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What to do about Climate Change-Caused Flooding and the Associated Diseases in Rivers State of Nigeria

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What to do about Climate Change-Caused Flooding and the Associated Diseases in Rivers State of Nigeria

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I. Introduction

Flooding has become a major threat in that many countries the world over are struggling with loss of lives and properties, as well as associated diseases that emanate from it. Aside the pockets of flooding in the 1970s, 1980s and 1990s in Nigeria, flooding has become a huge issue after the 2012 overflow of Cameroon dam into most of the states in the country. In view of these circumstances, many people in flood-affected states lost their lives and properties due to poor responses from private organizations and government agencies in Nigeria. Indeed, this precarious situation was not different in Rivers State. Those in flood-affected communities complained of loss of lives of their beloved ones, alongside decimated crops arising from uncontrolled flooding. In addition, some complained of flood- associated diseases, lack of accommodation and inadequate food, in spite of the State Government's responses to curb same in these communities. The complaints by people in flood-affected areas have further persisted besides the 2012 flooding, in that today, there are no short-term and long-term policies for practical solutions to curb current flood-associated diseases in Rivers State. It is based on this premise that the study was spurred to investigate, alongside proffer solutions for *climate change-caused flooding and the associated diseases in Rivers State, Nigeria*.

II. Climate Change-Caused Flooding: an Overview

The man on the street of Nigeria sees climate change as change in weather conditions (Oriji and Oriji, 2013). This seems true but beyond it, Inter-governmental Panel on Climate (IPCC) (2007) sees climate change as change due to varieties of natural causes and emissions resulting from scientific and technological innovations. In addition to this fact, the negative effect of climate change is enormous on human beings, more so, when it is associated with flooding. In this regard, climate change has in recent times, caused startling issues of global warming, sea level rise, ozone depletion, deforestation, air pollution, loss of biodiversity, dreadful flooding and so on, that have in turn affected the existence in human environment (Oriji and Oriji, 2013). This seems true because change in climate has become a major cause of flooding, the world over. Furthermore, a flood is caused by,

> A combination of heavy rainfall causing river/oceans to overflow their banks, and can happen at any time of the year, not just in the winter. Floods generally develop over a period of days, when there is too much rainwater to fit in the rivers and water spreads over the land next to it ('the flood plain')(http://www.water.environment-agency.gov.-uk/-fun,2013).

Equally important is that the change in climate may cause sea to over flow into the coastal areas, especially when the natural change is a combination of heavy storms, under ground water rise and low atmospheric pressure. This seems the situation in most states in Nigeria, especially Rivers State where those in the coastal area live on plain land below the sea level, for which climate change-caused flooding at the dam (especially Cameroon dam) and the oceans as well as rivers, led to effects that have devastated them today. See Figures 1, 2, 3 and 4 for the devastating effects of flooding on the people of Rivers State of Nigeria. Also see Figure 5 for map indicating the 2012 flood affected Local Government Areas of Rivers State.

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Source:http//www.google.com.ng/search?q=images+of+flooding+in+rivers+st 2013.

Figure 1 : The Devastating Effects of Flooding on People's Houses in Rivers State.



Source: http//www.google.com.ng/search?q=images+of+flooding+in+rivers+st 2013.

Figure 2 : The Devastating Effects of Flooding on People's Access Road in Rivers State.

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Source:http//www.google.com.ng/search?q=images+of+flooding+in+rivers+st 2013.

Figure 3 : The Devastating Effects of Flooding on People's Farm Produce in Rivers State.



Source:http//www.google.com.ng/search?q=images+of+flooding+in+rivers+st 2013.

Figure 4 : The Devastating Effects of Flooding on People's Lifestyle (see an incident of a child defecating at a residence) in Rivers State, which may lead to contamination and diseases.

