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# Flood and Socio-Economic Development in Nigeria: A Focus on 2012 Flood Disaster

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## ABSTRACT
Flood is one of the most disastrous environmental problems that severely affect human beings and other sectors of development on the planet. Diseases \and economic losses are a major developmental challenge for many least developed countries battling with flood. This study is an investigation of Flood and Socio-Economic Development in Nigeria. Functionalist theoretical perspectives was considered in analyzing the study. The study found that climate change, heavy rain fall, release of water from dams, poor planning, indiscriminate dumping of waste and lack of drainage system are factors that causes flooding in Nigeria. Flood is also found to affect other sectors of development in Nigeria and is associated with the loss of lives and properties as well as disastrous health implications. Flood affect agricultural supplies, exacerbating malnutrition problems leading to loss of production, food shortages and destruction of storage facilities. Flood causes damages to homes, schools, businesses, and transportation system and paralyzes socio-economic activities. It was recommended that drainage system should be constructed and regularly inspected and monitored to take note of any failure with a view of effecting repairs. Enlightenment campaigns should be step up by the government, National Orientation Agency and other related bodies with the view to put an end to the habit of dumping refuse in drainages. That government should dredge river channels to widen it up and give the channel the ability to contain excess water. The study concludes that all hands must be on deck, both the government, Non-Governmental Organization, Community Based Organizations, the Mass Media and the general public corroborate in order to control and prevent (averts) the catastrophic effects of flood on socio-economic development in Nigeria.
**Key words:** Flood, Socio-economic Development.

## INTRODUCTION
It is a common knowledge that about 70% of the earth's surface is covered with water and it is a known fact that all human beings, including animals and plants requires or need specific amount of water in order to survive. However, throughout human civilization (history), every society regards flood as the unusual presence of water on land to a depth which affects normal activities (Obebi, 2013). Flooding is one of the most disastrous environmental problems that affect and continue to affect human beings since the beginning of life on earth. Akpa (2017) explained that, "Flood is among the most diver stating natural disaster in the world, claiming more lives and causing more property damage than other natural phenomenon" (p34). The Biblical book of Genesis revealed how flood destroyed the whole world. The account relates that the earth was corrupt and filled with violence and after a series of warning, God caused rain to fall for forty days and forty nights until the highest mountains were submerged and all life perished except Noah and those with him in the ark. It was after 150 days that the water subsided that the ark rested on the mountain of Arafat (Genesis 6:9-9:17). The Quran added that Nuh (Noah) was inspired by Allah (God) and was commanded to build an ark. The people who mocked him and denied the message including one of his own sons drowned. The Quran referred to the final resting place of the ark as mountain Judi. The Yazidi called the landed place Ain Sifni in the region of Ninevah plains, about 40 kilometers Northeast of Mosul in the

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present Iraq. Though, this flood was as a result of disobedience, it was strictly human error or man induced. The great flood of Gun-yu in China, also known as the Gun-yu myth was a major flood in ancient China that takes place about 4,000 years ago during the reign of Emperor Yao which resulted in the great population displacement among other disasters, such as storms and famine when people left their homes to live on the high hills, mountains and trees and washed down the yellow river. This was regarded as one of the worst anywhere in the world (htttps://en.m.wikipeadia.org┐ wiki/Genesis.flood.narrative). The most catastrophic flood in the world were the 1887 and 1931 China flood that claimed over 6 million lives in one fell swoop, the 1979 Morvi Dam burst incident that killed over 4, 500 people in India, the Huascaran landslide in Puru in 1962 that claimed over 4, 000 lives, the spring flooding in Haiti that occurred in 2004 which snatched over 3,000 lives, the 2010 Pakistani flood affecting more than 2,000 lives and the 2011 Rio de Janeiro flood that snuffed lives of over 800 people (Obebi, 2013).

Nigeria and other African countries are not left out, several Nigerian communities had experienced an upsurge of flooding with devastating effects. The Nigeria Post – Disaster Needs Assessment (2012) explains that:

> Severe flooding events have become a frequent phenomenon facing communities and authorities in Nigeria each year. Although the country is vulnerable to multiple hazards, such as draughts, floods, landslides, gully erosion, and wind storms, it is draught and floods by far that affects the greatest number of people in the country. In the last two years, Nigeria has been affected by several extreme flood events, which have resulted in devastation and economic damages worth millions of dollars in the affected urban cities (p.113).

Following the sudden bursts of water from the Ladja dam in Camaroon and the Guinean dam, coupled with the heavy rain experienced between July and September 2012, more than 20 states in Nigeria were seriously affected by water flood. Over 363 people died as a result of the flood with about 2 million displaced causing the destruction of household property, destruction of farm produce leading to food scarcity and hunger to victims, overcrowding of displace victims, spreading of communicable diseases and water borne diseases, attack by dangerous animals flooded into people's homes, loss of houses, ponds, farmlands, etc. The states most affected were Adamawa, Benue, Taraba, Plateau, Bayelsa, Kogi, Niger, Lagos, and Rivers. The water level in these states rose several meters higher swallowing whole buildings and cutting off the entire communities. According to Erekpokeme (2015), the 2012 flood was one of the worst in Nigeria leading to loss of lives and property worth millions of naira. The flood were unprecedented and for the fact that floods are a yearly occurrence in Nigeria, the government lacked capacity to control disaster of such magnitude. Several agencies and volunteer persons joined hands with the government to assist flood victims by donating relief materials as well as providing temporary accommodations to alleviate the plight of the flood victims. The National Emergency Management Agency (NEMA, 2012) reported that the country experienced the worst incidence of flood in 40 years. The report added that in that year alone (2012), flood began in early July and killed 363 people and displaced over 2.1 million as of November. 32 of Nigeria's 36 states were affected by the floods and an estimated total of seven million people were affected. Odidi (2012) laments that:

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> The reoccurring flood disaster along the coastal communities in the country has left no fewer than 25 million people displaced and devastated. Those living along the coastal communities of Rivers, Niger, Benue, Sokoto, Katsina, Lagos, Ondo, Bayelsa, Delta, Akwa Ibom, Anambra, and Cross River State are gravely affected by the incessant flood menace which has made the governors to direct victims to leave their communities and providing makeshift relief for them. It is said that the federal government has abysmally failed to explore proactive measures in tackling perennial flood in some disaster prone northern states and blocked drains and water channels in the southeast and some states in the Niger Delta region which has equally rendered many Nigerians homeless and helpless. No matter how government will provide relief materials cannot salvage the suffering dwellers of these affected communities. The worst is that property worth billions of naira has been destroyed by the flood. Although the warnings of climate change on flood disaster were issued to Nigerians by experts, our government never provide the solutions. The continuous revenging flood has put many Nigerians into untold hardship in which those in the coastal communities are grossly affected while the relief materials provided by some of the affected states governors are not adequately enough to cater for the people (p.1).

