



(FIELD REPORT)



FIELD WORK IN FOUR DIFFERENT COMMUNITIES AFFECTED BY FLOOD IN THE YEAR 2022 BETWEEN THE MONTH OF JULY TO SEPTEMBER WITH MMC AND JERE LOCAL GOVERNMENT OF BORNO STATE: TRIP REPORT

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ABSTRACT

This trip report presents the findings of a field assessment conducted between July and September 2022 in four flood-affected urban communities (Kogin Tipa, Maduganari, Wulari-Jerusalem, and Sabongari-Gwange) within the Maiduguri Metropolitan Council (MMC) and Jere Local Government Areas of Borno State, Nigeria. The assessment aimed to evaluate the impact of recurrent flooding, identify underlying causes, and propose mitigation strategies. Through on-site observations and interviews with community residents, the study identified severe infrastructure damage, property loss, health risks, and disrupted transportation. Key drivers of the flooding included rapid urbanization, poor land-use planning, indiscriminate waste disposal in river channels, and climate change effects. Despite government warnings, many residents refuse to relocate due to ancestral ties and livelihood concerns. The report recommends implementing robust flood prevention infrastructure, enforcing land-use planning, developing early warning systems, and promoting green infrastructure to mitigate future flood impacts and ensure environmental sustainability.

Keywords: Flood impact; Disaster management; Borno State; Mitigation strategies; Urban flooding; Field assessment

1 INTRODUCTION

A flood is a natural disaster that occurs when a large amount of water, such as from a river or ocean, covers an area that is normally dry. Floods can cause damage to buildings, roads, and other structures, and can also be dangerous for people and animals. They can occur for a variety of reasons, including heavy rain, melting snow, and hurricanes. Floods can also be caused by man-made events, such as the failure of a dam or levee. In a vast changing world we live in today, it is very important to ensure that the environment is safe for both humans and none human that makes up the environment.

A flood is a situation where an area of land is covered by water, either partially or completely. Floods can occur in a variety of settings, including rivers, oceans, and even urban areas. They can be caused by a variety of factors, such as heavy rain, snowmelt, dam or levee failure, storm surge, and river overflow. Floods can be very destructive, causing damage to homes, businesses, and infrastructure, and can even lead to loss of life. Floods can also have long-term consequences, such as soil erosion and water pollution.

There are several causes of flooding. Some of the most common ones include:

- Heavy rain: When an area receives a large amount of rain in a short period of time, it can lead to flooding.
- Snowmelt: When a large amount of snow melts quickly, it can also cause flooding.
- Dam or levee failure: If a dam or levee is not able to hold back the water, it can lead to flooding downstream.
- Storm surge: During a coastal storm, such as a hurricane, the wind can push water onto shore, leading to flooding.
- River overflow: If a river overflows its banks, it can cause flooding in the surrounding area.
- Urbanization: When an area is developed, it can reduce the amount of land that is able to absorb water, leading to increased risk of flooding.

This year, the department of Disaster Management conducted its field work in four different communities affected by flood in the year 2022 between the month of July to September with MMC and Jere Local Government of Borno state.

In many cases, the impact of flood may not be predictable, but in most cases, it can be prevented or managed to a very reasonable effect if all things have been put in place. The interaction between humans and the environment is very important and when disaster occurs, it is important to carry out an assessment to understand the reason for the impact, the magnitude of the impact and those affected and most importantly to know the mitigation for future occurrence.

As a disaster manager, every piece of information is very important, and fact must be achieved from fiction when disaster occurs. It is very important to use all means of data collection to get information on the level of damages and the most profound solution to the impacts of the disaster to the affected communities.

The assessment is first of its kind to be conducted with the state since the commencement of the field work. The field work was conducted within three days and all participants took time to visit the affected communities to find the reasons for the massive impact of the flood that have displaced thousands of residents and also had a massive impact on the building and livestock. Properties worth millions of Naira were lost due to the flood impact.

The rainy season in Nigeria typically occurs annually with the greatest concentration of precipitation between the months of June and September and according to the residents of the visited communities, the flood impact is a yearly occurrence and it has been of a big issue to the people and the government of the state. The people further said they have been informed in the past by the government to vacate the environment, but it is difficult for them since the community in particular belongs to their ancestors and many of them have no other place to move to. “No place like home”. The community’s dwellers will rather stay in the location and face the impact of the flood than move out to other places given by the government or private firm.

