



DYNAMICS IN THE RESPONSE MECHANISMS OF MAJOR STAKEHOLDERS DURING FLOOD DISASTER: A CASE STUDY OF KOGI STATE, NIGERIA

Danjibo Nathaniel D., Adeoye Adesoji E. and Ojo Oladayo S.

Institute for Peace and Strategic Studies University of Ibadan, Ibadan.

ABSTRACT: *The study examined the dynamics in the response mechanisms of major stakeholders during flood disaster using a case study of Kogi State, Nigeria. A case study design was adopted. Stratified sampling technique was used to select 4,170 respondents from eight local government areas in Kogi State: Lokoja (900) Idah (250), Kogi (750), Ibaji (700), Ofu (450), Ajaokuta (600), Bassa (120) and Igalamela (400). The instrument for data collection includes in-depth interview, key informant interview and focus group discussion guides. Findings revealed that the response mechanism put in place was not adequately time sensitive since the available disaster management agencies and policies developed were not effectively implemented. There are evidences of flood management policies and strategies. Government should provide alternative settlements to perennial flood disasters by way of relocating the flood impacted communities to areas that are less disaster prone and using electronic and print media sensitization.*

KEYWORDS: Flood, Disaster, Response Mechanism, Disaster Management, Flood Impact, Flood Management, Kogi State, Nigeria

INTRODUCTION

Floods are the most prevalent natural calamities confronting nations regardless of their state of development. The threat by floods is gradually growing the world over. Floods have a devastating effect on lifestyle as well as critical assets. Moreover, the relationship existing between flooding and food security took the centre stage of global environmental and socio-economic discourses. Floods are most important and the most significant of natural all disasters leading to fatalities globally.

Doocy *et al.* (2013) averred that the danger of terrible losses experienced at the wake of flood can be huge. Due to unmitigated deforestation coupled with unregulated human actions around coastal regions, river beds/basins, and lake areas. The effect of deluge events on human population is assessed based on mortality rates, injury, displacement, hunger and other material losses (Pingali, 2005). Also, after a considerable amount of time, increased mortality could also be recorded as a result of infectious diseases, which follows flood experience. Factors and conditions that lead to flooding are varied, complicated, and interconnected. These include weather and human factors. In terms of weather, the elements such as torrential rainfall, massive hurricane, whirlwinds, whereas human factors include structural and infrastructural failures of levees and dams, modification of landscape which negatively prevent run-offs with waterproof surfaces as well as poor drain structures.

Flooding has become a major issue of global concern threatening human security especially sustainable food production. In its recent report, the United Nations Office for Disaster Risk



Reduction (UNISDR, 2015) compiled natural disasters across the globe from 1980 to 2011, and estimated a staggering figure of flood disasters at 3,455 with 2,689 storms, 470 droughts and 395 extreme temps. The report evidently depicts that floods has become one of the major cause of deaths associated with weather elements. Flood is increasingly becoming a threat to food security. Half of all flood related deaths across the world have been found to occur in Asia (Doocy S. *et al.* 2013).

Despite the overwhelming challenges in the past half century, Asia has made commendable progress in attaining food security (Gill, Farrington, Anderson, Luttrell, Conway, Saxena, Later, 2003:1). During the 1950s, the food shortage challenges resulting from flooding situations in Asia seemed insurmountable, as the continent with almost half of human population, the pressure on available food was quite significant. In recent time, the phenomenon has also ravaged parts of Africa with its attendant food shortages due to production failures. Against this background, environmental issues have challenged human security and initiated forms of poverty.

Scholars have warned that locations with high water levels are prone to storms and other inclement that generate high winds. Climate change has led to ocean rise; so are extreme monsoon with destructive storms. The rapid growth in population and dynamics in farming and other land-use patterns have exposed human lives and property to flood problems. Death and incapacitation as well as indirect widespread submerged farmland, destruction of valuable infrastructure connote the harmful impacts of flood. Human and geophysical factors are both responsible for floods. Geo-physical characteristics of river-bed zones make them more vulnerable to flood disaster than people living in the hinterland. In the past three decades, billions of people have direct or indirectly suffered floods with several million rendered homeless, thousands of deaths and injuries, as well as the enormous victims that remained undocumented (UNISDR, 2015).