The monetary value of the damages and losses caused by the floods were estimated to worth ₦2.6 trillion. Many factors are accounted as the main causes of flood in Nigeria. These include global warming and climate change, heavy rainfall, failure of dams to retain water, lack of drainage facilities, erection of building in flood plains, dumping of waste into the drainage and water bodies, overflow of rivers and ocean banks due to high tides, when lakes, ponds, river beds, soil and vegetation cannot absorbed all the water, it ran off the land in volumes. The United Nations (UN) report of 1995-2015, (as cited by Davies, 2016), reveals that in the last 20 years, 157,000 people have died as a result of flood affecting 2.3 billion people, which accounts for 56% of all those affected by weather-related disasters-considerably more than any other type of weather-related disaster. The report further states that flood strikes in Asia and Africa more other than continents, but poses an increasing danger elsewhere. Flooding as an environmental problem is not only caused by natural factors, but also by man's interaction with his environment. The year 2012 witnessed wide spreading throughout the country both in North the Southern part of Nigeria. More than 27 states were affected by flood; as a result of this, both the state and federal government spent huge sums of money to help the communities affected. The effects of flooding are devastating. Sometimes it results in major disasters involving structural damage, erosion, disruption of socio-economic activities, transportation, and communication, loss of land and property, displacement of people, destruction of agricultural land and contamination of food, water and the environment in general (NEST, 1991). Solutions to flooding may reside in the construction of check dams, flood walls, adequate drainage system and legislation that wil refrain man from activities that induce flooding. Another measure to combat the problem of flooding in to embark on channelization of the stream, these channels may ensure easy flow of water when there is heavy rain fall.

## Conceptual and Theoretical Discourses

### The Concept of Socio-Economic Development

For this study, socio-economic development can be defined as activities both involving both social and economic factors which result in the growth of the economy and societal progress. It implies the continuous improvement in the wellbeing and in the standard of

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living of the people. Socio-economic development is measured with indicators such as the growth of GDP, life expectancy, literacy and levels of employment.

**Concept of Disaster:** The term disaster can be defined here as "a sudden environmental change that results in a major loss of life and property" (Kimmel & Aronson, 2009 p.493). Disaster can be human orchestrated, such as a terrorist attack, or it originate in nature, such as an earthquake or flood or it can be both. The basic element in this definition the term "sudden" implies that disaster comes upon people with little or no warning.

## The concept of Flood

Sada (1988) defines flood as unusually high rates of discharging; often leading to inundation of land adjacent to streams caused by intense or prolonged rainfall. The National Erosion and Flood Control Action Plan Committee (2005) defined flood as a condition which exists when discharge of a river or stream cannot be accommodated within the margin of its normal channels so that waters spread over adjoining land. Flood can be defined as an overflow of an expanse of water that submerges land. It is an overflowing or irruption of a great body of water over land. The European Union (EU) Floods Directive defines flood as a covering by water of land not normally covered by water. According to Wikipedia (2009), flood is an overflow of water that submerges or drowns land. It can also be defined as a large amount of water covering an area that is usually dry (Udo et al, 2015) it is an overflowing of a great body of water over land not usually submerged. For this study, flood is defined as the flow of water above the carrying capacity of a channel.

## Forms of flooding in Nigeria

Flooding occurs in Nigeria in the following forms:

**Coastal flooding:** This occurs in low-lying belt of mangrove and fresh water swamps along the coast.

**River flooding:** This type of flood occurs in the flood plains of the larger rivers.

**Flash flood:** This is associated with rivers in the in-land areas where sudden heavy rains can change them into destructive torrents within a short period.

**Urban flooding:** This occurs in towns located on flat or low lying terrain especially where little or no provision has been made for surface drainage, or where existing drainages have been blocked by waste or refuse or eroded soil sediments.

**Dam burst or/and levee failures:** Dam burst are common following intense rainfall. For instance, the Bagauda Dam near Kano.

