Nigeria Flood Impact, Recovery and Mitigation Assessment Report

2022-2023

Nigeria Flood Impact, Recovery and Mitigation Assessment Report

2022-2023

NATIONAL BUREAU OF STATISTICS

Summary Table of Survey Implementation and the Survey Population, IAS 2022/23

SURVEY IMPLEMENTATION			
Sample frame 2022 Flood impact assessment survey		Questionnaire	Household
Enumerators training	27 April – 28 April 2023	Fieldwork	29 April – 20 May 2023

SURVEY SAMPLE		SURVEY POPULATION	
Households sampled	3,600	Average household size	5
Urban area	1,020	Household size urban area	4
Rural area	2,580	Household size rural area	5
Response rate (percent)	100	Anambra	4
Male household heads	2,837	Bayelsa	4
Female household head	763	Delta	4
Household heads <= 35 years	853	Jigawa	7
Household heads > 35 years	2,747	Kogi	5
		Nasarawa	5

The National Emergency Management Agency (NEMA) is the focal institution, established via Act 12 as amended by Act 50 of 1999, and tasked with the responsibility to address Disaster Risk Reduction and Management in Nigeria, which is achieved within the framework of its Vision and Mission statements.

Guided by these statements, strategies and action plans are developed to address both natural and human- induced disasters with a view to creating a resilient society, to reducing disaster risk and to promoting growth that realize the Sendai Framework for Disaster Risk Reduction (SFDRR) 2015 – 2030 and Sustainable Development Goals (SDGs) by 2030. Hence, the National Bureau of Statistics (NBS) implemented the Flood Assessment project, in collaboration with NEMA and supported by UNDP, to address the immediate and remote risk factors for flooding in Nigeria.

Suggested citation:
National Bureau of Statistics, National Emergency Management Agency and United Nations Development Programme (2023), Nigeria Impact of Flood, Recovery and Mitigation Assessment Report 2022-2023, Final Report. Abuja, Nigeria.

Table of Contents

List of Tables

List of Abbreviations

BCG: Bacillus Calmette – Guerin vaccine

CAPI: Computer Assisted Personnel Interviewing

DIM: Direct Implementation Modality

EA: Enumeration Area

FCT: Federal Capital Territory

ICT: Information Communication Technology

IFRMAS: Impact of Flood, Recovery and Mitigation Assessment Survey

LOA: Letter of Agreement

MICS: Multiple Indicator Cluster Survey

MOV: Missed Opportunities for Vaccination

MR: Multiple Response for which only 'Yes' response is analysed

NBS: National Bureau of Statistics

NEMA: National Emergency Management Agency

NICS: National Immunization Coverage Survey

NPC: National Population Commission

SDGs: Sustainable Development Goals

SFDRR: Sendai Framework for Disaster Risk Reduction

SPSS: Statistical Package for the Social Sciences

ToE: Training of Enumerators

ToT: Training of Trainers

UNDP: United Nations Development Programme

WASH: Water, sanitation and hygiene

Acknowledgements

The Nigeria Impact of Flood, Recovery and Mitigation Assessment Report 2022-2023 was made possible by the commitment and contributions of the National Bureau of Statistics (NBS), the National Emergency Management Agency (NEMA), and the United Nations Development Programme (UNDP).

The overall guidance and oversight were provided under the leadership of Prince Adeniran Semiu Adeyemi, Statistician General of the Federation and Chief Executive Officer of National Bureau of Statistics (NBS); Alhaji Mustapha Habib Ahmed, Director General of National Emergency Management Agency (NEMA); and Mohamed Yahya, Resident Representative of United Nations Development Programme (UNDP Nigeria).

Technical guidance for the implementation of the survey and production of the report was provided by Tunde Adebisi, Director of Corporate Planning and Statistical Coordination Department at NBS (Project Director); Late Frank Obaide, Head of Corporate Planning at NBS (Project Coordinator); Precious Akanonu, National Economist at UNDP (Project Manager); and Chinpihoi Kipgen, Coordinator of Knowledge Hub (Technical Co-Lead). We also appreciate the support of A.E. Fafunmi (Director of ICT, NBS); I. Z. Maigida (Director of Field Services and Methodology, NBS); Daniel Obot Etim (Director of Disaster Risk Reduction, NEMA); Ejike Martins (Deputy Director of Human Resource Management, NEMA); and Clare Henshaw (Programme Specialist, UNDP).

We appreciate the valuable contributions of the technical staff of NBS: Dr. Salihu Itopa, Hope Chioma Nkemakolam, Lawerence Akhindener, Bridget Ebhodaghe, Dio Emmanuel and Femi Ogunmol; as well as the technical officers of NEMA: Godwin Okunwa, Augustine Abi, Isa Abulkasir and Terunwa Igue. Technical and administrative support from UNDP Nigeria Country Office team members: Sunday Andorbe Amama (National Project Management and Coordination Specialist for the Sahel Resilience Project), Serifu-Ayobami Lamidi (Survey Methodology Specialist), Grace Arinze Ononwu (Economic Research Associate), Joyce Oburu (Partnership and Communication Officer) and Joseph Bisong Eta (National Disaster Loss and Damage Inventory Coordinator for the Sahel Resilience Project) are well acknowledged. Special recognition goes to Edidiong Amos and Chiemeka Nsofor of Cizoti Nigeria Ltd., a leading GIS/IT company in Nigeria, for their contributions towards GIS mapping for this project. The report also benefitted from independent review provided by Nonso Obikili (Economist, UN Resident Coordinator Office), copy editing support from Alexandra George and design and layout by studio TBD. We also extend our gratitude to Light Red Media Productions for capturing the photography used in this report.

Finally, on behalf of the NBS, we acknowledge with gratitude the roles played by the facilitators, monitoring team and survey personnel. We are also grateful to the heads and members of the sampled households who welcomed and responded to the survey questionnaire.

Executive Summary

Flooding is the most common and recurring disaster in Nigeria. The damage and losses recorded during the 2012 flood disaster were severe; however, the 2022 floods, which were on a multidimensional scale, had more devastating effects.

This report provides an impact assessment of the 2022 floods in Nigeria, highlighting key findings on their impact, recovery and coping mechanisms deployed across affected households and offers an evidence-based strategy for future flood risk mitigation and adaptation. The assessment covered six states – Anambra, Bayelsa, Delta, Jigawa, Kogi and Nasarawa – which accounts for a significant proportion of the total population affected by the 2022 floods. The survey was carried out in collaboration with NBS, NEMA and UNDP.

Key Findings

The results from the impact assessment revealed extensive losses to lives and livelihood and the disruption of essential services and economic activities. Both agriculture and non-agricultural sectors were severely affected leading to substantial income losses and undermining food security and sources of income. The assessment also shows low recovery rates of affected households and communities following the 2022 floods, hence the need for a recovery and future flood risk mitigation plan.

Overall, 64 percent of households were affected by the floods in 2022, with impacts ranging from livelihood, housing, food sources and access to basic services, such as health facilities and schools. The impacts of the flood were significantly higher in rural areas (74 percent) compared to about 40 percent in urban areas. The overall impact of flood was varied across selected states, almost all (99 percent) interviewed households in Bayelsa were affected by the floods in one way or the other, followed by Jigawa (94 percent), Nasarawa (70 percent), Kogi (70 percent), Delta (57 percent) and Anambra (23 percent). There is also gender disparity in the impact of the floods, with 66 percent of male-headed households affected compared to 57 percent of female- headed households.

A majority of affected households experienced the flooding between September- October 2022 (50.9 percent), followed by 42.7 percent recorded in July-August. The data also shows that most households (41.1 percent) experienced floods lasting 1-11 days, while 39.9 percent of respondent households experienced floods that lasted for 32 days or more.

A. Impact on Household Livelihood and Income Sources: Findings indicate that across the six states, on average, about 57 percent of households reported experiencing an adverse impact due to the 2022 floods. Among those affected, 54.6 percent of households were severely affected, while 34.2 percent experienced their moderate effect and the remaining 11.7 percent reported a minimal impact. The most common impact recorded include the following: destruction of crops (67.9 percent), loss of personal properties (56.1 percent), loss of food stock (52.6 percent), destruction of farmland (42.3 percent) and loss of farm assets (40.0 percent).

Among households involved in crop farming activities, about 95 percent of these households were impacted by the 2022 floods. This was particularly high for rural households (77 percent), compared to urban households (36 percent). Similarly, about 76 percent of households involved in non-crop farm activities (livestock, fishery, and snail farming) were impacted by the floods.

Among those involved in non-farm businesses, 91.3 percent were adversely impacted by the floods. The main type of impact recorded included total loss of businesses (52 percent), followed by physical damage to businesses (47 percent), downsizing of a business (38 percent), revenue loss (37) and an increase in operating costs (28 percent). Moreover, nearly 80 percent of households indicated that their jobs/work were affected by the 2022 floods. This was highest in Anambra state, with all respondents indicating an impact on their jobs, followed by 95.2 percent of respondents in Bayelsa state. The main type of impact on jobs included an overall reduction in wages for 69 percent of households and the loss of a job for 49 percent of households.

B. Impact on Food Security: Overall, 49 percent of the households reported having had their main source of food affected by the floods, with households in rural areas (60 percent) more impacted than those in urban areas (23 percent). The floods disrupted agricultural activities, resulting in reduced crop yields (for 94.9 percent of households), increased food prices (19.9 percent) and diminished access to nutritious food (84.9 percent). For many households, the floods caused food insecurity, with 60 percent reported experiencing hunger, 69.2 percent – a food shortage and 84.9 percent unable to eat a healthy nutritious meal due to the impact of the floods.

C. Impact on Health, Mortality and Morbidity: The overall findings show the proportion of respondents who reported that their health facilities were totally damaged (22.9 percent) and destroyed with (2.7 percent) by the 2022 flood. Close to one in four of the respondents reported that there was an outbreak of diseases in their community due to the floods, with waterborne diseases (89.3 percent) being the most common. With an average household size of five members, results indicate that on average three members were affected by the outbreak of the disease. It was also observed that about 2 percent of the households had at least one household member that recorded either loss of life or injuries due to 2022 floods. Although rural households were generally more impacted by the floods, a higher proportion of households in urban areas (2.4 percent) recorded death/injury of their member(s) compared to the rural areas (0.7 percent). There was a gender variation in causalities due to the 2022 floods, female-headed households (2.2 percent) were more affected compared to male-headed households (0.8 percent).

D. Impact on Access to Education: Findings from the survey show that 35.9 percent of the households reported schooling had been impacted by the 2022 floods. A significantly higher proportion of rural households (45.8 percent) reported having schooling impacted by the floods compared to urban households (14.8 percent). Children from rural households and female-led households were out of school for about a week longer (54 days and 77 days respectively) compared to urban children and those from male-headed households (43 days and 63 days respectively) across the surveyed states.

E. Impact on Housing: Overall, 45.3 percent of respondents reported that their house was physically affected by the floods, with 32.7 percent indicating it was partially affected and the remaining 12.6 percent reporting that their housing was completely affected. On average, respondents estimated that the monetary cost of damage to houses was estimated at approximately ₦1.97 million. Moreover, results show that 4 in 10 households (40.9 percent) were displaced (either temporarily or still displaced at the time of the interview) due to the 2022 floods.

F. Response and Coping Mechanism: Only 19.7 percent of the households reported that they were aware of government alerts about floods, with only 8.3 percent being able to evacuate before the floods. Overall findings show that 89.6 percent of households interviewed did not receive support during the floods. Despite their significant impact on households, only 8.0 percent received assistance, with family and friends being the most common source of support. Only 1.5 percent of affected households received government assistance.

G. Recovery: 20.4 percent of households reported that the flood waters had not completely receded in their communities at the time of the interview. Across the affected households, 44.8 percent of the households had reported having recovered from the impact of the 2022 floods. Respondents from urban areas reported higher rates of recovery (52.5 percent) compared to rural areas (41.5 percent).

Among households involved in agricultural farm activities, 63.2 percent of households' farmlands had been partially recultivated following the 2022 floods, 24.6 percent had managed to completely recultivate their farmlands, while the remaining 12.2 percent had been unable to recultivate at the time of the interview. Among those involved in non-farm businesses, 77.3 percent of the households had partially recovered, while 22.7 percent reported that they had completely recovered their businesses and jobs after the 2022 floods.

H. Risk Mitigation Measures: When asked about future risk mitigation measures to be put in place, a majority (62.9 percent) reported not putting any preventative measures in place to mitigate future floods, while the others indicated the construction and cleaning of the drainage system (25.5 percent) followed by the establishment of an early warning messaging system (10.7 percent) as the major measures implemented. In terms of food shortage mitigation following the floods, results show that 61.8 percent of households reported not having enough food to eat during the next flood season. Similarly, 61.7 percent of households reported not having a safe place for evacuation in case of future floods.

I. Recommendations on Strategies for Future Flood Risk Mitigation and Adaptation: Within the realm of this assessment, the report has provided evidence-based for support on recovery of affected households and communities and for future flood risk mitigation toward enhancing community resilience. Some of the key mitigation strategies recommended include the following: early warning systems and flood preparedness, including through community engagement, and targeted awareness campaigns for high-risk communities and infrastructure and land-use planning including through coordination between federal and state-level disaster risk reduction ministries, departments and agencies. Some of the key recovery strategies recommended include flood risk financing and insurance, development of a post-disaster recovery and rehabilitation plan focusing on ensuring food security, safe evacuation disease control and livelihood support.

1.0 Introduction

Flooding has become a major disaster in Nigeria in recent years due to several factors, including an ineffective drainage system, climate change and extreme weather events, which directly impact its growing population and rapid urbanization. Flooding is a general or temporary condition of partial or complete inundation of normally dry areas of land from the overflow of inland or tidal waters from any source land. In developing countries, flooding results from several factors: from large amounts of rain within a short period of time, excessive precipitation, building on waterways, sea-level rise, soil moisture regime, dam operations, especially along borders, uncontrolled rapid population growth, inadequate preparedness and a lack of political will. Flooding has both natural and human consequences, which this study seeks to identify for flood risk mitigation and adaptation.

In 2022, Nigeria experienced the worst flooding in recent decades, with over 600 fatalities and 3.2 million people affected across 34 of the 36 states of the federation and the Federal Capital Territory.[1] While flooding occurs annually in Nigeria, the 2022 floods have caused unprecedented disruption and destruction and proved to be more intense than the 2012 floods, where approximately 3 million families saw their houses damaged or destroyed. Hundreds of lives and livelihoods have been lost, 1.4 million people have been displaced and over 569,000 hectares of farmland have been destroyed along with key infrastructure, negatively impinging on the cost of living across the country (Statistician General's statement, October 2021).

As of 1 November 2022, over 1,302,789 people had been directly affected, and this number could be multiplied by many times over with the increased risk of water- and vector-borne diseases such as malaria, cholera, and typhoid. The most affected states are Anambra, Bayelsa, Cross River, Delta, and Rivers in southern Nigeria and the Federal Capital Territory in central Nigeria, based on a report, as of October 18, 2022.2 Bayelsa state was reported to be the worst affected, with approximately 700,000 people displaced or affected, as of 18 October 2022. By November 2022, Anambra, Kogi, Bayelsa, Jigawa, Delta and Nasarawa were reported as among the most affected states, with people from these regions accounting for more than half of all people affected.3

The Federal Government, working together with the World Bank, has conducted a preliminary assessment of the damage and loss. The assessment estimates that the total direct economic damages, based on reported statistics as, of 25 November 2022 are in the range of US$3.79 billion to $9.12 billion, with the best (median) estimate at $6.68 billion.4 This includes damages to residential and non-residential buildings (including building contents), as well as damages to infrastructure, productive sectors and agriculture. While the aforementioned study deployed a macro-level national assessment (using satellite images) to produce estimates of the economic cost and damage caused by the floods, the current study is focused on the micro-level effects of the losses to households (using household surveys) with a focus on six of the most affected states.

The Nigeria Impact of Flood, Recovery and Mitigation Assessment Report 2022-2023 provides a granular understanding of the losses to households due to the floods and recovery since the floods in the most affected communities. It is aimed at informing the humanitarian and recovery responses of the government and development partners towards addressing the impacts of floods, especially for vulnerable groups. The results of the household survey will contribute to the strategy for future flood risk mitigation and adaptation.

This assessment conducted by NBS, NEMA and UNDP provides evidence beyond food security and business continuity to include other key indicators, such as health, mortality, morbidity, education and housing, for future interventions for vulnerable populations affected by floods. It also provides a basis for a disaster risk and recovery strategy.

Survey Objectives

The main aim of the survey is to ascertain the impact of the 2022 floods in Nigeria and recovery and coping mechanisms since the flood occurred, with a focus on the most affected states and communities. The six focal states are: Anambra, Bayelsa, Delta, Jigawa, Kogi and Nasarawa which account for more than half of the affected population of the 2022 floods in Nigeria.

The survey assesses the impact of the floods across four key indicators:

- Livelihood and sources of income (farm and non-farm activities)
- Food security
- Health, mortality and morbidity
- Access to education and housing

The assessment report also provides recommendations for recovery as well as future flood risk mitigation and adaptation strategy.

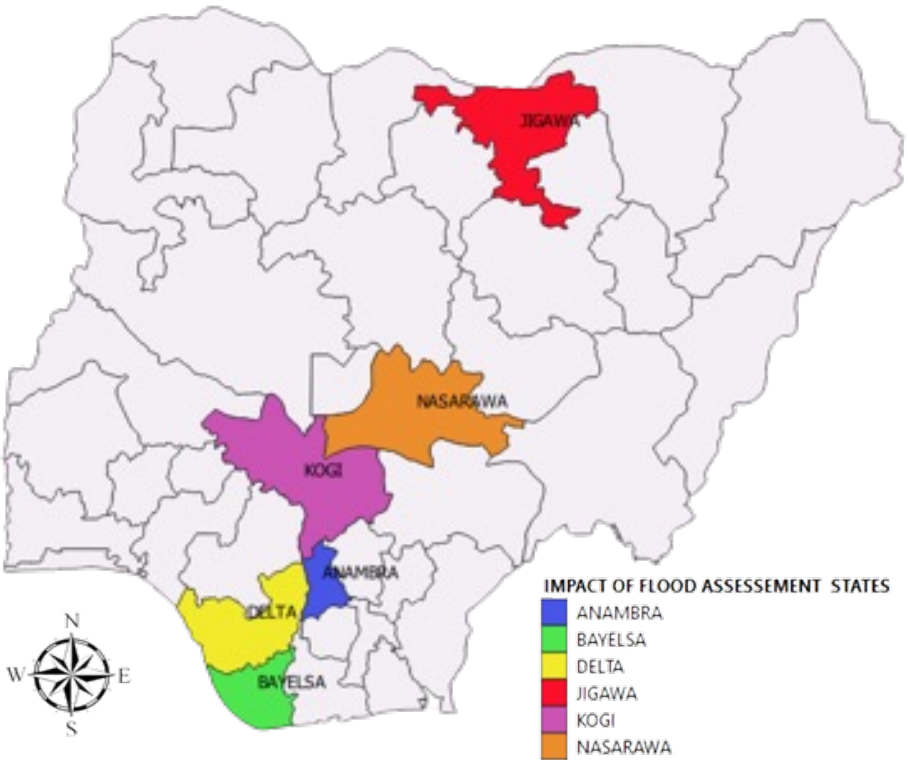
2.0 Methodology

2.1 Sample Design

The Nigeria Impact of Flood, Recovery and Mitigation Assessment Report 2022-2023 was carried out to assess the level of damages and losses caused by flooding across six states, namely Anambra, Bayelsa, Delta, Jigawa, Kogi and Nasarawa, which were reported among the most affected states. The study was designed to determine the impact of the floods on livelihoods, agriculture and farmlands, food security, displacement, education, loss of key infrastructure and the health of households in the affected states.

