

Examination of Flooding and Food Security in Ogwuikpele And Atani Communities in Ogbaru Local Government Area, Anambra State.

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Abstract: *This study examined the impact of flooding on food security in Ogwuikpele and Atani communities in Ogbaru local government area, Anambra state. "The population of the area based on the 2022 projection figure is 35,000 for Ogwuikpele and Atani Communities. A sample of 400 emerged which was determined using Slovin (1964) formula for large population. An objective was formulated to guide the study. The study adopted survey design. Simple percentages and frequency tables were adopted. Chi-square was used to test the hypothesis. The finding of the study shows that flood has not affected food security of Ogwuikpele and Atani in Ogbaru local government area of Anambra State. Hence, the study recommends that there should be a deliberate policy to compel communities especially in rural areas to build house using durable materials and away from the flood prone areas.*

Keywords: *Flood, food security, communities, Ogwu-ikpele, Atani, local government, Ogbaru.*

Introduction

Globally, disasters are seen to have one of the most devastating effects on economic development, livelihoods, agriculture, health, social and human life (Musah & Oloruntoba, 2021). Natural disasters have a very significant economic and food security impacts especially in rural farming communities (Musah & Oloruntoba, 2020), since climate change leading to flooding triggers crop failures, and heightens the incidence of food shortage due to poor harvest (Tologbonse, Auta, Jaliya, Onu & Issa, 2020; Tunde, 2022).

The greatest environmental change facing the world today is regrettably climate change. Essop (2009) pointed that the severity of floods which elevates food security issues is mostly slight rainfall variations. FAO (2019) defines Food security as availability of food, access to it, the distribution of food, food production and ability to buy food if not produced. The relationship between climate change and food production is quite complex because climate change affects all dimensions of food production and security. These include utilization of food, food accessibility, the availability of food, and stabilization of food system. Food security all over the world is threatened every time there is a climate change that leads to flooding.

Unfortunately, the rural farming communities happen to be the most vulnerable to food security crises (Tunde, 2020). WHO (2021) reported that World Bank statistics showed Nigeria is responsible for about 10% of global emission. Nigeria alone emits 35 million tons of carbon (iv) oxide (CO₂) and 12million tons of methane (CH₄) which has a high warming potential than Carbon (iv) oxide. A major consequence of global warming is rise in sea level which most likely leads to flooding especially of the low lying coastal areas, with an adverse effect on food production especially on vulnerable populations which are the women and children (Tunde, 2020). Flooding reduces output and productivity of food and increases food security risks due to damaged ecosystem, loss of livelihood and diminished supply of food products (Tunde, 2020).

The damage of flood includes human damages and loses, flooded houses, flooding of residential and industrial places, flooded farmlands and loss in agricultural production (Norouzi and Taslimi, 2022), especially in rural communities like Ogwuikpele and Atani in Ogbaru Local Government Area predominated by children, women and the elderly who depend mostly on their farmlands for their source of food and livelihood, but are not so equipped to cope with natural disasters and change in climate (Yocogan-Diano & Kashiwazaki, 2019).

Government therefore needs to strengthen its emergency response and recovery plans because if this happens, food production which is in fact one of the most vulnerable to flooding in terms of decline in agriculture and food security (Frederick, David, Yengo, Odoi and Afrifa, 2020) will suffer the most. Agriculture is somewhat rainfed (Ojo, 2019) hence most vulnerable to flooding due to excessive rainfall, a natural consequence of climate change. Agriculture contributes to more than 30% of the Nigeria's total annual GDP, employs about 70% of the non-oil export and more importantly provides over 80% of the food of nation (Adegbeye, 2020). This makes Agriculture a major sector of the Nigerian economy.

Since flooding has become a source of concern to crop production of Ogwuikpele and Atani in Ogbaru Local Government Area as well as threatening the goal of food production of the state, there is a great need to study this phenomenon especially on a micro scale. This necessitated the research on the impact of flood on food production and security of Ogwuikpele and Atani in Ogbaru Local Government Area.

There is basically the problem of flood, which is a natural disaster that may affect people adversely. It is thus, this problem of flood that necessitated this study on the extent to which it affects food security of the people of Ogwuikpele and Atani in Ogbaru Local Government Area.

Objectives of the Study

The broad objective of the study is to assess the impact of flooding on food security in Ogwuikpele and Atani in Ogbaru local government area of Anambra State. Specifically, the study intends:

-To determine how flood has affected food security of Ogwuikpele and Atani in Ogbaru local government area of Anambra State.

