FLOOD MITIGATION STRATEGIES AND FOOD SUSTAINABILITY IN KOGI STATE

BY

[*]C. Abayomi-Oluwole[1], J. K. Ekundayo[2], A. O. Balogun[3]

[1]Centre for Peace and Security Studies, Al-Hikmah University, Ilorin, Nigeria.
[2]Centre for Peace and Strategic Studies, University of Ilorin, Nigeria.
[3]Department of Sociology and Criminology, Al-Hikmah University, Ilorin, Nigeria.
E-mail: cabayomioluwole@gmail.com

Abstract

The resultant effect of flooding on food security is a concern to residents and relevant stakeholders that are charged with the responsibilities of managing flood disaster in Kogi State, Nigeria. Despite flood resilience efforts in the State, the risk and severity of riverine and flash floods being exacerbated by the pattern of yearly rainfall heavily threatened food production in some flood-prone communities. Therefore, the study seeks to examine flood mitigation strategies and food sustainability in Kogi State. The study employed mixed research designs. A multi-stage sampling technique was used to sample 493 respondents from 18 communities in 9 LGAs that frequently experience flood, flood disaster management's stakeholders and analysed with the use of simple percentages and mean score. Also, 20 interview sessions were successfully conducted for flood disaster management's stakeholders, farmers and flood victims and subjected to content analysis. The findings revealed that flood disaster have detrimental effect on household food budgets, post-harvest losses and high inflations of food commodities. Meanwhile, the adopted flood mitigation strategies were largely ineffective in the riverine communities. Whilst, it's recommended that government should encourage the use of climate-smart agricultural techniques to boost flood resilience, irrigation systems, integrated water management, and crop diversity.

Keywords: Food Security, Flood Disaster, Flood Mitigation Strategies, Food Sustainability

Introduction

The occurrence of flood in some countries of the world have results to huge annual losses which include damage and disruption of economic livelihoods, businesses, infrastructure, services and public health (Egbinola et al., 2017). About 1.7 billion people are reportedly being affected by floods with 410, 000 people killed by extreme weather and climate-related events such as floods, storms, and heat waves (International Federation of Red Cross and Red Crescent Societies, IFRC, 2020). Frequent flood occurrences due to prolonged heavy rain and the resultant floods all over the world in recent times are becoming concerns to governments and the agencies that manage incidences of flood disasters (Aderogba, 2011; Wright, 2011). Specifically, flood disasters were of an unprecedented level, affecting food nutrients of the 20.1 million population in Pakistan (Ashraf et al., 2013). In China, flooding durations dropped soybean crop yield in 2020 compared to 2011 and 2018 data, resulted into potential effects of waterlogging on wheat crops in the country (Reed, 2022). Across Africa continent, 12% of population experienced food insecurity occurred from negative effect of flood disaster in 2021 (Reed, 2022). Between 2009 and 2020, approximately 12 percent of those who experienced food insecurity in the world were from Kenya, Uganda, Malawi, Zimbabwe, Mauritania, Nigeria and others, accounting for 5.6 million African people who had their food security status affected by flooding over the periods (Columbia Climate School, 2022).

In 2012, 2020 and 2022, Nigeria witnessed its worst flooding incidents that wreaked serious havoc on the populace (Onukwue, 2022). Assessment reports on the 2012 flood incidents showed that 33 out of the 36 States of the Federation were affected in various degrees: 7 million people were directly affected; 363 people died; and the country lost an estimated 2.7 trillion Naira to the deluge in 2012 alone (NEMA, 2013 in Adfisoye, 2017). In response to flood disaster in Nigeria, the Federal Government National Strategic Plan of Action for Flood Prevention and Management through

a Comprehensive Report produced by the Presidential Committee on Flood was inaugurated in November 2022. Also, Strategic Plan for Flood Mitigation, financing mechanism and Costing of the Flood Strategic Plan was developed (NIHSA, 2023) and Flood management laws were formulated to manage flood disasters, yet the disaster leaves a negative impact on the food security of the people in its implementation, and this exposes the victims to negative humanitarian conditions including lack of access to clean water and good food (Echendu, 2020).

However, this is the situation in Kogi State communities where major rivers and other streams of water bodies have a land mass of alluvial deposits in its various basins suitable for agricultural production like irrigation. The State's arable land is classified as grade 'A' soil in terms of fertility and quality for cultivation, but these land and water resources exposure the State to flood susceptibility (Obahopo, 2021). The risk and severity of riverine and flash floods flooding being exacerbated by the pattern of yearly rainfall in the State is presumed to be a threat to food production that the State is known for, thereby undermining food security in the State.