The sampling frame of Enumeration Areas (EAs) used by the NBS for the household-based survey was obtained from the frame of enumeration areas that were demarcated for the purpose of the 2006 Housing and Population Census conducted by the National Population Commission (NPC).

Figure 1: Map showing surveyed states



A two-stage sampling technique was utilized, with the first stage being the selection of EAs within the strata and the second stage being the selection of households within each enumeration area. In each of the six states, forty EAs were systematically selected with equal probability, giving a total of 240 EAs.

Following the household listing exercise carried out in all the selected EAs, a systematic sample of 15 households were drawn up in each EA. Enumeration areas within the states were identified as the main sampling units and households as the secondary sampling units. A total sample size of 3,600 households were covered in the six states. A more detailed description of the sample design can be found in Appendix A.

2.2 Questionnaire

The survey instrument used in Nigeria for the IFRMAS 2022-2023 was organized into the following sections: identification; household demographics; water, sanitation and hygiene (WASH) services; education; health, housing; livelihoods and income sources; impact of floods and other shock; impact on food security; and coping strategy and building resilience.

It is worth noting that the Demographic Section was targeted to all household members, while key respondents were the heads of households, or any knowledgeable adult member aged 18 years and above. Section 'D' on education was targeted to household members aged 3 years and above, while Section 'F' was targeted at members of households affected by floods. The other sections were general household questions.

Box 1: Modules included in IFRMAS questionnaire

A. Identification of information
B. Demographic characteristics
C. Household characteristics / WASH services
D. Education
E. Livelihoods assessment and income services
F. Impact of floods on livelihood and recovery
G. Impact on health care and recovery
H. Impact on loss of life /missing/injured person(s)
I. Impact on food security and recovery
J. Impact on housing
K. Coping strategy and resilience
L. Impact on other shocks

A pretest was carried out in the Dagiri community, Gwagwalada LGA, FCT in March 2023. Fifteen households were visited for the pretest to assess the survey's viability and respondents' understanding of the questionnaire terminology. Following the pretest, modifications were made to the structure of the questionnaire to produce a final survey to be used for field administration. Observations made during the pretest were reviewed and used to finalize the questionnaire.

2.3 Training and Fieldwork

Two levels of training were conducted. The first level was the Training of Trainers (ToT) held in FCT, Abuja, while the second level was the training of enumerators in each of the six states. The participants involved were from NBS, NEMA and UNDP. Similarly, the second-level training was conducted at the state level, with participants consisting of zonal controllers, state officers and field personnel. The training programme included sessions on survey design, household listing exercises, explanation of the contents and how to complete the questionnaires using Computer-Assisted Personal Interviewing (CAPI).

In each state, data collection was carried out by four revolving teams, with each team comprising three enumerators (one team lead and two team members). Field work spanned the period 29 April to 20 May 2023.

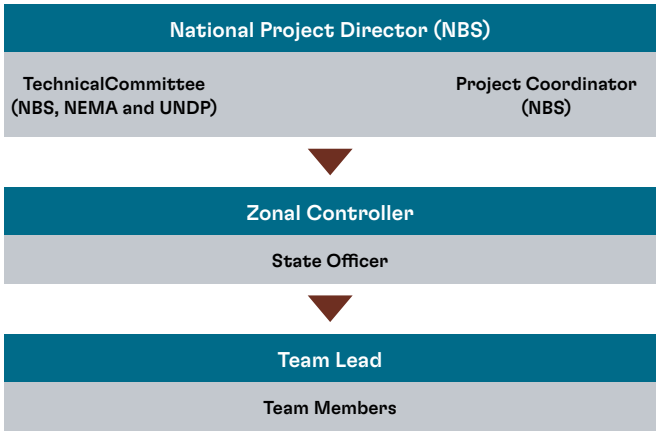
2.4 Survey Organization

Officers of the NBS, NEMA and UNDP constituted the survey team. In each state four teams were formed, consisting of one team-lead and two teammates. In total, 12 field personnel undertook the data collection. The field officers were selected based on their experience in surveys and language skills to facilitate interviews with the respondents in their native language.

In the 40 EAs selected per state, a team covered 10 EAs and each team spent 2 days in each EA with an average of 5 households for an enumerator to complete. The data collection lasted for 22 days, including travel time.

Using the Computer-Assisted Personal Interviewing (CAPI) device, data were electronically captured from the field and transmitted to a central server using the CSPro CAPI application, Version 5.0. Once enumerators had completed the data collection in the enumeration area allocated to them, the data were immediately synchronized to the NBS server. The data were then transferred for analysis by NBS experts, with secondary data editing, tabulation and analysis carried out. The required statistical tables were generated using SPSS software.

Figure 2: IFRMAS organizational and operational structure



2.5 Survey Constraints

Some of the constraints encountered during the entire survey period were security challenges while accessing some of the selected enumeration areas. The second key challenge was poor mobile network connectivity, which led to delayed synchronization of completed data in real time. Inaccessibility due to difficult terrain, poor roads and the presence of riverine enumeration areas also limited the speed with which teams could work.

3.0 Sample Coverage and Household Characteristics

3.1 Sample Coverage

All the 3,600 households selected for the study were successfully interviewed with a household response rate of 100 percent. The high response rate obtained was due to the household listing that was conducted alongside the survey. The total sample distribution by state, along with the weighted age and gender distribution is provided in Table 1.

TABLE 1: RESULTS OF HOUSEHOLD RESPONSE RATES (%)

Number of households, by interview results and responses rates by gender, IFRMAS 2022-2023

		Area		State					
	Total	Urban	Rural	Anambra	Bayelsa	Delta	Jigawa	Kogi	Nasarawa
Households sampled	3,600	1,020	2,580	600	600	600	600	600	600
Household's response rate	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Gender of Household Head:									
Male	78.8	74.3	80.6	75.7	69.3	62.5	98.2	74.2	93.0
Female	21.2	25.7	19.4	24.3	30.7	37.5	1.8	25.8	7.0
Household head <= 35 years	23.7	22.5	24.1	14.3	26.8	22.0	29.7	21.0	28.3
Household head > 35 years	76.3	77.5	75.9	85.7	73.2	78.0	70.3	79.0	71.7

3.2 Main Sources of Household Income and Livelihood

3.2.1. Source of income

Findings show that overall trading is the most common source of household income (42.2 percent), followed by crop farming/fishing/livestock (27.6 percent). Trading, a more common source of income for households compared to agriculture activities, is found across all the selected states except for Jigawa and Kogi where agriculture was identified as the most common source of income, as shown in Table 10. Meanwhile, remittances were the least common source of income, with just 0.6 percent of households citing remittances as the most common source of income, as shown in Table 2.

TABLE 2: HOUSEHOLDS' MAIN SOURCE OF INCOME (%)

	Crop farming/ Fishing/ Livestock	Wage/ Salary	Selling of wood and wood products	Trading	Rental income	Artisan	Remittances	Others
Total	27.6	14.0	2.6	42.2	0.8	4.7	0.6	7.4
Residence								
Urban	13.0	19.7	2.0	48.3	0.3	4.9	0.7	11.2
Rural	36.1	10.8	3.0	38.6	1.0	4.6	0.6	5.2
State								
Anambra	12.8	16.7	0.4	56.3	0.3	2.9	0.5	10.0
Bayelsa	22.2	22.6	5.3	35.2	1.9	4.4	3.3	4.9
Delta	17.3	15.6	1.8	43.9	0.9	9.4	0.3	10.9
Jigawa	65.7	4.1	2.9	24.2	0.0	0.6	0.0	2.5
Kogi	40.8	11.0	7.1	31.7	1.1	2.8	0.8	4.8
Nasarawa	28.2	14.0	1.3	48.3	1.3	5.0	0.6	1.4

3.2.2. Source of livelihood: agriculture (crop farming, livestock and fishery)

Overall results show that 65 percent of households were involved in agriculture activities as a source of livelihood (Table 3). Disaggregation by geographic area shows that rural areas had a higher number of households engaged in the agriculture sector (77 percent) compared to urban households (36 percent). Analysis by state shows that Jigawa state had the highest proportion of households engaged in agricultural activities (95.0 percent), while Delta state had the least (39.6 percent).

Among those involved in agriculture activities, a significant majority were involved in crop farming (93.8 percent), as shown in Table 4. Across each of the surveyed states, more than 80 percent of the households are involved in crop farming, while engagement in livestock rearing (2.4 percent), fishing (2.9 percent) and other livelihood types of activities (0.9 percent) is found to be less significant

TABLE 3: DISTRIBUTION OF HOUSEHOLDS INVOLVED IN ANY AGRICULTURAL ACTIVITIES IN PAST 12 MONTHS

	YES (%)	NO (%)
Total	65.0	35.0
Residence		
Urban	36.0	64.0
Rural	77.0	23.0
State		
Anambra	55.7	44.3
Bayelsa	61.7	38.3
Delta	39.6	60.4
Jigawa	95.4	4.6
Kogi	73.3	26.7
Nasarawa	72.6	27.4
Gender		
Male household head	68.6	31.4
Female household head	52.1	47.9
Age		
Household head <= 35 years	58.8	41.2
Household head > 35 years	66.9	33.1

TABLE 4: DISTRIBUTION OF HOUSEHOLDS' MAIN AGRICULTURAL LIVELIHOOD (%)

	Crop farming	Livestock Rearing	Fishing	Others
Total	93.8	2.4	2.9	0.9
Residence				
Urban	91.2	4.6	3.8	0.3
Rural	94.2	2.0	2.8	1.0
State				
Anambra	94.4	5.0	0.6	0.0
Bayelsa	80.3	0.2	19.3	0.2
Delta	87.7	1.0	7.1	4.1
Jigawa	96.7	2.7	0.0	0.7
Kogi	99.2	0.3	0.1	0.3
Nasarawa	93.9	4.8	1.2	0.0
Gender				
Male household head	93.4	2.6	3.0	1.0
Female household head	95.2	1.8	2.7	0.3
Age				
Household head <= 35 years	92.6	2.0	4.3	1.2
Household head > 35 years	94.1	2.6	2.6	0.8

3.2.3 Source of livelihood: non-farm activities/family business

In total, 42.7 percent of the households reported that they were involved in non-farming family businesses. It is also observed that a higher proportion of urban households (53.5 percent) are engaged in a non-farm family business compared to rural households (38.2 percent), as shown in Table 5.

With regards to the type of non-farm businesses households were engaged in, a significant majority indicated they were engaged in "Buying and selling, repair of goods, hotels and restaurants" (61.4 percent). Table 6 depicts the different types of non-farm family businesses households are engaged in.

TABLE 5: DISTRIBUTION OF HOUSEHOLDS THAT OPERATED A NON-FARM/ FAMILY BUSINESS IN THE PAST 12 MONTHS

	YES (%)	NO (%)
Total	42.7	57.3
Residence		
Urban	53.5	46.5
Rural	38.2	61.8
State		
Anambra	52.2	47.8
Bayelsa	37.4	62.6
Delta	52.9	47.1
Jigawa	28.8	71.2
Kogi	40.8	59.2
Nasarawa	33.3	66.7
Gender		
Male household head	41.6	58.4
Female household head	46.4	53.6
Age		
Household head <= 35 years	41.8	58.2
Household head > 35 years	42.9	57.1

TABLE 6: SECTORS OF NON-FARM FAMILY BUSINESSES (%)

	Agriculture, Hunting, Fishing business	Mining, Manufacturing	Electricity, Gas, Water Supply	Construction	Buying & Selling Goods, Repair of Goods ..	Transport, Driving, Post, Travel Agencies	Professional Activities: Finance, Legal, Analysis, Computer, Real Estate	Public Administration	Personal Services, Education, Health, Culture, Sport, Domestic Work, Other
Total	7.7	4.0	0.5	4.1	61.4	7.1	2.9	1.1	11.3
Residence									
Urban	3.4	5.7	0.5	3.1	61.0	8.0	4.6	1.0	12.7
Rural	10.3	2.9	0.5	4.7	61.6	6.6	1.9	1.1	10.5
State									
Anambra	4.0	5.6	0.6	4.9	62.2	8.4	3.8	0.5	10.0
Bayelsa	12.3	1.8	1.3	3.7	52.8	4.5	4.7	1.5	17.6
Delta	10.0	3.8	0.5	5.7	52.9	6.8	4.1	1.7	14.4
Jigawa	10.8	2.7	0.4	3.4	64.2	12.2	0.3	0.4	5.7
Kogi	6.1	4.5	0.0	1.7	72.4	3.5	0.9	1.0	9.8
Nasarawa	5.2	2.1	0.4	0.9	73.0	4.4	1.7	2.0	10.2

4.0 Results: Impact of the 2022 Floods on Livelihoods and Income Sources

4.1 Overall Nature and Impact of 2022 Floods on Households

Overall, 64 percent of households were affected by the 2022 floods, with impacts ranging from livelihood, housing, food sources and access to basic services, such as health facilities and schools. The impacts of the flood were significantly higher in rural areas (74 percent) compared to about 40 percent in urban areas. The overall impact of the floods was varied across selected states, almost all (99 percent) interviewed households in Bayelsa were affected by the floods in one way or the other, followed by Jigawa (94 percent), Nasarawa (70 percent), Kogi (70 percent), Delta (57 percent) and Anambra (23 percent). Gender disparity is also a factor in measuring the impact of the floods, with 66 percent of male-headed households affected compared to 57 percent of female-headed households.

TABLE 7: OVERALL IMPACT OF 2022 FLOODS

	Yes (%)	No (%)
Total	64.1	35.9
Residence		
Urban	39.5	60.5
Rural	74.2	25.8
State		
Anambra	22.7	77.3
Bayelsa	99.3	0.7
Delta	56.9	43.1
Jigawa	93.5	6.5
Kogi	70.0	30.0
Nasarawa	70.3	29.7
Gender		
Male-household head	66.0	34.0
Female-household head	57.4	42.6
Age		
Household head <= 35 years	64.4	35.6
Household head > 35 years	64.0	36.0

4.1.1 Proportion of households affected

About 56 percent of households across the six target states reported being affected by the 2022 floods, as shown in Table 7. Across the six states, close to 91 percent of respondents in Jigawa state reported being impacted by the 2022 floods, while in Anambra the figure was the lowest at 21.7 percent. Similarly, close to 67 percent of rural households and 47.4 percent of male-headed households reported being impacted by the 2022 floods, compared to 31.1 percent and 47.4 percent among urban households and female-headed households respectively.

TABLE 8: DISTRIBUTION OF HOUSEHOLDS AFFECTED BY THE 2022 FLOODS

	Yes (%)	No (%)
Total	56.4	43.6
Residence		
Urban	31.1	68.9
Rural	66.9	33.1
State		
Anambra	21.7	78.3
Bayelsa	82.0	18.0
Delta	43.5	56.5
Jigawa	90.7	9.3
Kogi	64.1	35.9
Nasarawa	56.4	43.6
Gender		
Male household head	59.0	41.0
Female household head	47.4	52.6
Age		
Household head <= 35 years	56.9	43.1
Household head > 35 years	56.3	43.7

4.1.2 Severity of impact on households

The results indicate that, among those affected by the floods, 54.6 percent of households were severely affected, while 34.2 percent experienced their moderate effects and the remaining 11.7 percent reported a minimal impact, as presented in Table 9. The severity of the impact varied across states, with 56.4 percent of households reporting to be severely impacted in Jigawa compared to 40.8 percent in Kogi. Similarly, 56.9 percent of rural households were severely impacted, compared to 32.4 percent of households in urban areas.

TABLE 9: DISTRIBUTION OF HOUSEHOLDS AND EXTENT THEY WERE IMPACTED BY THE FLOODS (%)

	Low	Moderate	Severe
Total	11.2	34.2	54.6
Residence			
Urban	20.1	39.9	32.4
Rural	9.5	33.1	56.9
State			
Anambra	1.7	21.1	47.1
Bayelsa	4.5	29.9	55.7
Delta	16.7	27.0	56.4
Jigawa	10.8	40.4	46.7
Kogi	13.9	35.2	40.8
Nasarawa	15.0	42.6	42.4
Gender			
Male household head	10.6	35.1	54.3
Female household head	14.2	30.5	55.3
Age			
Household head <= 35 years	11.2	39.2	49.5
Household head > 35 years	11.2	32.7	56.0

4.1.3 Type of impact on households

In terms of the type of impact caused by the 2022 floods, the partial destruction of crops (67.9 percent), loss of personal properties (56.1 percent), loss of food stock (52.6 percent), total destruction of farmland (42.3 percent) and loss of farm assets (40.0 percent) were among the common impact cited, as shown in Table 10.

TABLE 10: DISTRIBUTION OF HOUSEHOLDS SHOWING VARIOUS IMPACTS OF THE FLOODS (%)

	Partial destruction of crops	Total destruction of farmlands	Loss of livestock (Except fishery)	Loss of Fishery production	Loss of food stock	Loss of farm assets	Loss of household member	Loss of business	Loss of personal properties	Job loss	Others
Total	67.9	42.3	16.8	6.9	52.6	40.0	1.7	19.7	56.1	4.0	3.9
Residence											
Urban	41.4	26.3	7.1	3.5	36.7	26.5	1.8	23.7	56.9	4.1	13.3
Rural	72.9	45.4	18.6	7.5	55.6	42.6	1.7	19.0	55.9	4.0	2.1
State											
Anambra	63.4	67.4	12.4	1.3	52.8	42.1	0.0	21.8	39.6	0.7	3.8
Bayelsa	53.3	57.6	9.3	15.4	59.6	37.0	1.7	25.6	73.5	3.7	6.0
Delta	50.2	30.9	11.3	10.9	65.3	40.8	1.5	35.0	51.2	9.6	8.8
Jigawa	80.4	35.1	18.2	3.7	38.1	23.0	2.5	8.1	55.4	1.9	1.2
Kogi	71.5	44.2	28.8	8.0	63.5	59.4	1.8	23.3	70.0	3.4	2.9
Nasarawa	75.8	42.4	12.5	0.8	47.0	63.0	0.8	13.7	29.2	5.0	3.2
Gender											
Male household head	70.0	42.0	17.6	6.7	50.7	39.6	1.7	18.8	55.5	3.2	3.4
Female household head	58.4	44.0	13.1	7.5	61.0	41.4	2.0	24.0	58.6	7.7	6.2
Age											
Household head <= 35Years	65.8	38.0	16.5	7.0	51.3	32.9	1.3	17.3	56.1	3.6	3.2
Household head > 35 years	68.5	43.6	16.8	6.8	52.9	42.1	1.8	20.5	56.1	4.1	4.1

4.1.4 Periods households experienced floods

Across the 2022 flooding periods, 93.7 percent of the households were impacted by the floods between the months of July and October, including 42.7 percent impacted between July and August and another 50.9 percent experiencing the floods between September and October (Table 11). Across states, Bayelsa witnessed the highest flooding period, with 95.7 percent of households affected by the September – October 2022 floods. In Jigawa, 89.2 percent of households were affected by flooding between July and August 2022.