1.1 Impacts on Human Settlements (Towns and Cities)

What are the impacts of flood to human environments observed in the fieldwork. The fieldwork was conducted in four different sites to understand the impact of the flood and the mitigation for future response. Every disaster manager is expected to visit two sites a day and must ensure all data are well captured and reported as observed.

Increasing urbanizations. Urban population now accounts for about 50% of the total population in Nigeria, which means that more than 80 million Nigerians now live in the towns and cities. With rapid urbanization, there is settlement advance into areas most prone to flooding and other natural disasters and Borno state is not exceptional in the population of the country. This can be seen in our study areas.

Climate change. Climate change affects urban settlements in different ways; rural floods drive an increasing number of rural folks into the cities, while heavy downfall due to global warming results in heavier rainfall patterns in many areas, the rise of sea levels and the inundation of rivers and streams. The thawing of the ice caps is also leading to rise in sea level and increasing threats to coastal regions and coastal communities.

Lack of proper infrastructure; storm water channels and the blockage of drainage channels.

Construction of buildings and residential houses in the floodplains, drainage basins and riverbanks which are most susceptible to flooding and are high flood risks areas. This is mostly the case in Lagos, Benin, Makurdi, Port Harcourt, etc.

Poor land use planning, and ineffective development control systems in many Nigeria cities should be looked into by the state government and other stockholders to avoid future disaster.

1.2 Activity and Impact of Flood

The four flood areas visited during the field work are in the urban area of the state and the affected communities are just at the riverbank which makes the communities a high-risk area. The communities are as follow;

- *Kogin Tipa*
- *Maduganari*
- *Wulari – Jerusalem*
- *Sabon Gari – Gwange*

1.2.1 Day 1

Morning briefing was conducted for the team at Moduganari (N 11 822 248, E 13 0869) before moving to the community. The team had a briefing from Prof. Monguno who further informed the team on the level of damages the people of the community experienced. He (Prof. Monguno) said many of the people moved into the community due to availability of space and poor land planning by the community leaders who sell off land without proper documentation and future impact of the flood. In this site, several houses were affected and not only that, the community dwellers also made the river a dumping site which have also led to the massive impact of the flood on the community.

At 12:30PM, briefing was conducted at Kogin Tipa (N 11 824 8005, E 13 130 832) by Dr John where he explained about the impact of the flood on the lives and properties. He further said the people of the affected community have been observing this type of impact of flood for many years and many of them have refused to leave the community due to many factors ranging from ancestral home, livelihood and adaptation are just few of the reason the people have refused to leave in spite of government efforts to evacuate them. At the end of the briefing the team swift in the community to see the impact of the damage and further profound solution to the problem. This was according to the team that took part in the day before the team was forced to leave the community. The environment shows more human impacts on the environment through sand mining and vice. This has led to massive stagnation of water which usually has adverse effects on the environment during the rainy season.

1.2.2 Day 2

Just like day 1, At 8:30AM, the team moved to another site to conduct an on spot interview for the residence of Sabongari-Gwange (N11 829965, E13159157). The community is a densely populated area and the people have been living close to the river for many years. According to the coordinator in charge, he said due to the increasing population, the residents keep increasing the number of infrastructure to accommodate the increasing human growth in the community and as a result, the community leaders keep selling the land indiscriminately without thinking of the future impact of the riverine areas. The location of the flood is caused by flow from river Alua and Gadalu where the community is the confluence where the two-river met. This is usually having an adverse impact on the community and many have been displaced as a result of this.

A briefing was conducted at Wulari-Jerusalem (N 11 842 145, E13 137628) at 1:40PM, by the field coordinators and they emphasis on the importance of the fieldwork to disaster management and they also want us to know that the report and the fieldwork is to give wider view of the impact of the flood on the community. The coordinator advises the team to look beyond the impact on the facilities, but also look at the way of living of the affected people. At the end of the briefing, the team swung into action to see for themselves the impact of the flood and they also conducted a sports interview for the residents of the community. According to the information provided by the community dwellers, they have sent several messages to the state government and other relevant bodies, but all efforts to no avail. These communities are not attended too, and the flood issue persisted till date.

1.2.3 Day 3

The team had a morning briefing and shortly after the meeting, a data form was shared with the team to conduct data collection on the flood impact in the community. Each disaster manager was to conduct at least one interview and ensure the correct information is collected on the form. At around 10:40 AM, the team completed the interview/data collection and all the team returned to school for the final briefing by the Director and all the field coordinators.