In 2012, flood disasters led to the displacement of over three hundred thousand (300, 000), majority of whom were farmers living and farming along riverine communities in the State, farmlands and crops therein worth 3 billion Naira destroyed (Aderoju et al., 2014; Ajani, 2012). Records from Kogi State Ministry of Agriculture showed that yield in 2012 decreased by 560 metric tonnes (41.2%) from 1,360 metric tonnes when compared with the previous year (Adeoye, 2019). While in 2019, reports from NEMA Post Disaster Needs Assessment showed that the heavy rainfall accompanied by flooding destroyed 2,500 hectares of farmland and 47,526 livestock destroyed by flood (Adeoye, 2019; Umaru & Hafiz 2019), while in 2020 and 2022, there were monumental effects of flood on food production up to the extent that, Kogi State that is well known to be an agricultural-driven State, ended up receiving food aid and assistance from other States (NEMA, 2020, 2023).

Many studies (Adeoye 2019; Umaru & Hafiz, 2019; Akukwe et al., 2020; Amede & Ejumudo, 2021) have been conducted focusing on the causes and management of flood disasters in Kogi State and beyond. However, none of these studies focused on the effect of flood disaster mitigation strategies on food sustainability, an academic lacuna this study filled. In this regard, the objectives of this study were to examine the impact of flood disaster on food sustainability and assess effect of flood mitigation strategies in sustainability of food security in Kogi State.

Literature Review

Flood

According to National Geo-graphical Education (2023), flooding is a general temporary condition of partial or complete inundation of normally dry areas from overflow of inland or tidal waters or unusual and rapid accumulation or runoff. In a similar vein, European Commission (2007) defines flood as a natural phenomenon that results in the temporary submerging of water of a land that does not occur under normal conditions. Regardless of being excess rain or over flowing of river banks, the definitions above consider flood as temporary and natural. This is supported in the submission of Danjibo et al., (2019) that flood is an excess of water on land that is normally dry and, in a situation, where inundation is caused by high flow or overflow of water in an established watercourse, such as a river, stream, or drainage ditch.

Food Security

World Bank definition and in line with the United Nations' Committee on World Food Security; 1996 Food Summit, food security means that all individuals, at all times, have physical, social, and monetary get to adequate, secure, and nutritious nourishment that meets their nourishment inclinations and dietary needs for dynamic and wide-ranging life (World Bank, 2022). Also, Peng and Berry (2018) understood food security concept as broader than mere production and accessibility of food, it revolves round four pillars namely: accessibility, availability, nutritional and stability of food at all time. The above submissions have shown that before food can be said to be secured, the basic

four objectives mentioned have to be fulfilled. Peng and Berry elaborated the concept base on the widely acceptable definitions by Food and Agriculture Organisation (FAO) in its annual report on food security 2001;

"*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*" (World Bank, 2022).

The last revision to this definition happened at the 2009 World Summit on Food Security which added a fourth dimension; stability, as the short-term time indicator of the ability of food systems to withstand shocks, whether natural or man-made (Peng & Berry, 2019). Also, Food and Agriculture Organisation establish the fact that food security concept is centered on four different dimensions as early noted. Notwithstanding, FAO asserted that recent developments emphasizes the importance of sustainability, which may be considered as the long-term time (fifth) dimension to food security. Sustainability includes pointers at supra-national/regional level of biology, biodiversity and climate alter, as well as socio-cultural and financial as conceivable components that can leads to food uncertainty (FOA, 2012). In the context of this study, food security is the level of sustainability of food in selected community area of Kogi State that are prone to flood disaster.

Flood Disaster Mitigation Strategies

Disaster Mitigation is one of the most promising research fields because of its important economic and social implications. Disaster management involves the coordination and integration of all activities necessary to build, sustain and improve the capabilities of communities to prepare for, protect against, respond to and recover from threats or actual natural or man-made disasters (Olanrewaju et al., 2019). Dolan and Walker (2004) indicate that effective disaster management can fully benefit humanity because it will impact on the environment, serve as a human intervention for sustainable development and improve food security. Jerome (2021) noted that the after disasters applying appropriate measurements and techniques to prevent recurring disasters is essential. To this the disaster mitigation strategies are the various organisation's efforts and risk reduction action plan channelled towards mitigating the effect of flood disaster in Kogi State.