Therefore, recent researches have shown that flooding is recurrent problem in most of Nigeria. Climatic zones found across Nigeria are many, such climates range from tropical maritime which are peculiar to the rainforest and coastal areas and other southern geographical zones to climate found in the Sahel and the tropical hinterlands of the northern regions of the country. Many villages, farms communities, cities and towns in Nigeria have experienced flood disaster at some point, due to heavy rain falls. National flood disaster of September 2017 in Kogi State is the most recent.

The flooding therefore, not only affected food stores, it also submerged several hectares of farm lands. The secondary effects were by far more protracted especially when the affected communities' preparedness and response were poor and inadequate. As a matter of fact, in the Niger Delta communities, waters remained in homes and farms up till November 2012 (NEMA Report, 2012).

This study is guided by the following research questions:

1. What are the causes of flooding?
2. What was the response mechanisms put in place by different stakeholders within the period of study?



REVIEW OF RELATED LITERATURE

In this segment, conceptual framework and relevant literature that guided the study were presented. Generally, flood is one of the most rampant natural disasters afflicting the world (UN-Habitat, 2003). The concept of flood poses multifaceted problems. This is because it could be natural and at the same time, manmade given that flooding could occur when people build or carry out human activities on waterways. However, scholars of flood events posit that the phenomenon claims more than 20,000 lives annually as a result of its and negatively affecting about 75 million people globally (Smith, 1996; UN-Habitat, 2003).

Sordlin (2007) argued that flooding is characterised by gathering of excessive amount of water within a space without flow. While it appears as flood in the literature, it is often interchangeably used with flooding. Both are the same thing while the former is a noun that later functions as a verb. Thus, flood is a natural disaster whose occurrence is tied to nature though its pattern which can also be affected by human actions or inactions. Floods are characterised by height, highest overflow, areas submerged, and amount of flow. The aforementioned characteristics are essential in determining optimal use of land, bridges designs and construction, dam construction, prediction of flood events, as well as flood management and control.

Floods can be categorised based on the causal agents, therefore, types of flood are categorised based on their nature. When rivers overflow their banks, such is described as river flooding. The capacity question is focused on every aspect of the emergency management system at both the local and national levels. The institutional level focuses generally on organisational performance and management capabilities and includes an organisation that has the mandate to manage flood, while the systemic level centres on creating an enabling environment for individuals and organisations to operate, and should include the regulatory, general policy, accountability and financial frameworks (Akanbi, 2015). In addition, Olowu (2010) and Adedeji *et al.*, (2012) emphasised that in many Third World nations, particularly in Africa, failed state infrastructures, lack of suitable legal and policy frameworks, and insufficient funds make them more susceptible to the violent effects of significant disasters.

In Nigeria, disaster or crisis management is at the budding stage in spite of the fact that in 1906, for instance, there was the initial effort manage disasters in the country through the creation of the Police Fire Brigade, but now referred to as the Federal Fire Services with diverse functions ranging firefighting roles to safeguarding lives and property of the populace, in addition to providing humanitarian services in cases of disasters (Adedeji *et al.*, 2012). In 1999, through Act 12 as amended by Act 50, the National Emergency Management Agency (NEMA) was created with the responsibility of managing disasters in the country (Adedeji *et al.*, 2012). The organisation has put in place measures to educate the general public to raise their awareness level and lessen the impacts of hazards in the country.

Findings revealed that NEMA has established structures for detecting, responding and combating disasters quickly. It is better to prevent disaster because in the case of any eventuality, if there are no adequate measures to contain it, the resources of the affected country will bear the consequences to contain it. In Nigeria, for instance, state governments are mandated to create their SEMAs so as to harmonise the role of FEMAs (Adedeji *et al.*, 2012). Akanbi (2015) submitted that through the activities of SEMAs, many states in the federation would be viewed as keenly involved in management of disaster and preparing in



advance to the untoward incidents. Currently, very few states have taken the initiative, while some other states have not empowered their SEMAs appropriately to be functionally self-regulating and proactive in the discharge of their duties. It should be noted that having an understanding of the spatial aspect of flood disaster and initiating disaster preparedness measures to alleviate people's distress cannot be overemphasised.

METHODOLOGY

The study adopted phenomenological, case study and survey design methods. Phenomenological method is an appropriate qualitative method that combines methods, such as conducting interviews, reading documents, watching videos, or visiting places and events, to understand the causes of flooding and the response mechanisms put in place by different stakeholders during flood disaster in Kogi State, Nigeria (Bamigboye *et al.*, 2007).

