

FLOODING, A CLOG IN THE WHEEL OF SUSTAINABLE ENVIRONMENTAL MANAGEMENT IN NIGERIA? *

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Abstract

Flood is a large amount of water covering an area that is usually dry. The heavy rain has caused floods in many parts of the country. It is a natural hazard and is not new in Nigeria. Flooding is one of the major environmental crises that had to be contended with globally. The aim of this research is to find out whether this global crisis has clogged the wheel of sustainable environmental management in Nigeria. This will entail reviewing of existing literatures, rely on personal experience, examine the causes and effects of flooding and suggest that there is need for the town planning authorities to wake up to their responsibility by producing a proper town planning laws coupled with effective and honest implementation.

Keywords: Flood, Environment, Sustainability Management.

Introduction

Floods have been causing irreplaceable loses to both human lives and the environment in Nigeria. It has posed a great challenge to the environment and has threatened sustainable environmental management. It has left the environment polluted, destroying the present environment and causing havoc to the environment of the generation yet unborn. The level and amount of flood increased or multiplied in Nigeria in 2012. According to research, “most parts of the Central States of Nigeria and other adjoining States

along the river Niger and Benue are devastated by these floods causing huge destruction to the environment¹”.

Flood stand out amongst the most dramatic, dangerous and immoderate danger in the physical environment that compasses away the work of numerous years². With the increase in global temperature the rainfall pattern will change and increase. The increment in precipitation level and changes in precipitation pattern may further expand the recurrence of force of floods in Nigeria³. This position is supported by the torrential rains and floods that have occurred mostly in the eastern parts of the country since the beginning of the raining season this 2021.

Conceptualization of Terms

Flood: This is an overflow of water that submerges land that is usually dry. They are the most common and widespread natural severe weather event. According to National Severe Storms Laboratory based in the United State of America, there are five types of floods. Which are River flood, Coastal flood, Storm surge, In-land flooding and Flash flood⁴.

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¹ Flooding in Nigeria. causes, effects and solution- research clue. Com. Accessed 28-3-2018. p.1

² Falak S. Memon and M.Y. Sharjeel. “catastrophic effects of flood on the Environment and Health, Evidence from Pakistan, Pak. J. Eng.. Technol. Sci. Val 5, No. 2 2015, P. 72

³ ibid. p.74.

⁴ What is flood, www .earth. Networks .com. accessed 28-04-2021.

River Flood: This happens when water levels rise over the top of river-banks. This incident happen in all river and stream channels. This kind of flood normally occurs:

- a. When there is an excessive rain fall from tropical storm systems making landfall.
- b. Persistent thunderstorms over the same area for extended periods.
- c. Combined rainfall and snow meet.
- d. When there is an ice jam⁵. River flood can happen suddenly or slowly.

Coastal flood: This is the inundation of normally dry land areas along the coast with seawater. This is as a result of the combination of sea tidal surges, high winds and barometric pressure, these storms at sea are like the tropical cyclones, Tsunami, Higher-than-average tides.

Storms surge: This is an abnormal rise in water level in coastal areas over and above the regular astronomical tide. This occurs when storms causes higher tides on the coast. The storm always come as wind, waves and low atmospheric pressure. This is of flooding and can flood have coastal areas and the same time.

Inland flooding: This is also known as urban flooding. This form of flood occurs inland and not in a coastal area. This happen with steady rainfall over several days, snow melt is also associated with inland floods as well as when water ways get blocked by debris, ice or dams. Thus particularly occurs where there are no water ways and the waters cannot go out. Examples are paved

⁵ Ibid

roads and streets, low-capacity drainage and low amounts of green space.

Flash flood: This is the flooding that begins within 6 hours and often within 3 hours of heavy rainfall. Flash flood is usually determined by rainfall rate and rainfall duration. Flash floods are very dangerous, strong and powerful, they tear trees, destroy buildings and bridges. The danger of this is that it can occur without warning.⁶

Environment Sustainability: This has been defined as “responsible interaction with the environment to avoid depletion or degradation of natural resources and allow for the long-term environmental quality”⁷. It means a friendly interaction with the environment in such a way as to meet the need of the present generation and that of the future generation.

