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IMPACT OF FLOOD DISASTER ON AGRICULTURAL PRODUCTIVITY IN KOGI STATE, NIGERIA
(2012 - 2022)

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Abstract

Flood disasters have increasingly become a major concern for agricultural productivity in Kogi State, Nigeria. The recurrent nature of these disasters between 2012 and 2022 has severely impacted farming communities, threatening food security and livelihoods. This study investigates the impact of flood disasters on agricultural productivity in Kogi State during this period, anchored on Baumol's (1977) production theory, which examines the relationship between production inputs and outputs. The research employs a survey design, targeting farming communities across eight local governments in Kogi State, with a total population of 4,170 people (KSBS, 2020). A sample size of 351 respondents was selected using a stratified sampling technique, as determined by the Krejcie and Morgan (1970) method for calculating sample size. This methodology ensured a representative sample, facilitating robust and generalizable findings. The findings reveal a significant correlation between flood occurrences and declines in agricultural productivity. Specifically, floods have caused the destruction of farmlands, loss of crops, and a subsequent reduction in agricultural yields. The study also highlights adaptive strategies employed by farmers, such as crop diversification and the use of early warning systems, though these measures have not fully mitigated the adverse effects. Based on these findings, the study therefore recommended; Develop and upgrade flood management systems, including improved drainage and flood barriers, to mitigate the impact of future floods on farmland and infrastructure. Encourage and support the adoption of flood-resistant crop varieties and farming techniques to reduce crop loss and improve resilience. Provide financial and technical assistance to farmers affected by floods, including subsidies for damaged infrastructure and support for recovery and adaptation strategies. Strengthen food security programs by investing in emergency food supplies and distribution systems to ensure that communities can better cope with food shortages caused by floods.

Keywords: Flood Disaster Trends, Agricultural Productivity, Kogi State, Nigeria

1. Introduction

Flooding is a significant natural disaster that has recurrently impacted various regions globally, with severe implications for both human livelihoods and the environment. In Nigeria, particularly in Kogi State, flooding has been a persistent challenge, resulting in substantial socio-economic and environmental consequences.

Kogi State, located in the central region of Nigeria, is characterized by its diverse topography and the confluence of two major rivers: the Niger and the Benue. This geographical setting makes the state

particularly susceptible to flooding. Historically, Kogi State has experienced severe floods, with significant events recorded in 2012, 2018, and 2020. The 2012 floods were especially devastating, affecting over 2 million people, displacing thousands, and destroying vast hectares of farmland (NEMA, 2012). Floods in the region are often triggered by heavy rainfall, dam releases, and the overflow of rivers, exacerbated by climate change and poor urban planning (Adeoye, Ayanlade & Babatimehin, 2009).

Agriculture is the backbone of Kogi State's economy, employing a significant portion of its

population and contributing to food security and economic stability. However, recurrent floods have had a profound impact on agricultural productivity. Floodwaters inundate farmlands, leading to the destruction of crops, loss of livestock, soil erosion, and nutrient depletion. The aftermath of flooding often leaves the soil less fertile, requiring farmers to invest more in fertilizers and other soil rejuvenation measures (Ojeleye, 2016).

The 2012 flood alone resulted in the destruction of over 150,000 hectares of farmland, significantly reducing crop yields and leading to food shortages and increased prices (NEMA, 2012). Subsequent flood events have continued to pose similar threats. For instance, the 2018 floods affected 12 out of the 21 local government areas in Kogi State, further highlighting the vulnerability of agricultural lands to flooding (NIMET, 2018).

The socio-economic implications of flood-induced agricultural disruption are far-reaching. Farmers, who rely on seasonal crop production, face financial instability due to the loss of harvests. This financial strain extends to the broader economy, as reduced agricultural output affects food supply chains, leading to higher food prices and increased food insecurity (Olorunfemi, 2011). Additionally, the displacement of farming communities disrupts social structures and livelihoods, compelling many to seek alternative, often less sustainable, means of income (Aderogba, 2012).