Conceptual Review

Flood

Recent floods and consequences all over the world are becoming too frequent and threat to sustainable development in human settlements (Aderogba, 2020). Nigeria is one of the luckiest countries on earth in respect to water resources. But we must acknowledge that flooding and water stress in Nigeria, Africa and across the world, are environmental challenges that need intervention to ensure sustainability (Akolokwu, 2020).

Flooding is one of the major environmental crises one has to contend within the century. This is especially the case in most wetlands of the world (Bariweniet al., 2012). The reason for this is the general rise in sea level globally, due to global warming as well as the saturated nature of the wetlands in many parts of the world such as Nigeria. Periodic floods occur on many rivers, these rivers overflow for reasons like excess rainfall etc. The good thing about river overflows is the fact that as flood waters flow into the banks, sand, silt and debris are deposited on the surrounding land. After the river water subsided and go back to its normal flow, the deposited materials will help make the land richer or more fertile. The organic materials and minerals deposited by the river water therefore keep the soil fertile and productive (Abowei and Sikoki, 2019).

Flooding that occurred in some parts of Nigeria in 2012 is the country's worst in living memory (Social Action, 2012). Floods are among the most devastating natural disasters in the world, claiming more lives and causing more property damage than any other natural phenomena. In Nigeria, though not leading in terms of claiming lives, flood affects and displaces more people than any other disaster; it also causes more damage to properties. At least 20 per cent of the population is at risk from one form of flooding to another. In Nigeria, flood disaster has been perilous to communities and institutions in Nigeria. It has shattered both the built-environment and undeveloped plan. It has claimed many lives, and millions of properties got lost due to its occurrences. One prominent feature about it is that flooding does not discriminate, but marginalizes whosoever refuses to prepare for its occurrence (Etuonovbe, 2011).

Flood affects more people on an annual basis than any other form of natural disaster, a variety of climatic and non-climatic processes influence flood processes, resulting in different types of floods (Collins and Simpson, 2007). Increasing flood risk is now being recognized as the most important threat from climate change in many parts of the world (Dyson, 2002). Several studies have adduced extreme rainfall to be the major cause of flood worldwide including Nigeria (Ologunorisa and Tersoo, 2006). These studies included Gobo (1988), McEwen (1989), Oriola (1994), Babatolu (1996), Federal Ministry of Water Resources and Rural Development, Federal Republic of Nigeria, Abuja (FMWRRD) (1998), Odekunle (2001), Fowler and Kilsby (2003) as well as Ologunorisa (2004). But other authors have identified the characteristics of extreme rainfall that are associated with flood frequency in Nigeria to include duration, intensity, frequency, seasonality, variability, trend and fluctuation (Olaniran, 1983; Ologunorisa, 2001; Ologunorisa and Diagi, 2005).

Food Security

Food insecurity represents lack of access to enough food and can be either chronic or temporary. In chronic food insecurity, which arises from a lack of resources to produce or acquire food, the diet is persistently inadequate (Adeoti, 1989). It should be noted that availability of food alone does not seem sufficient to explain the attainment of food security in a country. Food can be available in a country because of effective agricultural policy; good harvest in a particular year or massive importation of food; or food handout (aid). Massive food import, particularly by developing countries, usually has negative effect on foreign reserves and causes budgetary hemorrhage (Davies, 2009), while food and which is sometimes used as an economic instrument in the service of political goal of the donor countries (Ikoku, 1980), may even discourage food production activities in the recipient countries; any country that needs massive food input or food aid before its citizens could feed would have only a short term solution to its food crisis but would not

be food-secure for all times because the feeding of the people in that country will be dependent on the willingness and sometimes the ability of the external suppliers to supply. This is not to suggest that every country that has reason(s) to import food lacks food supply.

On the contrary, some countries may and do import food to offset production shocks and cover the short-fall in domestic food supplies (Lavy, 1992), encourage consumption of some food items or even assist the export trade of a particular target state with which they have bilateral trade agreements. Import of food by such countries may not necessarily be undertaken to solve any severe food shortage problem. To that extent, these countries are not food-insecure. Food security should not be seen only from the perspective of availability as earlier mentioned either in quantitative or qualitative terms.

Food hygiene and safety should also be given important consideration in order to protect the health of the people. Food, for instance, may be available but the source from which the food is produced or processed may be unhygienic or that the chemical substances used to produce or preserve the food may constitute a health hazard. Health and safety consideration therefore becomes important in food production. For instance, given the likely general misuse of chemicals due to illiteracy and crass ignorance, particularly in developing countries, some chemicals used for treating livestock diseases indiscriminate application of pesticides to treat crops diseases or control pest and other agricultural parasites, may be harmful to humans much later after the consumption of the agricultural products (Sinha, 1976). In essence, a country should be considered as food-secure when food is not only available in the quantity needed by the population consistent with decent living, but also when the consumption of the food should not pose any health hazard to the citizens (Davies, 2009).

