

*Full Length Research Paper*

# The effect of environmental hazards on sustainability of food security in Ahoada East Local Government Area of Rivers State, Nigeria

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The study investigates the effect of Environmental Hazards on Sustainability of food security in Ahoada East Local Government Area of Rivers State, Nigeria. The following objectives were to: examine the causes of environmental hazards towards enhancing food security; investigate the effects of environmental hazards and maintenance of food security; identify possible remedy towards environmental hazards on food sustainability. A total number of 120 respondents from commercial farmers, ministries of health and environment were selected using random sampling techniques. Primary and secondary data were collected and analyzed with the aid of questionnaire and interviews. Data analysis was done using frequency table and percentage. The result obtained shows that 100% of environmental hazards is caused by man and nature frequencies of 110 with 91.67% and 10 with 8.33%. Investigation carried out shows that environmental hazards occurs every hour, day, weeks, months and years which have bag effects on sustaining food security. Also solutions like awareness creation, location of a particular place for waste disposal, fumigation of the environment, construction of pipeline, employment of trained personnel to educate farmers and individuals on how to control, manage and protect their environment against environmental hazards on sustaining food security in the study area. The study recommends that government should provide refuse receptacles in large quantity and place them at interval of not more than 200m apart in both residential and commercial areas. Pipeline should be constructed to channel the flow of oil to its destination. Government should sponsor public health education or environmental education programme to the people. Individual should give financial sacrifice for environmental protection. Individuals or farmers should see it as part of their responsibility to report any kind of hazards to the government, ministries of health and environment. There should be a cultural revolution where awareness is created among the illiterate farmers or individuals on how to control manage and protect their environment against the preceding hazards. Farmers or individuals should be given advices on how to control and handle some activities that will result to environmental problems.

**Keywords:** Environmental, Hazard, Sustainability and Food Security.

## INTRODUCTION

The effects of environmental hazards on Sustainability of food security cannot be over-emphasized. Environmental

hazards could be defined as any factor or stress arising from or in the environment which may cause damage, sickness, impairment to health and well-being or significant discomfort and inefficiency among individuals, food and properties (Olishifeke, 2007).

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Throughout history, the environment and natural resou-

-nces have played a defining role in social, political and economic transformations. They have also being a major contention in characterizing Ahoada east local government area of Rivers State, Nigeria as a local government in crisis, (Opara, and Gerhard, 2008). The environment has been at the receiving end and overburdened with aftermath of the excesses of humans in their struggles for survival. Environment is a complex weave of physical, chemical and biotic factors that interact with each other and impact upon all living things and their surroundings. It is a life supporting system for human existence and survival as well as it provides requirement for socio-economic progress (UNDP, 2001). Environment is the source of global economy that must be protected and managed sustainably. According to Aluko (2001), he emphasizes that all efforts directed at managing and administering the environment is to ensure the contained existence of the biological diversity entities on the earth of which humans are the prime species and without it, humans cannot exist.

Hazard is anything with a potential to cause harm or accident (Chilaka, 2001). According to Dittah (2000) Hazard is anything that can be dangerous or cause damage, it is estimated that at least 250 million hazards occur every year worldwide. About 335,000 of these hazards are fatal and results in death and lost of properties (Brown, 2013). Environmental hazards usually result in loss of both material and human resources. Some environmental hazards could result in outright death or minor injury and sickness. When this occurs, there is usually loss of man-hour which in effect may affect productivity negatively (Nwachukwu, 2000). Food security is the state of having reliable access to a sufficient quantity of affordable and nutritious food. When food is well secured, life is sustained, food security is a situation that exists when all people at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (Ighodo, 2007).

Food security can be tackled from the consumption perspective, for example, by looking at the efficiency gained from changing diets. Livestock production is more than six times as in efficient as crop production in terms of protein output, and hence meat diets are associated with higher land intake and nutrient losses (FOA, 2009). According to Dewbree (2012) sustainability is the act involving the use of natural products and energy in a way that does not harm the environment. To sustain food security and environment, it simply means to maintain, support and hold firmly the safeness of the environment in which people dwell and food in which people take in every day. Individuals can ensure food security themselves with the help of adequate awareness to be administered by the National Agency for Food and Drug Administration Control Organization (NAFDAC) set up by the government to ensure food security in the country

and state.

