

## CPED POLICY BRIEF SERIES 2020 NO. 1

### Flood Risk Mitigation in Niger Delta Region: Strategies for Protecting Buildings and Properties

By

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#### PROJECT PROFILE

**Project Title:** “Empowering women as key leaders in promoting community-based climate change adaptation and disaster risks reduction initiatives in Niger Delta region”

**Funding:** International Development Research Centre (IDRC)

**Implementing Partners:** Centre for Population and Environmental Development (CPED), Intervention Council for Women in Africa (ICWA) & Delta State Ministry of Environment (DMoE)



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## PREFACE

This policy brief is the first in the series of communication to policy and decision makers on the on-going research project of the *Centre for Population and Environmental Development (CPED)* titled “Empowering women as key leaders in promoting community-based climate change adaptation and disaster risks reduction initiatives in Niger Delta region” funded by the *International Development and Research Centre (IDRC)* under its climate change program.

*CPED’s Policy Brief Series* is designed to draw attention to key findings and their policy implications as projects are being executed. This edition which focuses on Flood Risk Mitigation in Niger Delta Region: Strategies for Protecting Building and Properties is based mainly on the outcome of the qualitative surveys in the region in which key stakeholders and household members participated in the research process as household respondents.

We are particularly grateful to IDRC particularly the Programme Officer in charge of our project, Dr. Melanie Robertson, for the support to CPED which has enabled the Centre to carry out the study and the publication of this policy brief. We also appreciate the cooperation of the leaders of various groups and community-based organisations in the target communities for their collaboration with CPED in the on-going implementation of the project.

## INTRODUCTION

Flooding is considered as one of the most hazardous, frequent and widespread natural disasters, yet it seems to have been accepted as part of the lives of some communities in the world. With the on-going climate change and climate variability, and their consequential effects of increasing weather and climatic extremes, including heavy and concentrated precipitations, coupled with other environmental woes, flooding has become a major problem of the global community, including Nigeria.

All over the world, coastal areas are very important regions, as they host huge populations, diverse ecosystems and natural resources. However, owing to their settings, elevations and proximities to the sea, their sustainability is threatened by climate change, particularly, global warming, and human activities. Nigeria is located along Africa's west-central coast. Its coastline is approximately 853 KM long, bounded to the west by the Benin Republic and to the east by Cameroon. In recent times, as a result of its low-lying topography, the coastal zone has been experiencing intensive and sustained flooding due to more violent coastal storms and prolonged and intensive rains from April through October, with an increasingly unpredictable August break.

The most significant factor implicated in the increasing flooding in the zone is climate change, responsible for severe storms and increasing precipitation. Although up-to-date, empirical data on the rising sea level in Nigeria are scarce, it is believed that climate change is also causing rising sea levels, which cause saltwater intrusion into the low-lying coastline, and that unless something is done,

timeously, coastal flooding would be aggravated in the future. One of the most major envisaged environmental challenges would be that rivers would overflow their banks and cause flooding in their adjoining susceptible low lying, usually, small settlement and communities. While these areas are no stranger to flooding current coping strategies are being stretched.

According to the Emergency Preparedness and Response (EPR) and Disaster Risk Reduction (DRR) Capacity Assessment Report (2012), an estimated 25 million people or 28 percent of Nigeria's population live in the coastal region and are at risk of flooding. In addition, even larger settlements along Rivers Niger and Benue are also threatened by major floods, such as the one which occurred in September, 2012.

Coastal flooding in the Niger Delta and across Nigeria has resulted in huge collateral losses of human lives; destruction of economic, social infrastructure, such as water supply, electricity, roads, railway lines and livelihood assets. Perhaps of more importance is that climate change-induced floods have cause the loss and damages to personal properties, particularly, residential houses. Floods have both short term and long term negative impact on residential property value; as they become less attractive to renters and costly to renovate and restructure. Depending on the duration of the floods, some may be completely lost and abandoned, due to the total cost of recovery. Unless and until the underlying environmental and flooding challenges are taken care of, such property will remain valueless or under-valued, compared to those in less flood-prone or environmentally challenged areas. It is on this background,

therefore, that this policy brief examines the houses located in the flood-prone areas and tries to proffer possible ways to reduce or mitigate future damage, destruction and loss of residential buildings and property in the Niger Delta region of Nigeria.

questionnaires were administered in each LGA, making it a total of 4,000 questionnaires.

## METHODOLOGY

A structured household questionnaire was used to collect quantitative data in 10 target LGAs, namely, Aniocha North, Ika South, Ethiope East, Ndokwa East, Isoko South, Sapele, Warri South, Burutu, Patani and Ughelli South. A total of 400 household

## FINDINGS

From the quantitative survey data analyzed, as seen in the figure below, shows the percentage of residential houses in flood-prone areas compared to those located in upland areas.

