEMA actually managed between 2011 and 2018. According to one of the members Mrs. Bamidele Chinyere from Nzam, due to the nature of their region which is prone to yearly flood incidences,

ANSEMA are always responsive with the provision of temporary camps for victims and with the provision of food items until the flood reduces.

Adding to what Mrs. Bamidele said, Mr. Madueke Ochei from Umudora stated that he and his family are yearly victims of flood disaster because his house is quite near the Omambala River and as such they are always on the beneficiary list of ANSEMA who according to him comes to their aid upon incidents of flood especially in 2012, 2013 and 2018.

Similarly, the entire members of the focus group that discussed with the researcher in Idemili North local government area also stated that ANSEMA undertook the management of flood disaster from 2011 till date. Whereas some like Mr. Benjamin Onwuadike from Umuoji and Mr. Udoh Ejike from Obosi were of the opinion that they watched the incidence of ANSEMA in collaboration with NEMA managing flood disaster in the state in 2012 on television, Mr. Michael Ezigbo from Abatete stated that he was one of the persons distributing relief materials in New Bethel Primary School Onitsha IDP camp where he aided the members of ANSEMA having been a member of Red Cross Society.

Flood was also established as one nature of disaster whose management was undertaken by ANSEMA during the period of 2011 to 2018 by the members of Nnewi North focus group. Other members of this focus group on their own all lauded the Agency for their up-and-doing nature in events of flood disaster in the state. Mrs. Theresa Nnodu from Umudim opined that if ANSEMA work the way they do in flood disaster in erosion and building collapse disasters in Nnewi, then Okofia erosion in Otolu would have been a thing of the past and building collapses would have been minimal if not non-existent in the local government area. All interviewed respondents of ANSEMA were also positive as regards ANSEMA managing the all nature of disasters (flood inclusive). Although, in the words of Mr. Nnanyelugo Nwachinemeluife, a watch director in ANSEMA - This agency manages all nature of disasters but within the period (2011) you are asking about, we managed flood mostly...“In support of this, scholars like Iroaganachi and Ufere (2013) opined that „the 2012 flooding of Nigerian states has spurred the activeness of Nigerian disaster and emergency management agencies, at the national level, NEMA is working assiduously with NIMET, NESREA and NOA, at states like Lagos, Rivers, Anambra, Delta and others, SEMA is seen reducing flood risk impact by supplying relief materials...’. Also Nwabile (2015) observed that amongst other things ANSEMA is always in the business of managing flood and its effects within the state, but the pace at which they respond to the occurrence of this flood is a matter of doubt. Similarly, in the report of Todayng Newspaper dated September 30, 2018, ANSEMA is portrayed as grappling for food and non-food needs of more than 12,000 flood victims which were evacuated and kept under their management from flood prone areas.

Also from the above, it can be deduce that there exist IDP camps for flood victims in Anambra state. It is pertinent to note that in line with disaster management and running of disaster camps, that NEMA and its state counterpart SEMA (of which ANSEMA belonged to) have this as their sole responsibility. Hence, the runnings of these flood IDP camps and the upkeep of the flood victims over the years have been conducted by ANSEMA within Anambra state.

From the above data presented, it is crystal clear that flood is a disaster that has occurred within the period of 2011 till date in Anambra State, and which was also managed by Anambra State Emergency Management Agency (ANSEMA). The question however is not whether flood disaster occurrence was witnessed in the state within this period as it is a perennial problem of the state occurring in some flood-prone local governments such as

Anambra West, Anambra East, Ayamelum, Ogbaru, Onitsha South and Onitsha North at any slightest entrance into the rainy season of the year. In cognizance of this, what the question is is whether these flood disasters were being managed by ANSEMA of which from the above responses, it is clear that it is being managed by the agency. This thus, goes to validate flood as a nature of disaster that is managed by the agency.