Effects of Flood Disaster on Food Security

According to UN-Water (2011), there has been rapid growth in number of people killed or seriously impacted by flood disasters. Indeed, UN noted further that the number of economic damages affects a large proportion of people in low-lying coastal zones or other areas at risk of flooding and extreme weather condition. According to Shalinda et al. (2022), in United States, the 2019 Mid-western floods had affected a total area of 492,797.4km^2 in several States such as Nebraska, Iowa, Wisconsin, Missouri, Kansas, Illinois, Minnesota and South Dakota. The extent of total economic damage due to this flood was US$ 4 billion of which Iowa contributed US$ 1.6 billion, while in Thailand, during October 2010, according to the Mueang Nakhon Ratchasima District Office, the flood caused physical damage to 16 Government units, 13 hospitals, 2 reservoirs and 24,785 households were displaced (Shalinda et al. 2022). The recurring flood disaster along the coastal communities in Nigeria has left millions of people displaced and devaStated in recent times. Those living in the coastal communities of Rivers, Niger, Benue, Sokoto, Kastina, Lagos, Ondo, Akwa-Ibom, Anambra and Cross River States were gravely affected by the incessant flood menace (Agbonkhese et al., 2014; Shalinda et al., 2022). Floods occurrences in the country has been reported in Ibadan (1987, 1990), Oshogbo (1996; 2002), Yobe (2000) and Akure (2000; 2002; 2004; 2006). The coastal cities of Lagos, Port Harcourt, Calabar, Uyo and Warri among others have many times experienced incidents that have claimed many lives and property worth millions of dollars (Folorunsho & Awosika, 2001).

Flood Disaster Management Strategies in Nigeria

Disaster risk reduction and management is the "concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters (UNESCO, 2022). This including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse effects (Danhassan et al., 2023). The far feat flooding in Nigeria alongside measures in overpowering or managing with related challenges has gotten significant consideration, though more discourse centred on nearby communities, locales and State government (Ojigi et al., 2013). However, lack of definite measures and capacity to radically tackle the hazard within the country has been overwhelmed (Wisner, 2003). Nevertheless, concerted efforts in the form of environmental and infrastructural planning, policy directives, social responses, physical intervention and enhanced public enlighten programmes have been extensively considered (Agbola et al., 2012; Ali & Hamidu 2012; Bashir et al. 2012). Other measures considered are community based early warning systems (Agbonkhese et al., 2014), humanitarian aids from government and private sectors (Adeoye et al., 2019) and appropriate level of preparedness and capacity building (Adedeji et al., 2012). The need for science and technology to embrace environmental education in Nigeria has been emphasized (Nkwunonwo, 2016), while flood hazard mapping as well as assessment of vulnerabilities of lives and properties which play a key role in building community resilience to flooding were recommended by Adeaga (2008) who categorised alternative measures of suppressing flood loss into two groups, which are: Corrective measures and Preventive measures. According to Obeta (2014), stakeholders' efforts towards tackling the hazard in Nigeria have not yielded satisfactory results, they have been criticised for being poorly coordinated, non-generalisable and not well established.

Theoretical Framework

Stakeholder Theory

This study was anchored on stakeholder theory propounded by Edward Freeman in 1984 to explain the need for good policy from decision makers in mitigating the effect of flood disaster on food sustainability. Freeman sees stakeholders as any group or individual who can affect or is affected by the achievement of the organisation's objective (Diana & Fahim 2023). Harrison and Wicks (2013) claimed that stakeholder theory revolves around the roles of decision makers, their decisions and those who take advantages of the outcomes of those decisions. Charles Blattberg criticised stakeholder theory, that it may be subjective and it is not possible that all stakeholder interests can be met at the same time and as usual, company can give more importance to stakeholders like shareholders of the company instead of employees and consumers. But these weaknesses of this theory can be remedied by identifying the stakeholder likely to be affected by the decision of the organisation (Sumit, 2016). In Kogi State,the key actors range from Kogi State Emergency Management Agency (SEMA), National Emergency Management Agency (NEMA) and the NGOs have a roles to play as respective stakeholders or/and agencies engaged in disaster management in the mitigation of flood disaster on the affected communities. This stakeholders' through different engagement necessary for the purpose of abating flood disasters in the affected communities has been able to relatively reduce the effect of the flooding on the communities.