The recurrent nature of floods has also discouraged investment in the agricultural sector. Potential investors are wary of the high risks associated with flood-prone areas, which stymies efforts to modernize and enhance agricultural practices in the state. This lack of investment further perpetuates the cycle of low productivity and economic vulnerability (Adeoti, 2010).

Efforts to mitigate the impact of floods in Kogi State have involved both governmental and community-driven initiatives. The Nigerian government, through agencies such as the National Emergency Management Agency (NEMA) and the Nigerian Meteorological Agency (NIMET), has implemented measures to predict and manage flood risks. These include the construction

of flood barriers, the creation of early warning systems, and the promotion of sustainable land use practices (NEMA, 2012; NIMET, 2018).

However, challenges persist in effectively addressing the root causes of flooding and implementing long-term solutions. Poor urban planning, inadequate infrastructure, and limited resources hinder the effectiveness of these interventions. Community-based approaches, such as the formation of local flood management committees and the adoption of traditional knowledge in flood prediction, have shown promise but require greater support and integration with governmental efforts (Adelekan, 2010).

Flood disasters have become a recurrent challenge in Kogi State, Nigeria, with significant impacts on agricultural productivity and socio-economic stability. The period from 2012 to 2022 has witnessed notable flood events that have devastated farmlands, reduced crop yields, and disrupted the livelihoods of farming communities. This study aims to investigate the Impact of Flood Disaster on Agricultural Productivity in Kogi State, Nigeria (2012 - 2022).

Flood disasters have emerged as a significant environmental challenge globally, with devastating consequences for human settlements, infrastructure, and agricultural productivity. In Nigeria, flood events have become increasingly frequent and severe, posing substantial risks to both rural and urban communities. Kogi State, strategically located along the confluence of the Niger and Benue Rivers, is particularly vulnerable to flooding. This geographical predisposition has subjected the state to recurrent flood episodes, severely affecting agricultural activities, which constitute the backbone of its economy.

Kogi State experienced numerous flood events that not only displaced thousands of residents but also led to substantial agricultural losses. Despite the severity of the issue, there is a lack of detailed research focusing on the specific impacts of flood disasters on agriculture in Kogi State. Previous studies have generally addressed broader environmental and socio-economic impacts, leaving a gap in localized, agriculture-focused analyses. The problem is further compounded by inadequate infrastructure and ineffective disaster management strategies. The state's response to flooding has often

been reactive rather than proactive, leading to insufficient preparation and mitigation measures. The lack of effective early warning systems, poor land-use planning, and inadequate drainage infrastructure exacerbate the vulnerability of agricultural lands to flood damage (Olanrewaju et al., 2019). This study examines the Impact of Flood Disaster on Agricultural Productivity in Kogi State, Nigeria (2012- 2022).

The specific objectives of the study are:

- i. To examine the impacts of flood disasters on agricultural productivity in Kogi State.
- ii. To interrogate how has Flood Disaster impacted on Agricultural Productivity in Kogi State.

2. Literature Review

2.1 Conceptual Definitions

2.1.1 Flood

Floods are unusual accumulations of water on land, caused by natural or man-made factors that result in significant damage, loss of life, and environmental changes. Floods can lead to property destruction, economic losses, social disruption, and the welfare loss of vulnerable populations (Cherdpong, Thiengkamol & Thiengkamol, 2013). Flooding typically occurs when water overflows due to torrential rainfall, broken dams, or rising water levels in rivers, oceans, or seas. This excess water inundates surrounding areas, posing danger and often leading to disasters.

Flooding can happen suddenly and unexpectedly, particularly in flood-prone areas. The impact extends beyond humans, affecting livestock and crops by washing away topsoil. While flooding is a natural disaster, urban flooding in towns on flat or low terrain is often exacerbated by inadequate drainage systems or blocked drains caused by waste and sediment accumulation.