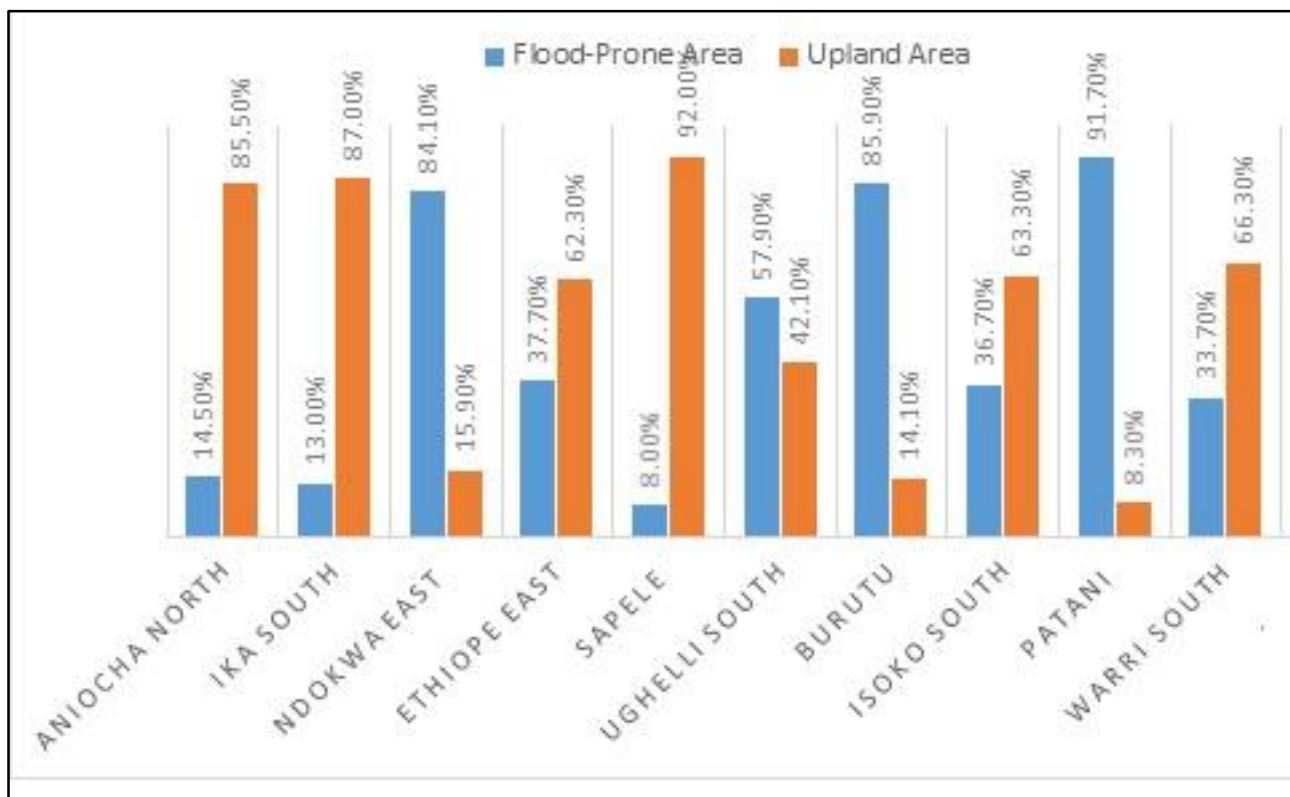


Fig. 1: Location of Houses of Respondents, by LGA

The chart above, shows that over 80 per cent of the sampled houses in Ndokwa East, Burutu, Patani LGAs are located in flood-prone areas. This is because these houses are all located along the coastline areas, and are susceptible to the flooding that emanates from the river overflow due to heavy rainfall. These areas are consequently exposed to the highest risks of flooding. On the other hand, Aniocha North, Ika South and Sapele are the least flood-prone LGAs, with less than 15 per cent of their sample houses at the risk of flooding.

## RECOMMENDATIONS FOR COMMUNITY DWELLERS AND GOVERNMENT

### 1. Avoid Building in Flood-prone Areas:

In order to minimize and if possible prevent damages and losses due to flooding, building in flood-prone areas should be discouraged. However, if there is a shortage of high land locations, the design, choice and construction of the property should be such as to withstand the challenges of flooding. In such cases there should be very strict supervision to ensure compliance with approved standards.

### 2. Elevations of Buildings:

One of the ways to prevent loss or damage due to flooding in areas like Patani, Burutu and Ndokwa East LGAs, where developable high land sites are limited, is to obtain correct data on the mean high level of flood water and to ensure that foundations are above such levels. This may require piling and concrete enforcements. The height of

the foundation may vary from site to site depending on the ground level. However, a height of at least 1.5 meters above the ground-level, is recommended.

### 3. Construction of Concrete Drains

Where they are not yet provided, concrete drains should be provided to channel surface run-off and flood waters from residential areas to the nearest natural drainage channels. Disjointed or dis-continuous drains must be highly discouraged. As the need arises, bridges, culverts, canals and all such devices may need to be constructed to facilitate the unhindered flow of surface water and flood water.

### 4. De-silting of Drains:

Where they already exist, the local authorities must ensure that the dumping of refuse and wastes into the drains is highly prohibited; as such habits would impede the free flow of flood water and surface run off. Where erosion causes drains to be filled, silted or blocked, the appropriate local authorities must ensure that they are de-silted timeously. The materials removed from the drains must be evacuated immediately to prevent them from being washed back into the drains. Severe penalties should be imposed on all violators.

### 5. Reserving the Right of Way (ROW) of Natural Drainage Channels and Wet Lands:

The encroachment on natural drainage channels must be highly prohibited. Policies should be designed to ensure that property developers are not allowed to build structures on natural drainage channels such as rivers, streams, creeks and wet lands,

including swamps. Development control officers who approve any permit for such encroaching structures, should be severely sanctioned.

#### 6. Flood Insurance:

As climate change-induced coastal flooding is envisaged to increase in the future, and as the damages and losses caused by these envisaged floods are also expected to increase, it is recommended that government should consider a property-flood insurance policy. Such a policy would help to protect property owners and their properties from losses and/or damage due to unpredictable prolonged rains, coastal storm surges, and sea-level rises, in the flood-prone areas of the Niger Delta region.

#### CONCLUSION

Flood-proofing does not guarantee that *Mother Nature* would not prevail in the event of a flood. However, a well-thought-out flood mitigation plan in combination with property-flood insurance will significantly reduce the risk of flood damage for property owners. In this light, the significance of pre-planning (both by the government and community dwellers) cannot be underestimated; there are permanent flood mitigation strategies individuals or the government can implement to protect residential buildings and properties.