The study was carried out in Kogi State of North Central Nigeria. The study covered eight Local Government Areas (LGAs) in the state. Kogi State has a population of about 3, 278,487 in the 2006 census. It is popularly called the confluence state because the confluence of River Niger and River Benue is at its capital, Lokoja. It has coordinates 7° 30'N and 6°42'E. Agriculture is the mainstay of the economy of Kogi State. Given the proximity of the state in the river belt of Nigeria and having agriculture as the primary economy, increased and constant volume of rain has in the past resulted in flooding and has affected the farming communities. Therefore, the choice of the State is informed by the severity of the flood in the area, as it is situated close to the bank of Rivers Niger and Benue. In Kogi State, the farming communities selected for the study include Kabawa, Egah, Edeha, Iyano, Adogo, Oguma, Ugwolawo, and Ajaka located in Lokoja, Idah, Kogi, Ibaji, Ajaokuta, Bassa, Ofu, and Igalamela/Odolu local government areas respectively.

The study population comprised farming communities in eight local governments in Kogi State.

In Kogi, the study population comprised Kabawa community in Lokoja LGA, with a population of 900; Egah community in Idah LGA with a population of 250; Edeha community in Koton-Karfe in Kogi LGA with a population of 750; Iyano community in Onyedega in Ibaji LGA with an estimated population of 700; Adogo community in Ajaokuta LGA with a population of 450; Oguma community in Bassa LGA with a population of 120; Ugwolawo community in Ofu LGA with a population of 600; and Ajaka community in Igalamela/Odolu LGA with a population of 400. This brings the total number of the study population to 4, 170 people. The above communities were selected because the victims suffered more casualties than the other communities during the flood incidents.

Data was collected using in-depth interviews (IDIs), focus group discussions (FGDs) and key informant interviews (KIIs). Data collected from IDIs, FGDs and KIIs were used to complement the researcher's personal observation. Both quantitative and qualitative methods were used. Quantitative method utilised the administration of questionnaire while the qualitative method used in-depth interviews (IDIs), focus group discussions (FGDs) and key informant interviews (KIIs).



In-Depth-Interviews were conducted with executives of relevant associations in the selected communities. In each community, two members each were interviewed from the following associations/unions: Community farmers association, Market women association, National Union of Road Transport Workers. Furthermore, interviews were conducted with either the chairman or secretary of the selected local governments. At the state level, either the commissioner or permanent secretary in the Ministry of Agriculture of the State was interviewed. One Focus Group Discussion carried out in each of the communities comprised of members of the communities who were knowledgeable about how the interaction of flooding and food security has affected human security.

A total of twenty-four FGDs were carried out. Each focus group comprised twelve (12) members drawn from the affected farmers. Twenty-four In-depth interviews and twenty-four key informants' interviews were conducted. People who are critical stakeholders in the issues relating to flood and food security were engaged. They were drawn from local, state and Federal Government and its agencies including; Ministry of Environment, Nigeria Metrological Agency (NIMET), and Federal Bureau of Statistics, local emergency management authorities, state ministry of agriculture and water resources. Three of the key informants were community leaders.

Data gathered from the interviews and discussions were transcribed, pooled together and categorised into themes based on the objectives of the study. They were then content analysed and interpreted thematically using narrative and descriptive styles, while the outcome of the questionnaire was subjected to simple statistical methods of tables and bar charts. Data collected through questionnaire were analysed using simple percentages, frequency tables and charts. The essence of the data collected through questionnaire for this study is to corroborate or refute assertions observed or arrived at during interviews and focus group discussions.

RESULTS/FINDINGS

This study investigated the causes of flooding in Kogi State as well as the response mechanisms put in place by different stakeholders ranging from local to the Federal Government and its agencies. Based on the research questions that were raised, and answers provided, the data gathered were discussed in relation to the specific research objectives. Inferences were deduced from the data generated on each research question following a content analysis of responses.

Research Objective One: Causes of Flooding in Kogi States

Causes of Flooding in Kogi State

Climatic changes, rainfall, improper drainage, water release from dam in Cameroun, indiscriminate waste disposal and act of God caused flooding in Kogi State. However, in this study, one of the community leaders indicated that intense rainfall was responsible for the flood experienced in Lokoja in 2012.

In his words, "First of all, when we have much rainfall and our dams like Kanji Dam become over-flooded, so by the time it is



released, it causes flood” (Interview at Kabawa Market, December 17, 2016).