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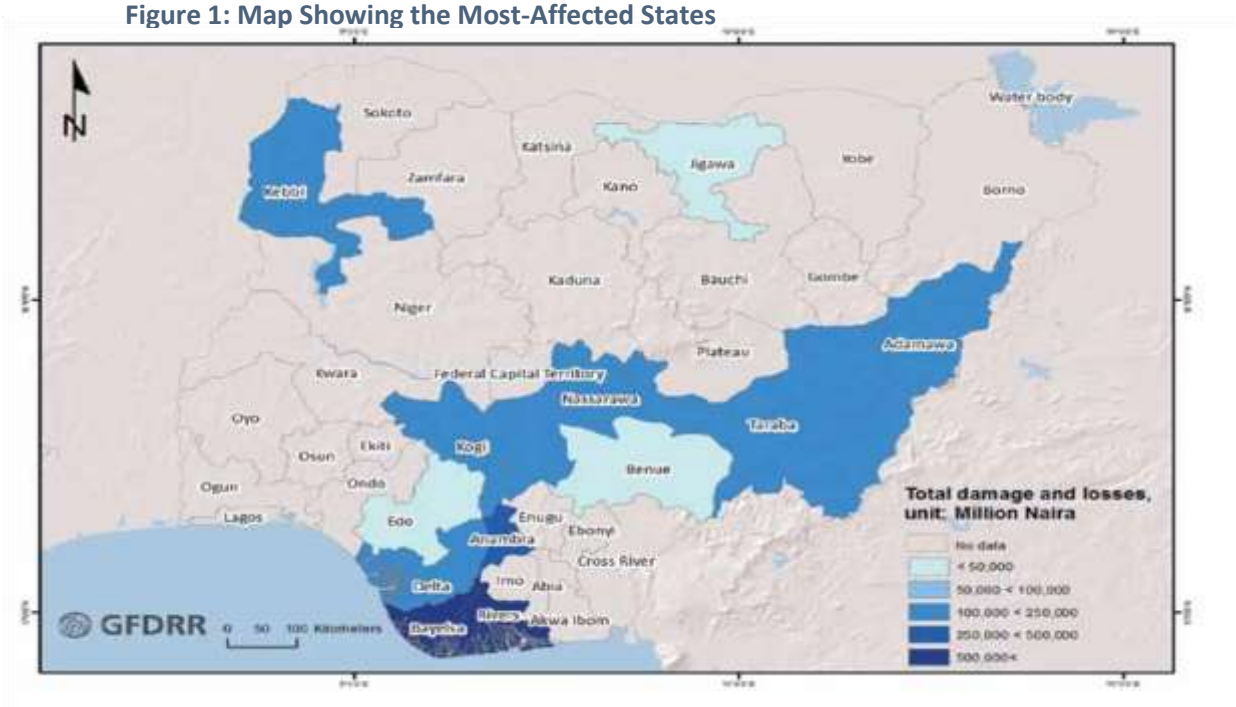
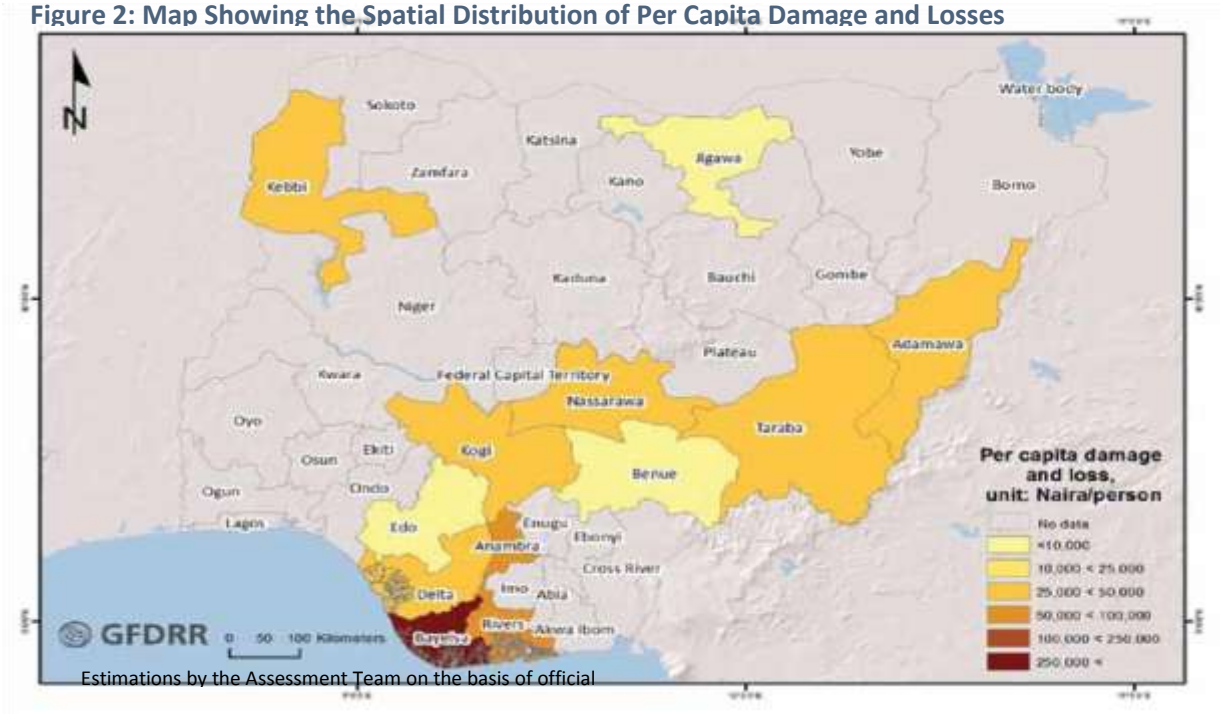
Figure 1: Map Showing the Most-Affected States




Source: Adapted from Nigeria Post – Disaster Needs Assessment (2013)

Figure 2: Map Showing the Spatial Distribution of Per Capita Damage and Losses




Source: Adapted from Nigeria Post – Disaster Needs Assessment (2013)

## Vulnerable areas in Nigeria

NEST (1991) listed the geographical areas in Nigeria that suffer from flood more others as follows:

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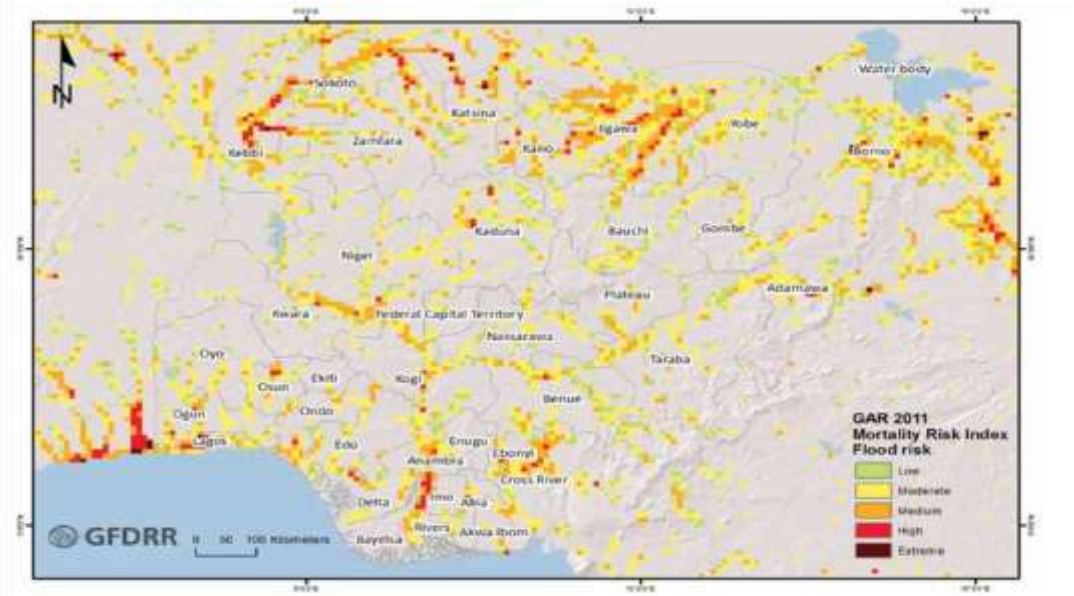
(1) Low-lying areas in the southern part of the country where annual rainfall is very heavy.
(2) The Niger Delta zone
(3) Flood plains of the larger rivers of the Niger, Benue, Taraba, Sokoto, Hadeja, Cross River, Imo, Anambra, Ogun, Kaduna, etc.
(4) Flat low-lying areas around and to the south of Lake Chad which may be flooded during and for a few weeks after the rain.

Figure 3: Flood Risk Map of Nigeria, Depicting Mortality Risk Index




**Source:** Adapted from Nigeria Post – Disaster Needs Assessment (2013)

Theoretically, functionalist perspective will be considered in analyzing this study. Functionalism is a macro classical theory in sociology which assumes that society consist of different parts, each of which serves a particular purpose. In other words, functionalists sees each aspect or element of society as interdependent and contribute to society's functioning as a whole. Proponents of functionalist sociological perspective includes: Emile Durkheim, Robert R.K. Merton, Talcolt Persons, etc. Functionalist theorists, while agreeing that flood is dysfunctional to some extent in the sense that it is associated with socio-economic losses, health challenges and consequently death as well as defacing of environment, water pollution, outbreak of infections and diseases yet sees flood as serving a need within society. For example, Flood has positive effects in the sense that low lands near rivers depend upon river silt deposited by floods to improve the nutritional value of the local soil. During flood, many people are employed in the emergency services to assist flood victims. Many people are hired to cook for victims of flood disasters. Corrupt states government officials in the affected states also benefit because the relief materials and money donated by the federal government agencies and other concerned citizens to compensate victims of flood and put preventive measures are diverted to their personal use. Thus, from the functionalist perspective flood persist because it serves interest in the society. Hunters and fishermen make gains as fish and crabs are frequently caught in

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compounds inundated with floods without necessarily setting out fishing nets and boats. Hunters claim that traps caught more animals than it used to since animals chased by flood are easily available.