The Effectiveness of ANSEMA in Managing Flood Disasters in Anambra State

With the existence of an actively operational disaster management institution known as Anambra State Emergency Management Agency (ANSEMA), present within Anambra state, it is safe to assume that disaster occurrence within the state will be minimal as they will be prevented, and that the negative effects of disasters will be relatively minimum. However, this is not so, as in the opinion of Efobi and Anierobi (2013), not much have been achieved by ANSEMA or even its national counterpart National Emergency Management Agency (NEMA) in Anambra state other than supply of relief materials. Also, disaster management in Anambra state has been alleged to be ineffective, slow responsive and post-disaster occurrence inclined.

ANSEMA has also been critiqued for showing lack-lustrous attitude towards managing certain types of disasters like erosion, building collapses and fire incidents within the state (Ejikeme, Igbokwe, Johnson & Chukwuocha, 2013; Nwabine, 2015; Nwobodo, Otunwa, Ohagwu & Enibe, 2018).

If the opinion of the above scholars holds true, then ANSEMA has been grossly ineffective, incompetent and inefficient in combating the disasters that militate against development and welfare of the indigenes and inhabitants of the state. Disaster management (which is the core function of ANSEMA) should be maintained and enforced.

In view of the above, it is crystal clear that disaster management in Anambra state has nosedived to the precarious level of disaster so much that the government sponsored ANSEMA is so dysfunctional; thus, making Anambrians to depend on self-rescue and disaster management methods. This is a scenario that is debilitating to the government of Anambra state and even the Federal Government as the agency (ANSEMA) and its national counterpart (NEMA) have been alleged to be incompetent, unresponsive/slow responsive, ill equipped, and mostly post-disaster management effective (Nwabine, 2015).

However, there are no effects without a cause, hence, ANSEMA's poor disaster management performance in Anambra state must have been as a result of unknown cogs in the wheel of the administration of its functions. It is these challenges that have necessitated this research and the bid to ascertain prospects for the improvement of the performance of ANSEMA in disaster management in Anambra state.

Measures To Improve Emergency Management Agencies Response to Flooding In Anambra State

Improving emergency management agencies' response to flooding in Nigeria, particularly in Anambra State, could involve several measures:

Early Warning Systems: Implementing advanced early warning systems that can predict floods based on weather data, river levels, and historical trends can help evacuate vulnerable areas in advance.

Community Education: Educating local communities about flood risks, preparedness, and evacuation procedures can ensure that people are better equipped to respond effectively.

Infrastructure Improvements: Investing in flood-resistant infrastructure, such as elevated roads, flood barriers, and improved drainage systems, can mitigate the impact of flooding.

Collaboration: Encouraging collaboration among various agencies, including emergency services, local government, and NGOs, can lead to more coordinated responses during floods.

Training and Capacity Building: Regular training for emergency responders can enhance their skills and readiness to handle flood-related incidents.

Resource Allocation: Allocating sufficient resources, both financial and personnel, to emergency management agencies can help them respond promptly and effectively during flooding.

Public Awareness Campaigns: Running campaigns to raise public awareness about flood risks, preparedness measures, and reporting procedures can empower citizens to take appropriate actions.

Digital Technology: Utilizing technology such as GIS mapping, remote sensing, and social media can aid in monitoring flood-prone areas and disseminating information quickly.

Emergency Plans: Developing and regularly updating comprehensive flood response plans can guide agencies' actions and ensure a structured approach to managing flood incidents.

Research and Data Collection: Collecting and analyzing flood-related data can inform decision-making, policy formulation, and more targeted interventions.

Community Involvement: Involving local communities in flood response planning and decision-making can lead to more effective and culturally relevant strategies.

Community Education: Raise awareness among residents about flood risks, safety measures, and preparedness steps. Encourage the adoption of resilient construction practices in flood-prone areas.

Coordination with National Agencies: Collaborating with national disaster management agencies can provide access to additional resources, expertise, and support during major flooding events.

Implementing a combination of these measures can significantly enhance emergency management agencies' ability to respond to flooding in Nigeria and specifically in Anambra State.

The Effect of Flooding on the Economic Growth and Development of Nigeria: Anambra State in Focus

Flooding can have significant adverse effects on the economic growth and development of Nigeria, particularly in a state like Anambra. Here are some ways flooding can impact economic growth and development:

Infrastructure Damage: Flooding can damage roads, bridges, buildings, and other critical infrastructure, disrupting transportation networks and hindering trade and commerce.