Environmental Management: This is the description and monitoring of environmental changes with predicting future, changes and with attempts to maximize human benefit and to minimize environmental degradation due to human activities.

Causes of Flood

The phenomenon of flooding is a “natural event which can bring both adverse and beneficial environmental change”. These flooding are caused by the following factors, aided by heavy rainfall.

1. **Drainage blockages:** Due to poor waste management system in Nigeria, road dumping, land dumping and open space dumping are common in Nigeria. These

⁶ Ibid

⁷ www.soas.ac.uk,p.10. Accessed 28/04/2021.

indiscriminate dumping find their way into the drainage and of course block the drainage. This normally occur in highly populated urban areas, the resultant effect is heavy flooding in such areas, as the waters tends to find alternative route from the drainage.

2. **Improper Waste Management:** Not having a waste management culture, will always led to improper waste management system. Wastes are dumped all over the environment. One way or the other these wastes find themselves in the drainages and blocked the drainages. Our poor attitude to waste management cause flooding.
3. **Overflow of Rivers:** This is also a common cause of flooding. When the rivers over flood due to very heavy down fall, the water level will be high thereby causing the rivers to over flow their banks and flooding becomes the order of the day.
4. **Broken Dams:-** Dams are built across water courses to keep some of the water from flowing downstream. Some dams are built to control flooding downstream. When a dam breaks, the water it has been holding back escapes, often all at once. This means a much higher volume of water is suddenly flooding downstream. That larger flow of water causes flooding.⁸
5. **Urbanization:** This spurs a unique set of issues to both human and the environment. The promise of jobs and prosperity, among other factors, pulls people to cities strong urban planning is essential in managing the urban environment, where this is lacking, the urban

⁸ Kelly martain, “why do floods occur when a dam break? www.quora.com, accessed 09-05-2021.

development mainly the risk of the environment, through flooding.⁹

- 6. Global Warming:** Because of rise in temperatures, the air holds more moisture; the result is less rainfall and therefore droughts. These moistures are released in form of heavy rainfall, which runs on hard-packed earth that has dried up during the drought.¹⁰

Effects of Flood on the environment

Severe flooding hit the nation in 2012. According to a research, most parts of the central states of Nigeria and other adjoining states along the River Niger and Benue were devastated by these floods causing huge destruction to the rural and urban infrastructures (farm lands/ crops, roads, building, damages, bridges, power lines and the socio economic lives of the areas.¹¹ Flooding is one of the major environmental crises one has to contend with globally. It therefore inters that is a flood incident, there is the tendency for pollutants to be taken from surface to sub-surface especially in areas with low water table, other include transport of eroded sediment and phosphorus from land to water bodies.¹² Although flood many have some positive effect on the environment, the negative impact for more over weighs the positive impact of flood on the environment.

⁹ National geographic .com. accessed 9-05-2021: urban threats, (2009) urban challenges and possible solution”.

¹⁰ Kimberly Amadeo and Michael Boyle. “How floods affect the economy and you, www.the balance -com.accessed 9-05-2021.

¹¹ Flooding in Nigeria causes, effects and solution, www.researchclue.com,P.1, accessed 28—3-2018

¹² Tawari-Futeyin, Prekeyi, Megbuwe Paul, and Adams Omokhagbor.

“Some Aspect of a Historic Flooding in

Nigeria and its Effects on some Niger-Delta Communities”. American Journal of Water Resources, 3.1 (2015): 7- 16.

The following are some of the impacts of flooding on the environment:

- a. Wildlife habitats can be destroyed by flood water
- b. Contaminated flood water can pollute rivers and habitats.
- c. Silt and sediments can destroy crops on farms.
- d. River banks and natural levels can be destroyed as rivers reach bank full capacity.
- e. Rivers can be widened and deposition can increase downstream.
- f. Trees can be uprooted by high-velocity water flow.
- g. Plants that survive the initial flood may die due to being inundated with water.¹³

Legal Framework on Flood Management in Nigeria

Basically, Nigeria has no principal enactment dealing specifically with flood management; however there is some enactment that touches howbeit in a very little way on flood.