Methodology

The study adopted mixed research design using qualitative and quantitative methods of data collection. Descriptive survey (questionnaire) was employed to generate quantitative data, while, semi-structured interviews were employed to generate qualitative data in order to have deeper understanding of the flood mitigation strategies and food sustainability in Kogi State. The sample population consist of 493 respondents which were purposefully selected from the nine (9) affected Local Government Areas affected by flood namely Lokoja, Ibaji, Bassa, Ajaokuta, Kotonkarfe, Igala Mela-Odolu, Omala, and Idah, LGAs which consist of victims, eyewitnesses, volunteers from NGOs, staff of NEMA, SEMA, Ministry of Environment and Kogi State Agriculture Department Records (KADR). A total of (20)

interview sessions including eight KII and twelve IDI were successfully conducted and subjected to content analysis. Meanwhile, simple percentages and mean score were used to analyse the quantitative data.

Discussion of Findings

Table 1: Showing Demographic Characteristic of the Respondents

Variables	Frequency	Percentage%
Gender		
Male	319	64.7
Female	174	35.3
Total	**493**	**100.0**
Marital Status		
Married	230	46.7
Single	165	33.5
Divorced	45	9.1
Separated	36	7.3
Widow	17	3.4
Total	**493**	**100.0**
Educational Status		
No formal education	40	8.1
Primary	79	16.0
Secondary	224	45.4
Tertiary	150	30.4
No formal education	40	8.1
Total	**493**	**100.0**
LGA/CSOs/Agencies		
Lokoja	158	32.05
Kotonkarfe	45	9.12
Ibaji	32	6.49
Ajaokuta	72	14.60
Igala mala	23	4.66
Bassa	45	9.12
Ofu	25	5.07
Omala	21	4.25
Idah	33	6.69
SEMA	9	1.8
NEMA	5	1.1
CSOs	18	3.7

KME	4	0.81
KADR	3	0.60
Total	**493**	**100.0**
Occupation		
Farmers	178	36.1
Unskilled labourer	39	7.9
Artisan	40	8.1
Civil servant	105	21.3
Trader/business	131	26.6
Total	**493**	**100.0**

Source: Researcher's Field Survey, 2023

Table 1 shows socio-demographic status of the respondents, the gender distribution reveals that 64.7% are male, while 35.3% are female. This indicates a slight predominance of males within the group. On marital status, the data shows that 46.7% of individuals are married, making it the most common marital status. Singles account for 33.5% of the population, followed by divorced individuals at 9.1%, separated individuals at 7.3%, and widows at 3.4%. These figures reflect the diverse marital statuses present within the community. The level of education achieved by individuals within the population can be determined by looking at their educational status. The most common educational level among the respondents is secondary education, which has a completion rate of 45.4%, while 30.4% of the population having pursued higher education, tertiary education follows closely. 16.0% of people claim to have completed elementary school, while 8.1% claim to have no formal education. These results show that the community has a range of educational attainment. The LGA with highest frequency of respondents is Lokoja 32.05%, Kotonkarfe 9.12%, Ibaji 6.49%, Ajaokuta 14.60%, Igala mala 4.66%, Bassa 9.12%, Ofu 5.07%, Omala 4.25%, Idah 6.69%, while in agenecie/CSOs shows SEMA 1.8%, NEMA 1.1%, KME 0.81%, KADR 0.60% and CSOs 3.7%.The distribution of occupations provides insight into people's employment circumstances. Unemployed people make up the largest category, constituting 36.1% of the population. Traders and business owners make up 26.6% of all occupations, placing them second. 21.3% of the population is made up of civil servants, compared to 8.1% of artisans and 7.9% of unskilled workers.

Table 2: Showing response to the impacts of flood on food security in Kogi State.

Statement/Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean
The flood resulted in a significant decrease in agricultural productivity	51(10.3%)	73(14.8%)	19(3.9%)	177(35.9%)	173(35.1%)	3.70
The flood had a negative impact on the availability of locally produced food	43(8.7%)	78(15.8%)	8(1.6%)	212(43.0%)	152(30.8%)	3.71
The flood disrupted the transportation of agricultural produce to markets	59(12.0%)	63(12.8%)	15(3.0%)	199(40.4%)	157(31.8%)	3.67

The flood increased post-harvest losses of crops	48(9.7%)	91(18.5%)	9(1.8%)	171(34.7%)	174(35.3%)	3.67
The flood led to an increase in food prices in my community	57(11.6%)	64(13.0%)	22(4.5%)	192(38.9%)	158(32.0%)	3.66