It was affirmed that heavy rainfall was responsible for flooding in Lokoja. Heavy rainfall is a derivative of global warming, thunder storm and sea tidal surges. The chief security officer at Kabawa; Lokoja Local Government stated that: “Global warming was the major cause of flooding” (Interview at Kabawa, December 17, 2016).

The interviewee confirmed that climate change caused flooding in Kogi State. UNISDR (2015) studied the causes of flooding in the United States using data on climate and field observation and noted that flood can be caused by excess moisture resulting from continuous rainfall or snowmelts which exceeds natural river channel capacity. According to Green *et al.*, (2006), rainfall and other climatic elements are generally responsible for flood with rainfall being the primary and the most important causative agent. Parry *et al.*, (2004) also stated that floods are often secondary events of a climatic hazard such as tsunami or hurricanes.

Flooding linked to rivers occur when the discharge from rivers increase leading to saturation of the flood plain. When this occurs, such river overflows their banks leading to flood at a stage referred to as bank full stage. When this combines with heavy rains, such flows turn torrential quickly. Urban area flooding has a lot to do about geographical features of a location such as being on a relatively flat terrain or a valley with inadequate drainage structure to prevent retention of moisture. When such location being an urban centre is constrained by block drainages, inappropriate sewage disposal, flooding is always imminent.

Urban flooding as a phenomenon is a regular occurrence in Nigeria especially in cities such as Lagos, Warri, Ibadan, Aba and Maiduguri, among others. Raining seasons in Nigeria are characterised by gusts of wind as a result of tropical storms leading to torrential rains with its attendant flash floods. The Nigerian State is vulnerable to both artificial and natural disasters especially floods with several hectares of arable lands being submerged, dams destroyed and overflowing of drainages which endangers the populace lives and property while leading to economic losses to the government. In the opinion of the Director of Search and Rescue:

Pathway of water has been blocked whether intentional or unintentionally. What I mean by intentionally is dumping of refuse, unintentionally could be natural situation which could make a river overflow its bank when it rains. Flooding is as a result of urbanisation where the upper part of the river is converted into housing units thereby shrinking the water ways that usually would be available for runoffs (Interview at Lokoja, December 28, 2016).

Research Objective Two: Response mechanisms put in place by different stakeholders ranging from local to the Federal Government and its agencies;

Provision of relief materials such as mattresses, bags of rice, and sanitary materials dominated response mechanism by Federal Government (NEMA) and other agencies. NEMA



and some Non-Governmental Organisations (NGOs) often provide education on flood to the affected communities. Cameroonian government provided money and seedling for the farmers and medical attention to those that were displaced. After the 2012 floods, institutions and government agencies saw the need to put in place adequate flood prevention measures. Some well-meaning agencies also contributed farming inputs to help farmers restart their lives after the devastating flood. One of the respondents explained:

It is true when such things happen, they will not fold their arms and be looking. Government, NGOs and religious bodies will not fold their arms, everybody will come for assistance and we appreciate all of them, they tried their best. As my people said and myself, I saw it they provided relief materials like bed sheets, mattress, foodstuffs, medical and also security. Like the issue of Banda that they said was cut off that time; you can see how they build that place now. The village is not there before they now brought them to this side now. You can see the embankment government is building now against such oncoming flood. It's only God that is competent, whatever man do just do because of God, you will never praise human being. But they tried their best in the distribution of the relief materials (Interview at Iyano village, Kogi, January 23, 2017).

The Kogi State government of Nigeria assisted internally displaced farmers by distributing hybrid cassava stems, farming inputs and yam seedlings and to alleviate their sufferings. Several workshops were organised in different parts of the country to brainstorm on flood management technique that would be at par with global best practices.

In every state of the federation, it is essential to make obligatory the monthly sanitation exercise on a continuous basis. Also, all concerned should make sure their abodes, work places, environments are adequately cleaned, and all forms of wastes should be properly disposed, while spoilt or neglected utensils, piece of equipment are adequately disposed in the right channels and not on water ways. Government at the various levels should provide adequate measures to stem flooding in the cities. They should make sure there is continuous dredging and re-dredging of channels and all illegal structures on the path of waterways should be destroyed, while there should be enforcement of greenery near channels, rivers, and streams.