4.1.5 Duration of the flood episodes (in days)

Overall, 41.1 percent of households experienced floods for 1-11 days, while another 39.9 percent experienced them for more than 32 days (Table 12). Variations across states are observed, with a majority of households in Anambra, Bayelsa, and Delta experiencing floods that lasted more than 32 days, while in Jigawa and Nasarawa, a majority experienced floods for 1-11 days.

TABLE 11: HOUSEHOLDS' EXPERIENCE OF FLOODS IN 2022 (%)

	April-Jun	Jul-Aug	Sept-Oct	Nov-Dec
Total	3.3	42.7	50.9	3.1
Residence				
Urban	5.3	28.1	60.6	6.0
Rural	2.9	45.5	49.1	2.5
State				
Anambra	19.4	34.1	46.6	0.0
Bayelsa	0.0	3.3	95.7	0.9
Delta	7.5	12.0	76.0	4.4
Jigawa	0.0	89.2	10.8	0.0
Kogi	0.7	31.9	60.8	6.6
Nasarawa	2.0	21.6	65.9	10.5
Gender				
Male household head	2.6	48.1	46.6	2.7
Female household head	6.2	18.7	70.1	5.0
Age				
Household head <= 35 years	3.2	52.7	42.3	1.8
Household head > 35 years	3.3	39.8	53.5	3.5

TABLE 12: DISTRIBUTION OF HOUSEHOLDS AND LENGTH OF FLOODS, IN DAYS

	1-11 days	12-21 days	22-31 days	32 days and above
Total	41.1	9.2	9.8	39.9
Residence				
Urban	43.5	11.2	14.9	30.3
Rural	40.7	8.8	8.8	41.7
State				
Anambra	13.1	4.0	21.6	61.3
Bayelsa	0.4	0.4	7.9	91.4
Delta	10.4	4.5	7.1	78.0
Jigawa	76.1	13.3	2.6	8.0
Kogi	30.5	12.3	25.7	31.5
Nasarawa	82.4	14.6	0.7	2.3
Gender				
Male household head	46.5	10.3	9.2	34.0
Female household head	17.0	4.2	12.5	66.3
Age				
Household head <= 35 years	45.3	9.5	9.9	35.3
Household head > 35 years	39.9	9.1	9.8	41.3

4.1.5 Frequency of floods in the past five years

The frequency and regularity of flood experiences are also highlighted by the survey. Across the sample, almost all households reported having experienced flooding at least 1 – 5 times over the past five years.

TABLE 13: DISTRIBUTION OF HOUSEHOLDS BY NUMBER OF TIMES FLOOD(S) OCCURRED IN THE PAST 5 YEARS (%)

	1-5 times	6 times and above
Total	99.7	0.3
Residence		
Urban	99.6	0.4
Rural	99.7	0.3
State		
Anambra	99.3	0.7
Bayelsa	100	0.0
Delta	99.3	0.7
Jigawa	99.9	0.1
Kogi	99.6	0.4
Nasarawa	100	0.0
Gender		
Male household head	99.8	0.2
Female household head	99.1	0.9
Age		
Household head <= 35 years	99.4	0.6
Household head > 35 years	99.8	0.2

4.2 Impact of the 2022 Floods on Livelihoods: Household Crop Farming

4.2.1 Proportion of households whose crops were affected

Among the households involved in agricultural crop farm activities, 94.9 percent recorded the impact of floods on crops, as shown in Table 14. State-level findings show that Anambra state had the highest impact with 99.1 percent, followed by Kogi state (97.4 percent), Jigawa state (97.2 percent) and Bayelsa state (89.8 percent).

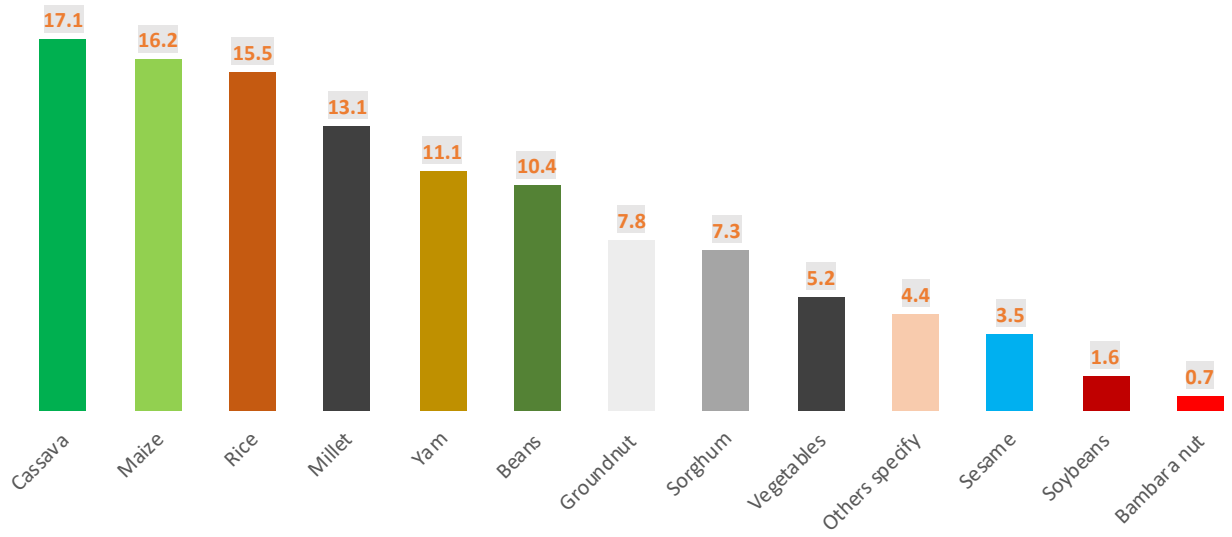
TABLE 14: NUMBER OF HOUSEHOLDS WHOSE CROPS WERE IMPACTED BY THE 2022 FLOODS

	Yes (%)	No (%)
Total	94.9	5.1
Residence		
Urban	88.5	11.5
Rural	95.6	4.4
State		
Anambra	99.1	0.9
Bayelsa	89.8	10.2
Delta	88.3	11.7
Jigawa	97.2	2.8
Kogi	97.4	2.6
Nasarawa	91.6	8.4
Gender		
Male household head	95.0	5.0
Female household head	94.2	5.8
Age		
Household head <= 35 years	94.0	6.0
Household head > 35 years	95.1	4.9

4.2.2 Types of crops affected

Figure 3 shows that the most affected crops by the 2022 floods in the surveyed states were cassava (17.1 percent), followed by maize (16.2 percent), while the least impacted was the bambara nut (0.7 percent).

FIGURE 3: TYPE OF CROPS AFFECTED (%)



4.2.3 Severity of impact on crop farming

Overall, 57.4 percent of the households engaged in agriculture reported the severe impacts of the 2022

floods on their crops. About 86 percent of the households in Bayelsa reported such an outcome, as well as a much higher proportion of female-headed households (71.8 percent) compared to male-headed households (54.7 percent), as shown in Table 15.

TABLE 15: PERCENTAGE DISTRIBUTION OF HOUSEHOLDS WHOSE CROPS WERE IMPACTED BY THE 2022 FLOODS (%)

	Low	Moderate	Severe
Total	7.3	35.4	57.4
Residence			
Urban	14.6	32.3	53
Rural	6.6	35.7	57.7
State			
Anambra	0.0	18.9	81.1
Bayelsa	0.3	13.3	86.3
Delta	3.2	14.5	82.3
Jigawa	10.0	46.6	43.4
Kogi	10.5	34.6	54.8
Nasarawa	8.2	53.5	38.4
Gender			
Male household head	7.4	38.0	54.7
Female household head	6.9	21.3	71.8
Age			
Household head <= 35 years	8.2	41.8	49.9
Household head > 35 years	7.0	33.5	59.4

4.2.4 Household farmlands that have been recultivated due to the impact of the floods

Table 16 shows that 63.2 percent of households' farmlands had been partially recultivated following the 2022 floods. Another 24.6 percent have managed to completely recultivate their farmlands, while a little over one in ten reported not having recultivated them at all. Recultivation of farmlands, partially or completely, is highest among respondents from Bayelsa and Jigawa and among rural households compared to households in other states and urban areas respectively.

TABLE 16: DISTRIBUTION OF HOUSEHOLDS THAT MADE ANY CHANGES TO FARMING ACTIVITIES AFTER THE FLOOD(S)

	Yes (%)	No (%)
Total	38.7	61.3
Residence		
Urban	31.7	68.3
Rural	39.4	60.6
State		
Anambra	15.1	84.9
Bayelsa	41.0	59.0
Delta	45.0	55.0
Jigawa	47.7	52.3
Kogi	36.0	64.0
Nasarawa	16.8	83.2
Gender		
Male household head	40.0	60.0
Female household head	31.7	68.3
Age		
Household head <= 35 years	36.2	63.8
Household head > 35 years	39.4	60.6

4.2.5 Proportion of households that changed farming activities after the 2022 floods:

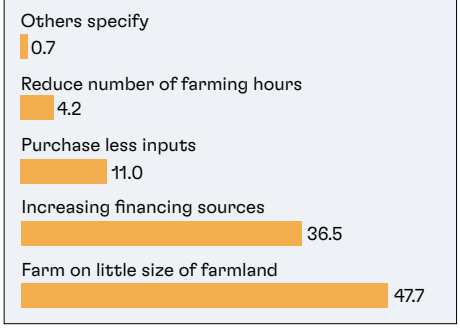
The analysis reveals that 38.7 percent of the interviewed households made changes to farm activities after the flood. Across the states, Jigawa state reported the highest change in farming activities at 47.7 percent of interviewed households, while this was much lower in Anambra (15.11 percent), as shown in Table 17.

Changes made to farming activities by households were mostly focused on farming on decreased farm size (47.7 percent), increasing financing sources (36.5 percent), purchasing fewer inputs (11.0 percent), reducing the number of farming hours (4.2 percent) and other changes (0.7 percent), as shown in Figure 4.

TABLE 17: DISTRIBUTION OF HOUSEHOLDS WHOSE FARMLAND HAS BEEN RECULTIVATED (%)

	Partially	Completely	Not at all
Total	63.2	24.6	12.2
Residence			
Urban	43.7	32.3	23.9
Rural	65.4	23.8	10.8
State			
Anambra	47.9	32.0	20.1
Bayelsa	56.6	36.9	6.6
Delta	68.9	13.7	17.5
Jigawa	65.3	27.0	7.8
Kogi	71.9	14.9	13.3
Nasarawa	66.1	19.4	14.6
Gender			
Male household head	63.0	24.4	12.6
Female household head	64.0	25.6	10.3
Age			
Household head <= 35 years	64.8	26.7	8.5
Household head > 35 years	62.8	24.1	13.1

FIGURE 4: DISTRIBUTION OF HOUSEHOLDS PER TYPE OF CHANGES MAKE TO FARMING AFTER FLOODS



4.3 Impact of the 2022 Floods on Livelihoods: Household Livestock, Fishery, Snail Farming Activities

4.3.1 Proportion of households whose livestock, fishing and snail farming activities were affected.

Among surveyed households engaged in livestock, fishing and snail farming, 76.3 percent reported being impacted by the 2022 floods (Table 18). Respondents from Kogi (73.3 percent) reported the highest proportion of those whose non-crop agriculture activities were impacted, while it was lowest in Anambra (52.6 percent).

4.3.2 Severity of the impact of the floods on livestock/fishery /snail farming

The overall results show the moderate impact of floods on livestock, fishery and snail farming (44.8 percent), the severe impact (47.5 percent), while under 10 percent of the households reported a minimal impact on their non-crop agriculture activities, as shown in Table 19.

TABLE 18: IMPACT ON HOUSEHOLDS' LIVESTOCK / FISHERY / SNAIL FARMING ACTIVITIES BY THE 2022 FLOODS?

	Yes (%)	No (%)
Total	76.3	23.7
Residence		
Urban	72.7	27.3
Rural	76.6	23.4
State		
Anambra	52.2	47.8
Bayelsa	65.4	34.6
Delta	83.1	16.9
Jigawa	68.5	31.5
Kogi	91.6	8.4
Nasarawa	73.0	27.0
Gender		
Male household head	79.0	21.0
Female household head	61.0	39.0
Age		
Household head <= 35 years	73.4	26.6
Household head > 35 years	77.1	22.9

TABLE 19: SEVERITY OF IMPACT ON HOUSEHOLDS' LIVESTOCK / FISHERY /SNAIL FARMING ACTIVITIES BY THE 2022 FLOODS (%)

	Low	Moderate	Severe
Total	7.7	44.8	47.5
Residence			
Urban	0.0	46.0	53.9
Rural	8.3	44.7	47
State			
Anambra	0.0	0.0	100
Bayelsa	1.2	42.8	56
Delta	4.0	13.3	82.6
Jigawa	19.3	52.4	28.3
Kogi	0.9	55.2	43.9
Nasarawa	18.9	74.0	7.2
Gender			
Male household head	8.3	48.3	43.4
Female household head	3.4	19.7	76.9
Age			
Household head <= 35 years	5.1	44.2	50.6
Household head > 35 years	8.4	45.0	46.6

4.3.3 Proportion of households that recovered from flood damage to their livestock/fishery/snail farming activities

Across the surveyed states, it was observed that 48.7 percent of households whose livestock, fishing and snail farming activities were affected by the 2022 floods had partially recovered at the time of the interview in May 2023, while only 16.8 percent of households had completed recovered their livestock, as shown in Table 20. A partial recovery is mostly seen in Nasarawa state (68.0 percent), followed by Jigawa state (49.1 percent), while Anambra state reported the lowest at 41.1 percent. The highest rate of complete recovery was noted in Bayelsa state (43.2 percent), followed by Nasarawa (24.8 percent) and the least in Kogi state (9.7 percent) and Delta state (9.8 percent).

4.3.4. Proportion of households that made changes to livestock rearing/ fishery/snail farming activity after the floods

The distribution of households that made changes to their livestock farming, fishing or snail farming activities after the floods was highest in Jigawa state at 36.2 percent, while none of the respondents made any changes in Anambra state, as shown in Table 21.

TABLE 20: DISTRIBUTION OF HOUSEHOLD LIVESTOCK/FISHERY /SNAIL FARMING ACTIVITY THAT RECOVERED FROM FLOOD DAMAGE (%)

	Partially	Completely	Not at all
Total	48.7	16.8	34.5
Residence			
Urban	43.4	14.1	42.5
Rural	49.2	17.0	33.8
State			
Anambra	41.1	10.6	48.3
Bayelsa	44.0	43.2	12.8
Delta	48.9	9.8	41.3
Jigawa	49.1	18.1	32.8
Kogi	47.6	9.7	42.7
Nasarawa	68.0	24.8	7.2
Gender			
Male household head	51.5	16.5	32.0
Female household head	29.0	18.5	52.4
Age			
Household head <= 35 years	37.8	24.7	37.5
Household head > 35 years	51.7	14.6	33.7

TABLE 21: DISTRIBUTION OF HOUSEHOLDS THAT MADE CHANGES TO LIVESTOCK REARING /FISHERY/SNAIL FARMING ACTIVITY AFTER THE FLOOD(S) (%)

	Yes (%)	No (%)
Total	25.9	74.1
Residence		
Urban	26.0	74.0
Rural	25.9	74.1
State		
Anambra	0.0	100.0
Bayelsa	30.0	70.0
Delta	34.8	65.2
Jigawa	36.2	63.8
Kogi	16.1	83.9
Nasarawa	14.7	85.3
Gender		
Male household head	26.9	73.1
Female household head	18.7	81.3
Age		
Household head <= 35 years	32.4	67.6
Household head > 35 years	24.1	75.9

4.4 Impact of the 2022 Floods on Non-Farm Activities/Businesses

4.4.1 Proportion of households whose businesses were affected

The survey results show that 91.3 percent of businesses were affected by the 2022 floods. Over 90 percent of households in Anambra, Bayelsa, Kogi and Nasarawa reported that their businesses were impacted by those floods, as shown in Table 22.

4.4.2 Types of impact on businesses

Table 23 shows the overall distribution of households by type of flood impact on businesses, with total loss of a business being the highest at 52 percent, followed by physical damage to businesses (47 percent), downsizing of business (38 percent), revenue loss (37 percent) and increase in operating costs with 28 percent.

TABLE 22: HOUSEHOLDS BUSINESSESES AFFECTED BY THE FLOOD(S)

	Yes (%)	No (%)
Total	91.3	8.7
Residence		
Urban	90.4	9.6
Rural	91.6	8.4
State		
Anambra	96.7	3.3
Bayelsa	92.5	7.5
Delta	87.8	12.2
Jigawa	88.9	11.1
Kogi	94.8	5.2
Nasarawa	91.6	8.4
Gender		
Male household head	91.3	8.7
Female household head	91.6	8.4
Age		
Household head <= 35 years	87.7	12.3
Household head > 35 years	92.2	7.8

TABLE 23: DISTRIBUTION OF HOUSEHOLDS ON HOW BUSINESSES WERE AFFECTED (%)

	Loss of business	Physical damage of business	Downsizing of business	Revenue loss	Increase in operating cost
Total	52.2	46.7	38.0	37.4	28.1
Residence					
Urban	52.4	48.8	35.4	40.2	29.3
Rural	52.1	46.1	38.7	36.6	27.8
State					
Anambra	14.3	17.9	71.4	67.9	17.9
Bayelsa	59.8	57.9	34.6	34.6	39.3
Delta	33.8	51.9	51.9	58.4	42.9
Jigawa	74.5	55.3	38.3	31.9	25.5
Kogi	69.8	33.3	4.8	7.9	9.5
Nasarawa	40.9	38.6	47.7	36.4	11.4
Gender					
Male household head	53.8	44.8	37.3	38.4	28.3
Female household head	47.1	52.9	40.2	34.5	27.6
Age					
Household head <= 35 years	53.8	46.3	40.0	31.3	23.8
Household head > 35 years	51.7	46.9	37.4	39.2	29.4

4.4.3 Proportion of household jobs affected

Overall, nearly 80 percent of respondents indicated that their jobs were affected by the 2022 floods (Table 24). This was highest in Anambra state, with all respondents indicating an impact on their jobs, followed by

95.2 percent of respondents in Bayelsa state. Male-headed households (83 percent) also reported a higher

proportion of respondents with jobs impacted by the 2022 floods compared to female-headed households (73.9 percent).

In terms of the type of impact on jobs, results show an overall reduction in wages for 69 percent of households and the loss of a job (49 percent), as shown in Table 25.