Source: Researcher's Field Survey, 2023

Table 2 presents the responses regarding the effects of flood on food security in Kogi State. The first Statement addresses the decrease in agricultural productivity because of the flood, the responses having a mean score of 3.70 shows that the flood significantly reduced agricultural productivity in Kogi State. The second claim focuses on how the flood has reduced the amount of locally produced food available. The results shows a mean score of 3.71, which implies that the flood had a detrimental effect on the availability of locally grown food in Kogi State. On a claim about how the flood has affected how agricultural products are transported to markets, according to the results, having a mean score of 3.67, indicates that the flood hindered the movement of agricultural goods to markets in Kogi State. The increase in post-harvest losses of agricultural crops brought on by the flood is highlighted in the fourth Statement. Which had a response of mean score of 3.67 strongly agree that the flood increased post-harvest losses of agricultural crops in Kogi State. The claim about how the flood has caused food costs to rise in the neighborhood have a mean score of 3.66, indicating that the flood contributed to a rise in food prices. Furthermore, responses from the interview confirmed this:

> Transportation costs were extremely on a high side, and prices of road transportation food increased, because there were no routes to get to the main town and transporters had to pass through long routes to convey harvested crops to the market (IDI: Male: Famer: Lokoja: 2023).

Another respondent; a civil servant asserted that;

> One major effect I can point to is the high cost of food in Lokoja. Can you even have access to buy the food? No, even with your money inside your pocket hardly can you see the availability of certain crops to buy. It was a tough period for us. Part of the food brought from other States to share for displaced persons has to be converted for residents who could not have access to buy foodstuff. (KII: Female: NGO: 46yrs: 2023).

In the account of the SEMA' Representative,

> "The flood greatly affected the sufficient food production that Kogi State is known for. For several days, here in Lokoja, we had to use to canoe to transport foodstuff at a very high cost to some residents who could not find their way out of the area. Cow meat could not be accessed, while at some local communities, their rice farms were washed away making them vulnerable" (KII: Female: SEMA: 45Yrs: 2023).

A staff of the Kogi State Agricultural Department Records has this to say,

> Our records of yearly food production dropped for three consecutive years. Something unusual in the agricultural sector occurred in the State. The availability of food in the State now depends on inflow from other States (KI: Male: KADR: 43Yrs: 2023)

According to this finding, floods significantly reduce agricultural yield. The finding is like the work of Adeshua (2024) that Nigeria stands out as one of the countries with the highest levels of severe food insecurity, with approximately 39 million Nigerians facing acute hunger in 2020. This study's finding implies that floods substantially impair farmers' capacity to cultivate and harvest crops, leading to lower crop production. Additionally, it was discovered that the floods increased post-harvest losses of crops. This finding is in line with the study of Coker (2023) that the post-harvest Losses in Kogi State in 2012 and 2022 flooding were a result of flooding. It therefore safe to say that, this implies floods in Kogi State have a wide range of implications for food security.

Table 3 showed Percentage Distribution of Respondents' Perception and Opinion on the Effectiveness of Flood Mitigation Strategies on food sustainability in Kogi State

Statement/Questions	Highly ineffective	Ineffective	Neutral	Effective	Highly Effective	Mean
Affordable transportation of basic food to riverine communities	173(35.1%)	177(35.9%)	19(3.9%)	73(14.8%)	51(10.3%)	3.70
Staple food price control	212(43.0%)	152(30.8%)	8(1.6%)	78(15.8%)	43(8.7%)	3.71
Empowerment for dry season farming	157(31.8%)	199(40.4%)	15(3.0%)	63(12.8%)	59(12.0%)	3.67
Farmers' vulnerability Reduction	48(9.7%)	91(18.5%)	9(1.8%)	171(34.7%)	174(35.3%)	3.67
Adequate and timely awareness of crops harvesting	49(9.9%)	73(14.1%)	15(3.0%)	189(38.3%)	167(33.9%)	3.71
Training programmes for the farmers on flood risk reduction	56(11.4%)	20 (4.1%)	72(14.6%)	206(41.8%)	139(28.3%)	3.63