Economic Loss: Flooding can lead to damage or destruction of crops, livestock, and property, causing economic losses for individuals and businesses.

Displacement and Health Risks: Residents may be forced to evacuate their homes, leading to displacement, loss of personal belongings, and potential health risks due to unsanitary conditions in shelters.

Water Contamination: Flooding can contaminate water sources, leading to waterborne diseases and further health risks for the population.

Environmental Degradation: Floods can erode soil, wash away topsoil, and cause deforestation, leading to long-term environmental degradation.

Infrastructure Overload: Overwhelmed drainage systems and sewage facilities can exacerbate flooding and contribute to environmental pollution.

Agricultural Losses: Agriculture is a major economic sector in Nigeria, and flooding can lead to crop damage, destruction of farmlands, and livestock losses. This can result in decreased agricultural production, food shortages, and increased food prices.

Disruption of Businesses: Floods can force businesses to close temporarily or permanently due to damage to facilities, loss of inventory, and disrupted supply chains. This can lead to job losses and reduced economic activity.

Decreased Investment: Ongoing flood-related risks can deter both domestic and foreign investments, as potential investors may perceive a higher risk environment for their ventures.

Decreased Tourism: Flooding can damage tourist destinations and infrastructure, impacting the tourism sector, which is an important source of revenue for many regions.

Healthcare Costs: Floods can lead to waterborne diseases and increased health expenditures due to treating flood-related illnesses, further straining healthcare systems.

Impact on Education: Flooding can disrupt school activities, affecting students' access to education and potentially leading to long-term negative impacts on human capital development.

Resource Diversion: Government resources that could be allocated to development projects may need to be redirected toward disaster response and recovery efforts, delaying development initiatives.

Poverty: The cumulative impact of flooding on livelihoods and economic activities can contribute to an increase in poverty levels among affected populations.

Long-Term Development Setbacks: Rebuilding after floods diverts resources from long-term development projects, slowing down progress in critical areas like infrastructure, education, and healthcare.

Emergency management agencies play a crucial role in mitigating these effects. The effectiveness of such agencies in Anambra State depends on factors like:

Preparedness and Planning: How well the agencies have planned for potential flood events, including early warning systems, evacuation plans, and coordination with relevant stakeholders.

Resource Allocation: The availability of resources, funding, and equipment to respond effectively to flooding incidents.

Public Awareness and Education: Educating the public about flood risks, safety measures, and preparedness can enhance community resilience.

Response Time and Coordination: The ability to respond promptly and coordinate efforts among various agencies, local authorities, and organizations.

Adaptability and Innovation: Embracing new technologies and innovative approaches to improve flood forecasting, response, and recovery.

Community Engagement: Involving local communities in disaster management and recovery efforts, as they possess valuable knowledge and resources.

Post-Disaster Recovery: The speed and efficiency of recovery efforts, including providing aid, rebuilding infrastructure, and addressing the needs of affected individuals.

Efforts to Mitigate the Impact of Flooding in Nigeria; Anambra State in focus

Emergency Management Agencies play a crucial role in mitigating these effects. The effectiveness of such Agencies in Anambra state depends on factors like:

Preparedness and Planning: How well the agencies have planned for potential flood events, including early warning systems, evacuation plans, and coordination with relevant stakeholders.

Resource Allocation: The availability of resources, funding, and equipment to respond effectively to flooding incidents.

Public Awareness and Education: Educating the public about flood risks, safety measures, and preparedness can enhance community resilience.

Investment in Infrastructure: Developing resilient infrastructure that can withstand flooding, such as improved drainage systems and flood barriers.

Early Warning Systems: Implementing effective early warning systems to alert communities and authorities to impending flood events, enabling timely evacuation and preparation.

Response Time and Coordination: The ability to respond promptly and coordinate efforts among various agencies, local authorities, and organizations.