## METHODOLOGY

### Area of Study

Ahoada East Local Government Area is one of the twenty three local Government Areas in Rivers State Nigeria which lies in the Niger Delta within latitude  $5^{\circ}51' 0''$  North and longitude  $6^{\circ}39' 0''$  East. It has an area of  $341\text{km}^2$ , a density of  $685.3/\text{km}^2$  and a population of 166,324 at the 2006 census. The LGA is made up of one urban centre (Ahoada) and several rural communities. Ahoada East Local Government Area is located Northwest of Port Harcourt and in Nigeria in the southeastern Ahoada East is a City in Orashi region of Rivers state, Nigeria. (Ajugo, U.B, 2005)

The Ekpeye people are the dominants of Ahoada east L.G.A. who engaged in subsistence farming, fishing and trading Household including many less-income earners living in typical mud houses in a hydrocarbon polluted environment. The study area will be centered on communities in Ahoada East Local Government Area of Rivers State. The Local Government of the state is richly blessed with natural resources majorly crude oil and large areas for farming Ahoada east is bounded in the North by Emohua, in the West by Ahoada West, in the East by Abua and in the South by Omouku (Ogba). Ahoada East is divided into three major kingdoms which are Akoh, Ukpata and Ibu-Ahoada. The ecological zone of Akoh Kingdom ranges from mangrove and fresh water swamp, they are the Riverline area in Ahoada East L.G.A and so as Ibu-Ahoada. The ecological zone of Ukpata Kingdom ranges from mangrove and high rainforest. The peoples major occupation is based on farming, fishing, hunting and livestock rearing (goat, snail, pig and bird rearing) while others engages in politics, business and white collar jobs. Ahoada East people speak Ekpeye language which is derived from the Igbo language. The language is similar with Etche, Ikwerre, Ogba Egbema Ndoni. Ekpeye people are perhaps the most dynamic of southern Nigeria people. It's culture is a complete mix of original Ekpeye, neighbouring Ijaw and influential Igbo cultures Ekpeye cultures is most similar to Igbo culture because their interactions with the Igbo have been the earliest, the most intense and longest, yet the differences are very plain, for example among the mask traditions of the Ekpeye, the Egbukele from Ijaw via Abua is the major one, distinctive for the horizontal fish-shaped head dresses and other animal representations which are quite distinct from Igbo representations.

### Population of the Study

The population of this study were made up of the commercial farmers, ministries of environment and health

in Ahoada East Local Government Area in respect to their environment and how they will maintain food security in the society.

### Sampling Procedure and Sample Size

Ahoada East L.G.A is made up of thirty three (33) communities and eight (8) communities was purposively selected based on the presence of individual communities affected by environmental hazards like oil spills. The sample size consists of (120) respondents that were randomly selected. A proportionate sample of fifteen (15) respondents from each of the selected communities from the eight (8) communities in Ahoada East Local Government Area was employed. The eight (8) communities selected are: Ahoada, Abrikpo, Ozochi, Ikata, Ihuike, Ula-Upata, Ogbelle and Anwurugbokor. FOOD insecurity heads of households. Food security heads of households were selected using simple random techniques.

### Sources and Method of Data Collection

For the purpose of this research work, data were gotten from both primary and secondary source.

**Primary Data:** Primary data were collected through the use of interview, observation and questionnaire adopted to seek information from the respondents selected from the different communities. Through oral interviews, oral questions were administered to the respondents, this source was important especially to the illiterate ones who cannot write and read and questionnaire were distributed to the respondents for them to tick their options about the preceding environmental hazards in the study area.

**Secondary data:** The secondary data were sourced from textbooks, journals, articles, and documents related to the research area and which are acknowledge in the body and at the end of this work.

### Method of Data Analysis

The data generated were analyzed using frequency table and percentage for the motive of this study.