Flood and Food Security in Oguikepele and Atani in Ogbaru Local Government Area

Anambra State is situated at the lowest point of the River Niger and as such is flood prone. These periodic flooding that occur on rivers, form a surrounding region known as flood plain and it is on this plain that economic activities of these people take place. This was the reason why Anambra State was greatly and badly affected by flood (Sun News, 2012). The affected local government areas were Anambra West, Anyamelum, Anambra East and Ogbaru. These local governments were highly submerged in water. The impacts of such floods have been severe due to the number of human populations exposed following the attractions of coastal areas for economic and social reasons.

Oguikepele and Atani communities in Ogbaru local government area suffer most of the floods on account of their relatively low and flat disposition with slope angles of 1°-3° (Ajaero and Mozie, 2014). Some of these communities are flooded for over 8 months of the year as a result of their low lying relief and location at the point where the River Niger seem to have one of its greatest discharge rates. The overflow of the river bank by the water from the river into the overlying plain is therefore an essential geographical feature of this location. The relief is a plain land of heights ranging from 0 – 50m and characterized by swampy conditions as a result of its alluvial mud content. Its geology is mainly alluvium while the River Niger and Ulasi River which is its major tributary constitute the two major rivers in the area. However, there are local creeks and ponds all over its landscape. The vegetation is a mixture of fringing forests along the banks of the river Niger and guinea savannah in the hinterland (Ezenwaji et al., 2014).

The primary, secondary and tertiary effects of flood were called into play in the last flood disaster in Ogbaru. There were physical damages to structures, social dislocation, contamination of clean drinking water, spread of water-borne diseases, shortage of crops and food supplies, death of nontolerant tree species, disruption in transportation system, serious economic loss and psychological trauma. According to Ajaero and Mozie (2014) about 96.70% of Ogbaru L.G.A was affected, 81.70% was very severely damaged and in about 36% the flood comes yearly and comes after a long spell of safety in about 64%.

Huge sum of money meant for other purposes were spent to cushion the effect of the natural disaster Other impacts of flood include physical injuries, social disorders, homelessness, food insecurity, economic losses (mainly through destruction of farmlands, social and urban infrastructure) and economic disruption as is evidenced in some communities that was submerged by flood in Anambra State. The number of Internally Displaced Persons (IDPs) ran into thousands with an estimated 10,000 homes fully or partially submerged (Oseloka, 2012). The situation for these communities remained dire and very bleak. Homes, farmlands and properties estimated at billions of naira were lost; there were minimal loss of lives, with only few casualties, through the early warning and proactive intervention of the Anambra State Government and SEMA (Okpala, 2013).

Theoretical Framework

The Systems theory is suitable for the study. This is because it is the theory that has to do with public policy implementation. The theory in political science owes its origin to David Easton, who is reputed to be the scholar that attempted to analyze politics from the perspective of systems, in his famous work, “political system” that appeared in 1953.

It is an integrative theory that attempts to present the society as a unified, purposeful system composed of interrelated parts. Systems theory assumes further that the society is like a system and that whatever affects a part of the society, will also affect the other

segments of the society. David Easton used human being in his analysis of the theory where he stipulates that every part of the human body is important in such a way that when the nose or the eyes are affected, the other parts will feel the impact.

Easton also sees a political system as that system of interaction in any society through which binding or authoritative allocations are made and implemented in the form of policies and decisions. The output flows back into the environment through a feedback mechanism giving rise to fresh demands. Demands are the raw materials from which the finished products (decisions) are manufactured. Supports are the energy in *the forms of actions or orientations enabling the political system to convert the demands into authoritative decisions and policies.*

Application of the Theory

Linking the system theory to the study, input is seen as emanating from the environment in form of demand and support. These demands and support could be the participation of the citizens or the farmers in the decision making processes that affect food security (food production), and payment of taxes to support the government in their policy implementation that can cushion the devastating effect of flooding. This is owing to the fact that finance is the most important of all resources without which implementation may not be possible.

In terms of output, it is the decisions that have been taken by the government which goes back to the environment in form of feedback to the demands made by the people (the farmers). Therefore, it is through the demands and support of the people in form of participation in decision making processes and payment of taxes that policies can be easily implemented. This can be proven from the fact that when farmers are inculcated into the process of making agricultural policies affecting them, such policies will be easily accepted by them, and its implementation tends to be smooth too.

