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# PERILS OF URBAN FLOODS IN LAFIA: IMPLICATIONS ON SOCIO-ECONOMICS DEVELOPMENT

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## *Abstract*

*Flood, is a large volume of water than normal in nature in a given place and time, usually covering hitherto, dry areas and inundate its surroundings as to cause considerable socio-economic and physical environmental damages in affected areas. This is a common phenomenon in Lafia metropolis and expanse of lands within and around it lately, where the main catchment river constantly overflow its banks and inundates the area nearly every wet season. This study examins this perennial incidence in the metropolis through the survey of its surface run offs network and wastes disposal system, with a view to finding out how its spate affects the socio-economy and well being of the area and suggesting competent measures for*

## Introduction

*Cities and communities around the globe, especially of developing economies, have more than enough problems to contend with in natural and human-induced disasters like urban floods, landslides, and vulnerable economy, among others, with far reaching implications on their socio-economy and well being. No thanks to the current rising spate and perils of global climate change phenomenon, which is progressively exacerbating the menace, by changing their meteorological circumstances in accordance with their natural environmental conditions, infrastructure densities and use, thereby posing as one of the greatest natural risks to sustainable development (Kirshen et al., 2006).* As a function of rainfall-runoff relations and urbanization in area, Flood is a large volume of



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*mitigating its adverse effects in a holistic and all-inclusive/intergrative manner, as against the traditional approaches of the past.*

**Keywords:** *Floods; Disaster; Environment; Spate; Socio-economy; Metropolis.*

Water than normal in nature in a given place and time, usually covering hitherto, dry areas and inundating its surroundings as to cause considerable socio-economic and physical environmental damages in affected areas (Adelano, 1990). Floods occur when a water mass within a channel rises above the stream bank and spills over, and these are caused by many factors as they are varied in nature, such as climatological changes like heavy rainfall, excessive and prolonged precipitation, and unwholesome population activities (*Stern, 2007).* This is a common phenomenon in settlements and expanse of lands within and around Lafia metropolis, where River Amba, the main catchment river in the area constantly overflow its banks and inundates the area nearly every wet season, such that residents can vividly remember how well behaved this river was in the past, rarely rising above its banks and troubling them as is the case lately . The reason for the river's recent delinquency however is not far-fetched, as all around the hitherto small town, new infrastructural edifices and massive construction works are spring up, replacing the hitherto, serene forested areas and farm lands, hills and swamps with the streets and roofings of new structural edifices now keeping off the rains from sinking into the soil, while ditches and gutters carry large volume of water away before surrounding plants can access it, thereby inundating the grounds with resulting floods.

## FLOODS AND THE DEVELOPMENT PROCESS

*Societies,communities and households are all subject to a variety of natural and man-made disturbances like urban floods which impair their abilities to achieve meaningful development because of their dramatic effects.Urban floods pose many important* problems that are difficult to effectively confront and manage, especially because of the increasing global climate variability, as well as increasing spate and complexity of unwholesome population activities in its developmental strides lately. To achieve the required socio-economic development and well being therefore, it is imperative that a *holistic*

*assessment, adjustment and mitigation of floods disasters in an integrated manner for* sustainable urban development is employed in affected areas (Gulam, 2007).

**CONCEPTUAL FRAMEWORK.**

Flooding is one of the most common natural hazards experienced in Nigeria. Flood hazards, though a natural phenomena, the resultant damage and losses are the consequence of human action (Action Aid International, 2006), and according to Etuonovbe ( 2011), flooding is the most common environmental hazard in Nigeria that is aggravated by her unplanned urbanization, coupled with rapidly increasing population and also activities like construction of massive structural edifices, asphalted roads and pavements, and roof covers, that obstruct huge sections of the natural run offs channels and drains that ensure that water moves to rivers faster than it did under natural conditions (Osuntokun, 1998). Flooding is one of the most common natural hazards experienced in the study area in particular, especially from 1996 (when Lafia metropolis became the admistrative capital of the State), where its spate and perils have been on the rise**,** especially because of the various unwholesome uses of the flood plains, indiscriminate blockage of the few and incompetent water ways, high volume of construction works, poor, or zero land use planning, and the nature of the parent rocks among others, with its worst effects in 2012, (Dahiru, 1998).

According to Ojeh & Ugboma (2012) and Efe (2010), floods incidence adversely affect the socio-economy and well being of the people as exemplified by the 2007 floods disaster, with the southern states of Lagos, Delta, Rivers, Bayelsa, Akwa Ibom and the states along rivers Niger Benue, Adamawa, Taraba and Kogi as the worst hit, with 34 deaths, and over 5000 people displaced from their homes. This incidence also disrupted planting season and school calendar, contaminated unprotected water sources and exposed many people to the risk of water-borne diseases, as well as cut off inter, and intra communication with many parts of the country. Flooding events are usually not limited to destruction of physical structures but are are also accompanied with prevalence of other important problems like migration, vulnerability and increased poverty arising from destruction of farmlands and essential services, destruction of homes, bridges and other

valuable properties and assets (Olajuyigbe, Rotowa, & Durojaye 2012; Odjugo, 2012).

