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EFFECT OF FLOOD ON AGRICULTURAL OUTPUT IN SABON BIRNI LOCAL GOVERNMENT AREA, SOKOTO STATE

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Abstract

This study examines the effect of flooding on agricultural output in Sabon Birni local government area of Sokoto state. Several questionnaires were designed and administered to the farmer in selected wards, because the settlements are experiencing flooding annually. The results show that flooding has significant negative impact on crop yields, livestock production, and agricultural productivity. The flood resulted in the destruction of crops, livestock, and agricultural infrastructure, leading to a significant decline in agricultural output. The study also found that the flood displaced farmers, disrupted agricultural supply chains, and increase food prices. The overall impact of the flood was a significant decline in the live hoods of farmers and rural communities in Sabon Birni Local Government. The study recommends measures to mitigate the effects of flooding on agriculture, including the development of flood-resistant crops, improve irrigation systems and emergency preparedness plans

Keywords: Flood, Agricultural Output, Sabon Birni Local Government, Crop Yields, Livestock production, Agricultural Productivity

INTRODUCTION

Flood is a global challenge in the face of a changing climatic pattern. Typically flood are outer came of prolong rainfall and human activities of a place. It has been described as a condition of complete or partial Inundation of normally of dry area due to the over flood tidal inland water or rapid accumulation on of runoff (Jeb and AggerWal, 2008). The immediate effect of this flood include destruction of crops loss of livestock, damage of properties, Food insecurity, loss lives among the effected communities (Alam et al, 2010; Islam Wang, 2017; Okeleye et al, 2016).

According to united nation (UN) report of 1998 (as cited by Ayaoso, 2012) 23 million people were affected as a result of finding in Xian china three thousand people lost their lives why about one million people lost their humans. In 1996 the monsoon floods in India affected more than five million people northern and eastern parts of the country. Severe floods also killed over two hundred people in India and Bangladesh and left millions homeless (Ayaoso 2012) in 2012.

Nigeria had one of the worst flooding experience in over forty years as a result of heavy rainfall that lasted several days causing flood to be experienced over 3 month period in year about 7.7 million people were effected with more than two million other people considered as an internally

displaced. More than 5000 individual is suffered physically injuries along with 5900 houses damaging andfood crops were wiped away resulting in major threats to food security in the nation (Nkwunonwo et al, 2015 Nemine 2015). The incidence affected 32 states with 24 considered several effected (NEMA 2013). The national emergency management agency (NEMA) estimated that a total of N 2.29 trillion with represents 2.83 percent of the gross domestic product of N81 million for 2013 was loss as a result of the flood (Okoruwa, 2014).

According to and Anugwaraemekpe (2013), flood disaster has damaged over 1.9 million hectares of lands and reduced food production along food plains This has been a recurrent event especially of flood plains areas e where farmers' rely on river as a source of irrigation during the dry season, but are faced with flood experienced during raining season. According to the ObalolaTanko (2016), the huge reliance of agriculture on rainfall along becoming even more precarious in view of climate change. Nkwunnonwo et al. (2015) debate that the impacts of flooding in Nigeria continues to trigger concert for food security and as well vulnerability of the general public

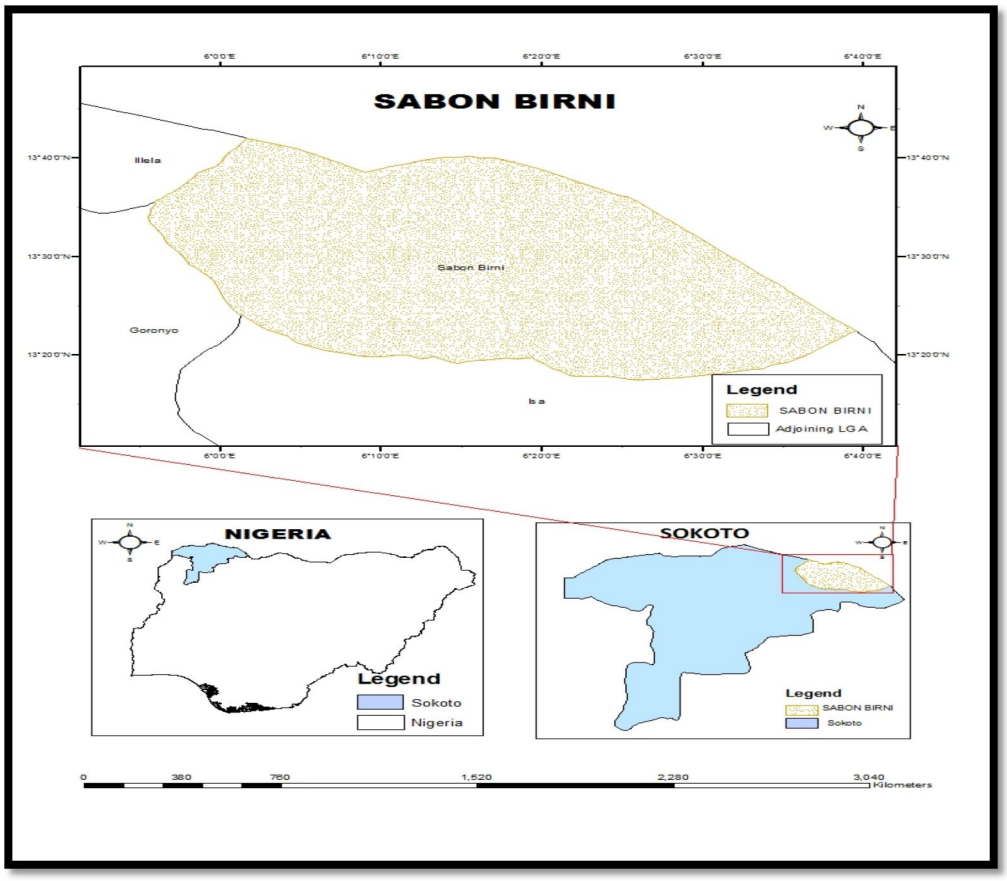
Flooding and the meaning of addressing its challenging are issues of outmost concerns (Obeta, 2014). Serious damages from flood incidences and the vulnerability rural small holder farmers due to low capital has perpetually infected negatively on their welfare and their and their ability to employ diverse adaptation techniques hence mitigating subsequent shock event is usually left to the government (Ajibade et al. 2015). Flooding is a significant natural disaster that affects various sectors, particularly agriculture.