On the other hand, if the citizens pay their taxes regularly, implementation of policies will also be made simple, as without finance, implementation becomes difficult. However, output can come in form of government's supply of fertilizers, tractors, improved species of seedlings and other needs which are part of the demands of the citizens aimed at improving food security. When these things are done, food security will be assured.

More so, if the citizens support the government by paying their taxes and other things required of them, policies can properly be implemented, and if the government supplies the needs of the citizens such as fertilizers, improved species of seedlings, tractors and other implements, the devastating effect of flood on food security can be reduced and farmers relieved after the incidence because of the support received from the government of Ogwuikpele and Atani in Ogbaru Local Government Area. When food security situation of Ogwuikpele and Atani in Ogbaru Local Government Area improves in such manner that the prices of food stuff reduces in the area even after the incidence of flooding, other parts of the state are likely to be affected since Ogwuikpele and Atani in Ogbaru Local Government Area is part of the entire system of Anambra State.

Methodology

This study adopted a survey research design. Survey design is the research design that is concerned with the collection, presentation, analysis and interpretation of data for the purpose of describing practical beliefs, attitudes on-going process (Chukwuemeka, 2006). The population of Atani and Ogwuikpele is thirty-five thousand (35,000) according to 2022 population projection. It arrived as 400 through the selection of Ogwuikpele and Atani whom the researcher purposively distributed 200 questionnaires each to them. The major sampling technique that was used in this study is simple random sampling. The total Sample is 400. Where 200 was distributed in Ogwuikpele; whereas, 200 was also distributed in Atani. Simple percentage was used in data presentation and analysis; while chi-square was adopted for the test of hypotheses.

Data Presentation and Analysis

Introduction

The data obtained for the study were mainly through the use of questionnaire, observation and interview which were designed to assess, "Flood and Its Impact on Food Security in Anambra State: A Study of Ogwuikpele and Atani in Ogbaru Local Government Area (2019-2022)." A "YES or NO questions were used to rate responses in the field.

Towns:	No.
Ogwu-Ikpele	200
Atani	200
Total	400

The total Sample is 400. Where 200 was distributed in Ogwuikpele;

whereas, 200 was also distributed in Atani.

Demographic Characteristics of Respondents Responses to Questionnaire

A total of 400 (400) questionnaires were distributed to respondents while the entire (400) questionnaires were returned. The set of returned questionnaires represents 77% of the total distribution

Table 1: Distribution and Return of Questionnaire

Description	Frequency	Percentage
Returned Questionnaire	400	100
Unreturned Questionnaire	0	0
Total	400	100

Source: Field Survey, 2023

The table shows that out of 100% of the distributed questionnaires, 100% of them were returned.

Note: All computations, interpretations and analysis are therefore based on the number of returned questionnaire i.e. 400.

Section A: Respondents Information

Table 2: Age Distribution of Respondents

Responses	Frequency	Percentage
18-25 years	40	10
26-35 years	160	40
36-45 years	160	40
46 years and above	40	10
Total	400	100

Source: Field Survey, 2023

From the above table, 40 respondents representing 10% were between the ages of 18-25 years, 160 respondents representing 40% were between the ages of 26-35 years, 160 respondents representing 40% of the respondents were between the ages of 36-45 years, while 40 respondents representing 10% were from 46 years and above.

Data on Variables of Subject under Investigation

How has flood affected food security of Ogwuikpele and Atani in Ogbaru local government area of Anambra State?

The questionnaire items for this section are 1, 2, 3, 4 and 5. The responses to research question two is presented in table 3.

Table 3: Respondents mean and standard deviation scores on flood affected food security of Ogwuikpele and Atani in Ogbaru local government area of Anambra State.

S/N	Questionnaire Item	Yes	No	%	%
1	Flood is a natural disaster?	370	30	92.5	7.5
2	Is there any River, Lake or Stream that causes flood in Ogwuikpele and Atani,	205	195	51.25	23.75
3	There are a lot of food during flooding in Ogwuikpele and Atani	330	70	82.5	17.5
4	Is there any benefit of flood in Ogwuikpele and Atani	150	250	37.5	60.5
5	Flood does not displace people?	375	25	93.75	6.25

Decision Rule: Accept null hypothesis if the estimate value is less than the table value. Otherwise, reject null hypothesis and accept the alternative.