The United Nations International Strategy for Disaster Reduction (UNISDR) (2004) defines a disaster as a sudden event that severely disrupts a community's functioning, causing widespread losses that exceed the community's ability to cope without external assistance. Disasters, whether natural or man-made, often cause significant damage, destruction, and human suffering. Natural calamities, including floods, wildfires, droughts,

earthquakes, and landslides, affect numerous countries annually.

In this study, a flood is the overflow of water onto normally dry land, often due to heavy rainfall, river overflow, or inadequate drainage, leading to damage, loss of life, and disruption.

2.1.2 Flood Disaster

Disasters, whether natural or human-induced, manifest in various forms. Some unfold gradually, while others strike suddenly, like flood disasters, which are characterized by their quick and unexpected nature. Despite their abrupt onset, floods are one of the few disasters that can be reasonably predicted, anticipated, and, to some extent, controlled (Glago, 2020).

Floods, like other disasters, are labeled as such not merely by their occurrence but by their damaging consequences on human lives, livelihoods, and properties. Among various disaster events, floods are arguably the most widespread, occurring in numerous countries and resulting in significant fatalities. These deluges can cause widespread disturbances in communities, reshaping life for affected populations (Glago, 2020).

The term "flood" originates from the Old English word "flod," akin to the German "flut" and Dutch "vloed," all denoting the inflow and float of water. According to Abba (2016), a flood is defined as an overflowing or influx of water beyond its normal confines. Floods occur when the volume of water within a water body, such as a river or lake, exceeds its carrying capacity, causing the water to flow beyond its normal perimeter. This phenomenon occurs globally, with varying intensities and effects. Notable examples include the floods along China's Yangtze River in 1981, 1991, and 2002, the Mozambican floods in 2000, and the Mississippi River floods in 1983 and 1993 (Glago, 2020).

Floods have diverse and far-reaching effects, primarily physical damage to buildings and the weakening of structures (Glago, 2020). Loss of human lives and livestock, as well as disease outbreaks, is common consequences. Entire harvests can be lost, as seen in the 2000 Mozambique flood and the 2007 northern Ghana floods. While floods are often associated

with negative impacts, they can also have beneficial aspects, such as enhancing soil fertility and providing essential nutrients. Periodic flooding even played a crucial role in the development of ancient civilizations, particularly those along the Tigris-Euphrates, Nile, and Indus rivers (Glago, 2020).

Floods, while often linked with destruction, possess a multifaceted nature. Understanding the various types and effects of floods is essential for developing effective mitigation and adaptation strategies. Although the ability to predict and control floods has improved, ongoing efforts are necessary to minimize their impact on human lives and communities globally.

For this study, a flood is an overflowing or influx of water beyond its normal confines, typically caused when the volume of water within a water body, such as a river or lake, exceeds its carrying capacity, resulting in water spreading beyond its usual boundaries.

2.1.3 Agricultural Productivity

Agricultural productivity is crucial for supplying resources that meet human domestic and industrial needs. It plays a significant role in enhancing food security and achieving zero-poverty targets (AGRA, 2014). Agriculture is central to the climate change debate as it is impacted by increasing climatic phenomena like floods, droughts, and heat waves, which affect human development. Agriculture involves the cultivation of land and the raising of animals to provide food, raw materials for industries, and feed for animals. It includes crop production, livestock, forestry, and fishing. Agricultural development is the process of fulfilling agricultural potential through providing assistance to producers, protecting crops, and employing modern techniques (Carvajal-Velez, 2007).

For the purpose of this study, Agricultural productivity refers to the efficiency with which agricultural inputs are converted into outputs, encompassing crop production, livestock, forestry, and fishing. It is vital for food security, economic development, and adapting to climate change impacts.