Source: Researcher's Field Survey, 2023

Table 3 presents the responses regarding the effectiveness of flood disaster management strategies to food security sustainability in Kogi State. The first Statement addresses the effectiveness of the strategy in providing affordable transportation of basic food to riverine communities, the respondents rated it as ineffective having a disagreement mean score of 3.70, that the strategy is not effective. The second claim focuses on staple food price control. The results show respondents concurred to highly ineffective with a mean score of 3.71, indicating inability of the adopted strategy to control price of food. The third measured variable centred on empowerment for dry season farming, respondents considered this strategy ineffective which indicated the strategy to empower for dry season farming is not effective, having a mean score of 3.67. Fourthly, on the claim about farmers' vulnerability reduction, it showed that there is positive effect of the strategy. In essence, there is a generally high level of agreement that the adopted strategy on farmers' vulnerability reduction is effective with a mean score of 3.67. Similarly, the fifth claim on the awareness strategy for adequate and timely crops harvesting, showed responses as highly effective with the mean score of 3.71, which indicate that the strategy is effective in mobilising to harvest their crops before the arrival of floods.

On level of effectiveness of training programmes for the farmers on flood risk reduction, the effectiveness of the strategy has a mean score of 3.63, which implies highly effective. The oral interview sessions (IDI) showed that the adopted strategies were largely ineffective in controlling highly inflicted food commodities that happened due to flood disaster occurrences.

According to a community leader in Ibaji LGA,

> Cash and food commodities were given to little members of our community. It was a very small amount of money and food compared to the damages done by the flood. Proper awareness was carried out, but our people failed to yield to advice. They failed to harvest their crops in time despite the early warning given by the government (IDI: 60yr; Male; Ibaji Community Leader; 2023).

Contrary to the above oral evidence, another victim Ida LGA observed has this to say,

> "Nobody was told earlier about the impending flood disaster. I did not have radio or television which the government uses in passing the information, and even those that have radio did not tell me about such information. Up till this very moment, I have not been given money or relief material. All my crops were destroyed. The NGO that came to us complained about of non-availability of a ferry to bring food materials to us. Those of us who have money have the means to buy food because the major motorable roads were flooded (IDI: 35yr; Male; Ida flood Victim: 2023).

Still, another victim in Lokoja town asserted,

> "I was camped in a primary school for several weeks without food. I left the camp and returned to my flooded house to repair it and continue with my life since there was no means to survive in the camp" (IDI: 25yr; Male; Lokoja flood Victim: 2023).

A female victim in Ajaokuta claimed that,

> The government of Kogi did nothing about our sorry situation. We were not given any materials or empowerment to rebuild our damaged buildings. The most painful aspect is the promise to provide a safer place to house our harvest crops. So, we were waiting for them. Surprisingly, the rain came and wept every away from we all assembled the food commodities. The only thing we saw was the government official coming to collect data as regards properties and farm crops destroyed by the flood (IDI: 42yr; Female; Ajaokuta flood Victim: 2023).

A religious leader in Ofu has this to say,

> "The government did not tell us about the Dam that was opened which destroyed crops and properties. We have no drainage here to control the flood. Up till this very movement, we were given only five bags of rice to share by a certain NGO not even the State government" (IDI: 62yr; Male; Ofu religious leader: 2023).

Another respondent: a victim in the same LGA said succinctly,

> "I did not know anything about SEMA's operation. The prices of staple food commodities were so cost without any intervention by the government" (IDI: 32yr; Male; victim: Igala mala: 2023).

Based on the above finding, the strategies on farmers' vulnerability reduction, adequate and timely awareness campaigns on crop harvesting were relatively effective. This finding is different from the study of Oladokun and Proverbs (2019) who scored Nigeria's flood risk management low. Therefore, Kogi farmers were dually informed about impeded flood risk and the needs for early crop harvesting. On the other hand, strategies on staple food price control, empowerment for dry season farming and affordable transportation of basic food to riverine communities were largely ineffective in sustaining food security in Kogi State. The finding validated the submission of Wisner (2003) that Nigeria lacks definite measures and capacity to radically tackle the flood hazard effects on food security.

Conclusion and Recommendation

In line with the finding of this study, flood disaster has impacted negatively on food sustainability in Kogi State. Although farmers and residents of the State were dually informed about the impeding flood disaster, and the need to harvest crops earlier before the occurrences of the disaster, however, post disaster mitigation strategies targeted towards food price control, dry season farming and transportation of basic food to riverine communities were largely ineffective in sustaining food security in Kogi State. It is therefore recommended that there is need for climate-resilient agricultural methods, boosting infrastructure resilience, and creating social safety nets to lessen the impact of floods on food sustainability in Kogi State. Also, The NEMA, SEMA, LEMA and NGOs working as response agencies to flood disasters should be properly staffed, financed and equipped with all necessary equipment in order for them to be effective.

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