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The Impacts of Flooding on Food Insecurity in Nigeria

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Abstract

The impacts of flooding which is as a result of climate change are felt profoundly on food insecurity in Nigeria. Studies have shown that achieving a sustainable economic growth and development in Nigeria will continue to be a mirage without well-nourished and healthy people. Food insecurity is therefore strongly linked with other global issues, such as hunger, poverty, competition for land and water and as well as issues of climate change. This paper is therefore very significant as it explores new opportunities, practices and innovative solutions to the impacts of flooding on food insecurity in Nigeria.

Keywords: *Climate Change, Flooding, Food Insecurity, Nigeria, Sustainable Development.*

Introduction

Climate change refers to any change in climate overtime, which may be due to natural variability or as a result of human activity (Inter-government Panel on Climate Change, IPCC, 2001).The United Nations Framework Convention on Climate Change (1992) defines climate change as changes in climate that is usually attributed straightforwardly or not directly to human activity which alters the composition of the overall atmosphere in addition to the usual climate changeability observed over similar periods. Some researchers have claimed that climate change education should focus on the kind of learning, critical and creative thinking and capacity building that will engage youth with the right information so that they can take appropriate actions to respond to climate change (Stevenson, Nicholls & Whitehouse, 2017; Fuertes et al ,2020). There is a growing concern that climate change will seriously affect the ability to meet the food demands of about 10 billion world population come 2050, which is a significant reason why experts are promoting climate-smart agriculture (Elferink and Schierhorn, 2016). Climate change is one of the global problems which has dominated the media headlines in recent times. It is a complex global problem because it is intertwined with many other issues such as economic development, poverty reduction, good health and well-being. Climate change education can also be a strategic and meaningful way for promoting the principles and practice of sustainable development (Mochizuk& Bryan, 2015).Climate change is a global problem, and it requires solutions on a global scale.Appropriate and urgent actions must be taken both by individuals, institutions and the government to deal with climate change issues in order to ensure a sustainable future for her citizens in Africa (Anabaraonye, Okafor& Eriobu, 2019). The reality of climate change is actually very frightening. We are already in times of terrific climate change, with worse forecast if we continue with business as usual through pouring excessive greenhouse gases into the atmosphere. The natural causes of climate change are as a result of variations in earth's orbit, variation in ocean circulation, variation in albedo of the continents, as well as variation in solar radiation. The human causes are, however, results of deforestation, air pollution, poor agricultural practices such as bush burning, excess and wrong application of inorganic fertilizers, burning of fossil fuels, urbanization, industrialization, inefficient transport system, among others.Climate change is one of the most important factors affecting the formation of soil with important implications for their development, use and management perspective with reference to soil structure, stability, topsoil water holding capacity, nutrient availability and erosion. Scientists have predicted that expected changes in temperature, precipitation and evaporation as a result of climate change will cause significant change in organic matter turnover and CO2 dynamics thereby significantly impacting soil fertility(Okafor, Oladejo, & Ikem, 2019). Soil fertility is vital in agricultural processes for farmers in Nigeria. Soils are intricately linked to the climate system through the carbon, nitrogen, and hydrologic cycles. Climate change therefore has a profound effect on soil processes and properties. Climate Change can lead to soil infertility which in turn results to food insecurity in Nigeria. Climate change was once a distant concern, but now an existential threat and one of the greatest challenge facing this generation.

There's no disputing the fact that the upsurge in global temperatures are largely due to the excessive amount of carbon released into the atmosphere. Carbon is a basic building block in every living thing, plant or animal. Our soils are loaded with carbon and so are our air and ocean. We take oxygen and exhale carbon dioxide. Plants do reverse and we coexist happily supplying each other's carbon dioxide and oxygen needs. The problem is that over the last two centuries humans have dramatically increased the amount of carbon dioxide and other greenhouse gases released into the atmosphere which now pose as serious threat to the agricultural sector in Nigeria. The impacts of flooding, which is one of effects of climate change on food insecurity in Nigeria implies that due considerations to mitigation and adaptation efforts has become a pressing issue. Infact, failure to ensure food security has unavoidably resulted in many social problems and challenges including civil unrest and riots in many cities of Nigeria. Food Insecurity is a key issue in the Economic Stability domain. Food insecurity is defined as the disruption of food intake or eating patterns because of lack of money and other resources. Nowadays, soaring food prices in major cities across the Nigerian states are being reported with adverse impact on household budgets. The Boko Haram insurgency in the North-east and pockets of conflicts in some states where basic food items for the nation come from are making food commodity prices to rise for a range of foodstuffs, from beef to fruits and vegetables, thus squeezing consumers still struggling with modest wages(Okechukwu et al,2014).