2.1.4 Food Security

Food holds a paramount status in the lives of living organisms, especially humans, as it serves as a nutrient-

rich substance essential for growth and development. This includes a broad spectrum of items such as cereals, meat, eggs, dairy products, vegetables, and sugar (Simon, 2012). The significance of food extends beyond sustenance; it is intricately tied to life itself. Its immediate appeal is deeply rooted in human emotions, making the pursuit of securing an adequate food supply a critical factor in development. Ensuring access to sufficient, safe, and nutritious food for all individuals is a key component of food security (FAO, 2022).

Historically, food security emphasized the stability of food supply and prices for essential consumables (Maxwell & Wiebe, 1999). Initially, it was defined as the "availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices" (Clay, 2002). However, this definition primarily focused on availability and price stability, overlooking accessibility issues.

The refined definition encompasses key pillars of food security. It emphasizes access to food, highlighting the importance of both physical and economic access for all individuals. It also underscores the need for stability in the food supply, addressing challenges from fluctuations in production and prices. Additionally, it stresses the availability of nutritionally sufficient food, emphasizing quality, and recognizes the biological utilization of food, ensuring it is effectively used by the body for optimal health.

The evolution of the concept reflects a deepening understanding of food security's multifaceted nature. The World Bank's comprehensive definition, which includes access, stability, nutritional sufficiency, and biological utilization, provides a framework for addressing food security complexities in today's world. As global challenges like population growth, climate change, and economic disparities persist, a holistic approach to food security remains essential for fostering a healthier, more sustainable future.

This study is of the view that, Food security involves ensuring that all individuals have access to sufficient, safe, and nutritious food that meets their dietary needs for an active and healthy life, while also maintaining stability in the food supply.

2.2 Empirical Review

Impacts of Flood Disasters on Agricultural Productivity

Nkwunonwo (2016) assessed flooding and flood risk reduction in Nigeria with a view to determining the cardinal gaps. Their study observed that flooding has become a frequent hazard in Nigeria. They noted that factors such as rapid population growth, urbanization, poor urban planning and climate change especially increased frequency and intensity of rainfall had resulted in flooding in major parts of Nigeria. Specifically, they showed that between 1985 and 2014, flooding in Nigeria has affected 11 million lives resulting in 1100 deaths and properties being damaged to exceed US\$17 billion. According to them, Lagos State has recorded the largest percentage of flooding in Nigeria while Niger, Adamawa, Oyo, Kano and Jigawa states are also experiencing flooding. They argued that in spite of the growing scenarios of flooding and its potentials to affect lives and properties, little is done to stem the tide of flood occurrence in Nigeria. They suggested that more robust and scientific approaches to flood risk reduction such as flood modeling and vulnerability assessment be employed in flood management in Nigeria. The study did not identify the method used in generating information and equally did not address the nature of flood disaster and agricultural productivity in Kogi State. A study conducted by Osayomi and Oladosu in (2016) sought to determine the level of Flood Preparedness among households in Ibadan, Nigeria who received flood warnings issued by NIMET when the flash flood of 2013 was imminent. The study explored the level of Awareness of the 2013 NIMET flood warning, the level of subscription to flood insurance, flood risk perception of households and the level of flood preparedness. The study was designed as survey. It employed questionnaire to elicit answers from 275 households drawn from the eleven LGAs that constitute Ibadan. The result showed that only 36.4% of the respondents are aware of the NIMET warning. It also revealed that 35% of the respondents heard flood warning through the electronic/print media while (20%) of them were exposed to the warning through Internet. This was similar to finding of Adelekan (2015) who reported that

prior to 2011 flood, a small portion of 4.7% received flood warning from weather forecast in Ibadan. More so, less than 30% of the respondents claimed to be at risk of flooding. The result also showed that preparedness for flood among the respondents was strikingly low at 26.9%. The author contends that cause of low level of preparedness could be as a result of low awareness or that people might have heard the warning but refused to take precautionary measures. They stressed further that frequent public rejection of NIMET prediction as false and unbelievable is also a reason for the apathy towards preparedness. In addition, it showed that it was only 11.6% of the respondents who claimed to be aware of being at risk of flood subscribed to flood insurance. The objectives of this research is almost similar to the objective of the study above, but instead of using warning message from one source (NIMET) this research wish to incorporate messages from other stakeholders that issue warnings on flood. Also instead of using a particular type of flood as a benchmark of its analysis as did by the above author, this research based generally on the nature of flood disaster and agricultural productivity in Kogi State.