Similar to the above proposition, the Federal Government launched the early warning system after flood disasters in major cities like Lagos, Kano and Kaduna. This system was upgraded in 2014. Flood warning systems were installed by the Federal Ministry of Environment all over Nigeria as well as four automated flood early warning facilities in some river basins. Community-based flood warning systems were also installed in about 12 states across the country including Kogi State. Another community leader in Kogi local government explained the effort of the authority in response to flood disaster:

Seriously that period of flood, the NGOs they did their best because they were able to make primary schools IDP camps and they brought relief materials for them and they were treated as expected. On the side of the government they made sure that



they provided security to those that are staying in the IDP camp. So those two arms tried their best in those areas. They came with their medical equipment; they were checking the internally displaced people there. Then some NGOs brought relief materials. They brought mattresses, and cartons of indomie which Dangote gave. It was well distributed but the thing did not go round but we were able to achieve up to 90%, which we believe we have tried (Interview at Edeha, January 26, 2017).

Government Policy and Strategies

The government has made efforts to relocate people in regions that are prone to flood. Forty communities were relocated by government authorities to safer places. A villager explained how local authority responded:

The State government had a plan to rehabilitate the flood affected victims. Relief materials were distributed to the victims but not effectively carried out. A particular NGO, I cannot remember the name, donated a speed boat to carry people. Religious bodies also participated. They brought relief materials, individual, philanthropists also donated relief materials: food, clothing, mattress and roofing sheets. NEMA is the agency through which the government supplied the materials (Interview at Edeha on January 26, 2017).

The Kogi State Government advised residents of communities along the river banks to relocate sequel to a warning that water would be released from Kainji and Jebba Dams. The government also called on the people of the state to clear water channels for water to flow freely and to avoid flooding (Anugwara & Emakpe, 2013). According to a respondent:

The lessons learnt from the 2012 flood helped Agencies like the Red Cross to improve its emergency response. The Nigerian Red Cross trained 22,000 volunteers and stocked warehouses with relief materials. The National Environmental Management Agency urged dam management officials to lower water levels early enough and should not wait for water levels to breach the dams before releasing it in order to minimise flooding risks. Flood prone communities were trained and provided with basic equipment to aid quick evacuation (Key informant, January 26, 2017).

The National Space Research and Development Agency (NASRDA), produced a floodplain and vulnerability map that was used by the National Emergency Management Agency (NEMA) to rehabilitate those the 2012 flood affected (Odeh, 2012). Also, the National Emergency Management Agency (NEMA) organised a pre-flood awareness campaign for relevant stakeholders in Ilorin, Kwara State capital in North Central Nigeria. Participants were advised to heed early warning signals and desist from blocking waterways through



illegal dumping of refuse while the state government was implored to clear all waste bins across the state for a cleaner and healthier environment (Akanbi, 2015).

DISCUSSION

Findings revealed the dynamics in the response mechanisms of major stakeholders during flood disaster; Mordi (2011) stated that flood is also a recurring challenge in India with several millions of Indians affected within a period of fifty years. Devereux (2007) while deploying the 'entitlement approach' by Amartya Sen to study food scarcity in Malawi concluded that government policy and responses can be used to insulate the state from the breakdown of labour-based, trade-based, production-based, and transfer-based entitlements. Extensive rain scarcity can negatively affect optimum utilisation of hydropower infrastructures while frequent flooding events can lead to rise in investments and other expenditures of the state on the provision and rehabilitation of devastated physical infrastructures (World Bank, 2007; Garnaut, 2008).

According to Baan and Kljin (2004), human factors and urbanisation are great contributors to flooding. They stated that as urbanisation progresses, buildings, tarred roads and other impervious composite surfaces replace natural ones which allow infiltration and percolation through their pores. The consequence according to Baan *et al* (2004) is such that a huge amount of water which should have been absorbed and percolated through the spaces within the soil or used up by fauna species is immediately available for surface runoff which ends up in streams and rivers, thus generating excess water for flooding. The possibility of urbanisation contributing to flooding in urban settings like Lokoja and Ayangba cannot be ruled out even though majority of the respondents did not think along this line of thought.

The flood impact, control and mitigation approaches recommended include proper drainage systems, building of buffer dams in strategic areas, prevent the construction of houses along waterways and other natural drainages, prevention of siltation along creeks, and other water bodies through dredging, setting up of an effective and adequately planned preparedness mechanism, conduct sensitisation and enlightenment programmes. Such programmes must also include periodic monitoring of soil and water levels, grassroots mobilisation through weather reports, periodic rescue drills, self-help and re-orientation of communities to enhance their survival (Federal University, Otueke, 2013).