## Causes of Flood in Nigeria

Nigeria post – disaster needs assessment (2013) hinted that:

> The causes of flooding, erosion, and gully formation differ by location, but are largely human. These include: (a) Improper building and infrastructure design, location, and construction, as well as inadequate drainage: (b) Poor solid waste management in urban and peri-urban areas that chokes the already inadequate drainage meant to prevent flooding and erosion; and (c) Destructive and unsustainable land-use practices that remove protective vegetation cover, including protective biodiversity and carbon-rich areas, or disturb the fragile soil, such as over grazing, deforestation, cultivation of marginal lands, and uncontrolled mining for building material, which are linked to poverty. (p.114).

Many factors can be identified as the major causes of flood in Nigeria. These include:

**Global warming and climate change**: The dangers posed by climate change are nearly as dire as those posed by nuclear weapons. Flood alone accounted for 47% of all weather related diseases affecting 2.3 billion people, the majority of who (95%) live in Asia (Davies, 2016). Studies have linked extreme weather caused by global warning and climate change as major causes flood. Climate change exacerbates the risk of disastrous flood in many part of the world. According to the United Nations report 1995-2015, (as cited in Davies, 2016), across the globe, over 600,000 lives have been lost-an average of 30, 000 per year. Over 4 billion people have been injured, left homeless or in need of emergency assistance of weather related disasters in the last 20 years. While less frequent than floods, storms were found to be the deadliest type of weather related disaster, accounting for 242,000 deaths or 40% of the global weather related deaths, with 89% of these deaths occurring in low-income countries. Climate change is likely to result in higher winter rainfall, more intense storms and rising sea levels in the future (Giddens, 2010). WHO (2001) projected that climate change will continue to increase threat to human health. For example, Awake (2003) reported that an important factor in the resurgence of insect-bone diseases is change in the nature and society both insects and insect-bone diseases (including malaria) are today being reported at higher elevations in Africa, Asia and Latin America. Warmer weather in some areas transform rivers into puddles, while in others it triggers rains and floods that leave behind stagnant pools. In both cases the standing water serves as a perfect breeding ground for mosquitos.

**Heavy rain fall**: Flood can be caused by heavy or extensive rainfall exceeding the capacity of a river's channel. Torrential rains made rivers to overflow their banks and caused houses to collapse and also washed away livestock.

**Release of water from dams**: NASA Earth observatory disaster plan (2012) reveals that in addition to the challenges posed by heavy rains, Nigerians had to cope with the release of water from the dams which further swelled the River Benue. Overflow of water from dams is another cause of flooding in Nigeria. This is a situation in which water from dam overflows to cover large areas of land. Examples of such dams include: the Ladgo dam in Cameroon, Kainji dam, Oyan dam, Bagauda dam etc.

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Volume 4, Number 1, March 2019
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**Poor planning**: Poor planning also causes flood. For example, in the case of (2012) Nigerian flood The Nigerian Meteorological Agency (NIMET) and other experts issued a warning and alerted that there would be an above normal rain fall in strategic parts of the country which might lead to flooding incidence in 12 states of the federation yet the government never reacted or provided proactive solutions (Odidi, 2012). This explain why the flood was rising on daily basis while the state governors in the affected states and the National Emergency Management Agency (NEMA) were overstretched. The quest to harness the available resources may lead to poor construction of dams and the failure of these structures may result to flood. For example, the collapse of Bagauda dam near Kano in 1988.

**Indiscriminate dumping of waste**. The dumping of waste may block the water channels causing flooding.

**Lack of drainage system**. The absence of surface drains and blockage of existing drains with municipal waste, refuse and eroded soil sediments are the major cause of dreaded flood (Odidi, 2015). Lack of drainage facilities that can control water may also cause flood excessive rainfall leads to flooding, especially in areas with poor drainage system, places where water inundates the capacity of the soil to contain water and where poor land use practices prevents drainages from channeling excess water away.

The NASA Earth Observatory Disaster Plan (2012), reveals that in addition to the challenges posed by heavy rains, Nigerians had to cope with the release of water from the Lagdo Dam in neighbouring Cameroon, which further swelled the river Benue River.

Plate 1: Breakdown of 2012 Flooding Situation in Nigeria

| S/ No | Location of Flood | Causes in the Identified Location | No. of Affected/ Displaced Persons (IDPs) | Estimated Amount of Infrastructure/Properties lost | Estimated No. of Deaths |
|---|---|---|---|---|---|
| 1 | **Abia State**<br>Umuamano-Iheiyi Community in Ugwuagbo LGA, Nlagu in Obingwa LGA, and Ode-Ukwu in Osisioma LGA | Rainfall, windstorm, and fire of June 26, 2012 | *2,643 | | L = 2 |
| 2 | **Adamawa State**<br>By LGAs: +Numan, Demsa, Jada, Yola North, Yola South, MayoBelwa, Guyuk, Lamurde (25 communities), Madagali, and Michika | Persistent rainfall resulting in the release of water from the Lagdo Dam in the Republic of Cameroon on August 24, 2012 | **46,030 currently in refuge at 12 IDP **camps**. The number is increasing by the day, as the release of the water has not abated and is expected to continue as long as rainfall swells the dam. | Destruction of houses and farmlands washed away, worth millions of Naira. | L = 21 |
| | Kofare, Damilu, Saminaka, Rugangr, Njiboliyo, Yeldifate, Jada, Shuwa, Lumadu, Jhau, Kwambula, Kirchinga, Beman, Dubangun, Ngodogurun,Tino Kogi, Nasarawo- | Torrential rainfall of August 20, 2012 | | | L = 15 |