Adaptability and Innovation: Embracing new technologies and innovative approaches to improve flood forecasting, response, and recovery.

Floodplain Management: Implementing policies to prevent construction in flood-prone areas and regulating land use to reduce vulnerability.

Community Engagement: Involving local communities in disaster management and recovery efforts, as they possess valuable knowledge and resources.

Post-Disaster Recovery: The speed and efficiency of recovery efforts, including providing aid, rebuilding infrastructure, and addressing the needs of affected individuals.

The effectiveness of emergency management agencies in Anambra State will depend on their ability to address these factors comprehensively, collaborate with relevant stakeholders, and

adapt their strategies to the specific challenges posed by flooding in the region, to ensure sustainable development and resilience in the face of flood-related challenges.

Strengths and Challenges of Emergency Management Agencies in Anambra State

The effectiveness of emergency management agencies in Anambra State varies based on multiple factors. While progress has been made, there are still challenges that impact their overall performance. Here's an overview:

Strengths

Local Knowledge: Emergency management agencies in Anambra State often possess a deep understanding of the local geography, vulnerabilities, and community dynamics, which can facilitate more targeted and effective response efforts.

Collaboration: Coordination and collaboration with local government bodies, non-governmental organizations (NGOs), community leaders, and volunteers can enhance the efficiency of disaster response and recovery.

Preparedness Initiatives: Efforts to develop disaster response plans, conduct training exercises, and promote public awareness contribute to improved preparedness for potential emergencies.

Proactive Measures: Some agencies focus on proactive measures such as floodplain management, early warning systems, and community engagement to mitigate disaster risks.

Capacity Building: Efforts have been made to train personnel in disaster management techniques, including disaster risk reduction, emergency response, and preparedness.

Response to Certain Events: In the face of certain disasters, emergency management agencies have shown the ability to respond effectively. For instance, during disease outbreaks like Ebola and COVID 19, there was a coordinated response involving various agencies and partners.

Challenges

Resource Limitations: Limited funding, equipment, and manpower can hamper the agencies' ability to respond effectively to disasters.

Infrastructure Deficiency: Poor infrastructure, including inadequate drainage systems and flood control mechanisms, exacerbates the impact of natural disasters like flooding in the state.

Communication and Coordination: Challenges in coordinating efforts among various agencies and stakeholders can lead to delays and inefficiencies during disaster response.

Data Collection and Analysis: Lack of accurate and up-to-date data can hinder decision-making and planning for disaster management efforts.

Public Awareness: Insufficient public education about disaster preparedness and response procedures can undermine community resilience.

Political and Bureaucratic Factors: Political considerations and bureaucratic hurdles can sometimes impede the swift deployment of resources and implementation of response plans.

Focus on Response Over Preparedness: There's often more emphasis on response and recovery rather than proactive disaster risk reduction and preparedness measures.

Capacity Gaps: Skill and knowledge gaps among personnel involved in disaster management can impact the effectiveness of response efforts.

Diagnostic measures to effective operation of Emergency Management Agencies in Anambra State

Increased Funding: Adequate funding, equipment, and resources are essential to improve response capacity and infrastructure.

Community Engagement: Lack of public awareness and community participation in disaster preparedness and response efforts can hinder overall effectiveness.

Investment in Preparedness: Focus on disaster risk reduction, preparedness, and community engagement to minimize the impact of disasters.

Technological Integration: Implement modern technologies for data collection, communication, and early warning systems to enhance coordination.

Inter-Agency Collaboration: Strengthen cooperation and coordination among various agencies, government bodies, and organizations involved in disaster management.

Public Awareness Campaigns: Conduct educational campaigns to inform the public about disaster risks, preparedness measures, and response procedures.

Training and Capacity Building: Continuous training and skill development for emergency personnel can improve their effectiveness during crises.

Data and Research: Invest in research and data collection to better understand local risks, vulnerabilities, and trends.

Holistic approach: Approach that combines government support, community engagement, resource allocation, capacity building, and strategic planning to ensure a more resilient and prepared response to disasters.