Therefore, in order to prevent the reoccurring tragedies occasioned by flood caused by rainstorms and poor living habits, the government at different levels must intensify efforts in rehabilitating drainage channels along major roads and neighbourhoods such that all encumbrances are removed. The ministries and other state departments must be adequately equipped with resources to enforce and carry out their mandates across the state of the federation. Enforcement must also be carried out using all available approaches in order to be effective. This may include using punitive or sanctions, persuasive approach among others. Other stakeholders especially manufacturing farms, business offices, hospitals, schools must be included in the strategy to ensure channels and erosion passages and other immediate environment are maintained, clear and free of debris (Odeh, 2014).

This makes the Federal Government to put in place certain preventive measures through various agencies. With the intention of alerting members of the public on the dangers of



flooding, the Federal Government equipped the Nigerian Meteorological Agency (NIMET) to enable it provide accurate weather forecast. Also, the sum of N17 billion was released to the affected states and other relevant stakeholders to cushion effects of the 2012 floods. There are plans to build dams in Taraba State such as the Kashimbilla/gamovo multipurpose dam, Ose Dam and hydropower project to accommodate the excessive flow of water from Cameroon anytime it happens. The dams will serve the purpose of mitigating flood, generate electricity, create employment, improve irrigation and boost agricultural production in Nigeria (Anugwara & Emakpe, 2013).

However, when government at any level is committed to safeguarding its citizens, they perceive safety management optimistically, giving rise to less vulnerability to flood disaster (Sinclair *et al.*, 2003). Akanbi (2015) submitted that to tackle the subject matter of preparedness, one has to proffer an answer to the issue of the ability of the Nigerian State to in totality effectively manage natural and human-made disasters. The Global Facility for Disaster Reduction and Recovery (GFDRR) is saddled with the responsibility of helping Third World nations lessen being susceptible to natural hazards in addition to adapting to climate change. Though, less than 20 African nations are at present involved, excluding Nigeria. In 1981, the Ecological fund was created through the 1981 Federation Account Act and it was modified by Decrees 36 of 1984 and 106 of 1992, and is facing a number of challenges. Akanbi (2015:44) states that “the level of preparedness and the capability to reduce vulnerability to disaster largely depends on the developmental stage of a country or a community and the balance between the strengths and imperfections in the functioning of its sectors, structures and institutions.”

However, there are numerous ways employed by the indigenous people to manage negative flood impacts such as social, economic, as well as technological/structural coping mechanisms as suggested by Akanbi (2015). Also, Adeoti (1998) conceptualised the coping mechanisms. According to him, economic coping mechanism has to do with diversification and financial activities in addition to community strategies that are linked to materials, goods and resources. However, he defined the technological/structural coping mechanism as those structural activities engaged by families that live in flood-prone areas so as to deal with flood loss and/or damage. Such mechanism Includes constructing houses to avert flood or by using materials that is able to reduce flood loss and/or damage.

Similarly, Adeoti (1998) further submitted that nations have identified that there is need to create an understandable regulatory agenda which is aimed at preventing, managing and reducing disasters all over the world. Different steps implemented rightly would improve the capability to confront natural disasters, flooding inclusive. There are different levels of capacity building such as the individual and institutional levels, as well as the systemic level. Individual capacity is dependent on the performance of human resources as well as on the availability of resources, including requisite knowledge and skills. The capacity question is focused on every aspect of the emergency management system at both the local and national levels, in addition to assessing the socio-cultural, political, environmental and economic factors which have an effect on being vulnerable to hazards. Akanbi (2015) submitted that through the activities of SEMAs, many states in the federation would be viewed as keenly involved in management of disaster and preparing in advance to the untoward incidents.

Disaster management is still at infancy stage in Nigeria despite the fact that the year 1906 marks the earliest efforts at disaster



management in Nigeria with the establishment of the Police Fire Brigade (now Federal Fire Services) with functions beyond firefighting role to saving of lives, properties and provision of humanitarian services in emergencies. By 1999, the National Emergency Management Agency (NEMA) was established via Act 12 as amended by Act 50 of 1999, to manage disasters in Nigeria.

Prevention is better and cheaper in disaster management due to the fact that if care is not taken, once there is a disaster the entire budget of a country may be diverted to contain it. State governments in Nigeria have been encouraged to establish their own separate State Emergency Management Agencies (SEMAs) to complement the role of the federal agency in their areas (Akanbi, 2015):

NEMA was set up to tackle disaster related issues through the establishment of concrete structures and measures (Akanbi, 2015:49).