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| | Demsa, Nzugaling, Zuran, Dwam I, Belachi, Bare, Greenvillage, and Ngbalag communities | | | | |
| 3 | **Akwa-Ibom State** Uyo metropolis | Rainfall of August 2, 2012 | ** 847 | Destruction of 70 Houses | L = 0 |
| 4 | **Anambra State** Ogbaru, Ekwusigo, Anambra East and Anambra West Local Government Areas: Aguleri-Otu, Enugwu-Out, Otuocha, Mmiata, Umuenwelum, Umuobalije, Umueze-Anam, Ifite-Anam, Umuoba-Anam, Ossomala, Ogwulikpe, Atani, Ochuche, Ohite, Odekpe, Anyamelum communities. | Heavy precipitation and release from Jebba and Kainji hydroelectric power Dams | ** 9,964 | Destruction of residential homes, places of worship, markets, schools, hospitals and farmlands; Orient Petroleum Resources Oil Well totally submerged. | L = 0 |
| 5 | **Bauchi State** Kirfi, Alkaleri, Ganjuwa, Katagum, Misau, Shira, Jama'are, Toro, Ningi, Zaki, Dass, Gamawa, and Bauchi LGAs | Floods on September 11, 2012 | ** 370 | Destruction of buildings, livestock, farmlands, properties worth millions of Naira | L = 0 |
| 6 | **Benue State** Makurdi metropolis | Release of water as of September 20, 2012 | * 33,000 ; ** 3,189 | More houses submerged | L = 1 |
| | Makurdi and 25 other communities in four LGAs | Rainstorm and release from the Dams on 14th September 2012 | *25,000; ** 10,054 | Destruction of houses, schools, worship places and farmlands washed away | L = 0 |
| | Otukpo district of Otukpo | Rainstorm of August 24, 2012 | ** 300 | Destruction of 60 households | L = 22 |
| **S/ No** | **Location of Flood** | **Causes in the Identified Location** | **No. of Affected/ Displaced Persons (IDPs)** | **Estimated Amount of Infrastructure/Properties lost** | **Estimated No. of Deaths** |
| 7 | **Borno State** 3 LGAs (Gwoza, Askira/Uba and Hawul) of 12 communities: Tashan Alade, Ghung, Gwoza, Kwajaffa, | Rainstorm of September 10, 2012 | *405 | Destruction of residential houses, farmlands and livestock worth N50,000,000.00 | L = 3 |

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Volume 4, Number 1, March 2019
http://www.casirmediapublishing.com

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| | Yelwa, Lokoja, Pelabirni, Lassa, Hambagda, Ngelleri, Bulla Waziri, and Gidan Bolo | | | | |
| 8 | **Cross River State**<br>Agwagune community and other wards of Biase LGA, namely: Abanyong, Erel South, Erel North, Umon North, Ikun/Etono and Agwagune/Okurike | Flood on August 29, 2012 | ** 2,656 | Destruction of 178 houses | L = 3; I = 12 |
| 9 | **Delta State**<br>Sapele | Flood on July 20, 2012 | ** 5,000 | Destruction of 100 houses, public properties, and farmlands washed away | L = 0 |
| 10 | **Ebonyi State** | Release of water from the Kiri in Adamawa State and from Lagdo Dams | ** 6,986 | Cultivated farmlands, houses, markets, schools, hospitals and worship places | L = 0 |
| | Ikwo, Izzi, Afikpo, North Ohozara, Onicha and Ivo LGAs: Ndiagu-Echara, Inyimagu-Ofenakpa, Igbudu-Umeh, Ekpoamaka, Enyim, Amaegu, Nnodo, Ebyia, Igbeagu, Uburu, Okposi, Akpuoha, Ozizza, Onicha, Abaomege, Ishiagu | | | | |
| 11 | **Gombe State**<br>Gombe metropolis | Flood on September 11, 2012 | | Destruction of 250 households | L = 4 |
| | Dadin –Kowa | | ** 1,500 | Destroyed houses, roads, culverts and farmlands washed away worth millions of Naira | L = 4 |
| 12 | **Jigawa State**<br>17 LGAs affected: Miga, Ringim, Dutse, Gumel, Jahun, Kiyawa, Buji, Birnin Kudu, Hadejia, Gwaran, Babura, Sule Tankarkar, Maigatari, Auyo, Kaugama, Kira Kasamma, and Birnawa. | Heavy rainfall and windstorm of August 25, 2012 | ** 15,718 | Destroyed houses and farmlands worth millions of Naira | L = 23 |

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| 13 | **Kaduna State** | Rainstorm of September 14-15, 2012 | *570; **2850 | 517 Houses destroyed, 1 church, 1primary school and 2 secondary schools, farm crops washed away, submerged 1car. Destruction worth millions of Naira. | L = 0 |
| | Kaduna Metropolis: Rafin Guzai, Tudun wada, Fulani/Husawa road, Ungan Romi, Gona gora, Abubakar Kigo Road, Ungwar Rimi, Haliru Dantoro (Malali), Barnawa, and two communities in Jema'a LG | | | | |
| | Kubua and Ikara LGAs | Flood and Rainstorm June 8, 2012 | | Destruction of 840 houses and farmlands washed away | L =0 |
| | Igabi LGA | Rainstorm and dam breakage of September 3 , 2012 | **1,219 | Destruction of 37 houses and 79 farmlands | L= 0 |
| | Aboro and Fadan Karshi in Sanga LGA | Flood and rainstorm of September 3, 2012 | **328 | | |
| **S/ No** | **Location of Flood** | **Causes in the Identified Location** | **No. of Affected/ Displaced Persons (IDPs)** | **Estimated Amount of Infrastructure/Properties lost** | **Estimated No. of Deaths** |
| 14 | **Kano State** | Flood of September 12, 2012 | **4,417 | | L = 18; I= 53 |
| | Gabasawa, Sumaila, Bebeji, Nassarawa, Dala, Gwale, Bichi, Bagwai, and T/Wada LGAs | | | | |
| | | Rainstorm and Flood July 20, 2012 | **1,049 | Houses, roads and farmlands washed away | L = 0 |
| | Tudun-wada and Doguwa | | | | |
| 15 | **Katsina State** | Torrential rainfall of August 24, 2012 | **2,730 | Destruction of houses, submerged farmlands | L = 0 |
| | 8 Local Government Areas affected: Maiadua, Bindawa, Kusada, Batsari, Kurfi, Safana, Kankia, and Jibia. | | | | |
| 16 | **Kogi State** | Release of water from the dam as of September 22, 2012 | *900,000; **5,000 | Destruction of thousands of hectares of farmlands | L = 8 |
| | 9 LGAs of 332 communities affected | | | | |
| | 85 communities in Lokoja, Ajaokuta, Koton Kogi, Bassa, Ofu, Ida, Igalamela, Ibaji, and Omalana LGAs | Rainfall and release of water from Kainji and Jebba Dams of September13-15, 2012 | *10,000; **5,000 | Destruction of houses and farmlands washed away, properties worth millions of Naira. | L = 0 |
| 17 | **Lagos State** | Flood on July 16, 2012 | *430 | Destruction of houses | Mp = 5 Mda = 200 |
| | Lagos | | | | |
| 18 | **Nassarawa State** | Rainstorm | *432; | Farmlands | L = 0 |

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http://www.casirmediapublishing.com