Findings

The study found that there is not enough proper management of flood in most communities in Anambra state by the Anambra state Emergency Management Agency. Also the communities are not used to proactive measures of controlling flood hence they wait until it is too late for them to do anything. In some communities houses are built along water ways which also impede the effective movement of water in the communities. Again, some people in the low land areas built their houses near the banks of rivers making them susceptible to flooding.

Conclusion

The effects of flooding in Nigeria are far-reaching, causing damage to infrastructure, displacing communities, and impacting the economy; flooding in Anambra state has significant effects on the environment, economy, and human lives. Emergency management agencies play a vital role in reducing the damage caused by floods by providing immediate relief, risk assessments, and disaster response coordination. Nonetheless, there is still much work to be done to minimize the effects of flooding in Anambra state, and all stakeholders must work together to achieve this goal.

To improve the effectiveness of emergency management agencies in Anambra state, there are several key steps that can be taken. First, these agencies must invest in better infrastructure

and equipment to respond more quickly and efficiently to disasters. This includes everything from modern communication systems to specialized vehicles and equipment for rescue operations.

Finally, it is essential that emergency management agencies prioritize community involvement in disaster preparedness and mitigation efforts. This means educating people about the risks of flooding, providing training on emergency response procedures, and encouraging people to take proactive steps to protect themselves and their communities.

By taking these steps, emergency management agencies in Anambra state can improve their effectiveness in responding to floods and other natural disasters. With a coordinated effort from all stakeholders, it is possible to minimize the damage caused by flooding and ensure that affected communities receive the support they need to recover quickly.

Recommendations

With the benefit of hindsight and sequel to the findings of this paper, it has become pertinent to make the following recommendations:

Proper flood management measures should be put in place by the local and state governments in Anambra state. Measures like; building of dams across river channels, wing dykes, diversion spillways; levee and afforestation should be embarked on. Again, the state Governor should embark on immediate reconstruction of damaged culverts, bridges and other hydraulic structures in flood ravaged areas. Prioritised permanent emergency management efforts should be put in place by ANSEMA in communities which are close to the River Niger like Ogbaru local government area. An ANSEMA substation should be erected in communities like this to foster quick response to flood disasters and prevent reactive approach to disaster response.

Increment of ANSEMA's active disaster management scope: ANSEMA should be made to play active roles in disaster management in all kinds of disasters, and not relinquish the management of certain types of disaster to other agencies. They should be made to play active roles in the management of other kinds of disaster such as erosion, fire disasters, communal conflicts, disease epidemic etc, which they currently play passive roles on. The scope of ANSEMA is lacking, for example, ANSEMA took a back seat in the management of the COVID 19 health disaster, this can be prevented by the incorporation of diverse professional ad-hoc staff of ANSEMA who are trained in various emergency management field's, like medical doctors, engineers, paramedics, food nutritionists and psychologists who can offer immediate assistance to disaster victim.

Empowerment of ANSEMA to undertake capital disaster management constructions: ANSEMA should be empowered to be able to undertake construction of disaster management infrastructures such as dams, drainages and bridges in addition to other disaster management measures adopted by the agency. ANSEMA should be empowered to construct, inspect and oversee the construction of disaster management infrastructures in Anambra state, by constructing them in the current disaster preventive specifications to tackle these disasters at their root.

ANSEMA's Finance should be established under Statutory Transfer: Since disaster management is fundamental to societal and human existence and at the same time capital intensive, ANSEMA's finance should be established under statutory transfer so that the Agency would have the entire fund it requires to effectively run the cost of disaster management in the state. Also, ensure adequate funding, manpower, and resources are

allocated to emergency management agencies for equipment, personnel, and technology that can improve response and recovery efforts and enable swift and effective responses during flood events

Increment of salary and incentives of ANSEMA employees: Since disaster management is a life risking duty which people seldom undertake, there should be a restructure of the salary and incentive structure of ANSEMA employees in the dimension of increasing their remuneration, emoluments and welfare schemes so as to serve as a boost to their morale towards their duty. Specifically, their incentive should encompass high safety and medical allowance and their welfare schemes should capture free and compulsory life assurance, free and compulsory health insurance, free and compulsory property and assets insurance, and other non-monetary incentives like house and car gifting.