The ways and manners Flood Disasters Flood Disaster impacted on Agricultural Productivity

Onifade, Adio-Moses, Oguntunji and Ogungboye (2014) investigated impacts of flood disaster on sustainable national development in Ibadan North Local Government Area of Oyo State. Three research hypotheses were postulated and tested at 0.05 alpha level. The research design adopted for the study was survey type. Through purposive randomly sampling techniques, a sampled population of three hundred and twenty residents was used. Data were collected with the use of researcher's structured questionnaire already validated by two experts in the field of Health Promotion and Environmental Health Education and Geography. The results of the study revealed that flood disaster had significant impact on socio-economy, agricultural production and environment. Based on these findings, the researcher recommends that residents are advised to avoid indiscriminate dumping of refuse as this could result into flood disaster and government at all levels should embark on public drainage and bridge

construction so as to pave way for water during heavy rainfall. The perceived effects of flood disaster on agricultural productivity in Kogi State were not discussed.

Magami, Yahaya, and Mohammed (2014) assessed the causes and consequences of flooding in Nigeria. They revealed that flooding in Nigeria is caused by dam failure, over flowing of major rivers, coastal storms, ignorance of warning from Nigeria meteorological agency, delay in evaluation of flood victims and settlement of people at flood prone areas such as riverine areas and sea coast. Other causes of flooding that they observed were climate change, extraordinary heavy rains and continued release of excess water from artificial reservoirs. They also pointed out that poor maintenance of drainage channels coupled with indiscriminate waste disposal result in flooding in Nigeria. In a similar study, Nwigwe & Embergo (2014) assessed the causes and effects of flood in Nigeria. Their findings showed that the development of illegal structures on or across drainage channels, land reclamation or encroachment, poor physical planning, inadequate drainage channels, blockage of canals and drains, collapsed dams and nature of terrain were the primary causes of flooding in major cities and towns in Nigeria. What were not explained in the study are the perceived effects of flood disaster on agricultural productivity in Kogi State.

2.3 Theoretical Framework

This study is anchored on Baumol's (1977) production theory, which examines the relationship between production inputs and outputs. Baumol's theory posits that production efficiency is determined by the optimal combination of inputs to achieve maximum output. In the context of agriculture, these inputs include land, labor, capital, and technology, which collectively influence crop yields and overall productivity. However, external factors such as environmental disasters can significantly disrupt this balance, leading to inefficiencies and reduced outputs.

Applying Baumol's production theory to this research provides a robust framework for analyzing the impact of flood disasters on agricultural productivity in Kogi State. Floods can severely damage farmlands, wash

away seeds and nutrients, and destroy infrastructure such as irrigation systems and roads, which are crucial for efficient agricultural production. These disruptions affect the availability and quality of inputs, thereby impeding the ability of farmers to achieve optimal output levels.

The theory helps in understanding the causal relationship between flood disasters and agricultural productivity. By analyzing the extent of flood damage to agricultural inputs and the subsequent reduction in outputs, this study aims to quantify the economic losses incurred by farmers. This framework also facilitates the identification of critical areas where interventions are needed to restore production efficiency and enhance resilience against future flood events.

Furthermore, Baumol's production theory underscores the importance of technological advancements and infrastructure improvements in mitigating the adverse effects of floods on agriculture. For instance, the adoption of flood-resistant crop varieties, improved drainage systems, and effective land-use planning can enhance the capacity of agricultural systems to withstand and recover from flood impacts. By aligning these strategies with the principles of production theory, policymakers and stakeholders can develop targeted measures to optimize input use and sustain agricultural productivity despite environmental challenges.

