

# The Impact of Flooding on the Social Determinants of Health in Nigeria: A Case for North-South Institutional Collaboration to Address Climate Issues

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## Abstract

Nigeria witnessed unprecedented flooding in recent times. This paper examines the impact of the flood disasters on critical social factors related to health and wellbeing ( income, housing, education, health care, safety and mental health). The authors sought information from newspapers and other sources (NEMA, WHO reports). The reports revealed massive loss of human lives and livestock, homes, property and livelihood especially in the coastal states along the bank of River Niger and Benue. Some of the states worst hit include Benue, Adamawa, Anambra, Bauchi, Kogi, Edo, Bayesa, Delta, Niger, Taraba, and Kano. The devastation caused by the floods could not be adequately contained due to infrastructural (shelters, health centers, classrooms, etc) and logistic deficiencies (inadequate personnel and facilities) Micro and macro level interventions such as development and enforcement of land use policies; construction of mobile clinics in affected areas; mobilization/recruitment and training of multi disciplinary response teams (social workers, public health professionals, physicians, nurses, psychologists, clergy; etc.) Aside from current local responses, a well-coordinated sustainable international collaborations/partnerships among schools of social work and public health to address the social needs arising from flooding and other climate change issues in Nigeria are needed, in the spirit of North-South cooperation.

**Keywords:** Nigeria, Climate change, social determinants, health.

## Introduction

As a nation, Nigeria relies heavily on climate-sensitive occupations such as farming, fishing, and logging which makes 70% of the workforce (Treichel, 2010). Four climate issues that relate to Nigeria environment are temperature, rainfall, extreme weather events and rising sea level. Rising temperature is associated with drying aquifers, streams and rivers, falling well water levels and other health challenges including meningitis and kidney stone. While heavy rainfall worsen gully and sheet erosions as affirmed by Nwajiuba(2011). Nigeria is very susceptible to climate change because her coastal cities are very critical to the economic health and well being of her people. The northern states battle with drought, desertification (ibid) and sometimes massive flood as experienced in 2012. The flood disasters were caused by internal waters, rain, and waters from Lagdo Dam in Cameroun. (Premium time,2012).

In Nigeria, increase in precipitation means heavy rainfall which has resulted to flood in most part of the country. According to NEMA (2010), Over 1600 Nigerians died in 20 000 floods over a decade. The 2012 flood was the worst, claiming 363 lives, displacing 2.1 million, affecting 7.7 millions and injuring 18,282 people between July 1 and October 31. It is reported to be the worst flood disaster in half a century (NEMA, 2012a)

These natural disasters are linked with global warming. As posited by NASA (2011), global warming refers to rising surface temperature while climate change includes global warming and everything else that increasing greenhouse gas levels will affect. Steinfield et al. (2006) define Climate change as a change in the statistical properties of the climate system when considered over long periods of time. Considering the trend of climate events and causes there is a close link to anthropogenic global warming. Anthropogenic factor such as increased greenhouse gases [Greenhouse effects], emission from fossil fuel combustion, cement manufacture, land use [deforestation] and animal agriculture. Greenhouse effect is the process wherein greenhouse gases (such as water vapour, carbon dioxide, methane) in the atmosphere absorb and re-emit heat being radiated from the earth, trapping warmth (International Energy Agency, 2012). Furthermore, Climate change is also caused by factors such as ocean processes (ocean circulation), increase in solar radiation receive by earth, volcanic eruptions and human activities that alter the natural habitats (National snow and ice Data centre, 2012). High and low precipitation results to flood and drought respectively and the Sub-Saharan region is extremely vulnerable to all adverse effects of increased warming. Changes in seasonal periodicity and its unpredictable state, having negative impact on health, environment and agriculture. Apart from all this it has the potential to trigger conflict (Sayne, 2011).