Such measures as the education of the public in order to raise their level of awareness and reduce the effects of disasters in Nigeria, the Agency has put in place structures that enable it detect, respond and combat disasters in a timely manner.

Implication to Research and Practice

The study has identified strategies for improving response mechanisms by stakeholders to flood disasters in Kogi State, Nigeria. It was found that the government has made efforts to relocate people in regions that are prone to flood. Forty communities were relocated by government authorities to safer places.

The Kogi State Government advised residents of communities along the river banks to relocate sequel to a warning that water would be released from Kainji and Jebba Dams. The government also called on the people of the state to clear water channels for water to flow freely and to avoid flooding. Therefore, this study suggests that the Nigerian Red Cross should ensure training of volunteers and stocked warehouses with relief materials. The National Environmental Management Agency should be engaged in the full business of dam management to lower water levels early enough and should not wait for water levels to breach the dams before releasing it in order to minimise flooding risks.

However, flood prone communities should be trained and provided with basic equipment to aid quick evacuation. Currently, very few states have taken the initiative, while some other states have not empowered their SEMAs appropriately to be functionally self-regulating and proactive in the discharge of their duties. It should be noted that having an understanding of the spatial aspect of flood disaster and initiating disaster preparedness measures to alleviate people's distress cannot be overemphasised.



CONCLUSION

The study provided empirical evidence for causes of flooding and revealed that the people were not well prepared in advance on flood management and control activities. In rain dependent agricultural economy, erratic rainfall causing unexpected floods can create devastating impacts on food security of the people and their livelihoods. There is need for the Government to earmark realistic financial, human and material resources to secure areas that are prone to incessant flooding. This is to be done in a manner that such incidents are prevented across built up areas during and after rains, so as to ascertain the floatability of new suburbs. Physical and town planners as well as policy formulators understand natural disasters like floods are destructive while occurring unexpectedly, occasionally and otherwise.

Future Research

- a) Response mechanism by Government and its agencies should be the priority of flood management agents since most of the interventions did not get to the hand of the flood victims. Although the government responded to the flood disaster in some way or the other, some agencies and individuals still believed that the government needs to do more.
- b) Civil society and agencies working on the environment should incorporate disaster risk management including flood risk, particularly about early warning signal, preparedness and early response in their advocacy.
- c) Utilizing local administrative structures and peculiarity with a view to developing unique flood prevention strategies as well as timely warnings, relocation, land use plan, fumigation, establish clearance for water ways and channels for drainage among others actions.
- d) Government and other agencies should work on early warning mechanisms and educate households about the possible disastrous impacts of floods and other calamities and make them aware of resilient mechanisms of thwarting food insecurity and also train them in coping mechanisms in the event of such disasters.
- e) Dredging of Rivers Niger and Benue will go a long way to enhance water retaining capacity.
- f) Construction of buffer dam along Rivers Niger and Benue will further limit the likelihood of flood due to release of excess water.
- g) Further studies should conduct assessment of flood management response mechanisms and possibly document any subsequent events of flooding on the internet for disaster evaluation scheme.