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|---|---|---|---|---|---|
| | 54 communities | | ** 57 | | |
| 19 | Niger State<br>Mokwa, Lavan, Edati, Borgu,<br>Bida, Chanchaga,Shiroro, Bosso,<br>Munya and Wushishi LGAs in<br>157 communities: Zdagu, Ketso, Kpashafu, Ekegi, FanganTswako, yinfa, Lugura… Sugi, Dadi, Basagi, Shigaba… Wuya kanti, Tama…<br>Fadukpe… Manta… Koro village…<br>Koro village.. Kyari…<br>Pompom…<br>Jigbe… Lemu… full nos available | Prolonged torrential rainfall and the release of excess water from Kainji and Shiroro Dams | ** 220 | Mud houses and farmlands washed away. Losses to properties worth an estimated N250,000,0000.00 | L = 12;<br>I = 9 |
| 20 | Oyo State<br>Ibadan | Flood on August 2, 2012 | Figures not available at the time of report | Destruction of 7 bridges and buildings | L = 5 |
| 21 | Plateau State<br>6 LGAs affected: Wase, Lantang<br>North, Lantang South, Kanam<br>Mikan, and Shedam (226 villages) | Torrential rainfall of August 10, 2012 that lasted thirteen hours, August 12, 2012 | ** 10,000 | Destroyed houses and washed away bridges and farmland. | L = 41 |
| | Jos North: Rikkos, Gangare, Rukuba and Kwana Shagari Villages | Flash flood of July 22, 2012 | *4,583;<br>** 3,000 | Houses and farmlands washed away worth millions of Naira | L = 37;<br>Mp = 35 |
| | Lantang North | Flood, Rainstorm, and Fire of July 17, 2012 | | Destruction of 500 houses and properties worth millions of Naira | I = 0 |
| **S/ No** | **Location of Flood** | **Causes in the Identified Location** | **No. of Affected/ Displaced Persons (IDPs)** | **Estimated Amount of Infrastructure/Properties lost** | **Estimated No. of Deaths** |
| 22 | River State<br>Rumuokwachi and Kaa | Flood and fire of September 10, 2012 | ** 2,000 | Destruction of 800 houses | I = 2 |
| | Rumuchinda community in Rumuene Obio/Akpor and Okposi and Zor and Luusue communities in Sogho, Khana LGA | Flood/Communal clash of July 11, 2012 | ** 471 | Destruction of 107 houses | I = 3 |
| | Ikpokiri I and II communities of Ogubolo LGA | Flood on June 1, 2012 | ** 500 | Destruction of 100 houses | I = 0 |
| 23 | Taraba State | Release of water from | ** 14,636 | Destruction of | I =10 |

| | | | | | |
|---|---|---|---|---|---|
| | Ibbi - 30 communities and Warawa village, Wukari LGAs | the Lagdo Dam of September 11 and 21, 2012 | | houses, submerged places of worship, markets, cutoff bridges, schools and farmlands | |
| | Sardauna LGA | Flood of August 27, 2012 | ** 375 | Destruction of houses and properties worth millions of Naira | |
| 24 | **Yobe State**<br>Gashua, Bade LG Areas in Garin<br>Lamido, Kisawa, Sabon Gari, Abuja<br>Amare, Zango, Isari, Tundun Yan<br>Rariya communities and Federal<br>Low-cost housing | Hours of torrential rainfall on August 28, 2012 | *3,720;<br>** 1,578 | Destruction of houses, roads and farmlands washed away worth millions of Naira | I = 0 |
| | Total | June, July, August and September period | *955,783;<br>** 157,744 | Total value in Naira not yet available | L = 207;<br>I = 71;<br>Mp = 40<br>Mda = 200 |

**Source:** Adapted from Nigeria Post – Disaster Needs Assessment (2013)

The table above indicates that there are different causes of floods disaster across states in Nigeria based on geographical locations and the number of people affected.

## Flood and Socio-economic Development in Nigeria

Flood generally have negative socio-economic consequences on the society. These negative effects include among others: loss of lives and property, submerge of houses and roads, collapse of bridges, eroding of the soil surface causing soil infertility, pulling of electric poles and communication network masts. Other are loss of animals, defacing of the environment, water pollution, Outbreak of infections and diseases and certainly death (Akpa, 2017). Again, Odidi (2012), explained that:

> Since the upsurge of the flood challenge, economic activities have been totally grounded without immediate solutions to it. Even some of the high land communities are gradually taken up by the flood while death casualties have increased to 95 percent. The crisis of goods and services and transportation are at geometrical progression (p.2).

The 2012 flood for instance, has brought the invasion of dangerous reptiles including crocodiles and snakes in many communities. The flood has created untold poverty for many communities sending a wrong signal of an impending hunger and strife in years to come as well as high profile criminal activities. Even wild animals were chasing away people from their homes. While the rescue centers provided by the government were not adequate enough to cater for the flood victims. Deaths were being recorded in the so called rescue centers while some flood victims who refuse to vacate their communities were being invaded by criminals. Flooding is an important factor responsible for spread of diseases such as diarrhea, typhoid, scabies, cholera and malaria. The devastating negative consequences of flood are enormous. Flood affects all sectors of development, it has led to

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Volume 4, Number 1, March 2019
http://www.casirmediapublishing.com

the loss of lives and property and it holds disastrous health consequences. Death tolls from flooding have risen in many parts of the world. Farmers often suffer huge economic losses. Flooding has taken its toll on agriculture and food supplies, exacerbating malnutrition problems in poorer areas of the world. Losses of production, food shortages and rural under-nutrition as well as storage facilities are associated with flooding. Prizes of commodities increased and schools are shutdown. Nigeria post-disaster need assessment (2013) reported that:

> The 2012 flood caused losses to food crops amounting to ₦305.070.1 million and affected livelihoods. Indeed, large areas of agricultural land were inundated just before harvest time. Food prices in many flooded areas have risen by 30 to 70 percent, increasing food insecurity among the affected populations.

In Nigeria, floods damaged over 1.9 million hectares of land and reduced food production along flood plains. Rice production in the affected states were reduced by 22.4 %, rice was reduced by 14.6 %, and suya beans, cassava and cowpea were reduced by 11.2%, 9.3% and 6.3% respectively (Anugwara & Emakpe, 2013). A total of 12 million goats, 3 million poultry and 136 cattle were killed in the 2012 floods (Erekpokeme, 2015). Crops worst hit by the flood included cassava, plantain, yam, maize and pawpaw which are major staples in the region (International Institute for Tropical Agriculture, 2012). The UN report 1995-2015 found that children in households exposed to recurrent flooding have been found to be more stunted and underweight than those living in non-flooded villages. Children exposed to floods in their first year of life also suffered highest levels of chronic malnutrition due to loss of agricultural production and interrupted food supplies. The flood incidents markedly affected farming activities as arable land often submerges in water; fishing rivers are usually overflowed and contaminated preventing accessibility. Flood often causes damage to homes and businesses, especially if they are located in natural flood plains of rivers. Flood has been responsible for obstruction of school activities. During flooding, school activities are halted, school infrastructures are damaged and it prevented students from going to school. Flood affects transportation system and damages bridges. Flood is known to cause increase in food prices and many people are exposed to wild animals chased by flood. Flooding cut off communities from other neighboring towns and villages and has led to the decline in tourism, paralyzing economic activities in many towns and cities in the country. Flood degrade the environment, soil and water are polluted by chemicals. Flood causes impairment of communication, displacement of families, migration of people and led to poor health condition of victims.