Baumol's (1977) production theory provides a comprehensive lens through which the intricate dynamics of agricultural productivity and flood disasters can be examined. It enables a detailed analysis of how floods disrupt the interplay of production inputs, leading to reduced outputs and economic losses. By leveraging this theoretical framework, the study aims to offer actionable insights into enhancing agricultural resilience and ensuring sustainable productivity in the face of recurrent flood disasters in Kogi State.

3. Methodology

Employing a survey design, the study targeted farming communities across eight local governments in Kogi State, comprising a total population of 4,170 people (KSBS, 2020). These local governments were chosen based on their high susceptibility to flooding and the significant presence of agricultural activities. The

selected local governments include Lokoja, Kogi, Bassa, Idah, Ajaokuta, Ibaji, Ofu, and Igalamela-Odolu. Using a stratified sampling technique, the population was divided into strata based on specific characteristics such as geographical location, type of crops cultivated, and flood experience. This approach ensured that different subgroups within the population were adequately represented, enhancing the reliability and validity of the findings. From these strata, a sample size of 351 respondents was selected, determined based on the Krejcie and Morgan (1970) method for calculating sample size. This method is widely recognized for its accuracy in providing a sample size that adequately represents the population. Data collection involved administering structured questionnaires to the selected respondents. The questionnaires were designed to gather comprehensive information on flood experiences, agricultural losses, coping mechanisms, and perceived effectiveness of existing flood management strategies. To ensure clarity and accuracy, the questionnaires were pre-tested in a pilot study conducted in one of the

farming communities not included in the main study. The feedback from the pilot study was used to refine the questionnaire items. In addition to the survey, the study incorporated key informant interviews and focus group discussions with local leaders, agricultural extension officers, and flood management officials. These qualitative methods provided deeper insights into the challenges faced by farming communities and the effectiveness of current flood mitigation measures.

4. Results and Discussion

Data presentation and analysis are pivotal in transforming raw data into meaningful insights, allowing researchers to interpret and communicate their findings effectively. This process involves organizing data into comprehensible formats, such as tables and charts, and applying statistical techniques to uncover patterns and trends.

Examining the Impacts of Flood Disasters on Agricultural Productivity in Kogi State

Table 1: To what extent have flood disasters affected crop yields in Kogi State

Variables	Frequency	Percentage (%)
Very high impact	119	34
Moderate impact	125	36
Low impact	68	19
No impact	39	11
Total	351	100

Source: field survey, 2024

The data in Table 1 reveals that flood disasters have significantly impacted crop yields in Kogi State. A combined 70% of respondents reported a "very high impact" (34%) or "moderate impact" (36%) on crop yields, indicating that the majority of farmers in the region have experienced substantial disruptions due to floods. Meanwhile, 19% reported a "low impact," and

only 11% indicated "no impact." These findings suggest that flood disasters are a critical challenge for agricultural productivity in Kogi State, with the majority of farmers facing serious yield reductions, which likely affects food security and economic stability in the region.

Table 2: How have flood disasters affected the overall food security in Kogi State

Variables	Frequency	Percentage (%)
Severely impacted	200	57
Slightly impacted	86	25
Not impacted	43	12
Improved food security	22	6
Total	351	100

Source: field survey, 2024

The data in Table 2 indicates that flood disasters have significantly impacted food security in Kogi State. Out of 351 respondents, 57% reported that food security was severely impacted by floods, highlighting the critical nature of the issue. A smaller proportion, 25%, noted that food security was slightly impacted, while 12% claimed no impact. Interestingly, 6% observed an improvement in food security, potentially due to

adaptive measures or localized benefits. The results underscore the widespread negative effects of floods on food security, with a majority experiencing severe consequences, emphasizing the need for urgent mitigation and support strategies in the region.

