

Food insecurity and climatic change in Southern Region of Nigeria: An environmental health analysis

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Abstract

The purpose of the study was to examine the impact of flood disaster due to climate change on food security of flood disaster victims in Anambra and Imo States of Nigeria. A sample of 120 people drawn from 34 local government areas of the affected communities was selected using simple random sampling. A Structured questionnaire was used as the instrument for data collection, using a design time survey design. The results revealed that there was food insecurity as a result of destruction of the crops by flood and lack of land to cultivate since most of the lands were flooded. This resulted to malnutrition, hunger, and poverty. It was revealed that through extension workers, the problem of food insecurity could be reduced in these areas. Based on these findings recommendations were made, among which was that the government should use Extension Workers to distribute food and drugs to the affected areas to improve their health and food security.

Keywords: Food insecurity, climate change, flood disaster, Extension Workers.

Climate change is marked by global warming which is the increase in average surface temperature of the earth. Global warming could be seen as the gradual heating of the earth due to green house gases. This gradual heating leads to climate change and rising sea levels. (Vyigue, 2008). These rising sea levels could lead to flood disasters. Food insecurity, food deficits or shortages are major issues in climate change, and addressing ways to ensure that these issues could be minimized to some extent are the possible major challenges that all countries are concerned with. As far as 160,000 years ago past record of climate change indicates a close correlation between the concentration of green house gases in the atmosphere and global temperature. The United State Environmental Agency (2009) stated in its report that some greenhouse gases such as Carbon dioxide occur naturally and are emitted to the atmosphere through

natural processes and humans activities and other green house gases (e.g. fluorinated gases) are created solely through human activities. Human activities both in agriculture and industrial sectors lead to the emission of increasing quantities of heat-trapping molecules into the atmosphere. These molecules are known as green house gases. Smith (2002) opined that during the 1980's, Scientist, government, and the public became concerned about the possibility that the world may be getting warmer.

The United Nations Environment Programme established an Inter-Governmental panel on Climate Change (IPCC) to study the issues and make recommendations. Its first Assessment was published in 1990 in 1996, the IPCC published its Second Assessment and concluded that climate change is occurring and that it is highly probable

that human activities are important causes of the change. The IPCC has reached several important conclusions. These are:

- ♦ The average temperature of the earth has increased 0.3 – 0.6°C (0.5 – 1.0°F) (1999 was the warmest year record) and Sea level has risen to 10-25cm (4-10 inches) in the last 100 years.
- ♦ There is a strong correlation between the increase in temperature and amount of green house gases present in the atmosphere.
- ♦ Human activity greatly increases the amount of these green house gases.

Regional Climate Changes will likely be very different from changes in the global average. Differences from the region to region could be in both the magnitude and rate of climate change. Just as the climate change in the southern region of Nigeria, the most devastating natural disaster is flood. Flood is a phenomenon that sometimes has devastating effect on human livelihood. The impact of flood is more pronounced in the low-lying areas due to rapid growth in population, poor governance, decaying infrastructure and lack of proper environmental planning and management (Odufuma, Adedeji and Bongwa, 2012).

Indeed, the amount of economic damage caused by flood affects a large population of people in low-lying coastal zones or other areas at risk of flooding and extreme weather condition was largely on flood

insecurity particularly on the Southern region of Nigeria.

Food insecurity is the most broadly used measure of food deprivation. The USDA defines food insecurity as “consistent access to adequate food is limited by a lack of money and other resources at times during the year (Texas food bank Network (2013). The acceptable short term for food insecurity is “hunger” or at risk of hunger. Food insecurity exists when all people do not at all times have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life (FAO 2012).

CAUSES OF CLIMATE CHANGE AND FLOOD DISASTER

An explanation often put forward is that several gases in the atmosphere are transparent to light but absorb infrared radiation. These gases allow sunlight to penetrate to atmosphere and be absorbed by the earth’s surface. This sunlight energy is reradiated as infrared radiation (heat) which is absorbed by the gases. This is because the effect is similar to what happened in a green house the glass allows light to enter but retards the loss of heat. These gases are called green house gases and the warming thought to occur from their increase is called the green house effect. The most important green house gases are carbon dioxide (CO₂), Chlorofluoro Carbon (Primarily (CFC and C₂F₂) methane (CH₄) and Nitrous oxide (N₂O).

Table1: Major greenhouse gases and their characteristics

Gas	Atmospheric Concentration (ppm)	Annual Increase (Percent)	Lifespan years	Concentrate Global warming %	Principle sources
Carbon dioxide (fossil fuels) (biological)	355	.4	50 200	55	Coal, oil, natural gas deforestation
Chlorofluo carbons	0085	2.2	50-102	24	Foams, gerosels refrigerator solvent
Methans	1.714	.8	12-17	15	Wet land, rice, fossil, fuel, limestone
Nitrous oxide	.31	.25	120	6	Fossil fuels, fertilizers, deforestation

Source: Word Meteorological Organization.