### Plate 2: Summary of Damage and Losses Caused by the 2012 Floods in Nigeria's Most Affected States

| | | Disaster Effects, million Naira | | |
|---|---|---|---|---|
| Sector | Subsector | Damage | Losses | Total |
| Social | | **1,256,299.3** | **73,557.9** | **1,329,857.2** |
| | Education | 82,134.6 | 15,211.2 | 97,345.8 |
| | Health | 18,204.8 | 9,476.8 | 7,681.7 |
| | Housing | 1,155,959.9 | 48,869.9 | 204,829.7 |
| Productive | | **147,996.5** | **1,037,070.0** | **1,185,066.5** |

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Volume 4, Number 1, March 2019
http://www.casirmediapublishing.com

| | | | | |
|---|---|---|---|---|
| | Agriculture | 101,008.2 | 380,520.8 | 481,528.9 |
| | Manufacture | 21,795.2 | 74,425.0 | 96,220.2 |
| | Commerce | 18,693.1 | 357,124.2 | 375,817.3 |
| | Oil industry | 6,500.0 | 225,000.0 | 231,500.0 |
| Infrastructure | | **54,019.6** | **8,013.6** | **62,033.2** |
| | Water and Sanitation | 12,902.2 | -- | 12,902.2 |
| | Electricity | 329.0 | 8,013.6 | 8,342.6 |
| | Transport | 40,788.4 | -- | 40,788.4 |
| Cross-Sectoral | | **23,840.2** | 17,167.0 | **41,007.2** |
| | Environment | 23,840.2 | 17,167.0 | 41,007.2 |
| Total | | 1,482,155.6 | 1,135,808.5 | 2,617,964.0 |

**Source:** Adapted from Nigeria Post – Disaster Needs Assessment (2013)

Plate 2 indicates summary of damages caused in all development sectors across the most affected states in Nigeria

Plate 3: Impact of the Flood Disaster on Employment and Income in the Agricultural Sector

| State | Working days lost in crop production | Income loss by workers in crop production (million naira) | Working days lost in fisheries | Income loss of workers in fisheries (million naira) | Total working days lost in agriculture | Total income loss of workers in agriculture |
|---|---|---|---|---|---|---|
| Adamawa | 1,070,935 | 107.3 | 244,416 | 61.1 | 1,315,351 | 168 |
| Anambra | 1,096,470 | 493.2 | 283,056 | 70.8 | 1,379,526 | 564 |
| Bayelsa | 2,820,685 | 1,268.7 | 2,444,112 | 611.0 | 5,264,797 | 1,880 |
| Benue | 1,512,610 | 680.6 | 294,816 | 73.7 | 1,807,426 | 754 |
| Delta | 1,367,390 | 615.3 | 2,898,720 | 724.7 | 4,266,110 | 1,340 |
| Edo | 218,950 | 98.4 | 1,005,312 | 251.3 | 1,224,262 | 350 |
| Jigawa | 285,560 | 128.4 | 1,629,408 | 407.3 | 1,914,968 | 536 |
| Kebbi | 2,996,520 | 1,348.3 | 617,760 | 154.4 | 3,614,280 | 1,503 |
| Kogi | 2,681,265 | 1,206.5 | 204,816 | 51.2 | 2,886,081 | 1,258 |
| Nasarawa | | | | | | 0 |
| Rivers | | | | | | 0 |
| Taraba | 2,911,355 | 1,310.2 | 1,018,368 | 254.6 | 3,929,723 | 1,565 |
| Total | 16,961,740 | 7,257 | 10,640,784 | 2,660 | 27,602,524 | 9,917 |

**Source:** Adapted from Nigeria Post – Disaster Needs Assessment (2013)

Plate 4: Impact of the Flood Disaster on Government Revenues and Expenditures

| Item | Value (Billions Naira) |
|---|---|
| Total Revenue before disaster In percent of GDP | 9,692.5 23.9 % |
| Total Revenue after disaster In percent of | 9,664.8 23.8 % |

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Volume 4, Number 1, March 2019
http://www.casirmediapublishing.com

GDP

| | | |
|---|---|---|
| Revenue loss In percent of GDP | | 27.750.07 % |
| Total Expenditure before disaster In percent of GDP | | 12,195.0 28.9 % |
| Total Expenditure after disaster In percent of GDP | | 12,240 30.1 % |
| Expenditure increase In percent of GDP | | 45.10.1 % |
| Fiscal Balance before disaster In percent of GDP | | -2,502.5 -6.2 % |
| Fiscal Balance after the disaster In percent of GDP | | -2,575.2 -6.4 % |
| **Decline in Fiscal balance** | | **-72.7** |
| **In percent of GDP** | | **-0.2 %** |

**Source:** Adapted from Nigeria Post – Disaster Needs Assessment (2013)

Plate 5: Impact of the Flood Disaster on Employment and Income in the Commerce Sector

| State | Working days lost in trade SMEs | Income loss by affected trade workers in SMEs (million naira) | Working days lost in micro-trade | Income loss of micro-trade workers ( million naira ) |
|---|---|---|---|---|
| Adamawa | 33,000 | 49.5 | 3,236,400 | 2,155.4 |
| Anambra | 19,500 | 7.3 | 1,434,780 | 955.6 |
| Bayelsa | 10,500 | 16.3 | 12,819,840 | 8,538.0 |
| Benue | 0 | 0 | 836,400 | 557.0 |
| Delta | 16,500 | 6.2 | 7,529,820 | 5,014.9 |
| Edo | 6,000 | 2.2 | 391,980 | 261.0 |
| Jigawa | 9,000 | 3.4 | 6,653,700 | 4,431.4 |
| Kebbi | 7,500 | 2.8 | 5,744,160 | 3,825.6 |
| Kogi | 12,000 | 4.5 | 3,860,040 | 2,570.8 |
| Nasarawa | 45,000 | 16.9 | | |
| Rivers | 43,500 | 16.3 | | |
| Taraba | 9,000 | 3.4 | 2,016,240 | 1,342.8 |
| **Total** | **211,500** | **93.9** | **42,670,440** | **28,418.5** |