## RESULT

This chapter presents the data analysis and results of findings. A total number of 120 out of the distributed 150 questionnaire which were found useful, and were used for data analysis. Frequency table and percentage were used for this analysis.

From the table above, it shows the total questionnaire distributed to the respondents, total return of the questionnaire from the respondents and total questionnaire not returned from the respondents. One hundred and fifty (150) questionnaires were distributed to

the respondents, one hundred and twenty (120) questionnaires were returned and thirty (30) questionnaires were not returned. Therefore only one hundred and twenty (120) questionnaires was used for this analysis.

### Causes of environmental hazards towards enhancing food security in the study area

Above table indicated that 24.17% environmental hazards is caused by oil exploration, exploitation and pipeline linkage. 16.7% environmental hazards is caused by improper waste disposal. 8.33% hazards is caused by improper Gas handling. 21.7% hazard is caused by smoke from vehicles and generator engine. 14.17% hazard is caused by excess water accumulation. 4.17% hazard is caused by deforestation and finally, 10.83% hazard is caused by climatic conditions as perceived and indicated by respondents. The table above shows the types of environmental problems that occur in the environment as perceived by respondents.

### The effects of environmental hazards and maintenance of food security

The above table shows how frequently the selected environmental hazards occur in the environment as perceived by respondents. The table indicated that 41.67% environmental problems occur everyday, 17.5% every week, 8.33% every month, 15% every year, 10.83% every two to three years, 6.67% every four to six years and none which means that it do not occur at all representing 0%.

From the table above, the respondents indicated the effects of the selected environmental hazards and also indicated that they have negative effects on food security in the area.

## DISCUSSION

### Causes of Environmental Hazards Towards Enhancing Food Security in the Study Area

Table 1 shows that 24.17% environmental hazard is caused by oil exploration, exploration and pipeline linkage. 16.7% environmental hazards is caused by improper waste disposal which results to air pollution and breeds pests, pathogens and diseases which affects human health, crops and animals. 8.33% hazards is caused by improper gas handling which also results to air pollution and food poisoning. 21.7% hazards is caused by smoke from vehicles and generator engine which have effects on health of individuals and animals. 14.17% hazards is caused by excess water accumulation (flooding) which affects Agricultural activities and productions, damages farm lands etc. 4.17% hazards Es

**Table 1:** Table showing the frequency distribution of the questionnaire.

Respondents	Quantity distributed	Quantity return	Quantity of returned
Commercial farmers	70	60	10
Ministry of Environment	50	40	10
Ministry of Health	30	20	10
Total	150	120	30

Source: Field Survey, 2018.

**Table 2:** Causes of environmental hazards or problems as perceived by respondents.

Items	Frequency	Percentage (%)
Oil exploration, exploitation and pipeline linkage	29	24.17
Improper waste disposal	20	16.7
Improper gas handling	10	8.33
Smoke from vehicle and generator engine	26	21.7
Excess water accumulation	17	14.17
Deforestation	5	4.17
Climatic conditions	13	10.83
Total	120	100%

Source: Field Survey, 2019.

**Table 3:** Types of Environmental Hazards as Perceived by Respondents.

Items	Frequency	Percentage (%)
Climatic changes	20	16.67
Pests, pathogens and disease attack	24	20
Flooding	31	25.83
Oil spillage	8	6.67
Gas flaring	20	16.67
Exhaust gas	13	10.83
Erosion	4	3.33
Total	120	100%

Source: field source, 2019

caused by deforestation, and finally 10.83% hazards that occur in our environment is caused by climatic conditions.

Table 2 showed that 110 representing 19.6% respondents indicated that environmental hazards are caused by both man and nature. 10 representing 8.33% respondents indicated that environmental hazards are not caused by man and nature. Table 3 indicates the types of environmental hazards as perceived by respondents which occur in their environments or residents.

### The effects of environmental hazards and maintenance of food security

Table 3 indicates the rate at which environmental hazards occur in the respondents residents. From the majority of the respondents, 50 (41.67%) experienced environmental hazards every day. 21 (17.5%) experienced it once every week. 10 (8.33%) every month. 18 (15%) every year. 13 (10.83%) every two to three years. 8 (6.67%) every four to six years and finally none

representing (0%). This is an indication that environmental hazards occur in the environment as the day, weeks, months and years goes on. There is no time or period environmental hazard do not occur.