TABLE 24: DISTRIBUTION OF HOUSEHOLDS WHOSE JOBS WERE AFFECTED BY THE FLOODS

	Yes %	No %
Total	79.7	20.3
Residence		
Urban	76.2	23.8
Rural	80.4	19.6
State		
Anambra	100.0	0.0
Bayelsa	95.2	4.8
Delta	71.4	28.6
Jigawa	82.4	17.6
Kogi	78.6	21.4
Nasarawa	90.6	9.4
Gender		
Male household head	83.0	17.0
Female household head	73.9	26.1
Age		
Household head <= 35 years	79.0	21.0
Household head > 35 years	79.9	20.1

TABLE 25: DISTRIBUTION OF HOUSEHOLDS AND HOW THEIR JOBS WERE AFFECTED

	Reduction in wages (%)	Loss of Job (%)
Total	69.0	47.9
Residence		
Urban	66.7	55.6
Rural	69.4	46.8
State		
Anambra	0.0	100.0
Bayelsa	23.1	84.6
Delta	80.0	40.0
Jigawa	81.8	9.1
Kogi	90.0	10.0
Nasarawa	75.0	75.0
Gender		
Male household head	72.9	45.8
Female household head	60.9	52.2
Age		
Household head <= 35 years	76.9	30.8
Household head > 35 years	67.2	51.7

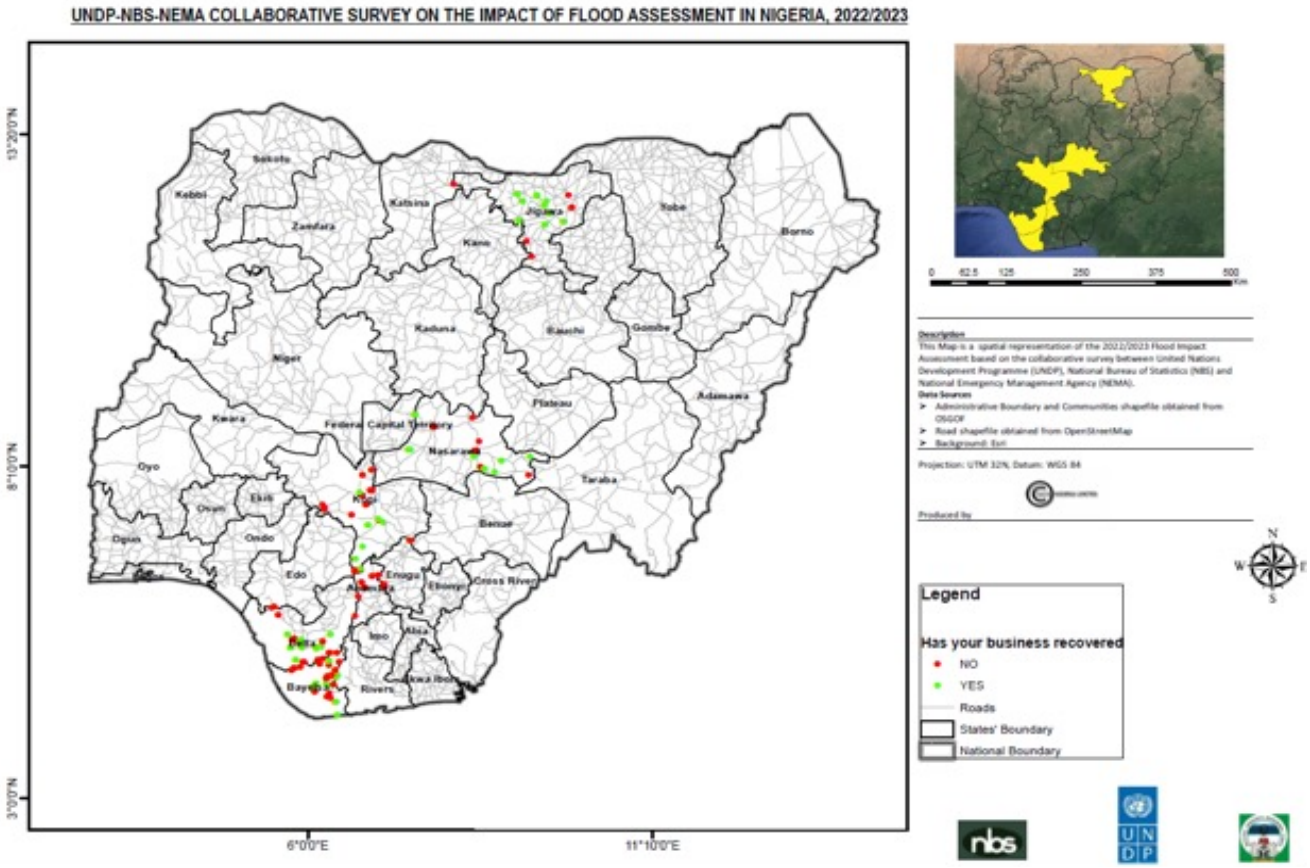
4.4.4 Proportion of households whose businesses/jobs recovered after the floods

The findings show that the overall proportion of households that have recovered their businesses or jobs after the 2022 floods stood at 31.3 percent, while 68.9 percent of households reported being unable to recover their businesses or jobs at the time of the survey (Table 26 and Figure 5).

TABLE 26: DISTRIBUTION OF HOUSEHOLDS WHOSE BUSINESSES/JOBS RECOVERED FROM THE IMPACT OF THE FLOODS

	Yes (%)	No (%)
Total	31.3	68.7
Residence		
Urban	19.5	80.5
Rural	34.1	65.9
State		
Anambra	0.0	100.0
Bayelsa	30.2	69.8
Delta	34.2	65.8
Jigawa	58.2	41.8
Kogi	21.6	78.4
Nasarawa	48.7	51.3
Gender		
Male household head	33.4	66.6
Female household head	23.8	76.2
Age		
Household head <= 35 years	32.8	67.2
Household head > 35 years	30.9	69.1

FIGURE 5: MAP SHOWING RECOVERY OF BUSINESSES AFTER THE FLOODS



4.4.5 Extent of recovery of businesses/ jobs after the floods

Among the 31.3 percent who reported that their business or job had recovered from the impact of the floods, 77.3 percent of the households had partially recovered, while 22.7 percent reported that they had completely recovered their businesses and jobs. In addition, a higher proportion of female-headed households reported having partially recovered (92.4 percent) compared to male-headed households (74.3 percent). Similarly, households, whose head was under 35 years (61 percent), observed lower recovery rates compared to those that were over 35 years (81.5 percent), as shown in Table 27.

TABLE 27: EXTENT OF RECOVERY OF BUSINESSES/JOBS FROM THE 2022 FLOOD(S)

	Partially (%)	Completely (%)
Total	77.3	22.7
Residence		
Urban	88.1	11.9
Rural	75.9	24.1
State		
Anambra	0.0	0.0
Bayelsa	79.5	20.5
Delta	81.7	18.3
Jigawa	59.1	40.9
Kogi	92.5	7.5
Nasarawa	80.7	19.3
Gender		
Male household head	74.3	25.7
Female household head	92.4	7.6
Age		
Household head <= 35 years	61.0	39.0
Household head > 35 years	81.5	18.5

5.0. Results: Impact of the Floods on Food Security

5.1 Impact on Households' Food Source

5.1.1 Major food sources for households

Based on data from Table 28, the major food source for households was purchased from the market (61.7 percent). A majority of households in Anambra (75.7 percent), Bayelsa (84.1 percent), Delta (85.0 percent) and Kogi (54.9 percent) indicated that their main source of food was through purchase from the market. However, in Jigawa (73.5 percent) and Nasarawa (60.7 percent) the main source of food was through households' 'own production'. Similarly, a significantly higher proportion of female-headed households (78 percent) reported that their main source of food was through purchase from the market compared to male-headed households (57.2 percent).

5.1.2 Proportion of households whose major source of food was affected by the floods

Overall, 49 percent of the households reported having had their main source of food affected by the floods, with households in rural areas (60 percent) more impacted than those in urban areas (23 percent), as shown in Table 29. Across the states, Bayelsa (87.2 percent) and Jigawa (87.2 percent) recorded the highest percent of food sources being affected, while Anambra (18.4 percent) recorded the lowest.

TABLE 28: DISTRIBUTION OF HOUSEHOLDS' MAJOR FOOD SOURCE (%)

	Own production	Purchase from market	Food assistance	Others
Total	37.0	61.7	0.9	0.4
Residence				
Urban	17.1	82.2	0.7	0.0
Rural	45.2	53.3	0.9	0.5
State				
Anambra	24.2	75.7	0.2	0.0
Bayelsa	14.4	84.1	1.5	0.0
Delta	11.9	85.0	1.9	1.2
Jigawa	73.5	25.8	0.6	0.1
Kogi	43.9	54.9	0.8	0.4
Nasarawa	60.7	39.2	0.1	0.0
Gender				
Male household head	41.9	57.2	0.6	0.3
Female household head	19.5	78.0	1.6	0.8
Age				
Household head <= 35 years	34.0	65.3	0.6	0.1
Household head > 35 years	37.9	60.7	1.0	0.5

TABLE 29: PERCENTAGE DISTRIBUTION OF HOUSEHOLDS WHOSE MAJOR SOURCE OF FOOD WAS AFFECTED BY THE FLOODS

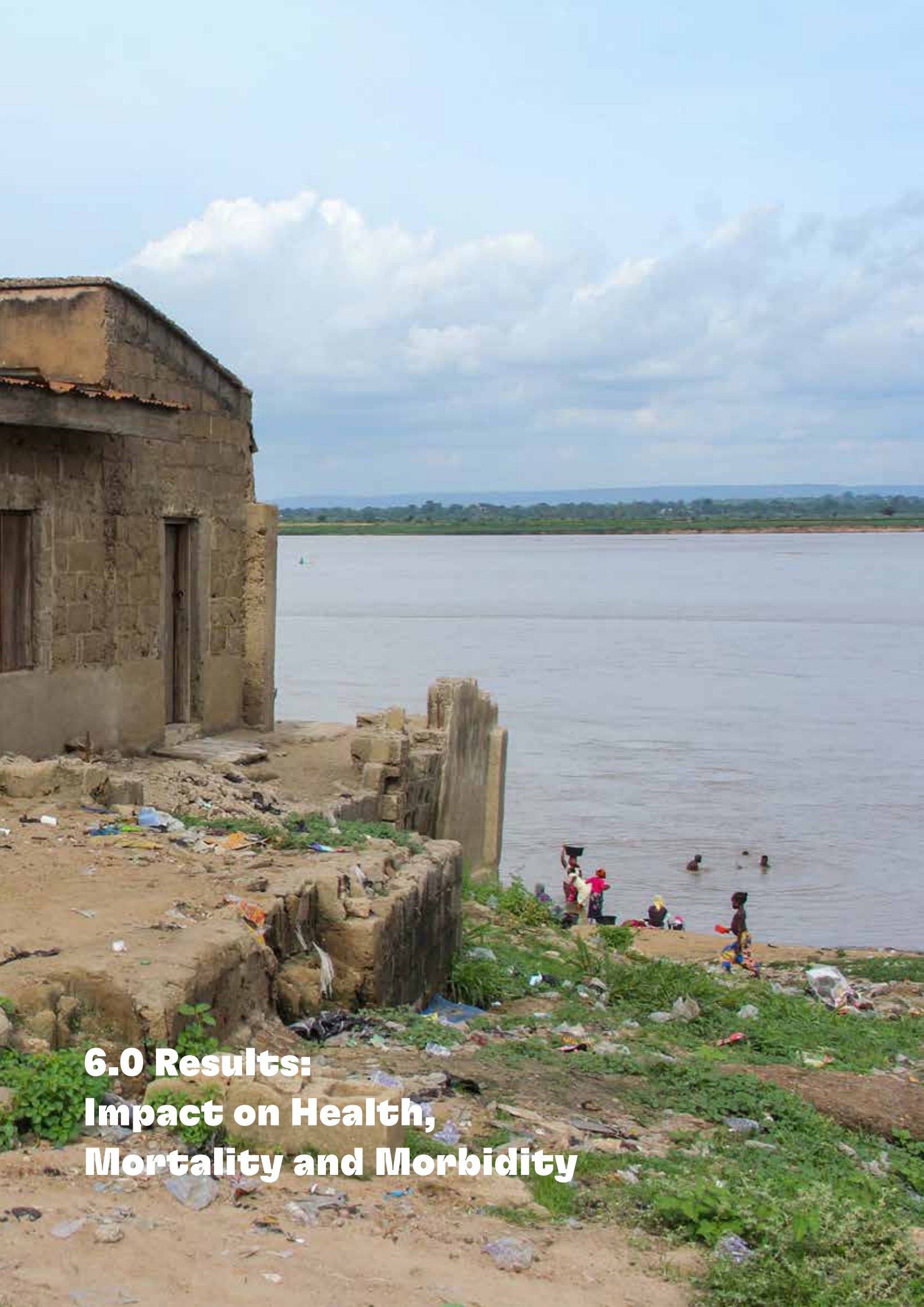
	Yes (%)	No (%)
Total	49.3	50.7
Residence		
Urban	23.3	76.7
Rural	60.0	40.0
State		
Anambra	18.4	81.6
Bayelsa	87.2	12.8
Delta	45.3	54.7
Jigawa	76.1	23.9
Kogi	41.6	58.4
Nasarawa	50.0	50.0
Gender		
Male household head	50.9	49.1
Female household head	43.7	56.3
Age		
Household head <= 35 years	50.5	49.5
Household head > 35 years	49.0	51.0

5.2 Impact on Food Availability and Nutrition

Based on the extensive impact on livelihoods and income sources, the survey also explored the subsequent impact of the floods on food security. Table 30 shows that 87.7 percent of the households reported that they were worried about not having enough food; 87.3 percent ate only one kind of food; 76.2 percent of the households skipped a meal; 69.2 percent ran out of food; 60.0 percent were hungry but had no food to eat; 33.5 percent went out without eating for an entire day; and 84.9 percent of the households were unable to eat healthy and nutritious food during the 2022 flood period.

TABLE 30: IMPACT ON FOOD SECURITY (%)

	major source of food affected	worried about not having enough food to eat	unable to eat healthy and nutritious/preferred foods	eat only a few kinds of food	skip a meal	eat less than you thought they should	run out of food	hungry but did not eat	go without eating for an entire day	have recovered from the food shortage
Total	49.3	87.7	84.9	87.3	76.2	82.2	69.2	60.0	33.5	45.3
Residence										
Urban	23.3	86.7	83.2	86.8	73.7	82.8	65	58.5	28.6	39.2
Rural	60.0	87.8	85.1	87.4	76.6	82.1	69.9	60.2	34.2	46.3
State										
Anambra	18.4	85	81.2	87	69.2	85.1	51.6	59.8	25.2	41.4
Bayelsa	87.2	95.3	93.3	90.2	82.7	87.2	83.9	64.8	30.8	59.7
Delta	45.3	89.2	84.2	90.5	80.3	89.2	68.5	64.4	39.2	29.8
Jigawa	76.1	84	84.8	85.9	76.8	76.6	65.7	52.9	31.9	50.8
Kogi	41.6	90.5	83.9	87.7	76.2	88	83	78.4	49.5	42.8
Nasarawa	50.0	81.5	76.2	79.6	58.6	65.1	52.4	38.1	13.2	44.9



6.0 Results: Impact on Health, Mortality and Morbidity

6.1 Proportion of Households whose Access to Health Care Facilities were Affected by the Floods

Overall findings show the proportion of respondents who reported that their health facilities were totally damaged (22.9 percent) and destroyed with (2.7 percent) by the 2022 floods, as shown in Table 31. Disaggregation by states revealed that Bayelsa state had the highest impact from the flood with 58.4 percent of respondents who had their facilities damaged, followed by Delta state (31.1 percent) while the lowest figure was recorded in Anambra state (5.6 percent).

6.2 Proportion of Households whose Access to a Health Care Facility was Restored After the Floods

A majority of respondents affirmed that they had restored access to a health care facility after the flood episode (76.0 percent), as shown in Table 32. Across the states, Bayelsa state reported the highest proportion of access restored at 89.7 percent, while Kogi state had the least proportion of those with access at 63.9 percent.

TABLE 31: DISTRIBUTION OF HOUSEHOLDS WHOSE HEALTH CARE FACILITIES WERE DAMAGED/DESTROYED BY THE FLOOD(S)

	Yes, damaged (%)	Yes, destroyed (%)	No (%)
Total	22.9	2.7	74.4
Residence			
Urban	9.8	1.1	89.2
Rural	28.3	3.4	68.3
State			
Anambra	5.6	0.5	93.9
Bayelsa	58.4	7.5	34.1
Delta	31.1	2.4	66.5
Jigawa	20.3	2.6	77.1
Kogi	21.3	4.7	74.1
Nasarawa	16.9	1.0	82.1
Gender			
Male household head	21.8	2.6	75.6
Female household head	26.8	3.2	70.0
Age			
Household head <= 35 years	21.9	4.8	73.3
Household head > 35 years	23.2	2.1	74.7

TABLE 32: DISTRIBUTION OF HOUSEHOLDS WHOSE HEALTH CARE ACCESS HAS BEEN RESTORED

	Yes (%)	No (%)
Total	76.0	24.0
Residence		
Urban	72.8	27.2
Rural	76.4	23.6
State		
Anambra	85.0	15.0
Bayelsa	89.7	10.3
Delta	78.4	21.6
Jigawa	64.4	35.6
Kogi	63.9	36.1
Nasarawa	71.0	29.0
Gender		
Male household head	75.0	25.0
Female household head	78.8	21.2
Age		
Household head <= 35 years	73.9	26.1
Household head > 35 years	76.6	23.4

6.3 Experience of Disease Outbreak Due to the 2022 Floods

During the 2022 floods, close to one in four of the respondents reported an outbreak of diseases in their community due to the floods. The proportion of those reporting disease outbreaks was highest among respondents in Bayelsa state (71.7 percent) and lowest in Anambra state (7.0 percent), as shown in Table 33.

6.3.1 Type of disease experienced by households after the 2022 floods

Table 34 shows the types of diseases experienced by households after the 2022 flood. Water-borne diseases, such as cholera, dysentery, and typhoid (89.3 percent), were most commonly reported.

With an average household size of five members, the results indicate that three members were affected by an outbreak disease, either water- or air-borne or climate-related, as shown in Table 35.

6.3.2 Recovery of affected persons from the disease

Generally, data show that 93.5 percent of the households, whose members were affected by the outbreak, had recovered from the ailment, as shown in Table 36.

TABLE 33: HOUSEHOLDS THAT EXPERIENCED OUTBREAKS OF DISEASE IN THEIR COMMUNITY DUE TO THE 2022 FLOOD(S)

	Yes (%)	No (%)
Total	23.9	76.1
Residence		
Urban	10.7	89.3
Rural	29.4	70.6
State		
Anambra	7.0	93.0
Bayelsa	71.7	28.3
Delta	19.4	80.6
Jigawa	26.1	73.9
Kogi	29.3	70.7
Nasarawa	13.9	86.1
Gender		
Male household head	23.4	76.6
Female household head	25.9	74.1
Age		
Household head <= 35 years	23.4	76.6
Household head > 35 years	24.1	75.9

TABLE 34: DISTRIBUTION OF HOUSEHOLDS BY TYPE OF DISEASE OUTBREAK DUE TO THE 2022 FLOOD(S)

	Water borne diseases (%)	Air borne diseases (%)	Climatic-related diseases (%)
Total	89.3	8.7	2.0
Residence			
Urban	78.5	19.1	2.3
Rural	90.9	7.2	1.9
State			
Anambra	100.0	0.0	0.0
Bayelsa	93.9	1.7	4.4
Delta	84.3	15.7	0.0
Jigawa	85.2	13.5	1.3
Kogi	86.7	11.3	1.9
Nasarawa	97.4	0.0	2.6
Gender			
Male household head	89.7	8.3	2.0
Female household head	88.0	10.2	1.9
Age			
Household head <= 35 years	92.4	5.3	2.3
Household head > 35 years	88.4	9.7	1.9

TABLE 35: AVERAGE NUMBER OF HOUSEHOLD MEMBERS AFFECTED BY EITHER WATER- OR AIR-BORNE, OR CLIMATE-RELATED DISEASES COMPARED TO HOUSEHOLD SIZE		
	Household size	Members affected by disease
Total	5	3
Residence		
Urban	4	2
Rural	5	3
State		
Anambra	4	2
Bayelsa	4	2
Delta	4	3
Jigawa	7	2
Kogi	5	3
Nasarawa	5	2
Gender		
Male household head	5	3
Female household head	3	2
Age		
Household head <= 35 years	4	2
Household head > 35 years	5	3

TABLE 36: AFFECTED HOUSEHOLD MEMBERS WHO RECOVERED FROM THE DISEASE		
	Yes (%)	No (%)
Total	93.5	6.5
Residence		
Urban	98.9	1.1
Rural	92.7	7.3
State		
Anambra	92.5	7.5
Bayelsa	98.2	1.8
Delta	95.8	4.2
Jigawa	86.2	13.8
Kogi	92.2	7.8
Nasarawa	98.2	1.8
Gender		
Male household head	92.3	7.7
Female household head	97.5	2.5
Age		
Household head <= 35 years	94.9	5.1
Household head > 35 years	93.1	6.9

6.4 Type(s) of Health Care Services Received

6.5.1 Households' access to health care services in the past 12 months since the 2022 floods

The distribution across residences in the surveyed states indicates that over 90.0 percent of the respondents in urban and rural areas had been able to access health care services in the past 12 months. The same proportion was also noted across the six surveyed states, as shown in Table 37.