Interrogating How Flood Disaster Has Impacted Agricultural Productivity in Kogi State

Table 3: What is the most significant impact of flood disasters on agricultural productivity in Kogi State

Variables	Frequency	Percentage (%)
Crop loss	79	23
Soil degradation	45	13
Reduced access to farmland	156	44
Damage to agricultural infrastructure	71	20
Total	351	100

Source: field survey, 2024

The data in Table 3 illustrates the most significant impacts of flood disasters on agricultural productivity in Kogi State. Out of 351 respondents, 44% identified reduced access to farmland as the most significant impact, making it the most prevalent concern. Crop loss follows, affecting 23% of respondents, highlighting the vulnerability of crops to flooding. Damage to

agricultural infrastructure was cited by 20%, reflecting the detrimental effects on essential farming facilities. Soil degradation was noted by 13%, indicating that while it is a concern, it is less prominent than other issues. Overall, flood disasters primarily disrupt access to farmland and lead to substantial crop loss in Kogi State.

Table 4: Farmers in Kogi State experience long-term economic losses due to the indirect effects of flood disasters.

Variables	Frequency	Percentage (%)
Strongly Agree	130	37
Agree	111	32
Disagree	50	14
Strongly Disagree	60	17
Total	351	100

Source: field survey, 2024

The table reveals that a significant portion of farmers in Kogi State perceive long-term economic losses from the indirect effects of flood disasters. With 37% strongly

agreeing and 32% agreeing, a combined 69% acknowledge substantial economic impacts. Conversely, 14% disagree and 17% strongly disagree, suggesting

some dissent about the severity of these losses. This data underscores the considerable concern among farmers regarding the persistent economic repercussions of flooding, highlighting the need for targeted support and interventions to mitigate long-term financial damage in the agricultural sector.

4.1 Discussion of Major Findings

The findings from Tables 1, 2, and 3 reveal the profound impact of flood disasters on agricultural productivity and food security in Kogi State.

i. Table 1 show that 70% of respondents experienced significant disruptions in crop yields due to floods, with 34% reporting a "very high impact" and 36% a "moderate impact." This aligns with empirical studies highlighting that floods can lead to severe crop damage, reducing yields and affecting overall food security (Smith et al., 2017; Akinola, 2019). Table 2 demonstrates that 57% of respondents observed severe impacts on food security from floods, reinforcing the critical need for intervention. This finding is consistent with research indicating that floods exacerbate food insecurity by destroying crops and disrupting supply chains (Chukwuma & Ibrahim, 2020; Ojo et al., 2021).

ii. Table 3 reveals that reduced access to farmland is the most significant impact, cited by 44% of respondents. This finding is corroborated by literature showing that floods can lead to the loss of arable land and damage to agricultural infrastructure, further impairing productivity (Adepoju & Olagunju, 2018). The data also reflect long-term economic losses, with 69% of farmers acknowledging substantial financial impacts, which support findings that floods have enduring economic

repercussions on agricultural communities (Ogundele et al., 2022).

5. Conclusion and Recommendations

The data reveals that flood disasters have profoundly affected agricultural productivity in Kogi State. A significant majority of farmers report severe disruptions in crop yields and food security, with 70% indicating either a "very high" or "moderate" impact on crop yields. Food security is similarly compromised, with 57% of respondents reporting severe impacts. The most significant issues include reduced access to farmland (44%), crop loss (23%), and damage to agricultural infrastructure (20%). Additionally, the economic repercussions of flooding are substantial, with 69% of farmers acknowledging significant long-term losses.

Based on these findings, the following recommendations emerge

- i. Develop and upgrade flood management systems, including improved drainage and flood barriers, to mitigate the impact of future floods on farmland and infrastructure.
- ii. Encourage and support the adoption of flood-resistant crop varieties and farming techniques to reduce crop loss and improve resilience.
- iii. Provide financial and technical assistance to farmers affected by floods, including subsidies for damaged infrastructure and support for recovery and adaptation strategies.
- iv. Strengthen food security programs by investing in emergency food supplies and distribution systems to ensure that communities can better cope with food shortages caused by floods.

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