## 2012 FLOOD DISASTERS EXPERIENCE ACROSS SOME PART OF NIGERIA

The cause of the floods in Nigeria has been linked to rainfall and release of water from dams especially Lagdo dam. It should be noted that if the water was not released from the dams, it could have led to the collapse of those dams which would be more devastating. There have been incidences of flood in Nigeria but the August to September, 2012 flood was a national disaster because over 10 states were severely affected. Apart from the heavy down pour on the 26<sup>th</sup> of August, 2012, the floodings were also aggravated by the release of water from Lagdo Dam in Cameroon (NEMA, 2012a). Lagdo reservoir is a lake in the centre of northern Cameroon with primary inflow to Benue River. The Lagdo dam is an electric dam about 40m in height (Arbor, 2008). Water released from the dam flooded Adamawa state in Nigeria and most affected of the flooding are the lower Benue river region where more than 10, 000 homes were submerged for many days along with hectares of farm land (NEMA, 2012a). Jimeta-Yola, a city in Adamawa state was seriously flooded while in Bauchi state 220 houses, were washed away including farmlands and livestock. By 12<sup>th</sup> of September, 2012, Bauchi communities were flooded by overflow of river Katagun. Other states affected were Kano (caused by overflow of Tiga dam). On the 15<sup>th</sup> of September, Niger state and Taraba states were flooded. From the 16<sup>th</sup> to 23<sup>rd</sup> of September, more havoc was caused by floods in Kogi, Niger, Edo, Delta, subsequently Anambra and Bayelsa were affected. Kogi State with river confluence (River Benue and Niger) flood disaster cut the entire southern states from the northern states in Nigeria by road transport. Over 20000 residents of Kogi communities living along the bank of the Niger were displaced by flood due to river flow caused by release from Kainji dam, Jebba Hydro Power Plant and Shiroro dam (Abutu, 2012; Agenzia Fides, 2012).

Other causes of flood in the southern Nigeria apart from the rain is rising sea level. Increase in sea level as projected by UNHABITAT was 22cm-34cm from 1990 to 2080 but presently sea level has risen by 17cm. This is beyond expectation and faster in occurrence. The sub-Saharan Africa has 193,716,000 of its population at risk from sea level rise of which Nigeria has a significant part that comprises all coastal cities and riverine areas (UNHABITAT, 2012). With 30 of the 36 states affected since the month of July and 13 states are worst hit by this disaster surely an intervention is necessary (Agenzia Fides, 2012)

### The Nexus Between Flood And Social Determinant Of Health

WHO (2013) explains "social determinants of health as the conditions in which people are born, grow, live, work and age, including the health system. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels. The social determinants of health are mostly responsible for health inequities - the unfair and avoidable differences in health status seen within and between countries". Notably, A healthy wellbeing cannot be achieved without addressing the social determinants of health. The answer to addressing social determinants of health does not lie only in the health sector. Enhanced state of wellbeing requires negotiating with other social sectors to create a unified position in order to improve health outcomes at the global, regional and national levels (WHO, 2011). According to World Health Organization (2012), the evidence on the social gradient in health, identified that people who have higher socioeconomic status have a greater range of life chances and more opportunities to live flourishing lives and enjoy better health. This includes the level of income needed for adequate diet, physical activity, housing, social interaction, participation, transport, health care and personal hygiene. WHO (2012) also affirmed that educational achievement and acquisition of social skills, which are key predictors of income, significantly impact physical and mental health. Furthermore, the extent of people's participation in their communities and the added control over their lives that this brings can potentially contribute to their psychosocial well-being and thereby to other health outcomes.

### The Nigerian Experience

The following section will focus on how the social determinants of health previously mentioned were impacted by the recent flooding in Nigeria.

#### Socioeconomic Positioning (Occupation, Employment and market place):

The floods in most of the states along rivers Benue and Niger disrupted the economic activities of these communities. The central northern states where the rivers Benue and Niger pass through and forms a confluence in Lokoja, Kogi State, are rich with alluvial soil which support farming activities, therefore, Agriculture is the major source of income of these affected communities. Benue state is therefore referred as "food basket of the nation". More than 70% of the population are farmers (Treichel, 2010). Water released from the Lagdo dam affected mostly the lower Benue river region. As previously mentioned, many hectares of farm land were submerged for many days in Kogi, Benue and Adamawa (NEMA, 2012a). The sources of income were destroyed, and store houses were washed away leaving the people without income. Other groups affected were artisans such as carpenters, traders, tailors, blacksmith, welder, hairdressers, et cetera, who could not carry out their business their working tools were either damaged or washed away. This meant that these low income artisans have to start all over again with very little or no financial assistance either from the government or other agencies. Also Professionals workers like teacher, doctors and Nurses were unable to provide services due to washed away or flooded classrooms and health facilities. Thus, all human activities that could contribute