6.5.2 Where affected households received health care services

Table 38 reveals that most households received health care services in the clinic/health post/primary health care system in rural areas (34.0 percent) and urban areas (22.8 percent). This trend was highest in Anambra state at 39.2 percent.

TABLE 37: ACCESS TO HEALTH CARE SERVICES IN THE PAST 12 MONTHS SINCE THE 2022 FLOODS

	Yes (%)	No (%)
Total	97.0	3.0
Residence		
Urban	98.6	1.4
Rural	96.5	3.5
State		
Anambra	99.4	0.6
Bayelsa	92.4	7.6
Delta	93.4	6.6
Jigawa	97.3	2.7
Kogi	98.2	1.8
Nasarawa	99.2	0.8
Gender		
Male household head	97.4	2.6
Female household head	95.5	4.5

TABLE 38: DISTRIBUTION OF HOUSEHOLDS THAT RECEIVED HEALTH CARE SERVICES (%)

	Hospital	Clinic/health post/primary health care	Pharmacy	Chemist shop (drug shop)	Maternity home/ maternal and child health post	Consultant's home	Patient's home	Traditional healer's home	Faith- based home
Total	9.1	30.7	9.7	8.2	1.2	0.1	0.5	2.4	0.1
Residence									
Urban	11.1	22.8	18.1	16.6	0.5	0.0	0.2	0.3	0.0
Rural	8.3	34.0	6.2	18.8	1.4	0.2	0.6	3.3	0.2
State									
Anambra	10.2	39.2	24.5	25.6	1.1	0.0	0.0	0.2	0.0
Bayelsa	18.4	29.2	10.4	27.4	0.8	0.1	2.5	3.8	0.3
Delta	4.5	13.4	2.8	16.8	0.0	0.0	0.0	1.1	0.0
Jigawa	6.3	48.7	6.0	18.0	3.1	0.0	0.5	2.7	0.0
Kogi	14.5	28.5	7.7	10.4	0.0	0.6	0.2	6.9	0.5
Nasarawa	5.5	19.8	2.7	8.9	2.4	0.0	1.3	1.2	0.0

6.5.3 Method of payment for health care services

Table 39 reveals that most of the households paid for their health care services out of pocket (42.1 percent). The same trend was found across the residence and the six states.

TABLE 39: DISTRIBUTION OF HOUSEHOLDS: SOURCE OF ACCESS TO HEALTH CARE SERVICES (%)

	Out Ot Pocket (Self)	Health Insurance	Government Subsidy	Ngo	Religious Mission	Others Specify
Total	42.1	0.7	2.0	0.6	1.6	0.2
Residence						
Urban	39.4	1.3	0.3	0.1	1.0	0.1
Rural	43.2	0.4	2.8	0.8	1.8	0.2
State						
Anambra	57.3	1.4	0.2	0.0	0.0	0.5
Bayelsa	54.1	3.0	5.9	1.3	6.2	0.0
Delta	22.3	0.0	0.1	0.0	0.0	0.0
Jigawa	52.0	0.2	6.3	2.4	1.2	0.0
Kogi	38.8	0.0	0.0	0.0	4.7	0.2
Nasarawa	27.8	0.5	1.6	0.0	0.2	0.1

6.6 Record of Loss of Life, Missing/Injured Person(s) in Households Due to Floods

It was observed that about 1 percent of households lost at least one household member due to year 2022 flood. Another 1 percent of the households recorded injured person(s), while about 2 percent recorded either loss of life or injured persons due to the 2022 floods. Although rural households were generally more impacted by the floods, a higher proportion of households in urban areas (2.4 percent) recorded death/injury of their member(s) compared to the rural areas (0.7 percent). There was a gender variation in causalities due to the 2022 floods, female-headed households (2.2 percent) compared to male-headed households (0.8 percent).

TABLE 40: LOSS OF LIFE, MISSING/INJURED PERSON(S) IN YOUR HOUSEHOLD DUE TO FLOODS (%)

	Loss of life	Injured	Both
Total	1.2	1.0	1.8
Residence			
Urban	2.0	1.6	2.4
Rural	0.6	0.7	0.7
Gender			
Male household head	0.6	0.8	0.8
Female household head	1.7	1.0	2.2
Age			
Household head <= 35 years	1.4	1.0	2.0
Household head > 35 years	0.6	0.7	0.8

7.0 Results: Impact on Access to Education and Housing

7.1. Impact on Education

7.1.1 Proportion of households with children "out of school" due to the 2022 flood(s)

Findings from the survey show that 35.9 percent of households reported schooling to have been impacted by the 2022 flood(s), as shown in Table 41. State-level disaggregation shows that households in Bayelsa (87.6 percent) were most significantly impacted, followed by Delta state (42.4 percent) and Kogi state (40.8 percent), while Nasarawa state (10.0 percent) had the least proportion of respondents who reported that schooling had been impacted among other surveyed states. A significantly higher proportion of rural households (45.8 percent) reported that schooling had been affected by the floods compared to urban households (14.8 percent).

7.1.2. Average number of days children were out of school during the flood(s)

In addition, the overall results show that, on average, children were out of school for 53 days due to the floods (Table 42). Differences were observed across states, with Anambra's average at 73 days against an average of 6 days in Nasarawa. In addition, children from rural households and female-led households were out of school for about a week (54 days and 77 days, respectively) longer compared to urban children and those from male-headed households (43 days and 63 days, respectively) across the surveyed states.

7.1.3. Distribution of households that reported schools being reopened after the flood(s)

Table 43 shows the proportion of households that reported schools reopening after floods across the six states stood at 94.0 percent. Urban areas had a slightly larger proportion of schools that reopened (97.2 percent) vs rural areas (92.7 percent).

TABLE 41: DISTRIBUTION OF HOUSEHOLD MEMBERS WITH SCHOOLING IMPACTED BY THE 2022 FLOOD(S)

	Yes (%)	No (%)
Total	35.9	64.1
Residence		
Urban	14.8	85.2
Rural	45.8	54.2
State		
Anambra	11.0	89.0
Bayelsa	87.6	12.4
Delta	42.4	57.6
Jigawa	36.9	63.1
Kogi	40.8	59.2
Nasarawa	10.0	90.0
Gender		
Male household head	21.4	78.6
Female household head	16.9	83.1
Age		
Household head <= 35 years	24.1	75.9
Household head > 35 years	12.9	87.1

TABLE 42: DISTRIBUTION OF HOUSEHOLD CHILDRENS' AVERAGE NUMBER OF DAYS OUT OF SCHOOL DUE TO THE FLOOD(S)

	Mean
Total	53
Residence	
Urban	42
Rural	54
State	
Anambra	73
Bayelsa	62
Delta	63
Jigawa	34
Kogi	35
Nasarawa	6

TABLE 43: DISTRIBUTION OF HOUSEHOLDS THAT REPORTED SCHOOLS REOPENED AFTER THE FLOODS

	Yes (%)	No (%)
Total	94.0	6.0
Residence		
Urban	97.2	2.8
Rural	92.7	7.3
State		
Anambra	96.3	3.7
Bayelsa	99.8	0.2
Delta	99.1	0.9
Jigawa	91.4	8.6
Kogi	85.9	14.1
Nasarawa	89.9	10.1
Gender		
Male household head	93.3	6.7
Female household head	96.4	3.6
Age		
Household head <= 35 years	92.5	7.5
Household head > 35 years	94.4	5.6

7.2 Impact on Housing

7.2.1. Households whose houses were partially or completely destroyed by the flood(s)

Overall, 45.3 percent of respondents reported that their house was physically affected by the floods, with 32.7 percent indicating being partially affected and the remaining 12.6 percent reporting being completely affected (as shown in Table 44). Disaggregation by states revealed that Bayelsa state had the highest proportion of houses impacted by the floods with 36.2 percent of houses completely affected, followed by Kogi state (16.3 percent). However, Jigawa state was most severely impacted by floods with 66.1 percent having their house partially affected, followed by Bayelsa state (43.1 percent) and Nasarawa state (32.2 percent).

TABLE 44: HOUSEHOLDS WHOSE HOUSES WERE AFFECTED BY THE FLOODS

	Partially (%)	Completed (%)	Not at all (%)
Total	32.7	12.6	54.7
Residence			
Urban	19.1	4.0	76.9
Rural	38.2	16.2	45.6
State			
Anambra	5.1	5.6	89.4
Bayelsa	43.1	36.2	20.7
Delta	26.7	10.1	63.2
Jigawa	66.1	13.3	20.6
Kogi	30.4	16.3	53.3
Nasarawa	32.2	4.3	63.5
Gender			
Male household head	35.2	12.3	52.5
Female household head	23.6	13.8	62.6

7.2.2. Estimated cost of damage to house due to the floods

On average, the monetary cost of damage to houses was estimated at approximately ₦1.97 million, as shown in Table 45. The estimated costs were higher among households in rural areas compared to urban households, as among male-headed households and among household heads over 35 years old, compared to female-headed households and household heads under 35 years old respectively. Across states, the estimated cost of damage in Delta was highest (₦7.9 million) and lowest in Jigawa (₦0.23 million).

TABLE 45: ESTIMATED AVERAGE DAMAGE/DESTROYED IN (₦ AND US$) DUE TO 2022 FLOODS (EXCHANGE RATE: ₦463/US$1)

	₦	US$
Total	1,966,557	4,247
Residence		
Urban	1,282,392	2,770
Rural	2,086,289	4,506
State		
Anambra	265,117	573
Bayelsa	444,836	961
Delta	7,939,895	17,149
Jigawa	227,140	491
Kogi	1,472,827	3,181
Nasarawa	588,256	1,271
Gender		
Male household head	2,321,792	5,015
Female household head	356,119	769
Age		
Household head <= 35 years	270,635	585
Household head > 35 years	2,522,022	5,447

7.2.3 Displacement due to the flood(s)

Overall results show that 4 in 10 households (40.9 percent) were displaced (either temporarily or still displaced at the time of the interview) due to the 2022 floods. Rates of displacement were higher among rural households (42.4 percent) compared to urban households (31.7 percent). As shown in Table 46, across the states, Bayelsa (67.8 percent), Anambra (63.7 percent) and Delta (50.1 percent) had the highest proportions of households experiencing flood-related displacements.

7.2.4 Settlement of displaced households

In terms of where the households were displaced, 87.9 percent reported that they were displaced within their community or LGA; 7.6 percent were displaced to another LGA; 2.8 percent were displaced in another state; and 1.7 percent were in an internally displaced persons' (IDP) camp (Table 47).

TABLE 46: DISTRIBUTION OF HOUSEHOLDS DISPLACED BY THE FLOODS

	Yes (%)	No (%)
Total	40.9	59.1
Residence		
Urban	31.7	68.3
Rural	42.4	57.6
State		
Anambra	63.7	36.3
Bayelsa	67.8	32.2
Delta	50.1	49.9
Jigawa	25.9	74.1
Kogi	44.3	55.7
Nasarawa	7.4	92.6
Gender		
Male household head	38.1	61.9
Female household head	53.2	46.8
Age		
Household head <= 35 years	41.0	59.0
Household head > 35 years	40.8	59.2

TABLE 47: LOCATION OF DISPLACEMENT (%)

	Within the community/LGA	Another LGA	Another state	IDP camp
Total	87.9	7.6	2.8	1.7
Residence				
Urban	86.0	10.4	1.5	2.1
Rural	88.1	7.2	2.9	1.7
State				
Anambra	81.8	9.1	0.0	9.2
Bayelsa	89.9	7.4	1.7	0.9
Delta	80.5	13.9	3.4	2.2
Jigawa	94.3	2.8	1.8	1.1
Kogi	88.2	5.6	6.2	0.0
Nasarawa	100.0	0.0	0.0	0.0
Gender				
Male Households Head	88.7	7.2	3.0	1.1
Female Households Head	85.2	8.8	2.2	3.7
Age				
Households Head <= 35 Years	84.4	8.7	4.1	2.8
Households Head > 35 Years	89.0	7.2	2.3	1.4

7.2.5 Household sharing due to the flood(s)

Table 48 shows the percentage distribution of households that have additional people living with them due to floods. It was reported that a little over 1 in 10 households (12.4 percent) have additional people living with them due to the floods. The highest proportion of households was in Bayelsa state (47.2 percent) followed by Kogi state (16.9 percent) and Delta state (11.9 percent).

TABLE 48: HOUSEHOLDS WITH ADDITIONAL PEOPLE LIVING WITH THEM DUE TO THE FLOOD(S)

	Yes (%)	No (%)
Total	12.4	87.6
Residence		
Urban	7.6	92.4
Rural	14.4	85.6
State		
Anambra	1.3	98.7
Bayelsa	47.2	52.8
Delta	11.9	88.1
Jigawa	9.2	90.8
Kogi	16.9	83.1
Nasarawa	5.1	94.9
Gender		
Male households head	12.2	87.8
Female households head	13.4	86.6
Age		
Households head <= 35 years	12.3	87.7
Households head > 35 years	12.5	87.5

8.0 Response, Coping and Recovery of Flood-Affected Households and Communities

8.1. Response

8.1.1 Households alerted by government before the flood(s)

Findings on flood alerts show that 80.3 percent of the households reported not having been alerted by the government, while 19.7 percent of the households confirmed the government alerted them before the flood(s), as shown in Table 49. The percentage distribution by locality shows that a higher proportion of households in rural areas were alerted by the government (79.1 percent) compared to urban households (20.1 percent).

8.1.2 Support received by households during the floods

Overall, the findings show that 89.6 percent of households interviewed did not receive support during the flood, while 10.4 percent did so (Table 50 and Figure 6). The percentage of households receiving support was slightly higher among those from urban areas (13.7 percent) compared to those living in rural areas (9.7 percent). Similarly, a slightly higher proportion of male-headed households reported receiving support (11 percent) compared to female-headed households (7.6 percent). Meanwhile, close to one in five households in Jigawa reported receiving flood relief support, which is significantly higher than for the other states.

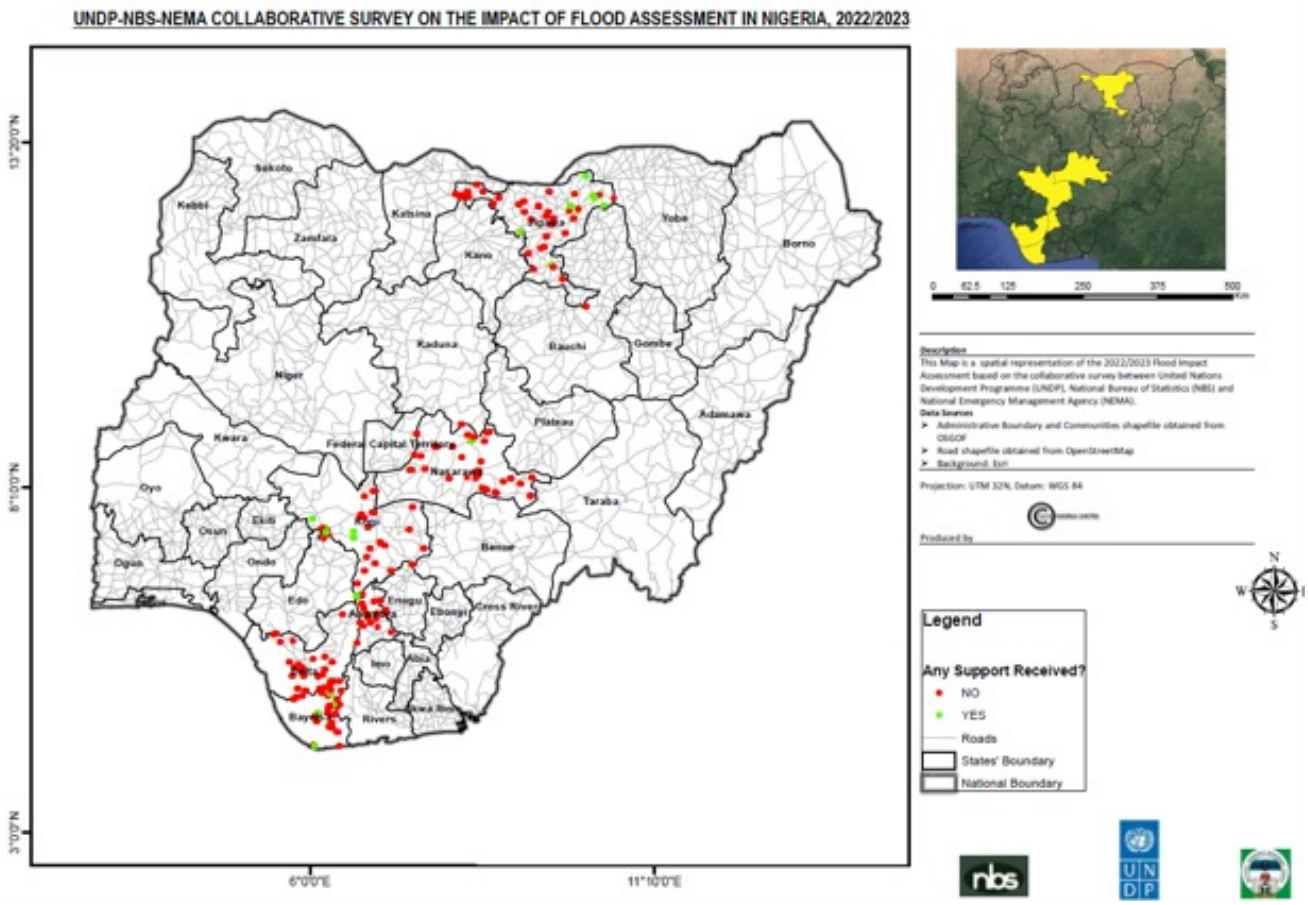
TABLE 49: DISTRIBUTION OF HOUSEHOLDS ALERTED BY GOVERNMENT INFORMATION BEFORE THE FLOOD(S)

	Yes (%)	No (%)
Total	19.7	80.3
Residence		
Urban	16.9	83.1
Rural	20.9	79.1
State		
Anambra	20.1	79.9
Bayelsa	30.9	69.1
Delta	19.7	80.3
Jigawa	21.6	78.4
Kogi	20.1	79.9
Nasarawa	2.8	97.2
Gender		
Male Household Head	20.1	79.9
Female Household Head	18.4	81.6
Age		
Household Head <= 35 Years	20.5	79.5
Household Head > 35 Years	19.5	80.5

TABLE 50: PERCENTAGE DISTRIBUTION OF HOUSEHOLDS THAT RECEIVED SUPPORT DUE TO THE FLOOD(S)

	Yes (%)	No (%)
Total	10.4	89.6
Residence		
Urban	13.7	86.3
Rural	9.7	90.3
State		
Anambra	4.0	96.0
Bayelsa	7.3	92.7
Delta	3.3	96.7
Jigawa	21.1	78.9
Kogi	7.2	92.8
Nasarawa	2.1	97.9
Gender		
Male household head	11.0	89.0
Female household head	7.6	92.4
Age		
Household head <= 35 years	9.1	90.9
Household head > 35 years	10.8	89.2

FIGURE 6: LOCATION OF HOUSEHOLDS WHO RECEIVED FLOOD RELIEF SUPPORT



8.1.3. Source of support received by households

Table 51 shows the sources of support that households received. Some of the households received support from community members (4.6 percent), relied on themselves (2.02 percent) or received support from the government and community (1.1 percent). Only a small proportion of households received support from other sources, such as loans, NGOs and faith-based organizations.