**TYPES AND CAUSES OF FLOODS.**

Floods, especially urban types are caused by many factors, key among which is the various human activities arising from urbanization. Human use of land in urban environments has increased both the magnitude and frequency of floods in small drainage basins, with its rate and perils as function of the percentage of its impervious cover, as well as the percentage of area served by storm sewers, which allow runoffs from the impervious surfaces to reach stream channels much more quickly than in natural settings (Keller, 2011). Urban flooding may also be caused by ocean encroachment, heavy rains and river spills, low-lying coasts, inadequate or poor drainage of low-lying and flat areas, and incompetent country rocks arising from the underlying lithology of an area, as is the case in this study area, and poor, or no land use planning among other causes.

**STUDY AREA, METHOD, AND MATERIALS**

The study area:

The study area is Lafia Metropolis - the administrative headquarters of Nasarawa State. It is located on N08$^0$ 29.30 Latitude$^o$, and E008.31.10$^0$Longitude. This is a well drained area, with numerous waterways of different sizes across its length and breadth and terminating at River Amba, the main catchment river in the area.This area has an estimated population of 330,712 people (NPC, 2006) that is mainly agrarian.

**AIM AND OBJECTIVES OF THE WORK**

This work is aimed at examining the perennial incidence of floods in Lafia metropolis through survey of its surface run offs network and wastes disposal system, with a view to finding out how its spate affects the socio-economic and well being of the area, since the capacity and other potentials of any land area are limited in nature by factors impigning upon it like weather/climate, water, soil and land use type among others, and the ability of the land to be sustainably usable is naturally finite and the utilization beyond this limits results in its degradation with dire consequences to the people (Dahiru,

2016). It is instructive therefore, that all environmental usages are such that do not adversely affect these limiting factors.

**Materials and methods**

This work centered on the spate of floods menace and its implications on the socio-economic and social well being in Lafia metropolis, where ample examples of urban environmental problems abound due to the nature of its country rocks, and the kinds of population activities common to the area (Dahiru, 1998). This study is through field observations and respondent interviews for primary data generation in affected and non affected parts of the metropolis and relevant literature search for secondary data.

**FINDINGS**

**THE SURFACE RUN-OFFS OF LAFIA AND ITS PRENNIAL MENACE.**

Lafia Metropolis is a low lying and well drained sedimentary terrain that is under lain by incompetent country rocks which are very susceptible to the vagaries of surface processes. The area is imbued with numerous waterways across its length and breadth that carry huge volume of water and detrimental materials in the rainy periods, making it synonymous with the perennial flooding impact and implications like colossal economic loses and adverse environmental impact (Imoh,2009). These floods are caused by factors that include:

a) Unwholesome environmental practices of the people whose spate like the use of the few drainage channels for refuse collection instead, thereby increasing the susceptibility of the area to flooding andother associated problems, the loses due to which are enormous, and increasing rather alarmingly.

**b)** The concentration of urban poor and less informed in some (marginal) areas of the metropolis like Angwan Sha'awu, Angwan waje and Tudun kofa areas of the city, which compounds the inherent risk associated with such high density areas, because of the higher tendency for increased extremes events/ unwholesome activities that will buffet the areas in time to come, especially given its current rapid urbanization, high incidence of poverty among the people, and its uncharitable attitude of taking the environment and its processes for granted (Dahiru, 2016: Douglas, *et al*,2008).

Though there is no complete records of flood related damages in this study area, it is however, a sobering reality that the incidence is continuing with loses of properties and even lives sometimes as was the case in 2007, 2008, and 2012 where not fewer than fiften lives, and properties worth millions were lost to it in the area.

In retrospect, if intergrated floods management approaches and adequate land plans guided the development of flood plains in this area, there will be little or if any improper land use problems, and no major flood problems will exist. The absence of accurate information on this area has been a serious limitation on efforts at floods damage reduction or control activities and the need for this is particularly more acute now in the study area.

**RECOMMENDATIONS**

In view of the above, It is imperative to develop competent strategies for reducing the menace of floods through effective floods hazard mapping that will delineate areas liable to the menace and reduce its liabilities which will help in meeting the ever changing needs of the rapidly urbanizing area and confer the following important advantages on it;

1. Restricting potential hazardous land uses to health and welfare of the people that ultimately lead to undue claims and counter claims upon public agencies for remedies/ compensations by the public.
2. Encourage adequate stream channel cross-section maintenance, essential in minimizing floods incidence and damages in the area.
3. Protecting prospective land speculators and home buyers from locating their properties on flood-prone areas, as well as guide the purchase and use of public open spaces in the area.
4. Preserve the potentials for adequate natural ground water recharge during flooding events through environmental best practice in construction works, by taking due cognizance of the nature of host sites.
5. Avoid environmental pollution incidence from flooding of waste dumps, sewerages and other off sight areas located on flood-prone in the study area.

**POLICY IMPLICATIONS**

The usefulness of flood-hazards mapping in flood-prone areas can not be over emphasized, the main purpose is to provide essential information that can be used to bring about orderly and beneficial uses in the study area.

One of the most frequently used devices in flood-plain management is flood-plain zoning, with the zoning authority usually delegated to the Local Governments, Villages, or City authorities. This mapping seeks to provide information that would;

i) Restrict indiscriminate residential development in the area
ii) Provide for the establishment of permanent flood way channels through acquisition of rights- of- way, including their maintenance and improvements, and
iii) Ensure requirements for flood proof buildings within the flood-hazard areas.

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