Sabon Birni Local Government Area (LGA) of Sokoto State, floods have become recurrent, leading to substantial losses in agricultural output. This paper explores the impact of floods on agricultural productivity in this region, emphasizing the extent of damage, contributing factors, and possible mitigation strategies. Sabon Birni LGA is located in the northeastern part of Sokoto State, Nigeria. The region is primarily agrarian, with a large percentage of the population relying on farming as their main source of livelihood. However, the area is prone to seasonal flooding, particularly during the rainy season, which poses a severe threat to agricultural activities.

Material and Method

Study Area

Sabon Birni Local Government Area is located in Sokoto State, Nigeria. The region experiences a semi-arid climate, with a distinct rainy season during which flooding frequently occurs. Agriculture is the primary economic activity, with farmers cultivating crops such as millet, sorghum, and rice, and raising livestock including cattle, goats, and sheep. However, the recurrent flooding has made agricultural practices increasingly challenging.



Source GIS LAB Department of Geography SSCOE, Sokoto

Research Design

This study employed a descriptive research design, using surveys and questionnaires to collect data from farmers in selected wards of Sabon Birni. The wards were chosen based on their vulnerability to flooding. A purposive sampling method was used to select respondents who have been directly affected by flooding. The sample size consisted of 200 farmers, ensuring a broad representation of the agricultural community.

Data Analysis

Data collected from the questionnaires were analyzed using both quantitative and qualitative methods. Descriptive statistics were used to summarize the impact of flooding on crop yields and livestock production, while thematic analysis was employed to explore farmers' experiences and coping strategies. The results were presented in tables, charts, and narrative form.

Results Discussion

Impact on Crop Yields

The analysis revealed a significant decline in crop yields due to flooding. For example, rice yields decreased by 40% in the most affected areas, while millet and sorghum experienced declines of 25% and 30%, respectively. The destruction of crops was attributed to prolonged submersion, soil erosion, and loss of soil fertility.

Crop	Pre-Flood Yield (tons)	Post-Flood Yield (tons)	Percentage Decrease
Rice	500	300	40%
Millet	400	300	25%
Sorghum	350	245	30%

Impact on Livestock Production

Livestock production was also adversely affected by flooding. The study found that 15% of cattle, 20% of goats, and 25% of sheep were lost due to drowning or disease outbreaks following the floods. Farmers reported that their animals struggled to find dry ground and clean water, leading to malnutrition and increased mortality rates.

Broader Agricultural Impact

The broader impact of flooding on agricultural productivity was severe. In addition to the loss of crops and livestock, the floods disrupted supply chains, leading to delays in getting products to market and increased food prices. Many farmers were displaced, losing not only their homes but also access to their farmlands, further exacerbating the decline in agricultural output.

Discussion

The findings of this study are consistent with previous research on the impact of flooding on agriculture. Like other regions in Sub-Saharan Africa, Sabon Birni's agricultural sector is highly vulnerable to flooding, with significant losses in both crop yields and livestock production. The observed declines in agricultural productivity are likely due to a combination of factors, including the physical destruction of crops and animals, as well as longer-term impacts on soil fertility and farm infrastructure.

Conclusion

This study has demonstrated the significant negative impact of flooding on agricultural output in Sabon Birni Local Government Area. The floods have led to substantial declines in crop yields,

livestock production, and overall agricultural productivity, with far-reaching consequences for the livelihoods of farmers and rural communities.

Flooding poses a significant threat to agricultural output in Sabon Birni Local Government Area, Sokoto State. The study underscores the urgent need for comprehensive flood management strategies to safeguard the livelihoods of farmers and ensure food security in the region. By implementing the recommended mitigation measures, it is possible to reduce the adverse effects of floods and promote sustainable agricultural development in Sabon Birni LGA

Recommendations

To mitigate the effects of flooding on agriculture, the following measures are recommended:

- **Development of Flood-Resistant Crops:** Research and promote crop varieties that can withstand prolonged submersion or waterlogging.
- **Improved Irrigation Systems:** Invest in irrigation infrastructure that can manage excess water during floods.
- **Emergency Preparedness Plans:** Establish early warning systems and community-based flood management programs to reduce the impact of flooding on agricultural communities.

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