The U.S Environmental protection Agency (EPA) 2009, listed the principal GHGS that enter the atmosphere because of human activities as follows:

- (i) Carbon dioxide (CO₂)
- (ii) Methane (CH₄)
- (iii) Nitrous oxide (N₂O)
- (iv) Fluorinate Gases

Rising sea level and flooding: one major cause of flood disaster is the rising sea level. The there is much rain the sea level tends to rise forward this will lead to flooding. In Nigeria with July and August 2012, there was rainy season which resulted to seasonal flash flood. The flash floods are sometimes lethal, especially in the rural areas or overcrowded slums, where drainage does not exist at all.

Another cause of flooding in Nigeria was the release of water from Laydo dam in Northern Cameroon by the Cameroonian authorities, which led to the submerging of many riverine settlements in some states in Nigeria which led to overflowing of farm lands and destruction of farm produce/ Agricultural produce that has caused food insecurity in the nation.

CHALLENGES OF FLOOD DISASTER ON FOOD INSECURITY

Nigeria has being experiencing rainy season and flooding but the 2012 has been worse than earlier years. Many parts of the country experienced serious floods as a result of the heavy rain at the end of August and the beginning of September 2012. The Nigeria authorities contained the initial excess run-off through contingency measures, but during the last week of September water reservoirs have over-flown and authorities were obliged to open dams to relive pressure in both Nigeria and neighbouring Cameroon and Niger, leading to destroyed river banks and infrastructure, loss of property and livestock and flesh floods in many areas especially the South-Eastern States of Anambra, Imo, Abia, Enugu and Ebonyi States. By 29th September, the flood had affected 134, 371 people, displaced, 64,473 were injured and 148 killed (FRC, 29th September, 2012) and many farm land destroyed which had the greatest threat and the challenges of climate change

on food security and on the agricultural produce. Ensuring food security at the national level is a high priority because it provides the link between production and availability of food for the areas affected by the flood disaster. Warming measures, communication and adequate policy on food security will be appropriately dealt with. That is why this paper focuses on the need of Home Economics extension worker on the challenges of flood disaster due to climate change on the South-Eastern regions of Nigeria.

Von (2008) identified climate change as one of the major causes of food insecurity as result of low agricultural output, high food prices and others. This cause is attributed to lower crop yields as a result of adverse weather conditions. FAO (2009) stated that climate change impacts the four key dimensions of food security, availability, stability, accessibility and utilization. Availability of agricultural product is affected by climate change directly through its impact on crop yields, soil fertility and water holding properties.

The resulting of challenges of flood disaster on food security are:

- (a) **Food insecurity:** This is high in developing countries which the South-Eastern region of Nigeria as Abia, Anambra, Imo, Enugu, and Ebonyi is inclusive but not totally absent in the developed countries. It can be categorized as either famine or hunger. The chronic food insecurity could be translated into high degree of vulnerability to famine or hunger. Food insecurity is seen when
 - (i) Healthy foods are expensive than unhealthy foods
 - (ii) Fishes die and rivers polluted
 - (iii) Lack of money to purchase foods
 - (iv) Indigenous foods are not accessible etc.
- (b) **Malnutrition/Nutrient deficiencies:** food insecurity has a significant effect on the nutritional status of those who are food insecure. The most vulnerable groups are the women, pregnant women, children and the aged. Many deficiency conditions

consequently appears infectious diseases then because the immune system cannot function properly. Inadequate nutrition provokes health problems in the greatly increase death risk especially on children.

- (c) Poor standard of living: food insecurity will affect the nation's work force which leads to underdevelopment, health, social, psychological and behavioural consequences which will eventually lead to poor standard of living.
- (d) Lack of accessibility and affordability of food because they are faced with poverty and cannot afford the foods that will supply them with the right nutrient. Increased food prices is a challenge to food access especially for low-income and the vulnerable populations.

STATE OF PROBLEM

During the incidence of the flood disaster many saw their means of livelihood washed away. It was unknown that over 5,000 farmlands were washed away, it was reported that over 3,200 hectares of rice plantation were washed away. The hardest-hit were the fishes, pigs and crop such as cassava and rice farmers. These effects made many experts believe that a food crisis characterized by the escalation of poverty, food scarcity and the rise in food prices is imminent especially on the areas affected by flood disaster if prompt action is not taken. Secondly, due to large-scale reduction in the supply of home-grown agricultural produce, a famine is lurking. (Obasi, 2012).

PURPOSE OF STUDY

The general purpose of the study was to examine the challenges of food insecurity due to climate change (flood disaster) in the south-eastern region of Nigeria. Need for Extension worker and specifically to:

- 1. Identify the causes of climate change (flood disaster).
- 2. Identify the challenges of food insecurity due to climate change (flood disaster).
- 3. Identify the role/need for Extension Worker in food insecurity.

RESERCH QUESTIONS

The following questions were formulated to guide the study:

- 1. What are the causes of climate change (flood disaster)
- 2. What are challenges of food insecurity due to climate change (flood) disaster?
- 3. What are the role/need of extension worker towards food insecurity?