Methodology

Data used for this study is derived from published works including academic journal articles, conference papers, textbooks and internet materials. The researchers gathered a lot of materials for the research but summarized the characteristics of the papers that centered more on the impacts of flooding on food insecurity in Nigeria. This enabled the researchers to generate the synthesis of various researchers' views on the subject matter.

Result and Discussion

3.1. Climate Change, Flooding and Food Insecurity in Nigeria

Transdisciplinary research, involving scholars and practitioners from a variety of fields, disciplines, and experiences, helps identify and explore the dynamic, multidimensional intersections among food systems systems. In particular, when multiple scholars and practitioners work collaboratively, they can use multiple lenses and a variety of datasets that transcend any one discipline. In collaboration on a project, their knowledge, skills, and experiences become synergistic. They are better able to identify complex problems facing a food system and generate complex interpretations of a particular

phenomenon (Ellingson, 2009). Poetic transcription has also been used as a tool to explore and teach about food systems (Anabaraonye, Nji, & Hope, 2018). These findings contribute to ongoing examples of poetry as a tool for teaching about food systems and thereby tackling food insecurity in Nigeria (Anabaraonye et al., 2018; Bjorsen & Emery, 2002; Christy & Lima, 2007; Huye, 2015).

The issue of climate change has increased the severity and rate of occurrence of the flood disaster, with its negative impact on food production, food distribution, food utilization, and food security (IPCC 2007). Climate change and increasing human influence in the natural ecosystems of rivers pose a greater risk to flooding in areas near the riverbeds (Klaudia, Marzena, and Aleksandra,2018). Nwaobiala and Nwosu, (2014) maintained that agriculture is one of the most weather-dependent human ventures in Nigeria. Agriculture suffers due to its vulnerability to climate change and African countries are particularly vulnerable to the incidences of climate given their dependence on rain-fed agriculture.Despite this fact, agriculture has remained an important source of livelihoods on the continent. Studies have shown that an average of 70% of the population in Africa, lives by farming; 40% of all export earnings come from agriculture and about one-third of the national income in Africa is generated by the agricultural sector (McCuster & Carr, 2006). The poorest members of the society in African countries are those most dependent on rain-fed subsistence agriculture for food, jobs and income, and hence the most vulnerable to climate change (Yaro,2004).

In the globalizing world today, Nigeria inclusive, the visible climate change impacts and global warming on fertility of soil and prospects for agricultural productivity occasioned particularly, by the prevailing challenges of flooding, erosion and excessive rainfalls, remains an increasing challenge not just only to governments (state actors) with their various multi-lateral organizations but to numerous non-governmental organizations (NGOs) around the world (Anabaraonye, Okafor; & Chukwuma, 2019; Anabaraonye, Okafor, & Hope, 2018). These environmental threats that include erosion, flooding, drought, and desertification have continued to expose human beings to varieties of humanitarian concerns such as hunger and starvation, unemployment, poverty and disease (Anabaraonye, Okafor & Olamire, 2019, Birsel, 2019) including food insecurity.

Flooding is a general condition of partial or complete inundation of normally dry areas from overflow of inland or tidal waters or from unusual and rapid accumulation of runoff(Jeb and Aggarwal 2008). Floods as noted by Odufuwa et al(2012) are the most frequent disaster and widespread natural hazards of the world and UN-Water (2011) noted that floods have caused 84% disaster deaths in the world with an average of 20,000 deaths per year, which makes only a few countries immune to floods. Floods can be very dangerous depending on the nature and level of water volume involved. According to Ikani (2016), Flooding is the overflowing of water either as a result of torrential rainfall, a broken dam, a high rise in the volume of water in rivers, oceans or seas as a result of melting ice caps or prolong rainfall, thereby flooding its neighbouring environment and beyond.

Flooding was found to have influenced food insecurity (Akukwe and Korhoda, 2018) as majority (99.3%) of the respondents adduced in a data generated from sampled households. This implies that virtually all the households had experienced one or more negative effects of flooding on food insecurity and since the sampled households were agrarian, the effects were devastating.