Establishment of Statutory Training, Research and Development Programme for ANSEMA Employees: A compulsory programme should be statutorily established for the employees of ANSEMA to train and develop them in the field of disaster management both practically and theoretically and to facilitate the evolvement of new efficient means of managing disasters especially flood disasters effectively. This includes search and rescue, medical aid, and coordination in the state.

Enforcement of compulsory public compliance policy to ANSEMA's advices and regulations: A policy should be formulated to sensitize the public on the need to implement ANSEMA's disaster management advices and regulations, and also to compulsorily evacuate people resident in disaster areas at the occurrence or near occurrence of any disaster whether or not it is against their will.

Early Warning Systems: Implement and improve effective early warning systems that use weather forecasts, river levels, and other data to provide timely alerts to residents and authorities about impending floods. This can help people evacuate and take necessary precautions in advance.

Community Engagement: ANSEMA should launch campaigns to raise public awareness about flood risks, educate communities about safety measures, and the role of emergency management agencies, preparedness measures, and evacuation procedures and promote community participation in creating local flood response plans.

References

- Adebayo, A. A., & Alabi, M. O. (2016). Floods in Nigeria: Analysis of socio-economic implications and management in Lagos. *Journal of Environmental Management and Safety*, 7(1), 48-64.
- Agbonkhese, Agbonkhese, Aka, Abyo, Ocholi, Adekunle, (2004) Flood Menace in Nigeria: Impacts, Remedial and Management Strategies. *Journal of vicil and environmental Research* ISSN22245 790 (paper) ISSN2225-0514 (online_ vol. 6.No. 4.
- Ajayi, Agbola, Oloke Susi, Taiwo, Gbadegesin, Kolawole, Taiwo, Kolawole, Muili, Adeola, Ulutade, Shiji and Abiola (2012). Flood Management in an Urban Setting: A Study of Ibadan Metropolis. *Journal of Nigerian Association of Hydrological Sciences*

- Anambraa State Emergency Management Agency, ANSEMA (2012). Official Report on Flood in Anambra State. Awka: SEMA Press.
- Anambra State Emergency Management Agency, ANSEMA (2012). Community Preparedness Against Flooding: A Disaster Risk Reduction Training Manual. Awka: KFE Publishers.
- Anambra State Emergency Management Agency, ANSEMA (2013). Anambra State Emergency Preparedness and Response Policy /Road Map. Awka: SEMA.
- Anol, B. (2012, July, 19). We need more than food in the camp. Retrieved from <https://news.onlinenigeira.com/nigeira-news/3352-we-need-more-than-flood/news/disp.asp?>
- Anol, F. (2012). National Emergency Management Agency (NEMA) and Disaster management in Nigeria: Lessons for Developing countries. A paper presented at the National conference of Human security and socio-economic progress at university of Ibadan, Oyo state.
- Aronu, F.I., Okafor, G.O. & Aronu, C.O. (2013). The Contribution of Effective Communication System in the Management of Disaster in Nigeria. International Journal of Advancement in Research and Technology. 2(9).32-35.
- Efobi, K., & Anierobi, C. (2013). Impact of Flooding on Riverine Communities: The Experience of the Omambala and Other Areas in Anambra State, Nigeria. Journal of Economic of Economics and Sustainable Development. 4(18).58-62.
- Ejikeme, C. (2012, September 6). Disasters in Nigerian Disaster Management. Retrieved from <https://www.huriwa.blogspot.com/2017.06/disaster-in-nigeira-disaster.html/>
- Emeribeole, A. C. (2015). Managing Flood Disaster in Nigeria Cities issues and Strategies towards meeting the challenges in the modern world. (A Case Study of Owerri Metropolis, Imo State, Nigeria) FIG Working Week, Sofia, Bulgaria 17-21 May.
- Ezezue, A.M., Odoanyanwu, N., Nzewi, N.U., Ajator, U.O. & Eboh, H.C. (2017). Flooding in the Anambra East
- Famous Obebi Famous (2013). Mitigating the Impact of Flood Disasters in Nigeria. Point Blankness.com/.../articles.../mitigating-the-impact-of-flood-disaster...
- Federal Republic of Nigeria, FRN (1999). Decree No 12: Establishment Decree of NEMA. Abuja: Official Gazette.
- Flood in Anambra State Using Gis and Remote Sensing. Journal of Emergency Management Studies. 2(7).63-77.
- Ibitoye, V. (July, 09, 2013). Positioning NEMA for better disaster management: Daily Independent. P.2