TABLE 51: SOURCES OF SUPPORT RECEIVED BY HOUSEHOLDS (%)

	Self	Government	Family	International organization	Loans	NGO	Faith based organization	Community support	Others
Total	2.0	1.1	4.6	0.0	0.1	0.1	0.2	1.1	0.1
Residence									
Urban	1.9	0.7	3.2	0.0	0.0	0.0	0.3	0.7	0.0
Rural	2.0	1.3	5.1	0.0	0.1	0.2	0.2	1.2	0.2
State									
Anambra	0.2	0.0	0.5	0.0	0.0	0.0	0.4	0.7	0.0
Bayelsa	1.3	2.1	3.4	0.1	0.0	0.6	0.9	0.3	0.1
Delta	0.6	0.0	0.9	0.0	0.1	0.1	0.0	0.0	0.2
Jigawa	6.2	4.2	16.3	0.0	0.1	0.1	0.2	4.0	0.0
Kogi	2.8	0.5	3.0	0.0	0.1	0.3	0.0	0.3	0.3
Nasarawa	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.2	0.0
Gender									
Male household head	2.2	1.3	5.2	0.0	0.1	0.2	0.1	1.2	0.1
Female household head	1.2	0.4	2.4	0.0	0.1	0.0	0.6	0.7	0.3
Age									
Household head <= 35 years	2.1	1.0	4.4	0.0	0.0	0.1	0.1	0.6	0.0
Household head > 35 years	2.0	1.2	4.6	0.0	0.1	0.2	0.3	1.2	0.1

8.1.4 Proportion of households that evacuated before the floods

Across the sample, a majority of the households (91.7 percent) were not able to evacuate before the floods, and this proportion was slightly higher among rural households (93.5 percent) compared to urban households (90.9 percent), as shown in Table 52. Across the states, Anambra (97.7 percent) registered the highest proportion of respondents who were unable to evacuate before the floods.

TABLE 52: DISTRIBUTION OF HOUSEHOLDS ABLE/UNABLE TO EVACUATE BEFORE THE FLOODS

	Yes (%)	No (%)
Total	**8.3**	**91.7**
Urban	6.5	93.5
Rural	9.1	90.9
Anambra	2.3	97.7
Bayelsa	16.0	84.0
Delta	9.6	90.4
Jigawa	10.8	89.2
Kogi	7.2	92.8
Nasarawa	8.3	91.7
Male Household Head	8.6	91.4
Female Household Head	7.3	92.7

8.1.5 Proportion of households able to move household items to safe area before the floods

Generally, 87.3 percent of the respondents, were unable to move their personal belongings to a safe place before the occurrence of the 2022 flood, while 12.7 percent of the households reported that they were able to do so. About 91 percent of respondents in urban areas were unable to move any household item, which is slightly higher than 86.0 percent of the respondents in rural areas, as shown in Table 53.

8.1.6 Proportion of households that received some form of government assistance after the floods

Overall, just 1.5 percent of respondents reported receiving government assistance (Table 54). Among the states, respondents in Bayelsa reported a slightly higher proportion of households receiving government assistance compared to the others.

TABLE 53: HOUSEHOLDS ABLE TO MOVE ANY HOUSEHOLD ITEMS TO A SAFE AREA BEFORE THE FLOODS

	Yes (%)	No (%)
Total	12.7	87.3
State		
Anambra	3.9	96.1
Bayelsa	17.3	82.7
Delta	14.5	85.5
Jigawa	21.8	78.2
Kogi	8.8	91.2
Nasarawa	10.8	89.2
Residence		
Urban	9.4	90.6
Rural	14.0	86.0
Gender		
Male Household Head	13.4	86.6
Female Household Head	10.3	89.7

TABLE 54: HOUSEHOLDS THAT RECEIVED SOME FORM OF GOVERNMENT ASSISTANCE AFTER THE FLOOD(S)

	Yes (%)	No (%)
Total	1.5	98.5
Residence		
Urban	2.1	97.9
Rural	1.4	98.6
State		
Anambra	0.9	99.1
Bayelsa	3.7	96.3
Delta	0.0	100.0
Jigawa	2.2	97.8
Kogi	1.2	98.8
Nasarawa	0.0	100.0
Gender		
Male household head	1.4	98.6
Female household head	1.9	98.1
Age		
Household head <= 35 years	1.4	98.6
Household head > 35 years	1.5	98.5

8.2. Households' Coping and Future Risk Mitigation Measures

8.2.1 Protective measures put in place by the household or community

Households were asked if there were protective measures to put in place after their experience with the 2022 flood episodes. The overall results show that construction and cleaning of drainage systems (25.5 percent) were the major measures implemented on the ground at the time of the survey, followed by early warning messages about the occurrence of floods (10.7 percent), while identification of evacuation routes (2.3 percent) and establishment of evacuation centres (2.8 percent) were less common measures put in place, as shown in Table 55. A majority (62.9 percent), however, did not take any preventative measures to mitigate against future floods.

TABLE 55: PROTECTIVE MEASURES PUT IN PLACE BY HOUSEHOLD OR COMMUNITY (%)

	Construction / Clearing of Drainage	Tree planting	Relocating from flood prone area	Embankment	Early warning messages	Establishment of evacuation centers	Identification of evacuation routes	Others	Did Nothing
Total	25.5	8.7	8.6	5.0	10.7	2.8	2.3	0.5	62.9
Residence									
Urban	35.5	4.0	5.9	4.3	8.7	1.8	0.3	0.2	57.1
Rural	21.3	10.6	9.7	5.2	11.5	3.2	3.1	0.6	65.3
State									
Anambra	35.1	1.2	2.1	3.8	10.1	1.5	0.6	1.2	58.0
Bayelsa	5.8	1.2	7.6	1.9	6.9	4.1	1.1	0.8	81.5
Delta	7.8	0.2	11.5	3.3	9.9	7.2	6.6	0.4	77.6
Jigawa	39.4	27.3	16.7	12.1	22.0	1.6	2.1	0.1	41.9
Kogi	26.4	9.4	6.6	3.2	1.4	0.0	0.0	0.3	68.6
Nasarawa	34.2	12.6	2.5	2.1	9.0	0.9	1.1	0.1	55.5
Gender									
Male Household Head	27.4	10.3	8.8	5.3	11.8	2.4	2.2	0.5	60.7
Female Household Head	18.6	2.9	7.7	3.6	6.7	4.3	2.9	0.6	70.8
Age									
Household Head <= 35 Years	21.4	9.3	9.2	4.1	8.2	1.3	1.3	0.1	66.3
Household Head > 35 Years	26.7	8.5	8.4	5.2	11.5	3.2	2.6	0.6	61.9

8.2.2. Households' sources of information for future flood(s) risk awareness

Based on the data on the sources of information that households rely on to be aware of future flood risks, mass media has the highest rating as the most common source at 58.7 percent, followed by traditional media (39.2 percent), while the lowest percentage was for the Nigerian Meteorological Agency at 3.0 percent, as shown in Table 56. Interestingly, about a quarter of respondents reported not relying on any source of information for flood awareness or warnings.

TABLE 56: INFORMATION SOURCES THAT HOUSEHOLDS RELY ON FOR FUTURE FLOOD(S) RISK AWARENESS (%)

	NIMET (Nigerian Metrological Agency)	NIHSA (Nigeria Hydrological Services Agency)	Mass media	Traditional Medium	Others	None
Total	3.0	0.4	58.7	39.2	0.4	23.0
Anambra	0.8	0.2	52.8	16.6	0.3	40.6
Bayelsa	9.0	1.2	80.0	28.7	3.0	8.5
Delta	4.9	0.2	70.4	24.0	0.0	18.9
Jigawa	0.0	0.0	51.5	69.4	0.1	17.6
Kogi	3.1	0.0	54.0	58.2	0.0	16.2
Nasarawa	3.4	2.8	46.6	40.7	0.4	30.7
Urban	5.3	0.7	72.4	24.7	0.4	18.2
Rural	2.0	0.3	53.1	45.1	0.4	25.0
Male Household Head	3.0	0.5	59.6	41.4	0.3	21.9
Female Household Head	2.8	0.2	55.8	31.4	0.5	27.0
Household Head <= 35 Years	2.9	0.6	57.1	38.2	0.2	24.8
Household Head > 35 Years	3.0	0.4	59.2	39.5	0.4	22.5

8.2.3 Households able to access the community disaster fund during the recent flood(s)

Table 57 shows that the majority of the respondents (85.2 percent) reported not benefiting from or having access to any community disaster fund. In Anambra and Nasarawa states, none of the households reported benefiting from, or having such access to, community funds.

TABLE 57: HOUSEHOLDS THAT ACCESSED COMMUNITY DISASTER FUNDS DURING THE RECENT FLOOD(S)

	Yes (%)	No (%)
Total	14.8	85.2
Urban	6.6	93.4
Rural	17.2	82.8
Anambra	0.0	100.0
Bayelsa	15.6	84.4
Delta	11.7	88.3
Jigawa	35.2	64.8
Kogi	4.5	95.5
Nasarawa	0.0	100.0

8.2.4. Usefulness of external flood response and recovery services

Generally, 80.4 percent of the households interviewed reported that the external flood response and recovery services were not helpful (Table 58). Just 12.3 percent reported that the response and recovery services were slightly helpful, while only 7.3 percent reported them to be very helpful.

8.2.5. Households with enough food to eat during the next flood season

Table 59 shows significant disparities in the percentages of households that reported to having enough food to eat during the flood season across the different states. The overall results of the surveyed states show that 38.2 percent of households reported having enough food to eat during the next flood season. An analysis reveals that a higher percentage of households in urban areas (53.6 percent) are confident about having enough food during the next flood season compared to rural households (31.8 percent). Anambra state had the highest figure at 60.7 percent, while Bayelsa state had the lowest at 15.4 percent of the surveyed households.

8.2.6 Households able to find a safe place to evacuate to if future floods occur

Table 60 shows the distribution of households that confirmed being able to find a safe place to evacuate in case of a future flood. Urban areas have a higher proportion of households that reported knowing a safe evacuation place (51.2 percent) compared to rural households (32.9 percent). Among the states, Anambra state has the highest percentage of households (54.5 percent), whose members are confident in finding a safe place to evacuate to, while Bayelsa state has the lowest with 24.8 percent.

TABLE 58: USEFULNESS OF EXTERNAL FLOOD RESPONSE AND RECOVERY SERVICES(%)

	Very helpful	Slightly helpful	Not helpful
Total	**7.3**	**12.3**	**80.4**
Urban	5.1	8.8	86.1
Rural	8.2	13.8	78.1
Anambra	0.2	0.8	99.0
Bayelsa	0.1	11.0	88.8
Delta	6.2	9.3	84.5
Jigawa	21.6	20.1	58.3
Kogi	8.1	25.7	66.2
Nasarawa	0.2	7.3	92.6
Male Household head	8.4	12.9	78.8
Female Household head	3.4	10.4	86.2
Household head <= 35 years	8.7	10.6	80.7
Household head > 35 years	6.9	12.8	80.3

TABLE 59: HOUSEHOLDS THAT HAVE ENOUGH FOOD TO EAT DURING THE NEXT FLOOD(S) SEASON

	Yes (%)	No (%)
Total	38.2	61.8
Residence		
Urban	53.6	46.4
Rural	31.8	68.2
State		
Anambra	60.7	39.3
Bayelsa	15.4	84.6
Delta	28.1	71.9
Jigawa	36.7	63.3
Kogi	33.8	66.2
Nasarawa	44.0	56.0

TABLE 60: HOUSEHOLDS ABLE TO FIND A SAFE EVACUATION SITE IN CASE OF FUTURE FLOOD(S)

	Yes (%)	No (%)
Total	38.3	61.7
Residence		
Urban	51.2	48.8
Rural	32.9	67.1
State		
Anambra	54.5	45.5
Bayelsa	24.8	75.2
Delta	32.9	67.1
Jigawa	26.3	73.7
Kogi	39.9	60.1
Nasarawa	50.6	49.4
Gender		
Male household head	39.4	60.6
Female household head	34.0	66.0
Age		
Household head <= 35Years	38.2	61.8
Household head > 35 Years	38.3	61.7

8.3 Recovery Post-2022 Floods

8.3.1 Proportion of households where flood(s) waters receded in the community

The findings in Table 61 show that 79.6 percent of households reported that the flood waters had completely receded in their communities. Across states, Jigawa (36.7percent) and Nasarawa (36.3 percent) recorded the highest number of respondents indicating that the flood waters had still not receded, or only partially receded, at the time of the interview. This figure was also higher among rural households (23.2 percent) compared to urban households (13.4 percent).

8.3.2. Households' recovery from the effect of the flood(s)

Table 62 shows the distribution of households in communities that have recovered from the effects of the floods. Respondents from urban areas reported higher rates of recovery (52.5 percent) compared to rural areas (41.5 percent). Across the states, Kogi (21.5 percent) and Delta (25.3 percent) had the lowest proportion of households that reported having recovered from the effects of the 2022 floods, while Anambra state had the highest proportion of communities that had recovered from the flood(s) (69.2 percent).

TABLE 61: COMMUNITIES WHERE FLOOD(S) WATERS HAD RECEDED AT THE TIME OF INTERVIEW

	No (%)	Yes, partially (%)	Yes, completely (%)
Total	8.4	11.9	79.6
Residence			
Urban	3.8	9.6	86.6
Rural	10.3	12.9	76.8
State			
Anambra	1.8	1.2	97.0
Bayelsa	1.2	8.1	90.6
Delta	7.1	16.9	76.0
Jigawa	21.8	14.9	63.3
Kogi	0.9	14.3	84.8
Nasarawa	18.4	17.9	63.8
Gender			
Male household head	9.5	12.1	78.4
Female household head	4.5	11.4	84.1
Age			
Household head <= 35Years	8.4	11.9	79.6
Household head > 35 years	3.8	9.6	86.6

TABLE 62: HOUSEHOLDS REPORTING RECOVERY FROM THE EFFECT OF THE FLOOD(S)

	Yes (%)	No (%)
Total	44.8	55.2
Residence		
Urban	52.5	47.5
Rural	41.5	58.5
State		
Anambra	69.2	30.8
Bayelsa	59.7	40.3
Delta	25.3	74.7
Jigawa	54.7	45.3
Kogi	21.5	78.5
Nasarawa	40.3	59.7
Gender		
Male household head	46.0	54.0
Female household head	40.3	59.7
Age		
Household head <= 35 years	46.4	53.6
Household head > 35 years	44.3	55.7

8.3.3 Ways they recovered

The leading reasons communities were able to recover from the floods' impact are resumption of work (16.3 percent), recovery from food shortages (15.2 percent) and rebuilding of damaged basic facilities (11.7 percent), as shown in Table 65.

TABLE 63: DISTRIBUTION OF HOUSEHOLDS ON THE WAYS THEY RECOVERED FROM THE FLOODS (%)

	Repurchase of lost livestock	Restock damaged shops	Resumption back to work or get another job	Rebuild of damaged basic facilities	Reconstruct of electric pole, transformer	Recovered from food shortage / ration	Rebuild of fish bond, irrigation, water resources	Purification of affected well / stagnant river	Reconstruction of affected burial site	Others
Total	7.2	9.1	16.3	11.7	5.0	15.2	4.0	2.0	1.1	9.4
Residence										
Urban	2.0	6.5	26.5	8.9	6.1	9.5	1.1	0.8	0.5	13.3
Rural	9.3	10.2	12.2	12.9	4.5	17.6	5.2	2.5	1.3	7.8
State										
Anambra	0.2	3.0	27.0	8.1	4.3	15.0	4.2	0.1	0.3	##
Bayelsa	15.3	30.6	44.4	30.5	16.9	26.7	9.8	3.0	4.9	0.1
Delta	6.8	8.1	11.2	2.5	0.7	2.6	5.5	1.8	0.2	11.4
Jigawa	14.5	10.2	8.0	22.5	7.0	35.0	4.2	3.8	1.2	1.8
Kogi	0.9	3.8	2.5	1.7	1.4	3.8	0.3	1.2	1.7	8.0
Nasarawa	11.9	12.7	19.8	19.1	7.5	12.6	0.4	3.0	0.4	1.5
Gender										
Male Household Head	7.6	9.0	16.0	12.5	5.5	17.1	3.8	2.2	1.1	9.1
Female Household head	5.9	9.5	17.7	8.8	3.2	8.4	4.7	1.0	1.2	10.5
Age										
Household head <= 35 years	6.5	10.5	16.7	12.0	5.7	16.6	4.2	1.7	1.0	7.4
Household head > 35 years	7.4	8.7	16.2	11.6	4.8	14.8	4.0	2.1	1.1	10.0

9.0 Strategy for Future Flood Risk Mitigation and Adaptation

Nigeria is prone to a range of natural and human-induced disasters that have adversely affected the country's socio-economic development, infrastructure and means of livelihood. Within the realm of this assessment, the Nigeria Impact of Flood, Recovery and Mitigation Assessment Survey (IFRMAS) 2022-2023 has provided the local context for mitigation and recovery strategies toward enhancing community resilience. While disaster mitigation explores measures for minimizing the destructive and disruptive nature of disasters, recovery includes programmes and measures that enable the affected communities to return to normal life and enhance their resilience to future disasters. This section outlines key mitigation and recovery strategies.

9.1. Key Mitigation Strategies

1. **Development of a flood management** scheme involving comprehensive risk assessment and analysis to identify vulnerabilities, exposure and elements at risk (environmental, human population and socio-economic assets). Being able to develop schemes such as these will greatly reduce the affected number of households during the occurrence of disasters. In that regard, Table 7 indicates that 56.4 percent of all households in the study area were affected.