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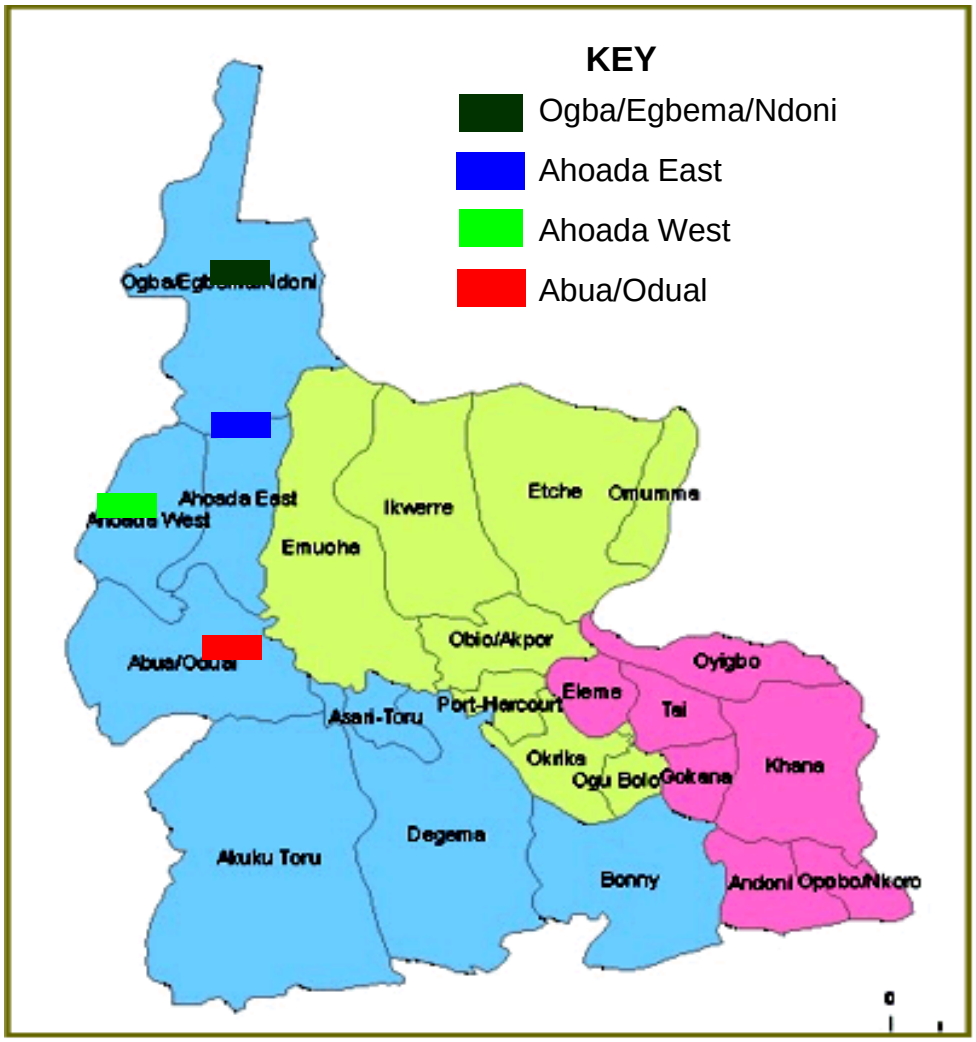

Source:http://www.google.com.ng/?gws_rd=cr#bav=on.2,or.r_qf.&fp=b90981c401ff03dc&q=image+of+ map+of+rivers+state/2012.

Figure 5 : Map indicating the 2012 Flood Affected Local Government Areas of Rivers State.

III. Effects of Flooding on People in Flooded Areas of Rivers State

It is obvious that flooding has devastating effects on people, more so, during the wet season in Nigeria. In view of this, Ordinioha (2006) explains that rising sea levels can lead to the following outcomes:

a) Displacement of coastal communities

b) Disturbance of agricultural activities

c) Coastal erosion, beach loss and related decline in tourism

d) Intrusion of sea water into freshwater aquifers.

In this regard, the 2012 flooding adversely affected 33 out of the 36 States of Nigeria, for which lives and properties as well as agricultural produce were also lost. Of these,

> More than 7.1 million persons have been affected one way or the other … the affected states were categorized into A, B and C on the basis of the supposed intensity of the impact of the flood. Bayelsa and Delta States were put in category A, while Rivers State was put in category B (Allen and Dube, 2012).

In order to quell the adverse effects of flooding in flood risk areas, Rivers State Government, led by Rt. Honourable Chibuike Amaechi created the Emergency Response Management Committee headed by Engineer Tele Ikuru (the deputy governor of the state then), with the mandate to resettle, feed and provide socio-health needs to the victims within time and space. In spite of the efforts of the deputy governor of Rivers State to help flood affected-victims on camps, Allen and Dube (2012) expound that,

> Some died as a result of the government's poor handling of the relief process. The camps did not

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meet the needs of the flood victims. Feeding in Rivers State's camps was grossly inadequate. Flood victims were given small rations of food to cook, even when they were not by any means treated like refugees, though in the real sense they were climate-change refugees. The food provided barely met nutritional health needs of victims, especially the sick and children.