- John, T. (June 8, 2018). Shell Donates Relief Materials to flood victims in Anambra. Daily sun.p. 49 Journal of Environmental Sciences Vol. 3 No. 1, pp. 44-57, March.
- Kolawole O.M, Olayemi A.B, Ajayi K.T (2013) Managing Flood in Nigerian Cities; Risk Analysis and Adaptation Options- Ilori City as a case study, Scholars Research Library
- Matthew, A. (September 30, 2018). The menace of flood and government struggle.Today. P. 3
- McEntine, D. (2004). The status of emergency management theory: Issues, barriers and recommendations for improved scholarship. A paper presented at the Annual emergency management Higher education conference, National emergency training center, Emmetsburg, Maryland.
- Mike Ebonugwo, Jude Njoku, Favour Nnabugwu, Peter Duru and Funmi Olasupo (2015). Flood: As Nigeria awaits release of water from Lagdo Dam. Vanguard (Nigeria) September 9.
- Nwabineli, E.O. (2013). Gully and Flooding in Anambra State: The Way Forward, Journal of Environmental and Earth Science. 3(12).152-154.
- Nasiru, A. (2012), August, 27). How do we manage this flood? Retrieved from <http://environmentalsynergy.worldpress.com/2012/27/08/how-do-we-manage-this-flood.html>.
- National Emergency Management Agency, NEMA (2018a). National Disaster Framework: Response and Recovery Strategy. Abuja: NEMA Press.
- National Emergency Management Agency, NEMA (2018b). Flood Situation Report. Abuja: NEMA Press. Nigeria: Need for a Preparedness Plan. British Journal of Applied Science and Technology 4 (33): 4575-4590. ISSN: 2231-0843.
- Onwuka, S.U., Ikekpeazu, F.O. and Onuoha, D.C. (2015) Assessment of the Causes of 2012 floods in Aguleri and Umuleri, Anambra East Local Government Area of Anambra State. British
- Obeta Michael Chukwuma (2014). Instructional Approach to Flood Disaster Management in Nigeria. https://en.wikipedia.org/wiki/flood_control 12 Jan. 2016.
- Ologunorisa, E. T., & Adebayo, A. A. (2018).Flooding in Nigeria: Causes, impacts and management. International Journal of Scientific & Engineering Research, 9(2), 1484-1490.
- Okoli, A.C. (2014). Disaster Management and National Security in Nigeria: The Nexus and the Disconnect. International Journal of liberal Arts and Social Science. 2(1).21-59.

Sadiq, A. (2016). A look at Nigeria's Bourgeoning Emergency Management System: Challenges, Opportunity and Recommendations for Improvement. *Journal of Natural Sciences Research*. 1(2).19-30.

Smla, A. & Srivastara, R. (2017). Concept, Objectives and Challenges of Disaster Management. *International Journal of Science and Research*. 6(7).418-424.

The European Union (Flood Directive).

Uche, Don Okpala V. (2013) The Environmental Effects of Flood Disaster in Anambra State, *Advances in Applied Sciences Research*, 4(1):499-505 CODEN (USA): AASRFC (www.watersafetykids.co.uk/pdfs/flooding.pdf Dec, 2015).

Udo, E.A., Baywood, C.N. & Ojinnaka, O.C. (2018). Flood Hazard Analysis and Damage Assessment of 2012.

https://en.wikipedia.org/wiki/flood_control 12 Jan. 2016.

<http://www.environment-agency.gov.uk/flood> (Jan, 2016)