**Source:** Adapted from Nigeria Post – Disaster Needs Assessment (2013)

Plate 6: Communicable Diseases of Immediate and Long-term Concern

| Communicable disease | Immediate concern | Longer-term concern |
|---|---|---|
| Cholera/Typhoid/Shigellosis | +++ | |
| Acute lower respiratory tract infections | +++ | |

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ISSN: 2536-7277 (Print): 2536-7285 (Online)
Volume 4, Number 1, March 2019
http://www.casirmediapublishing.com

| | | |
|---|---|---|
| Hepatitis A & E | ++ | |
| Leptospirosis | ++ | |
| Measles | ++ | |
| Malaria | ++ | +++ |
| Tuberculosis | ++ | ++ |
| Dengue fever | + | + |
| Meningitis | ++ | ++ |
| Poliomyelitis | ++ | ++ |
| HIV/AIDS | ++ | ++ |

**Source:** Adapted from Nigeria Post – Disaster Needs Assessment (2013)

## CONCLUSION AND RECOMMENDATIONS

It is obvious that incessant cases of flood in Nigeria has not only stunted both the growth and socio-economic development in Nigeria but it has also caused serious health implications of the affected people generally. Flood has equally paralyze so many business activities, leading to loss of lives and property, damaging transportation and communication systems, residential houses, agricultural products, school infrastructure, contaminating the environment and causing (forcing) people to migrate to other places indiscriminate dumping of waste, lack of drainage system, poor planning, heavy rainfall, global warming among many other factors were exposed in this study as the factors that causes incessant cases of flood in Nigeria. There is therefore, an urgent need for both the government, Non-governmental Organizations, Community Based Organizations, the Mass Media and the general public to corroborate to avert the catastrophic effects of flood on socio-economic development in Nigeria. The following recommendations are suggested:

1. Improving drainage system: This can help to control floods by facilitating easy flow of excess water, especially in urban areas during flash floods.
2. Water from dams should be discharged periodically so as to avoid overflow.
3. Building canals. During flooding, excess water can be channeled through canals to non-risk areas, to other areas with high demand for water. Canal can be used to lock excess flood waters in its linear reservoirs to prevent flooding and store water for future use.
4. Harvesting rain water. This involves collecting and storing of rain water not only to prevent flood but also to curb the problem of water scarcity. This can be done by building ponds, storm drains, water retention basins and flood-control dams.
5. Effective information or warning system
6. Regular removal of constrictions along the river channels.
7. Dredging of river channels to widen it up and give the channel the ability to contain excess water.
8. Capacity building to integrate climate change and its impacts into urban development planning involving local communities, raising public awareness and education on climate change.
9. Government should ensure that structures are erected on water ways or areas that are prone to floods.

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ISSN: 2536-7277 (Print): 2536-7285 (Online)
Volume 4, Number 1, March 2019
http://www.casirmediapublishing.com

10. Enlightenment campaigns should be stepped up by the government, National Orientation Agency and other related bodies with the view to putting an end to the habit of dumping refuse in drainages.
11. Drainage system should be regularly inspected and monitored to take note of any failure with a view to effecting repairs.
12. Provision of standard infrastructural facilities such as good surface drainage, portable water supplies and other supporting facilities should be made a priority.
13. Environmental sanitation should be made compulsory in all communities.
14. The national inland waterways authority (NIWA) should take steps to clear water ways and tributaries which are sorted and taken over by shrubs to allow for channels and easy flow of water to contain the ravaging flood in coastal communities.
15. The federal government should collaborate with other relevant agencies and international communities to initiate proactive and preventing measures to fight against future reoccurrence of flood disaster in the country.
16. Education on flood management should be included in the nation's educational curriculum

## REFERENCES

Akpa, E.C. (2017). Consequences of environmental degradation on national security in Nigeria. Zaria sociological journal. Vol. 5, No. 1 pp.30 – 39

Anugwara, B., & Emakpe, G. (2013). Will federal government save Nigerians from another tsunami? Retrieved on 27th July from: http://www.mynewswatehtimesng.com/will-fg-save-nigerians-another-tsunami

Davies, R. (2016). UN-1995 to 2015, Flood Disaster Affected 2.3 Million and Killed 157,000. Retrieved April 14 from: floodlist.com>dealing-with flood.

Erekpokeme, L.N. (2015). Flood disasters in Nigeria: Farmers and governments' mitigation efforts. Journal of biology, agriculture and health care. Vol. 5, No. 14 pp 150 – 154.

Ezirim, G.E. (2010). Climate Change and National Security: Exploring the Conceptual and Empirical Connections in Nigeria. Journal of Sustainable Development in Africa. Vol.

Giddens, A. (2010). Sociology. New Delhi: Polity Press.

International Institute for Tropical Agriculture (2012). Seeds of hope for flooded regions of Nigeria. Retrieved on July 27th from: http://www.ita.org/2012-press-releases/-/assetpublisher

Kimmel, M., & Aronson, A. (2009). The Essentials: Sociology Now. Boston: Allyn and Bacon.

NASA Earth observatory (2012). Flooding in Nigeria. Retrieved from https://earthobservatory.nasa.gov>view

Nigeria post-disaster needs assessment 2012 floods. (2013). A report by the federal government on Nigeria with technical support from the World Bank, EU, UN, and other partners. June, 2013. Retrieved from https://www.gfdrr.org>sites>gfdrr>files

Nzeribe, G, Nwokoye, E.S, Uwejumogu, N.R., & Ezenekwe, U.R. (2014). What implications does 2012 flood disaster have on the Nigerian economy? The Nigerian journal for energy and environmental economics. Vol. 6 No. 1.

Obebi, F.F. (2013). Mitigating the Impact of Flood Disaster in Nigeria. Retrieved June 16 from: pointblanknews.com>articles-opinions.

Oladokun, V.O & Proverbs D. (2016). Flood risk management in Nigeria: A review of the changes and opportunities. Retrieved from https://www.researchgate.net/publication/311087612

Sada, P.O., & Odemerho, F.O. (1988). Environmental Issues and Management in Nigeria Development. Ibadan: Evans Brothers Limited.

The National Erosion and Flood Control Action Plan Committee (2005). Flooding in Nigeria and Sustainable land Retrieved June 16 from: htttps:/www.researchgate.net>publication.

Udo, E.A, Ojinaka, O.C., Beywood, C.N., & Gift, U.A. (2015). Flood hazard analysis and damage assessment of 2012 flood in Anambra state using GIS and remote sensing approach. American journal of geographic information system. Vol. 4, No. 1, PP.38 – 51.

Wikipedia (2012). 2012 Nigeria floods. Retrieved from https://en.m.wikipedia.org>wiki>2012

World Health Organization (2011). Climate change and human health risks and responses: International consensus on the science of climate and health. Third assessment report on intergovernmental panel on climate change (IPCC).