Decision: Since the Z – table value is less than the estimated value ($1.96 < 16.6$), the null hypothesis is rejected and accept the alternative hypothesis (H1) which stated that flood has affected food security of Ogwuikpele and Atani in Ogbaru local government area of Anambra State.

Discussion of the Result

Based on the result of the tested hypotheses, the findings are generated:

Flood has affected food security of Ogwuikpele and Atani in Ogbaru local government area of Anambra State. To buttress this point, Anugwara & Emakpe (2019), the floods damaged over 1.9 million hectares of lands and reduced food production along flood plains. Rice production in the affected areas was reduced by 22.4%, maize was reduced by 14.6%, and soybean, cassava and cowpea were reduced by 11.2%, 9.3% and 6.3% respectively. A total of 12 million goats, 3 million poultry and 136 cattle were killed in the 2012 floods. The National Emergency Management Agency (NEMA) estimated that a total of N2.29 trillion which represents 2.83 percent of the rebased Gross Domestic Product of N81 million for 2013 was lost as a result of the floods (Okoruwa, 2019). The floods were described as the worst in recent times because thousands of farmers were not only displaced from their homes but food crops were wiped away threatening food security in the nation. Crops worst hit by the flood included cassava, plantain, yam, maize and pawpaw which are major staples in the region (IITA, 2020).

Conclusion

As the data analysis indicates, it is clear from the study that floods had adverse impact on the socio-economic status of livelihoods for people in Ogbaru Local Government Area of Anambra State. It is also evident that there are varying underlying causes of people's vulnerability and this poses a challenge for reducing or minimizing vulnerability. Proximity to the flood prone area, residing in flood prone area and poverty were identified as being the main underlying causes of vulnerability. The study also identified some coping mechanisms employed by the people, such as; being sensitive to the flood season, use of sand bags to make roads a bit passable during floods and use wooden constructions(boat) as a means of gaining access to their houses, adoption of early planting/change in farming regime by farmers, etc. Government interventions however, have been the major succor for the people during flood disasters.

Recommendation

Based on the summary of finding, it was recommended that:

There should be a deliberate policy to compel communities especially in rural areas to build house using durable materials and away from the flood prone areas. Construction of dams should be considered to trap the excess water. This could be used for irrigation. And also, Construction of canals into the main River Niger should be considered.

References

- Adeoti, J.A. (1989), "Economic crisis in developing countries: The food dimension", *Ilorin Journal of Business and Social Sciences*, 1.
- Babbie, E. (1998). *The practice of social research*. Balmont, CAA 17: Wordsworth publishing company.
- Davies, A.E. (2009)."Food security initiatives in Nigeria: prospects and challenges" *Monograph*. Department of political science, University of Ilorin, Nigeria.
- Egonmwan, J.A. (1984). *Public policy analysis and applications*. Benin-City: S.M.A Aka and Brothers Press.
- Eide, A. (1999). "Globalization, universalization and the human right to adequate food" in Oguninnade, .,Oniango, R. and May, J. (eds), *Not by bread alone", Food security and governance in Africa*, a publication of Toda institute for global peace and policy research. South Africa: ABC Press.
- Ekpo, P. (2005). *Public policy analysis*. A paper presented at capacity building workshop.
- Eminue, O. (2005). *Public policy analysis and decision-making*. Lagos: Concept Publication.
- F.A.O (2008). The state of food insecurity in the world. *Food and agriculture organization*, Rome.
- FMWRRD (1995). The study on the national water resources master plan. *Japan International Cooperation (JICA) and Federal Ministry of Water Resources and Rural Development, Federal Republic of Nigeria*, Abuja.
- Gallie, W.B. (1962). Essentially contested concepts in Maxblack (ed). *The importance of language*. New Jersey: Prentice hall.
- Idachaba, F.S. (2009). "The looming food crisis". *Newswatch* (August 3). Special colloquim edition.

Idachaba, F.S. (2004). *Food security in Nigeria: Challenges under democratic dispensation*. Paper presented at agricultural and rural management training institute (ARMTI) lecture, Ilorin, March 24,2004,1-23.

Ojo, E.O & Adebayo, P.E. (2012). Food insecurity in Nigeria: Overview. *European Journal of Sustainable Development. Volume. 1(2): 199-222*.

Onabule, E. (2009). Nigeria: Re-defining the Seven Point Agenda. Available online at [www.all Africa.com](http://www.allAfrica.com).

Rein, C. A. (1971). *Influencing organization change*. London: Macmillan Press.

Reutlinger, S (1985) “Food security and poverty in LDCS”. *Finance and development*. 22 (7)