- a. The National Emergency Management Agency /Establishment etc) Act.¹⁴
- b. The River Basin Development Authorities Act.¹⁵
- c. National Environmental Standards and Regulation Enforcement Agency (Establishment) Act 2007
- d. National Hydrological Services Agency (Est. Act) NIHSA/2010
- e. Nigerian Meteorological Agency (Est. Act (NIMET Act).¹⁶
- f. National Environmental Policy 1999.

¹³ How does flooding affect humans and the environment? Internet Geography. www.internetgeography.net. P.2. accessed 6/05/2021.

¹⁴ Cap N34 Laws of the Federation of Nigeria 2004

¹⁵ Cap R9 LFN 2004.

¹⁶Cap N152 LFN 2004. (NIMET Act)

- g. National Erosion and Flood Control Policy (NEFCP/2005).¹⁷

The National Emergency Management Agency was established in 1999.

Its mission is to coordinate resources towards efficient and effective disaster prevention, preparedness, mitigation and response in Nigeria. It acts in the Disaster Risk Reduction, search and rescue; policy and strategy. Geographic Information System, Advocacy, Education and others. The functions of the Agency in relation to flood includes:-

- a. Educating and informing the public on disaster prevention and control measures.
- b. Distribute emergency relief materials to victims of natural or other disaster and assist in rehabilitation of the victims where necessary.
- c. Liaise with the united Nations Disaster Reduction Organization or such other International bodies for the reduction of natural and other disasters.¹⁸

Our observation from the above, is that the duty of this Agency starts after a disaster had occur. It is essentially that of relief management, after flooding incident. Most times the rescue operation is slow, lacks professional touch, and could result in more damage at the end of the exercise.

¹⁷F.C. Amadi and P. Azubuike. "An Evaluation of the Legal Framework for the control of flood disaster in Nigeria, SACAHA Journal of Policy and Strategic Studies vol. 7. No. 1 2017, 2032. www.academic.edu.accessed 01-05-2021.

¹⁸Section 6(1) of the Act.

The River Basin Development Authorities Act

This Act established eleven authorities known as the River Basins Development Authorities. They are government agencies involved in the management of water resources for agriculture and other uses. The functions of the Agency that touches on flood is found in S.H (I), to undertake comprehensive development of both surface and underground water resources for multiple, use with particular emphasis on the provision of irrigation infrastructure and the control of floods and erosion and for watershed management.¹⁹ It is also to construct, operate and maintain dams, dykes, polders, wells, boreholes, irrigation and drainage system and other works necessary for the achievement of the authority's functions.²⁰

These functions as it relates to flood are wonderful, the issue is whether these functions are effectively carried out. The situation on ground seems to point to the fact that these functions are not being performed, hence the havoc caused by flood to the environment.

The National Environmental Standards and Regulation Enforcement Agency (Establishment) Act.

This Act was established in 31st of July, 2007, it repealed the Federal Environmental Protection Agency Act. It has the responsibility for the protection and development of the environment and sustainable development of Nigeria natural resources. Among others, the agency has power to submit for the approval of the minister, proposals for the evolution and review of existing guidelines, regulations and standards in erosion and

¹⁹ Section 4 (1) of the Act

²⁰ S4(I) C1) (b)

flood control, dams and reservoirs, watershed.²¹ The provision of the Act is laudable, all-embracing and progressive, however the impact of this wonderful power of the agency is yet to be felt particularly in the area of flood in the environment.²²

National Hydrological Services Agency Act (AFIHS)

This Agency is a government institution formed under the ministry of water resources. The Agency is established to manage hydrological stations around the country and carryout ground water exploration and monitoring using various scientific techniques to provide hydrological and hydrological data needed for planning, design, execution and management of water resources and allied projects. This Agency from the above provision is to also help in the control of flood and thus safeguard the environment for the country's sustainable development.²³

Nigerian Meteorological Agency

This Agency came into existence in the year 2003; the vision of the Agency is to provide weather, climate and water information and services for sustainable development and safety of lives and property. It is the function of the Agency to update the common Nigeria citizens on weather forecasts and predictions. This goes a long way to aid some decision making, reducing serious cases of accidents due to weather – related mishaps, of which flood is

²¹ Section 8 (e)

²²C.I.N. Emelie, Environmental Law and Practice in Nigeria. Rhyce Kerex publishers, Enugu- Nigeria, 2016, P. 175.