positively to the well being of the people were grounded. Since agriculture, which was the major source of livelihood, was destroyed and artisans who were majorly low income earner, out of business, there were no legitimate sources of income and consequently hunger and sickness prevailed. As affirmed by Nnamdi, et al (2012), 348 198 children under age five have been screened for malnutrition in the flood affected areas. Moreover, as of October 2012, 97 polio cases have been reported, which in an increase of 36% compared to the same time last year. (World Health Organization. Response to the flooding crisis in Nigeria – October 2012).

**Health facilities:** All the health facilities along lower Benue river region where submerged. Medical personnel had to move to safer environment leaving flood victims to “midwife” birth deliveries. About 20 health centres and 5 hospitals, have been destroyed or damaged in the state of Delta (Agenzia fides,2012). This is trend was replicated in other flood affected states. Consequently, health facilities that survived the floods were overstretched. Lack of access to Health facilities meant looming health problems across the affected states. The investigation of Mngutyo (2012) on the influence of flooded household environments on maternal health of flood plain dwellers in Makurdi, Benue state reveals that one in every four pregnancy was lost. There are reports of 57 pregnant women, premature deliveries, miscarriages and about 5 new born babies delivered in the Internally Displaced People Camps (IDPCs) in Adamawa State (NEMA,2012b). The cases were not different in Dutse were 45 pregnant women and 30 physically challenged persons were among the 1,403 people displaced by the flood at Yakasawa village in Ringim Local Government Area of Jigawa State. These victim were camped at the Junior Arabic School, Ringim in Jigawa.

There was a breakout of Cholera due to flood in Jos which raised the death toll to 47, Cholera also killed 2 people in Ekiti, while in Kastina state 77 people received treatment following the outbreak of cholera at Bakarya village in Faskari Local government area. The council’s Primary Health Care Coordinator confirmed that 7 people died of cholera. In Osun state the case is not different as 42 people have been hospitalized following the death of one pregnant woman and her mother in law (Channelstv.com, 2012; Allafrika.com2012; Dailytimes.com.2012; Tribune.com.ng, 2012; [Punchng.com](http://Punchng.com), 2012)

#### **Housing & Shelter**

During the flood incidence in 2012, houses and food stores were washed away or severely damaged. According to OCHA (2012) floods situation report, 597476 houses were damaged or destroyed by flood and there were 387 153 internal displaced person as of 15 November, 2012. Considering the lower Benue river region over 10, 000 homes were submerged for many days (NEMA, 2012a) resulting in over 20,000 residents of Kogi communities displaced (Abutu, 2012). The clusters of settlements or camps provided by government were all that people had for survival. Victims reported that personnel from both government and non governmental agencies were negligent in their services. This was probably due to the overwhelming need for shelter and inadequate/insufficient facilities. Some flood victims were refused admission into settlement camp due to overcrowding. In Kogi states, about 17 camp settlements were established to house victims (Amaize, 2012; Vanguard, 2012; UPI.com2012). Associated with overcrowding in the camps, were incidences of waterborne and foodborne diseases Such as cholera, typhoid, Shigella, dysenteriae type 1, and hepatitis A and E, (WHO,2012b) According to IFRC (2012), the focus was on the most affected areas in the 11 identified states of Kogi, Benue, Adamawa, Niger, Delta, Bayelsa, Rivers, Anambra, Edo, Taraba and Plateau. Support was given for emergency shelter and recovery, basic household items, provision of water and sanitation facilities in camps, household water purification tablets in certain identified areas, first aid, sensitization on flood related health risks; water, sanitation and hygiene promotion activities, amongst others. 26801 homes were severely damaged (excluding data from rivers state). Punch (2012) reported that as the flood water receded, many of the displaced persons in the 26 relief camps in Anambra state were eager to return to their destroyed homes.