2. **Early Warning Systems:** Table 49 shows that only 19.7 percent of the affected households were alerted by the government before the flooding event occurred. Table 52 shows that only 8.3 percent of those warned were able to evacuate their abodes before the flood disaster happened. This is an indication that there is a dire need for investments in early warning systems across the country, especially for rainfall and flood predictions, as well as dam water releases, for early actions.

3. **Community Engagement and Education:** According to Table 12, 99.7 percent reported that they had experienced flooding at least 1 – 5 times over the past five years. This is one of the key reasons why engagement and education of communities to generate understanding and recognition of flood risk profiles, flood preparedness measures and flood mitigation activities is critical.

4. **Infrastructure Resilience:** Table 30 shows the proportion of respondents who reported that their health facilities were totally damaged was 22.9 percent, while 2.7 percent reported that their health facility was destroyed by the floods. One needs to ensure that critical infrastructure, such as schools, hospitals and emergency response centres, are designed and built to withstand potential floods disasters.

5. **Land Use Planning and Zoning:** There is a compelling need for compliance with risk-informed land use planning and zoning regulations to restrict development in high-risk areas. This helps prevent exposure to flood disasters. The importance of land-use planning and zoning will notify the populace on areas suitable for farmlands and housing, for example. This will greatly reduce the losses recorded in this report.

6. **Check Flooding** by adoption of structural and engineering measures for embankment and channelization of rivers and streams.

7. **Climate Change Adaptation:** Integration of climate change adaptation measures into disaster risk reduction strategies, considering the nexus between climate change and flooding.

8. **Mainstreaming flood risk management into policy, budgeting, investment and development decisions.**

9. **Ecosystem Conservation:** Protection and restoration of natural ecosystems, such as wetlands, mangroves and forests, as they play a crucial role in reducing the impact of flooding.

10. **Incorporation of Technology:** Utilization of technology and data-driven approaches, such as geographic information systems, remote sensing and artificial intelligence, to improve flood risk assessment, early warning systems and response and recovery.

9.2 Recovery Strategies

1. Post-Disaster Recovery and Rehabilitation: Development of a post-disaster recovery and rehabilitation plan to ensure swift and effective restoration of affected communities and infrastructure. A special focus on food security, safe evacuation disease control and livelihood support is recommended.

2. Risk Financing and Insurance: Explore risk financing and risk transfer mechanisms to provide financial support for disaster recovery and reconstruction efforts.

3. Partnerships and Collaboration: Fostering partnerships and collaboration with government agencies, non-governmental organizations, private sectors, academia and international organizations to collectively involve them in flood disaster recovery programmes.

4. Adoption of structural and non- structural measures for recovery: Mitigation measures can be structural or non-structural. Structural measures use technological solutions like flood levees, embankments, for example. Non-structural measures include legislation, land-use planning (e.g. the designation of nonessential land like parks to be used as flood zones) and insurance. Mitigation is the most cost-efficient method for reducing the effect of hazards, although not always the most suitable.

5. Consideration of the epidemiological and epizootic (impact on animals) impact of flooding for holistic recovery: The aftermath of floods usually abets an increased risk of infection with cholera, scabies, taeniasis, Rhodesian sleeping sickness, malaria, alphaviruses and flaviviruses, along with long-term health effects, such as mental health, non-communicable diseases, and pregnancy. This is also applicable in relation to livestock that adversely impacted by flood disasters.

6. Research and Innovation: Support research and innovation in disaster risk reduction to identify new approaches and technologies that can improve resilience and response capabilities to future flooding.

9.3 Cross-Cutting Strategies

1. Capacity-Building and Training: Enhancing the capacity of disaster management agencies, emergency responders and community members through regular training, simulations, and drills.

2. Fostering collaboration among relevant federal and state level stakeholders for disaster mitigation and recovery: Improved coordination between the federal and state-level disaster management agencies and stakeholders to improve early warnings, response, and recovery for affected communities before and after disasters.

3. Gender-Inclusive Disaster Risk Reduction: Integration of gender considerations into all aspects of the flood management scheme. Collect and analyses gender-disaggregated data, promote women's participation and leadership, address gender-based violence risks, ensure equal access to resources and information and design gender-responsive training and capacity-building programmes.

4. Promotion of participatory and inclusive planning and implementation of activities with the affected population.

5. Establishment of an effective and efficient disaster mitigation and recovery information and communication management system.

6. Development of a monitoring and evaluation scheme for flood mitigation and recovery.

7. Review and development of tools for disaster mitigation and recovery (flood disaster preparedness and response plans) at the national, state, and local government levels.

8. Ensuring adequate resources are available for disaster relief and recovery efforts, including support for affected communities, businesses, and agriculture.

9. Enhancing monitoring and early warning systems to provide timely and accurate information about impending floods.

10. Strengthening health care systems and capacity to handle the potential increase in diseases and illnesses associated with flooding.

11. Strengthening access to and quality of water, sanitation, and hygiene (WASH) facilities and services.

Overall, a comprehensive approach that combines prevention and response strategies is necessary to reduce the devastating effects of future floods. This will require collaboration and coordination among government agencies, communities, private businesses, and international organizations.

10.0 Conclusion and Recommendations

10.1 Conclusion

The 2022 floods have had a devastating effect on households. This assessment has highlighted the extent of the damage and the need for immediate action to aid recovery and to increase resilience. The 100 percent response rate during the household survey indicates a high level of commitment both from the people affected and from the partners – the NBS, NEMA and UNDP.

The Nigeria Impact of Flood, Recovery and Mitigation Assessment Report 2022-2023 reveals the overwhelming effect of floods on livelihood, businesses, housing, agriculture, food security and health. The assessment also shows the low recovery rates of affected households and communities during the post-2022 floods period. Strategies to address existing challenges and to improve preparedness for future flood risk requires sustained commitment from all levels of government, civil society, the media and the private sector. In addition, flexibility and adaptability are essential, as any flood disaster context is dynamic. By implementing outlined strategies and fostering collaboration among stakeholders, threats brought on by flooding to Nigeria's socio-economic development can be significantly minimized.

10.2 Recommendations

This assessment highlights the need for comprehensive recovery strategies that address the diverse needs of affected communities, including targeted interventions for businesses, food security, health care and infrastructure rehabilitation.

1. Based on the findings, several recommendations have been put forward to guide recovery efforts and to enhance future resilience. These include the following ones:

2. Infrastructure Rehabilitation: Prioritize the reconstruction and repair of damaged infrastructure, incorporating climate-resilient designs and sustainable construction practices. This will enable the restoration of essential services and facilitate an economic recovery.

3. Economic Recovery and Livelihood Restoration: Provide targeted support to affected businesses, including financial assistance, capacity-building programmes and market access in order to revive economic activities and restore livelihoods. Promote diversification and value chain development to enhance resilience against future shocks.

4. Food Security and Agriculture: Implement measures to enhance food security, including promoting climate-smart agriculture, improving irrigation systems and providing support to farmers through agricultural extension services, access to inputs and market linkages.

5. Health and Well-being: Strengthen health care systems and services in flood-affected areas, including provision for water, sanitation and hygiene facilities. Implement psychosocial support programmes to address the mental health needs of affected individuals.

6. Risk Mitigation and Adaptation: Enhance early warning systems, community-based disaster preparedness and risk reduction measures. Invest in flood risk mapping, land-use planning and resilient infrastructure development to reduce vulnerabilities and to enhance resilience against future floods.

The findings and recommendations of this Nigeria Flood Impact, Recovery and Mitigation Report (2022-2023) provides a foundation for evidence-based decision-making, thereby enabling stakeholders to effectively allocate resources, to plan interventions and to coordinate efforts for the recovery and long-term resilience of flood-affected communities in Nigeria. By implementing the suggested strategies, Nigeria can build back stronger, mitigate future risks and foster sustainable development in the face of future challenges.

Appendix A: The Survey

Sample Design and Survey Methodology

The sampling frame of Enumeration Areas (EAs) demarcated by the National Population Commission (NPC) for the 2006 housing and population census was used for the flood assessment survey since the 2023 proposed census exercise was not conducted.

The sample design for any household-based survey requires the availability of a good sampling frame. A frame that is not updated cannot be current and as a result it cannot account for changes in the units it contains and falls short of expectations of an effective frame. Therefore, a quick household listing was carried out in all the selected EAs that were studied in the six states, namely Anambra, Bayelsa, Delta, Jigawa, Kogi and Nasarawa which were reported to be among the most affected states.

A two-stage sampling technique was adopted, where the first was selection of enumeration areas. The National Integrated Survey of Households has 200 enumeration areas per state and are systematically arranged in replicates and each replicate contains 10 EAs. In each of the 6 states, replicates containing 40 EAs were systematically selected with equal probability where 240 enumeration areas were sampled in total.

The second stage was the selection of households. Hence, a quick household listing exercise was carried out in all the selected EAs and a systematic sample of 15 households were drawn up in each EA. Enumeration areas within the state were identified as the main sampling units and households as a secondary sampling unit. A total sample size of 3,600 households were covered in the 6 states.

Sample Size Determination

The sample design and sample size were determined by the characteristics of the population and availability of funds for the study, although the sample size for this study was calculated as 3,600 households. Determination of the number of sampled households (denoted as n), generally uses the following formula that is based on several parameters that will affect the precision.

The required sample size n is given as: $$n = \frac{Z^2 * D * P(1-P)}{e^2}$$

Where:

n= Sample size

D= Design effect

P = Predicted value of indicator (in target/base population)

Z = Confidence interval

e = Margin of error

The sample size was determined using 50 percent of the predicted population of households, a design effect of 1.5 percent, a 2 percent margin of error and a 95 percent confidence interval (1.96). Using the formula above, this calculation gave a total number of 600 sampled households per state.

Questionnaires

The questionnaire used in this study was based on information collected from respondents on the catgories: Identification, Household Demographics, Wash Services, Education, Health, Housing, Livelihoods and Income Sources, Impact of Floods and other Shocks, Impact on Food Security and Coping Strategy and Resilience.

The Demographic Section was for all household members, while key respondents were the head of households, or any knowledgeable adult member aged 18 years and above. Section 'D' was on Education for household members aged 3 years and above. Section 'F' was on members of households affected by floods. The other sections were general household questions.

A pretest was carried out in Dagiri community, Gwagwalada LGA, FCT in March 2023. Fifteen households were visited to study the flow and understanding of the questionnaire terminology.

Based on results of the pretest, modifications were made to the structure and a final questionnaire was prepared for use in field administration. Observations made during the pretest were reviewed and used to finalize the questionnaire.

Training and Fieldwork

Two levels of training were conducted, the first level was the ToT held in FCT, Abuja, while the second level was the training of enumerators in each of the six states. Participants involved were from NBS, NEMA and UNDP.

Similarly, the second level training was conducted at state levels and participants were zonal controllers, state officers and field personnel. Training programme included sessions on survey design, the household listing exercise, explanation of the contents and how to complete the questionnaires using CAPI. In each state, data collection was carried out by four roving teams, with each team comprising of three enumerators (one team lead and two teammates). Field work began from 29 April to 20 May 2023.

Survey Organization

The NBS, NEMA and UNDP constituted the survey organization. In each state four teams were formed, consisting of 1 team-lead and 2 teammates. In total, 12 field personnel carried out the data collection.

The field personnel were selected based on their experience in surveys and language skills to facilitate interviews with the respondents in their native language as much as possible. In the 40 EAs selected per state, a team covered 10 EAs and each team spent 2 days in each EA with an average of 5 households for an enumerator to complete. The data collection lasted for 22 days including travel time.

Using the CAPI device, the data were electronically captured from the field and transmitted to a central server, using a CSPro CAPI application, Version 5.0. Once enumerators had completed data collection in an enumeration area allocated to them, data were synchronized to the NBS server. The data were then transferred to be analysed by NBS experts where secondary data editing, tabulation and analysis were carried out. The required statistical tables were generated using the IBM SPSS software platform.

Survey constraints

Some of the constraints encountered during the entire survey period were security challenges while accessing some of the selected enumeration areas. The second key challenge was poor mobile network connectivity which led to late synchronization of completed data in real time. Inaccessibility due to difficult terrain, poor roads and the presence of riverine enumeration areas also limited the speed with which teams could work.

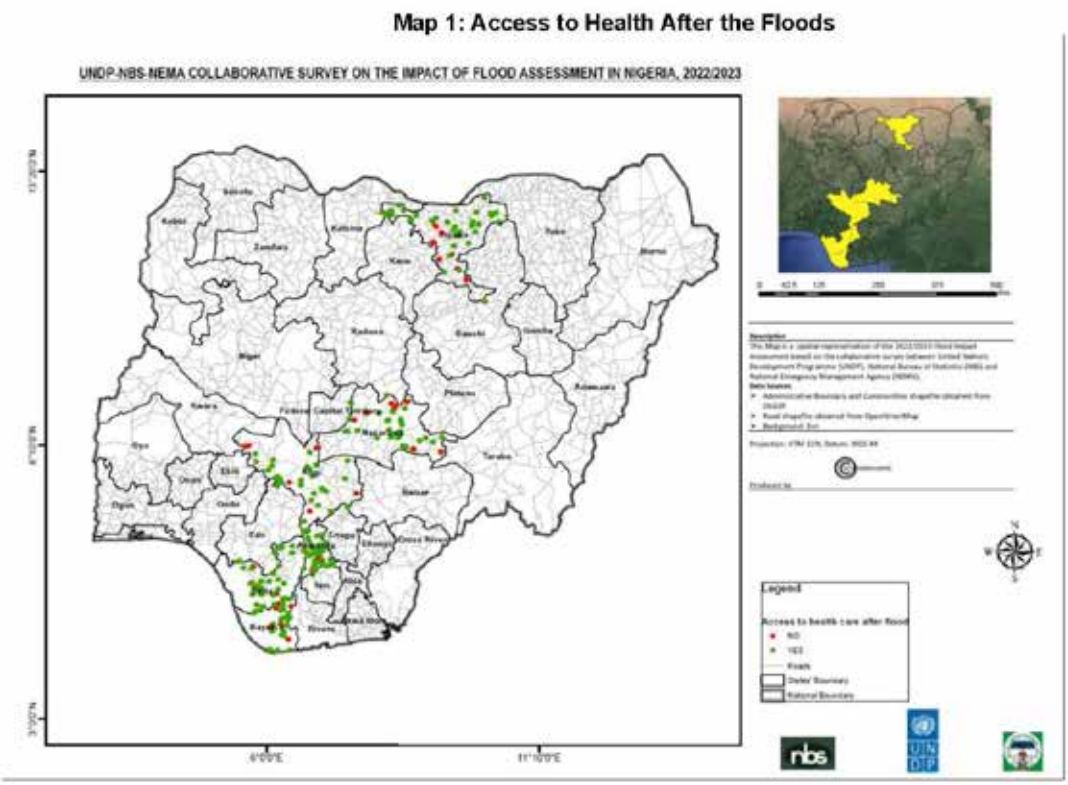
Appendix B: List of Survey Participants (NBS)

Statistician-General, National Bureau of Statistics, Prince Adeniran S. Adeyemi
Project Director, Adebisi Adebayo Tunde

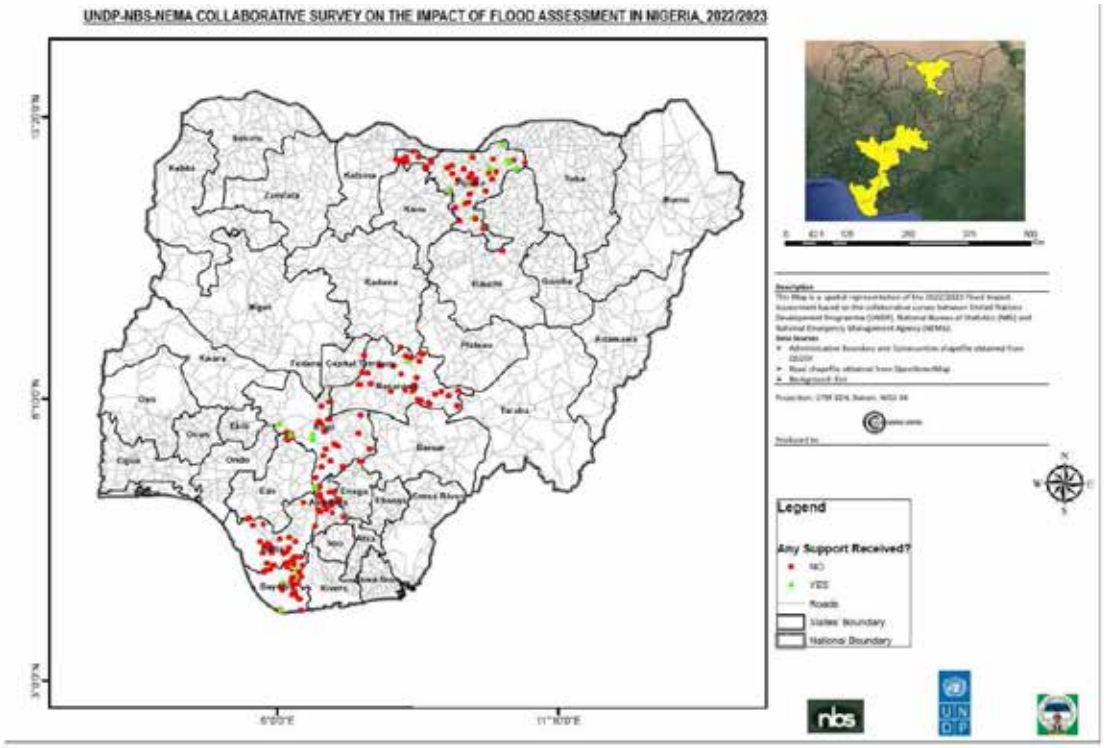
Felicia Obamedo	Project Coordinator	Joy Ahiowawa Ebah	Interviewer
Fafunmi Elisha Ajebiyi	Coordinator	Onuzuwke Chukwuma John	Interviewer
Ishaku Zom Maigida	Coordinator	Nwosu Chidiebere	Interviewer
Dinyo Olanrewaju Andrew	Trainers/Monitors	Iorsaa Israel Wuese	Interviewer
Oluwafemi Ogunrinola	Trainers/Monitors	Tazodayi Salama Jude	Interviewer
Lawarence Onotu	Trainers/Monitors	Oluwasusi Bisi Sunday	Interviewer
Kolade Anna Onarakpoberu	Trainers/Monitors	Ajibosin Habib Adebowale	Interviewer
Akindenor Lawerence Osemenkhan	Trainers/Monitors	Kure Grace Webiye	Interviewer
Dio Emmanuel	Trainers/Monitors	Rebecca Ekanem	Interviewer
Nkemakola Hope Chioma	Trainers/Monitors	Oluwamodupe Agnes Binoran	Interviewer
Mustapha Bukar	Trainers/Monitors	Shaba Femi	Interviewer
Ebhodaghe Bridget	Trainers/Monitors	Akinboye Emilola. N	Interviewer
Felicia Obamedo	Report Writer	Paul Blessing Matthew	Interviewer
Daniel Obot	Report Writer	Amire Stephen	Interviewer
Ejike Martins	Report Writer	Trust Daziba Amos	Interviewer
Sunday Amama	Report Writer	Felix Egwu Meye	Interviewer
Joseph Eta	Report Writer	Pamela Pereere Seibu	Interviewer
Nkemakolam Hope Chioma	Report Writer	Marvelous Ibatoli Dominimon	Interviewer
Gande Linda Hembafan	Report Writer	Uchechukwu Ernest Nwaka	Interviewer
Onyerechere Blessing	Report Writer	Ekeh Faithfulness Joseph	Interviewer
Ebhodaghe Bridget	Report Writer	Joshua Pleasure	Interviewer
Lawarence Onotu	Report Writer	Nayakumo Tamaralayeta	Interviewer
Dio Emmanuel	Report Writer	Haruna Fatima	Interviewer
Augustine Abi	Report Writer	Lawal Adenike Opeyemi	Interviewer
Waniko Grace Onyinye	Report Writer	Adamu Yahaya Idris	Interviewer
Augustine Abi	Report Writer	Ibrahim Oluwakemi Latifat	Interviewer
Isa Abdukasir	Report Writer	Emmanuel Olaki	Interviewer
Jane Kekong	Report Writer	Olatunde Olajumoke Titilayo	Interviewer
Ugoh Maureen Chinyere	State Officer	Samson Ohiani Omeiza	Interviewer
Thomas Timipere Nanakumo	State Officer	Elizabeth Anyebe	Interviewer
Bem Benjamin	State Officer	Boladale Abdulrasaq Olabode	Interviewer
Agbebaku Sunday	State Officer	Danazumi Buhari	Interviewer
Aledare Emmanuel	State Officer	Unang Samuel Monday	Interviewer
Dannjuma Ibrahim Roni	State Officer	Ajayi Matthew Adeiza	Interviewer
Okafor Monica Nkechi	Zonal Controller	Attah Victor	Interviewer