Discuss related issues Discuss disaster Issues/Identify Issues

From observations during the field assessment we understand that Floods can have several negative impacts on humans and the environment. Some of these impacts include:

- The elevation level of the affected community is not the same as some of the areas are higher than the others and the low land is the receiving end.
- Damage to infrastructure: Floods can damage roads, bridges, and buildings, making it difficult for people to access essential services and supplies.
- Disruption of transportation: Flooding can make it difficult or impossible for vehicles to travel, disrupting the transportation of goods and people.
- Loss of property: Floods can cause damage or destruction to homes and businesses, resulting in significant financial losses.
- Health risks: Flooding can contaminate water sources, leading to the spread of waterborne diseases such as cholera and typhoid. Floods can also create breeding grounds for disease-carrying insects such as mosquitoes.
- Environmental impacts: Flooding can have several negative impacts on the environment. It can cause erosion, destruction of habitats, and the spread of invasive species.
- Psychological impacts: The aftermath of a flood can be emotionally taxing for those who have experienced loss and trauma. Many people may experience anxiety, depression, and other mental health issues following a flood.

Causes of the flood in the four sites visited for the fieldwork includes,

The course of a flood in the study environment can vary greatly depending on the specific circumstances and location. Some common factors that can influence the course of a flood in an urban area include the topography of the land, the type of buildings and infrastructure present, and the effectiveness of flood prevention and control measures.

In general, a flood in an urban area may begin with heavy rainfall or the overflow of a nearby river or body of water. The water can then flow into streets and low-lying areas, potentially inundating buildings and infrastructure. If the flood is severe, it may also cause landslides or other types of damage.

Effective flood prevention measures, such as levees and flood walls, can help to mitigate the impact of a flood by directing the flow of water away from vulnerable areas. However, if these measures are not enough or are overwhelmed by the volume of water, the flood may cause significant damage to buildings and infrastructure.

If you are in an urban area and a flood is imminent, it is important to stay informed about the situation and follow any evacuation orders or other instructions from authorities. You should also be prepared to take steps to protect your property, such as moving valuable items to higher ground or sandbagging your home.



Figure 1: Coordinator and Disaster Managers taking notes from morning briefing



Figure 2: Coordinator and Disaster manager given explanation on the level of damages caused by the flood at Sabon-Gwange



Figure 3: Field work at Moduganari



Figure 4: Field Coordinator on field supervision during data collection from the affected people at Moduganari

Recommendation

Here is a list of some measures that can be taken to mitigate the impact of a flood:

- Flood prevention infrastructure: This can include levees, dams, and other structures designed to hold back or divert floodwater.
- Land-use planning: Careful land-use planning can help to reduce the risk of flooding by directing development to areas that are less prone to flooding and preserving natural areas that absorb floodwater.
- Flood-resistant building design: Buildings can be designed and constructed to be more resistant to flooding, such as by elevating the structure or using flood-resistant materials.
- Flood early warning systems: These systems can alert people to the risk of a flood, allowing them to evacuate or take other protective measures.
- Emergency preparedness: Having a plan in place for what to do in the event of a flood can help to reduce the impact of a flood on individuals and communities. This can include having an emergency supply kit on hand and knowing how to evacuate safely.
- Flood insurance: Having flood insurance can help to protect individuals and communities from the financial impact of a flood.
- Planting vegetation: Planting vegetation, such as trees and grasses, can help to absorb floodwater and reduce erosion.
- Green infrastructure: Green infrastructure, such as green roofs and permeable pavement, can help to capture and store floodwater, reducing the risk of flooding.
- Flood control channels: Channels and culverts can be used to help direct floodwater away from vulnerable areas.
- Elevating utilities: Elevating utilities, such as electrical and heating systems, can help to protect them from flood damage.

2 CONCLUSION

Floods are global events impacting quite adversely on the environment. In some cases, floods have beneficial tradeoffs through fertilizing floodplain soils and sustaining high crop yields, etc, however in most cases, the aftermath is more calamitous than beneficial. Floods in Nigeria, especially the one of 2012 raked widespread havoc to agriculture, food crops and substantially ruined urban infrastructure, services and developments thereby retarding the economy of the state/country, Many of people were displaced. Floods are natural and made-made disasters which may even get worse with climate change and global warming. The effects of floods in the case of our study areas can lead to adverse effects on potable water supply, food security, hunger, and at the same time lead to poverty reduction and environmental sustainability even more difficult to attain. Concerted and coordinated response is needed from various facets and stakeholders to mitigate the risks of floods in the future.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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Statement of ethical approval

The research was conducted in compliance with the academic and ethical guidelines of the University of Maiduguri.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.