Table 4 showed that 115 representing (95.83%) out of the 120 respondents indicated that environmental hazards have effects on food security and 5 representing (4.17%) respondents indicates that environmental hazards do not have effects on food security. Hazards strictly affect food security which results to food insecurity having negative influence on human health, crops and animals.

### Possible solutions towards environmental hazards on food sustainability

Table 5 indicated that ministries of health and environment administered advices to the respondents. 70 representing (58.33%) out of 120 respondents indicated that they received advice from the both ministries while 50

**Table 4:** The rate at which environmental hazards occur in the environment (This depends on the hazards as perceived by respondents).

Items	Frequency	Percentage (%)
Everyday	50	41.67
Once every week	21	17.5
Once every month	10	8.33
Every year	18	15
Once in two to three years	13	10.83
Once in four to six years	8	6.67
None	-	-
<b>Total</b>	<b>120</b>	<b>100%</b>

Source: field survey, 2019

**Table 3.2.3:** Effects of Environmental Hazards and Maintenance of Food Security

Environmental hazards	Effects on food security	Frequency	Percentage (%)
Flooding	Food scarcity	30	25%
Exhaust gas/gas flaring	Air pollution	22	18.33
Oil spillage	Water and land pollution	5	4.17
Improper waste disposal	Breed pests, pathogens and diseases	20	16.67
Flooding/air pollution	Sickness and death	6	5
Oil Spillage/gas flaring	Food poisoning	12	10%
Climatic conditions/ flooding	Decreased agricultural activities and productivity	23	19.17
Deforestation	Erosion	2	1.67
<b>Total</b>		<b>120</b>	<b>100%</b>

Source: field survey, 2019

representing (41.67%) out of 120 respondents indicated that they do not receive any advice from the both ministries.

Table 2 exposed the possible remedies to control or reduce environmental problems. All the respondents accepted that the solutions listed should be adopted. Total number of 30 representing (21%) out of 120 respondents indicated that a place should be located for waste disposal. 15 (12.5%) indicated that pipeline should be constructed, 20 (16.67%) indicated that the environment should be fumigated to control diseases and pests attack, 30 (25%) indicated that adequate awareness creation should be administered to the farmers and other individuals informing them of the dangers of environmental problems, 25 (20.83%) indicated that well trained personnel should be employed to educate farmers and other individuals on how to manage and protect their environment against hazards. In total (100%) of (120) respondents indicated that the possible solutions mentioned should be adopted and put to practice to maintain and promote food security.

## CONCLUSION

Environmental hazards and its effects on sustaining food security has negative influence on Agricultural productions and activities in Ahoada East Local Government Area of Rivers State Nigeria, therefore

farmers in this locality should be enlightened on how to control or reduce the hazards that occur in their residents, so that its effects on agricultural production, activities and human health will be in a minimum rate. From the analysis carried out, the result showed that man and nature causes environmental hazards, and its impact greatly affects food security or agricultural productions.

The result also showed that environmental hazards occurs every hour, day, week, months and years at a particular period or season. Based on the findings of this research, it can be concluded that environmental hazards affects food security or Agricultural production and it can be controlled or reduced if the farmers are been enlightened to control, manage or reduce them. Other services to protect the environment can also be rendered to the farmers.

## RECOMMENDATIONS

Base on the findings, the following recommendations were made;

- i. Government should provide refuse receptacles in large quantity and place them at interval of not more than room apart in both residential and commercial areas.
- ii. Government should sponsor public health education or environmental education programme to the people

- iii. Pipeline should be constructed to channel the flow of oil to its destination.
- iv. Individual should give financial sacrifice for environmental protection.
- vi. Individuals or farmers should see it as part of their responsibility to report any kind of hazards to the government, ministries of health and environment.
- vii. There should be a cultural revolution where awareness is created among the illiterate farmers or individuals on how to control, manage and protect their environment against the preceding hazards.

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