²³ www.nihsa.gov.ng.functions of National hydrological Services Agency Act. Accessed 11-05-2021.

part off. This function is effectively implemented, will reduce the degradation faced by the environment.²⁴

National Environmental Policy

The basis of environmental policy in Nigeria is contained in the 1999 constitution of the Federal Republic of Nigeria. According to the provisions of section 20 of the constitution, the State is empowered to protect and improve the environment and safeguard the water, air and land, forest and wildlife of Nigeria. A good National Environmental Policy should be able to address the issue of flood and reduce incidence of environmental abuses²⁵ cause by flood.

Proper Environmental Sustainability

Proper environmental sustainability means – the environment that is devoured of all forms of abuse or degradation by the present and future generations. It is concerned with long-term health of ecosystems, protecting the long term productivity and health resource to meet future economic and social needs. Environmental sustainability does not mean living without luxuries built rather being aware of your resource consumption and reducing unnecessary waste and reckless undermining the environment. Sustainability supports striving to improve the environmental health and quality of life of our society. It promotes an environment where there is little waste, pollution of all kind, fewer emissions, more jobs and a better distribution of wealth²⁶. It is an environment with little incident of flooding and

²⁴ ‘Nigerian Meteorological Agency and Functions’
www.proguide.ng.accessed 11-05-2021.

²⁵ The National policy on the Environment, 1999.

²⁶www.thebalancesmb.com ‘what is Environmental Sustainability’?
Accessed 11-05-2021.

high standard of town planning. Proper environment sustainability must stand on some of these legs, such as:

- a. “reorganizing living in sustainable manners
- b. Renewing sustainable agriculture or work practice
- c. Developing green technologies use of renewable energy.
- d. Making adjustments in individual lifestyles by conserving our natural resources.

Flood in Sustainable Environmental Management.

That flood is a clog in the wheel of sustainable environmental management cannot be overemphasised. Flood affects all media of the environment. That is, Land, water and air. Human being is not left out. Flooding negative social impacts such as loss of lives and property, loss of livelihood, decreased purchasing and production power, mass migration, psychosocial effects, Hindering economic growth and development and political implications will seriously affect sustainable environment management. No form of environmental management will be achieved in the face of the above mentioned crisis that is normally associated with flooding. The way out is that all hands must be on deck to reduce flooding to the barest minimum in our environment.

Let Reduce Flooding

In view of the obvious fact that flooding is a clog in the wheel of Environmental Protection, many steps should be taken in order to lessen the effects of flooding in our society. Some of these steps are:

1. The National Institutions and organization should have a clear National Policy on how to prevent and control

- flooding. This means that a flood risk adaptation and mitigation policy should be devised and implemented.²⁷
2. Global warming must be reversed, humanity must stop adding greenhouse gasses to the atmosphere.
 3. The use of solar and wind power electricity generation should be given serious attention.
 4. Infrastructures are flood resistance should be built on flood prone regions. This should involve the building of Dikes levees.
 5. Drainage should be redesigned and proper investment should be done on the sector.
 6. Canals should be built. They are artificial outfall drains, which may be called water channels.
 7. Flooding can be prevented through the harvest of rain water. This is by collecting the rain water during heavy rainfall and storing the rain water. This may also solve the problem of urban water scarcity.²⁸

Conclusion

Flooding is a serious menace on the environment. The circumstance of flood is on the increase. The nation should be responsive to the challenge. Policy makers should see flooding an issue of national emergency and should be given the regard urgent attention.

²⁷Ibid. p.83.

²⁸ 10 ways of prevent flooding in Nigeria. www.inforguidenigeria.Com/prevent-flooding-Nigeria. Accessed 19-04-2021.