REFERENCES

- Anugwara., B. & Emakpe, G. (2013). Will FG save Nigerians from another 'Tsunami'? [Online] Available: <http://www.mynewswatchtimesng.com/will-fg-save-nigerians-another-tsunami/>
Available: <http://leadership.ng/news/378685/fg-installs-307-flood-warning-systems-nationwide>
- Baan, P.J.A. & Kljin, F. (2004). Flood risk perception & implications for flood risk management in the Netherlands. *International Journal of River Basin Management*.2.2:113-122.
- Bamigboye, E.A., Lucas, E.O., Agbeja, B.O., Adewale, G., Ogunleye, B.O., & Fawole, I. (2007). Statistical analysis & inferences. In V.O. Olayinka, A.R. Taiwo & I.P. Farai (Eds.), *Methodology of basic & applied research*, 151-208. The Postgraduate School, University of Ibadan, Ibadan.
- Bariweni P.A, Tawari C.C & Abowei J.F.N. (2012). Some environmental effects of flooding in the Niger Delta Region of Nigeria. *International Journal of Fisheries & Aquatic Sciences*, Maxwell Scientific Organization.
- Barrett, B.C & Maxwell, D.G. (2005). *Food aid after fifty years-recasting its role*. Routledge: London, UK. 111.
- Bateman I., Bateman S., Brown D., Doktor P., Karas J.H.W., Maher A., & Turner R.K. (1991). Economic appraisal of the consequences of climate-induced sea level rise: A case study of East Anglia. Report to the Ministry of Agriculture, Fisheries & Food. University of East Anglia. Norwich.
- Blaikie P., Cannon T., Davis I., & Wisner B. (1994). *At risk – natural hazards, people's vulnerability & disasters*. London.
- Clay, E. (2002). *Food security: concepts & measurement*. Paper for FAO Expert Consultation on Trade & Food Security: Conceptualising the Linkages, 11-12 July 2002. Published as Chapter 2 of Trade Reforms & Food Security: conceptualising the linkages. Rome: FAO, 2003.
- Cleber J. R. Alho., João S. V & Silva, F(2012). Effects of Severe Floods & Droughts on Wildlife of the Pantanal Wetl & (Brazil): A Review. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4494280/> 2012 Dec; 2(4): 591–610. Published online 2012 Oct 15. doi:10.3390/ani2040591
- Davies, A.E. (2009). Food security initiatives in Nigeria: Prospects & challenges. *Journal of Sustainable Development in Africa*, 11.1: 186-202.
- Devereux, S. (2007). The impact of droughts & floods on food security & policy options to alleviate negative effects, UNICEF, July, 30.
- Du, W., FitzGerald G.J., Clark, M., & Hou, X.Y. (2010). Prehosp Disaster Med. May-Jun;25(3):265-72. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/20586021> on 26 May, 2018.
- Etuonovbe., A.K. (2011). The devastating effect of flooding in Nigeria, Etuonovbe Kesiena.
- Gill, G. J., Farrington, J., Anderson, E., Luttrell, C., Conway, T., Saxena, N.C. & later, R. (2003). Food Security & the Millennium Goal on Hunger in Asia; Working Paper No. 322, Overseas Development Institute, London.
- Green C., van der Veen A., Wierstra E., & Penning-Rowsell E. (2006). Vulnerability refined: analysing full flood impacts. In: Penning-Rowsell E., Fordham M. (Eds.) *Floods across Europe – Flood hazard assessment, modelling & management*. Middlesex University Press, London.



- IPCC. (2007). *Climate Change 2007 -the physical science basis*. Contribution of Working Group I to the Fourth Assessment Report of IPCC. Cambridge. UK. Cambridge University Press.
- Jimoh S., & Alao, R. (2009). Stemming the tide of Lagos Floods, in: *The Guardian*, Friday, July 20.7.
- Ogata, S., (2003). *Empowering People for Human Security*, Payne Lecture, Stanford.
- Okoruwa, E. (2014). FG Installs 307 flood warning systems nationwide. Leadership [Online]
- Parry, M. L. et al. (2004). Effects of climate change on global food production under SRES emissions & socio-economic scenarios. *Global Environment. Change & Human Policy Dimensions*, 14, 53–67.
- Pingali, P., Alinovi, L., & Sutton, J.(2005). Food Security in complex emergencies: enhancing food system resilience. *Disasters*, Volume 29, June.
- Rural households food security in Southern Ethiopia: The case of Shashemene District, *Basic Research Journal of Agricultural Science & Review*, (December) . 1. 6: 132-138.
- Schmidhuber., J. & Tubiello, F. N. (2007). ‘Global food security under climate change’, *PNAS* 104 Vol. 50, No 19703-08.
- Sinclair., S., & Pegram, G. (2003). A Flood Now casting System for the Thekwini Metro, Volume 1: Urgent Nowcasting using Radar-An Integrated Pilot Study.
- Theron, M.(2007). Climate change & increasing floods in Africa: Implication for Africa’s development.
- Tubiello., F. & Fischer, G. (2006). Reducing climate change impacts on agriculture: global & regional effects of mitigation.
- UNISDR. (2015). UN Secretary-General: World threatened by dangerous & unacceptable levels
- United Nations Environment Programme. (2002). *GEO Global Environment Outlook 3*. London: Earthscan, 150-177. Retrieved from <http://www.unep.org/geo/geo3/english/pdf.htm> on 9 November, 2017.
- World Bank. (2007). *Poverty & Hunger: Issues & Options for Food Security in Developing Countries*. Washington DC: World Bank.
- Yusuf., S.A. (2003). Sampling techniques. In *Research Methods: A Practical Guide*. Agbola, T., et al. (eds.) MURLAB Searchlight wisdom Educational Services, 129-140. 120