**Loss of Land.** Beyond vast hectares of farm land that were submerged in water was also the destruction of topography. Some communities in Anambra and Balyesa state had lands that were destroyed by gully erosion which will require governmental intervention for those lands to be reclaimed. This also directly impacted farming, transportation and housing. Construction or building of infrastructures that can support the welfare of the people is thereby jeopardized (Agenzia Fides, 2012). On the basis of the assessment information, the current appeal now targets 11 highly affected states, targeting most vulnerable populations -including child headed, female headed households, (IFRC,2012).

#### **Education**

Educational activities were grounded in about nine local government areas and about 332 communities in Kogi state. Over 54,000 pupils in about 270 schools in the councils were affected by the closure of schools. (Punch Nigeria Limited, 2012). The Commissioner of Education stated that the flood would affect the performance of some of the pupils eligible for the West African Senior Secondary Certificate Examinations next year. Even schools that were not directly affected by the flood were used as relief camps for flood victims obviously with no other alternative for pupils and students to learn (ibid). It has been projected that students from regions affected by the floods who will also write standardized external examinations may perform poorly when compared to other students in other part of the country where education or learning activities were not disrupted.

Therefore students in the flooded regions are disadvantaged. Thus the ability to obtain certifications for skill and knowledge base required to compete for gainful employment in the already saturated labor market is jeopardized. Consequently the capacity for earning an income in order to meet basic needs for food, shelter, clothing and health care is compromised.

**Safety and security:** Natural disasters pose security threats to communities and families. Community structures that help to ensure peace and safety are often compromised. Incidences of looting, bribery or exploiting the victim, theft and physical (sexual) assaults or rape incidents were reported in some of the flooded communities (Odiegwu, 2012; UPI.com, 2012). According to Daily Independent (2012), rape incidence was reported in camps across the country and this raised concerns over health and social effects of this incidence on women. This means that victims may be at higher risk to contract sexually transmitted diseases such as HIV/AIDS.

#### **Mental Health.**

Flooding like other natural disasters takes its emotional toll on victims. The realities of losses of lives, homes, goods and means of livelihood often lead to depression and an overwhelming sense of hopelessness. For instance two victims who lost their homes in the Ibaji Local government committed suicide. Ibaji Local Government Area was one of the areas in Kogi State that was one of the worst hit by the flood (Vanguard, 2012). Natural disasters like the flood affecting most part of Nigeria directly or indirectly lead to depression (vanguard, 2012), Frustration and anger (Odiegwu, 2012).

#### **Recommendations**

While the task of adequate response to disaster could be overwhelming and may defy a simplistic list of possible solutions, the following recommendations are made as a contribution to safeguarding and responding to the impact of flooding on the social determinants of health within the Nigerian context.