METHODOLOGY

The research design that was used for this study was a descriptive survey design, a descriptive survey research design is one in which a group of people or items are studied by collecting and analyzing data from only a few people or items considered to be representative of the entire group (Floyed 2002).

AREA OF STUDY

The area of the study was the Southern region of Nigeria which comprises of five States such as Anambra, Abia, Imo, Enugu and Ebonyi States. These areas have big rivers in them and most of their lands are in low-lying areas.

POPULATION AND SAMPLE

The population of the study consisted of all the 34 major local government as in the five states in the southern region of Nigeria. The house-holds that are vulnerable to flood disaster seven (7) local government areas were randomly selected using simple random sampling. From the seven local government areas of affected eighteen people from the affected communities were chosen making it a total of 120 households consisting of civil servants and business men/women.

INSTRUMENT FOR DATA COLLECTION

The instrument used for data collection was structured questionnaire developed by the researcher. It was made up of two sections. Section A was demographic information from the respondents, while Section B was made up of questions on issues addressed by the study.

DATA COLLECTIONS & ANALYSIS

Copies of the questionnaire were administered to the respondents at their various locations. The information were completed questionnaires were analysed using Mean.

Normal values were assigned to a four point scale thus:

Strongly Agree	-	SA	= 4
Agree	-	A	= 3
Disagree	-	DS	= 2
Strongly disagree	-	D	= 1

Where x = sum of the nominal values

X = mean

N = Number of respondents

$$\text{Mean} \frac{4+3+2+1}{4} = \frac{10}{4} = 2.5$$

Therefore items with up to 2.50 and above were regarded as agreed while below 2.5 was rejected/ disagreed.

VALIDITY OF INSTRUMENT

The instruments were validated by five experts from the college. It was subjected to face and content validity. They suggestions/corrections were used in the final draft.

RESULTS

The data from the study were analyzed based on the research questions.

Research question 1 – What are the causes of climate change (flood disaster)?

The answer of this question lies in the information presented in Table 2.

Table 2: Causes of climate change

S/N	Items	SA	A	D	SD	N	X	Remark
1.	Rising sea levels causes flood	32	60	124	30	120	2.05	Disagree
2.	Too much rain fall	88	210	48	4	120	2.91	Agree
3.	Release of dam	44	228	30	6	120	3.02	Agree

Table 3: Challenges of food insecurity due to flood disaster

S/N	Items	SA	A	D	SD	N	X	Remark
1.	Farmlands/ crops are destroyed	80	180	60	10	120	2.75	Agree
2.	There is food insecurity	152	150	36	14	120	2.93	Agree
3.	Waters are polluted and fishes die	80	210	36	12	120	2.81	Agree

Most of the respondent responded positively to the item except the item No. 1 that has disagreed.

Research question 2 –What are the challenges of food insecurity due to flood disaster?

The answer of this question lies in the information presented in Table 3.

In table 2, the respondents agreed that the items in the research questions were the challenges of food insecurity due to flood disaster in the areas of the study.

Research question 3 – What are the roles/needs of the extension workers towards food insecurity?

Table 4: Need of the extension workers towards food insecurity

S/N	Items	SA	A	D	SD	N	X	Remark
	The Extension works inculcates into the vulnerable household how to make use of the available resources to food well	120	210	40	2	120	3.03	Agree
	They will help in efficient distribution of foods to the affected areas	120	120	44	28	120	2.6	Agree
	They should collaborate with the government to see that aids is being given to the affected areas	116	92	40	7	120	2.95	Agree

From the table above it was observed that the respondents responded positively to all the items which indicated that extension have role to play in food insecurity of the areas affected by flood disaster as a result of climate change.

DISCUSSION OF FINDINGS

From the information derived from the analysis, below were the findings;

1. Food insecurity could arise due to climate change (flood disaster) among the areas carried out the study.
2. Among the areas carried out the study they were faced with poverty, malnutrition, hunger etc. due to food insecurity.
3. That burning fuels as natural gas, coal, oil and gasoline raises the level of carbon dioxide in the atmosphere and carbon dioxide is a major contributor to global warming which leads to climate change. Wise utilization of energy can help to reduce the demand for fossil which reduces global warming that could lead to food insecurity.

CONCLUSION

Climate change (flood disaster) leads to food insecurity and food insecurity leads to hunger, malnutrition, poverty, death etc. Therefore, to avoid all these and have food security the anthropogenic causes of global warming which results to climate change should be prevented. Since food insecurity will lead to food crisis.

RECOMMENDATION

To eliminate food insecurity in the research areas the following recommendations were made:

1. The government should use the extension workers to distribute foods and drugs to the affected areas.
2. The government and Non-governmental organizations should make food secured to the affected areas by giving them aids.
3. The government and the individuals should endeavour to avoid those anthropogenic causes of global warming which could result to climate change and food insecurity.

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