IV. 2012 Flooding and the Associated Diseases in Rivers State

Flooding is associated with water borne diseases, especially if it comes with large flow of water with debris into homes of people. Consequently, people in flooded areas are usually infected with fever, cholera, dysentery, diarrhoea and other diseases, due to their contact with contaminated drinking-water and waste water facilities, as well as vector-borne diseases arising from flooding. In addition, floods can potentially increase the transmission of the following communicable diseases:

- Water-borne diseases, such as typhoid fever, cholera, leptospirosis and hepatitis A;
- Vector-borne diseases, such as malaria, dengue and dengue haemorrhagic fever, yellow fever, and West Nile Fever (http://who.int/hac/techguidance/-ems/flood -cds/en/index.html/2013). Besides this, there are specific cases of cities and countries where ef fects of flooding are associated with diseases:
  - Flooding on the Dominican Republic in 2004 led to malaria outbreak;
  - Periodic flooding linked to El Nino-Southern Oscillation (ENSO) is associated with malaria epidemics in the dry coastal Region of Northern Peru and with the resurgence of dengue in the past 10 years throughout the American continent;
  - West Nile Fever has resurged in Europe subsequent on heavy rains and flooding with outbreaks in Romania in 1996 - 97, in the Czech Republic in 1997 and Italy in 1998 (http://who/int/hac/-techguidance/ems/flood-cds/en/index.html, 2013)

Also in Nigeria, the 2012 flooding did witness large scale outbreak of diseases such as cholera and other infectious diseases that could lead to massive deaths on the camps; and even so, there were cases of malaria, diarrhoea and pneumonia in addition to various skin infections in the case of Rivers State (Allen and Dube, 2012). Indeed today, due to Nigerian's weak climate policy, people who were affected by the 2012 flooding in Rivers State are currently suffering from housing, socio-economic and health challenges; and thus they require the way-out of same for healthy future in the state.

a) What to do about Climate Change-Caused Flooding and its Associated Diseases in Rivers State

i. *Legislative Measures*

- Federal Government should strengthen the existing climate/flooding laws, as they affect states' laws in Nigeria.
- Federal Government in conjunction with the Rivers State Government should enforce the climate/flooding laws, in so much so that those involved in man-made flooding are prosecuted in the court of law and sentenced to jail, either without option of fine or with option of fine.

ii. *Short-term Measures*

- Rivers State Government should provide relief materials to victims immediately there is a flood incident. This should be done through town/community leaders rather than government officials.
- Rivers State Government and private organizations should inform, educate and communicate with the flood victims on the dangers of water-borne diseases, vector- borne diseases, and the effects of drinking flood water on them. Besides, they should also inform, educate and communicate with the section of the population in flood prone areas on the need for proper hand washing when they engage in daily activities which include cooking, eating, fishing, crop farming, and even defecating in the flood-risk vicinity.
- Rivers State Government should respond quickly to flood disaster areas whenever there is flooding, in order to save lives and property. In doing so, government should provide good camps and equip them with drugs, food and relief materials, as well as mobile toilets in order to also support the flood victims. Also, the government should ensure that the town/community leaders manage the relief materials sent by her, as she also ensures that professionals (doctors, public and community health personnel) take charge of professional roles on camps. In addition, the government should engage the medical sociologists and psychologists in the management of socio-psychological dispositions of flood victims on camps.
- Rivers State Government should ensure that flood victims are well managed and rehabilitated back to their homes by giving them loans as well as helping rebuild their houses.

iii. *Long-term Measures*

- There should be specific laws on flooding and its victims.
- There should be a specific policy on construction of more dams in flood prone areas, as well as reconstruction of the existing ones.

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- There should be deliberate policy on the protection and management of river banks as well as dredging of the rivers or creeks, in order to halt sea level rise above the plain land. *Ipso facto*, there should be deliberate safe reconstruction of flood prone areas overtime if the aforementioned policy is to be achieved.
- Rivers State Government should do the geographical mapping of flood prone areas; and thus should establish long-lasting architectural camps with hospital and school facilities in them. Indeed, these should be managed by professionals and protected by law enforcement agencies for better sustainability of the camps.
- Rivers State Government should liaise with National Emergency Management Agency (NEMA), in order to inform, educate and communicate the people about early warning against floods. Also, Federal Government should ensure that her personnel in National Emergency Management Agency (NEMA) in conjunction with State Emergency Management Agency (SEMA) visit the flood-risk areas incessantly, for early detection of flooding, and possible evacuation of victims to camps in the event of same.

V. Conclusion

In the light of the findings of the study, it is crystal clear that flooding poses a major challenge to Rivers State. In fact, sequel to the flood situation in the state, lives and property were lost. Based on these circumstances, the study with all intents and purposes suggests way-out of flooding and the associated diseases by proffering legislative, short-term and long-term measures that are reliable to check it in the study area. Thus, in sustaining these measures now and in the future, the study in addition opens windows of research on the relationship between flooding and low farm produce; as well the relationship between lack of resources to manage flooding and incessant loss of property in flood risk areas of Rivers State.

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