1. **Environmental Education.** Efforts should be made to incorporate environmental education into the curriculum of schools from elementary to tertiary levels. This will instill environmentally friendly behaviours into the Nigerian culture right from childhood.
2. **Protection.** Sayne (2011) asserted that protection of existing resources is sure step for improvement. One of the communities in Balyesa state that did not suffer flood has already taken precautionary measures close to the time of flood disaster. This community constructed hedges with sand bags and embankment structures around water courses (AIT National, 2012). This shows the power of communal service in averting disaster. However, the three tiers of government are the most important forces in mitigating the effects of climate change due to their power (political and economically) and resource control while the individuals in community may be limited to resources for such projects. Areas noted for flood should have dykes constructed to keep farmland and villages from flooding. Increased capacity and roles for various sister agencies and better information that deals with assessment study of all finding and records on potential climate change on specific sectors, value chain or multiplying effects, populations, and risk region.
3. **Governmental Land Use Policies.** It has been observed that governmental policies and enforcement are ways of modifying behaviour in citizens. Thus it is recommended that all levels of government enact and enforce laws and policies that will protect and monitor land use. This will impact issues of deforestation and unauthorized excavations which is currently rampant in Nigeria.
4. **Adequate number of camps.** It is important that government build more camps as temporary shelters for people displaced by floods. This will decongest facilities and resolve the problem of overcrowding and the ensuing health challenges. It will also open up the schools for educational services rather than for shelters.
5. **Mobile Clinics.** It is recommended that the government provide health care centers that are mobile and staffed with emergency response professionals. Such mobile centers can then move from place to place to provide medical care to victims of natural disasters in the event that permanent structures are damaged or inaccessible.
6. **Educational Services.** Educational materials should be supply to pupils and students because majority of them lost their books and learning materials. Also teaching staff are to be educated on emergency responses and how to carry on educational services in the midst of natural disasters.
7. **Psychological first Aid.** There have been calls by experts for psychological first aid or introduction of mental health management in camps which will help flood victims to recovery from the shock of the floods. "The principles behind psychological first aid are simple but effective – in many ways it's like performing a triage function for the mind. Psychological first aid is not long-term counselling for things like posttraumatic stress disorder. Instead, the goal is to tap into a person's natural resilience to help them cope with the disaster in the days to come. Some studies have also identified post flood psychiatric disorder as a major mental problem associated with flood. (Eferaro, 2012). According to WHO in Vanguard (2012), depression is a significant contributor to the global burden of diseases and

has no ethnic, racial, geographical or economic bias. In 2020, depression will be the second leading cause of world disability. Indeed, the World Health Organisation (WHO), in recognition of the heavy toll of mental health consequences on flood victims has urged affected countries to ensure adequate management either at the disaster points or during service delivery. Most people will recover after the application of psychological first aid without needing further counselling. The idea is to help people tap into their natural strengths to deal with the crisis. The rate of prevalence may be difficult to be identify by mental health centres due to stigma associated to it. There are more mental health problems which are not reported because there is possibility of victims hiding the conditions of their mental health due to the stigma associated with mental health. This makes people shy away from seeking professional help from a psychiatrist (Eferaro, 2012). It is therefore recommended that there should be a multidisciplinary team of mental health professionals such as social workers, psychologists, counsellors, psychiatrist etc, who will respond to psycho social needs of victims of floods and other disasters.

8. Training. Given the need for urgency often demanded by the response to emergency situations such as natural disasters, volunteers who have good hearts but lack professional helping skills are often recruited to assist with crisis intervention. The implication of this the possibility of secondary trauma as indicated by some of the flood victims at the emergency camps. It is important that volunteers are given adequate training and orientation that will prepare them to deliver caring and client centred services.

## CONCLUSION

This paper presented a review of the impact of the floodings that happened in Nigeria in the latter part of 2012 and the impact on the social determinants of health. Given the link between human activities such as emission from fossil fuel combustion, cement manufacture, land use [deforestation] and animal agriculture and global warming which results in increased precipitation and flooding, it is pertinent that the government and citizens be involved in more preventive measures. Such efforts include aggressive education and awareness of climate change causalities, enforcement of land use policies and the construction of preventive infrastructures. Disaster response recommendations include the training of response volunteers and professionals, provision of adequate shelters and mobile clinics. Also a multi disciplinary and collaborative approach is to be utilized in addressing the psychosocial impact of flooding.

Nigeria may borrow a leaf from Kazakhstan where , there is a 94% percent reduction in the volume of gas flared possible through a 50% partnership with Chevron, in the name, TCO. In Nigeria, gas flaring still occurs and there is no complete project to curtail carbon emission (Chevron Corporation, 2012). Therefore, the Nigeria government must show commitment to stop gas flaring. This is similar to the ideas of Amosun, et al(2012) who asserted that thinking globally and acting locally will truly reflects the spirit of globalization for instance stopping all gas flaring in all oil refinery world over will give a global balance of the atmosphere and a conducive climate.

Creating awareness by making environmental education part of education curriculum is also an effective approach that will produce young minds that are zealous to secure their environment without depending solely on the federal government. In addition, Effective method of population management and regulation of population growth should be a high priority to the government

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