The analysed negative effects of flooding on food insecurity were: flooding reduces crop harvest; decreases farm income derived from crop sales; damages roads; destroys food/ farm storage facilities; reduces labour demand; pollutes streams; reduces the number of times food is consumed; affects the quality of food eaten; increases food items prices and it affects the quantity of food eaten. In the same vein, when crop failure occurs as a result of flooding, food availability is affected with an associated reduction in meal frequency and quantities(Akukwe and Korhoda, 2018).

The problem of food insecurity is not only caused by an insufficient supply of food but also due to the lack of purchasing power and access at national and household levels. Therefore, despite gains in global food production and food security over the last three decades, more than 800 million people are undernourished and almost all of them belong to the developing countries of the world (Abid, Schilling, Scheffran, Zulfiqar 2014 and FAO, 2009). Moreso, growing population coupled with increased intensity of environmental extreme events like floods, droughts, extreme variability in temperature and rainfall has increased the pressure on the current food production systems which in turn, has heightened the current food insecurity crisis in most of the developing countries.

In Nigeria, the most persistent environmental challenge remains flood which normally occurs when flowing water submerges land areas that were not subjected to inundation before. Several anthropogenic activities have contributed to worsening the event of flood disaster; such activities include industrialization, urbanization, population growth, utilization of environmental resources and infrastructural development. Agbonkhese, et al.,(2013) and Agbonkhese, et al., (2014) posited that unlawful dropping of wastes, blockage and poor water evacuation system are causal-factors of flooding in Nigeria.

These floods usually occur in three forms in Nigeria, viz; i) Urban flooding, ii)Coastal flooding and iii)River flooding (Orok, 2011). The occurrence of floods in Nigeria is not a recent phenomenon(Akukwe and Ogbodo, 2015). Incidences of destructive floods have been recorded in different parts of Nigeria. For instance, the floods that occurred in Ibadan (1985, 1987, 1990, 2011), Osogbo (1992, 1996, 2002), Yobe (2000), Akure (1996, 2000, 2002, 2004 and 2006), Makurdi in 2008, Sokoto in 2010, Ogbaru and Oguta in 2012. In addition, the coastal cities of Lagos, Yenegoa, Calabar, Uyo, Port Harcourt and Warri frequently experience floods(Akukwe and Ogbodo, 2015;Olajuyigbe, Rotowa,Durojaye, 2012) . Of all these floods, the most devastating had been noted to be the August-October 2012 in Nigeria which pushed rivers over their banks and submerged hundreds of kilometres of urban and rural lands (Ojigi, Abdulkadir, Aderoju, 2012), with an estimate of over 7,705,378 Nigerians affected by the floods leaving

2,157,419 persons internally displaced (IDPs). Moreover, over 90% of the 36 States of the country were affected between July and October, 2012 with 363 deaths and more than 618,000 damaged houses(OCHA, 2012). It was also noted to have caused massive destruction of farmlands which resulted to food insecurity in parts of the country as signifcant proportion of areas (including the south eastern region) that produce the three main tuber food crops in Nigeria (namely yam, cassava and sweet potato), were affected by the floods.

Famine Early Warning Systems Network (FEWSNET, 2012;2013) recognized the importance of disaster mitigation and management in order to avoid the enormous losses from flood disasters leading to food insecurity.The World Bank's assistance is moving away from traditional relief and reconstruction towards supporting the culture of prevention and mitigation for sustainable development. This new approach increasingly relies on knowledge sharing, creating communities of practice, and raising awareness in disaster risk management targeting government officials, civil society, and local communities prone to flood (Ikani, 2016).

Recommendation and Conclusion

It is obviously clear that business as usual is no longer good enough when it comes to issues of climate change, flooding and its impact on food insecurity in Nigeria. Responsive, deep and transformative action is needed throughout – not only to reduce emissions and stabilize global temperatures, but to build a safer, healthier and more resilient agricultural sector for sustainable development and economic growth in Nigeria. Flooding indeed has proven to have a negative impact on food security in Nigeria. It is therefore pertinent to note that public awareness and public participation in minimizing the effect of flooding is essential. Furthermore, research, climate change education and exchange of knowledge among lecturers,students,farmers and other relevant professionals in the field of mitigating the impacts of flooding to ensure food security in Nigeria is greatly advised. Finally, flood emergency and contingency plans should be laid down by the government in order to sustain economic growth in Nigeria.

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