Danladi Sani Adzzonto	Zonal Controller	Odigwe Chukwuemeka David	Interviewer
Dinyo Olanrewaju Andrew	Zonal Controller	Okonta Fredrick Essonanjor	Interviewer
Ibeanu Kingsley Chijioke	Interviewer	Ezeh Ann Amarachi	Interviewer
Osuji Jude	Interviewer	Isiwu Evangeline. O	Interviewer
Ikechi Festus Cyprian	Interviewer	Jossy Ugo Posner	Interviewer
Uzo Mezienwa Chelsea	Interviewer	Madu Charity Ozioma	Interviewer
Abadom Sochukwuma Stephen	Interviewer	Onyefuoseonu Vanessa	Interviewer
Ozor Ejike Felix	Interviewer	Idoga Eche Joseph	Interviewer
Okeke Chimdalu Joy	Interviewer	Patrick Esther. O	Interviewer
Oti Angela Chiamaka	Interviewer	Egede Juliet Nkiru	Interviewer
Ikebundu Paul Igwebuike	Interviewer	Edor Onyeche Musa	Interviewer
Onyendi Amarachukwu	Interviewer	Chioma Paul Sambo	Interviewer
Onugha Chidinma Patricia	Interviewer	Abdulsalam Taofeeq	Interviewer
Erimmuo Theodora Chinenye	Interviewer	Cassandra Hassan	Interviewer
Aliyu Ubandi Abdu	Interviewer	Maryam Isah Ibrahim	Interviewer
Nuruddeen Nasir	Interviewer	Ishaya Jibrin	Interviewer
Yakubu Yau	Interviewer	Shamsu Gambo	Interviewer
Sadiq Shehu	Interviewer	Ahmed Abdullahi Ndako	Interviewer
Abas Abdullahi	Interviewer	Ocholi Sunday Sule	Interviewer
Abubakar Baki	Interviewer		

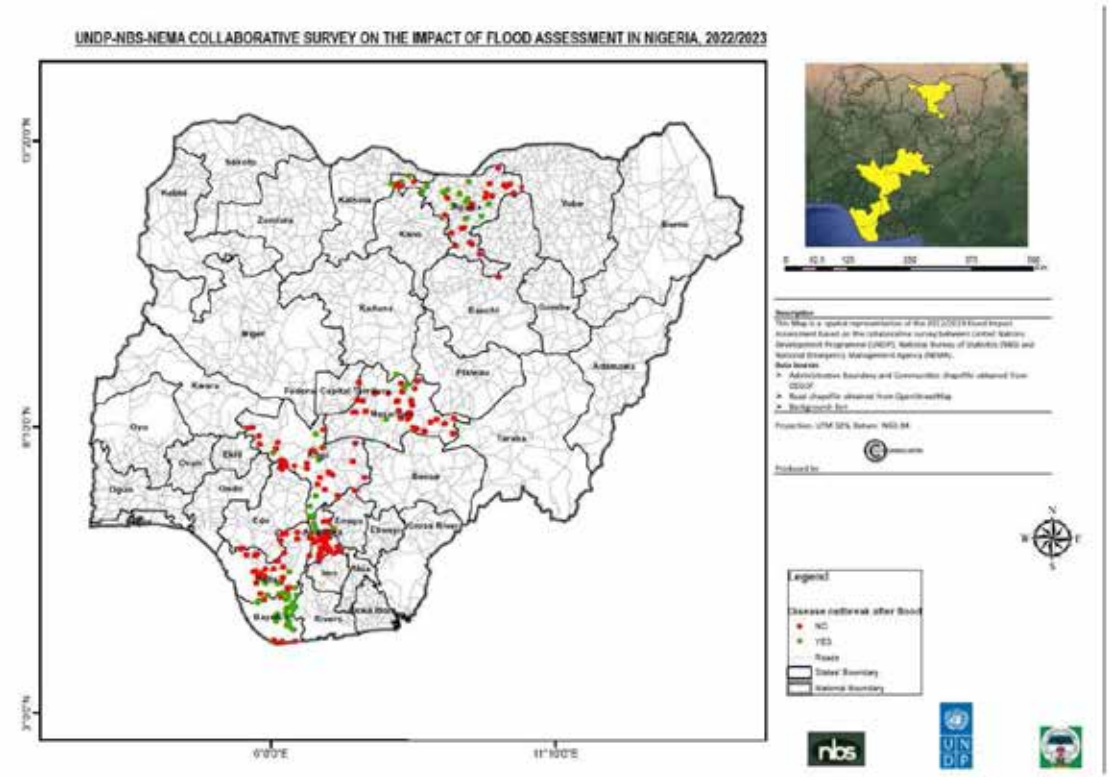
Appendix C:Thematic Maps



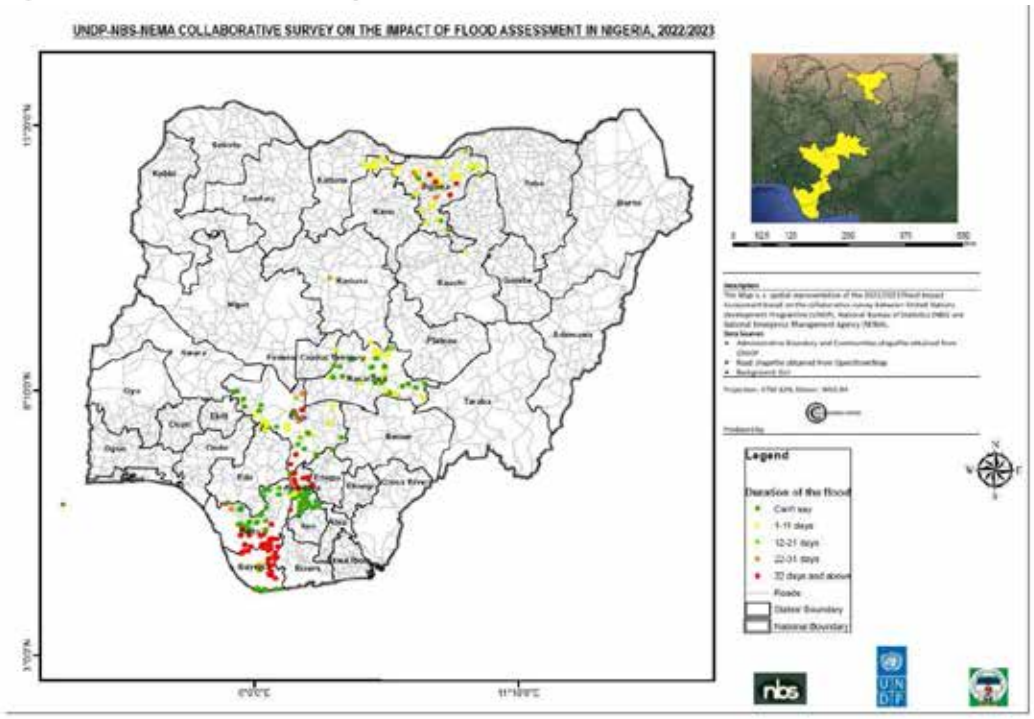
Map 2: Areas where Support was Received/Not Received



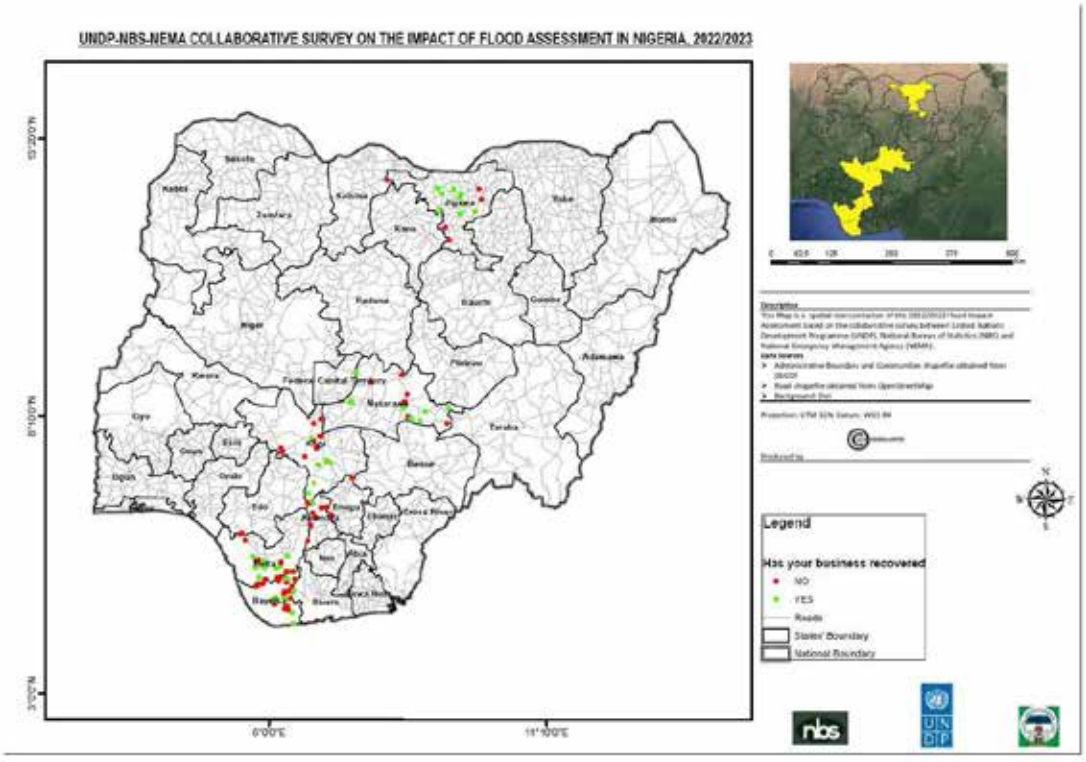
Map 3: Areas Where an Outbreak of Disease Occurred/or Not After the Floods



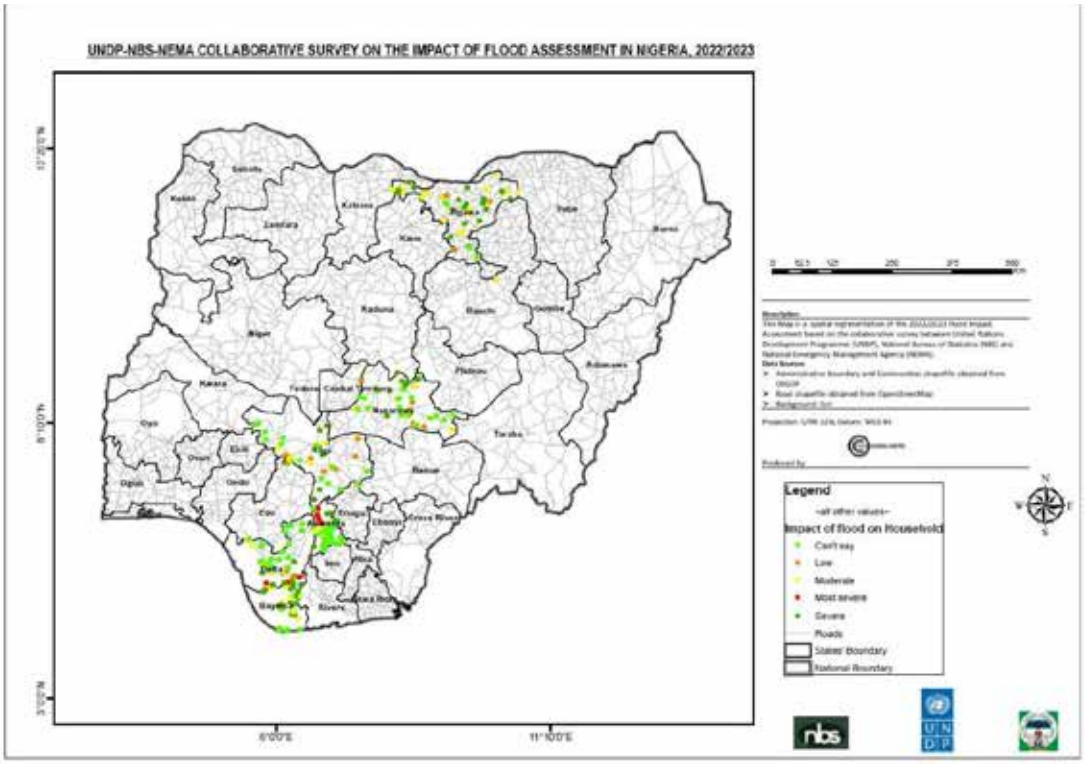
Map 4: Duration of 2022 Floods by Area



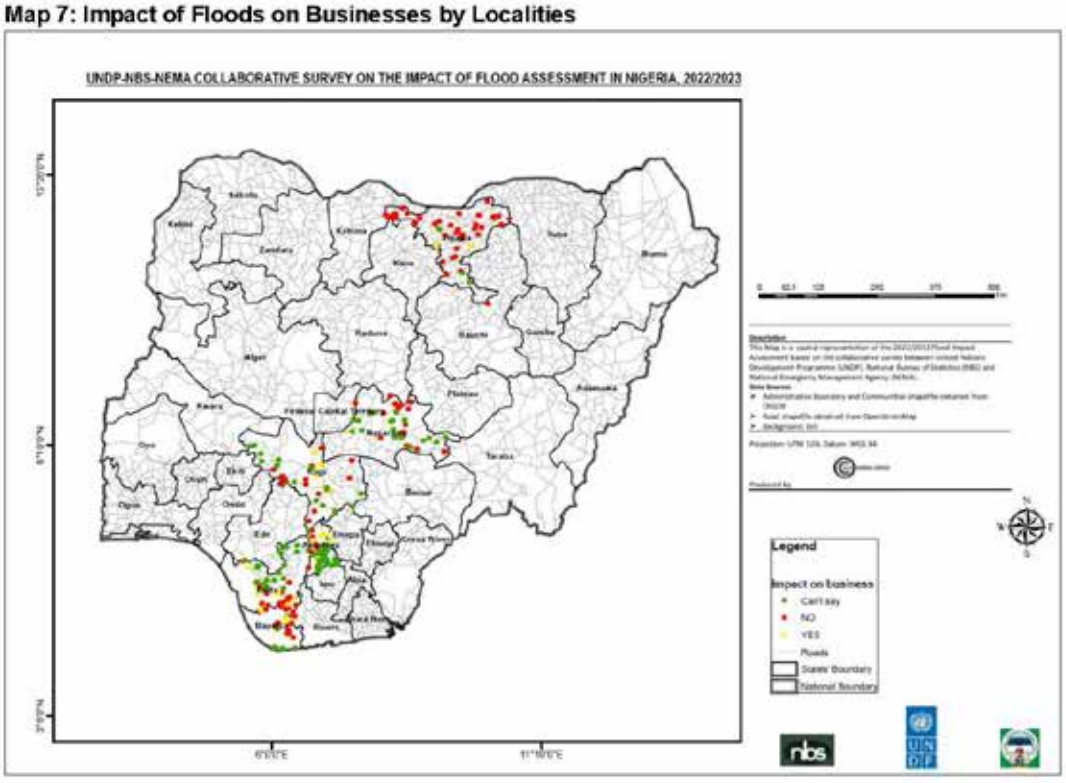
Map 5: Areas Where Businesses Recovered/or Not After the Floods



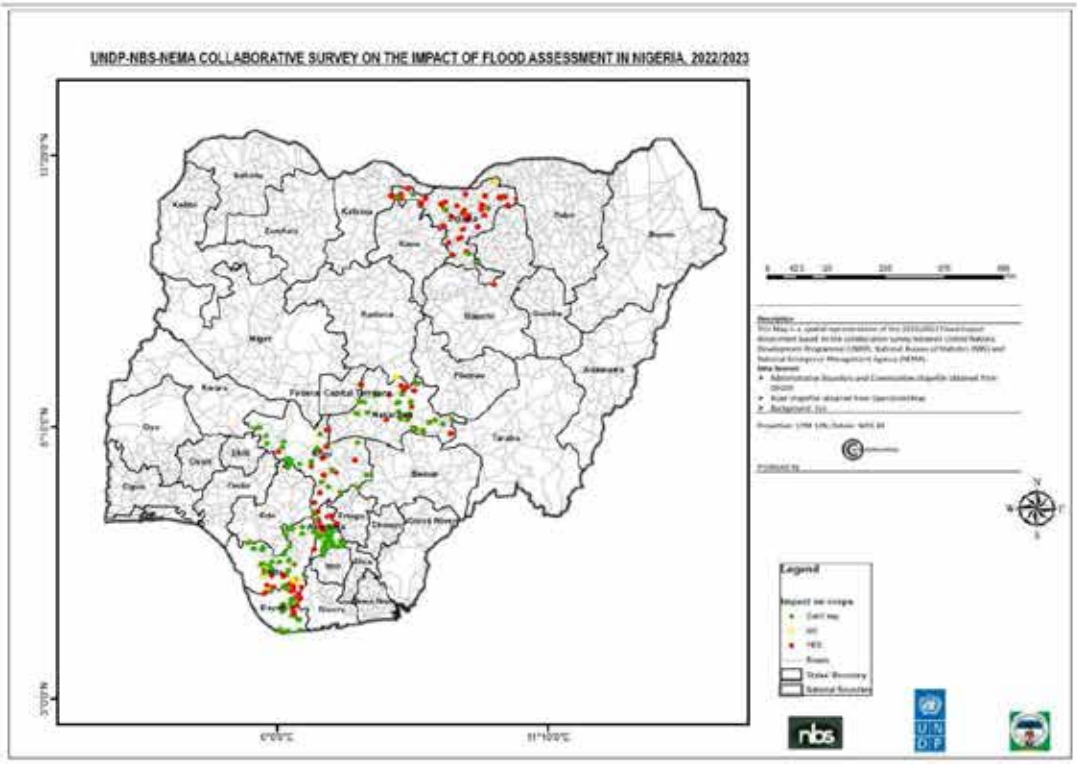
Map 6: Extent of Impact of Floods on Households by Localities



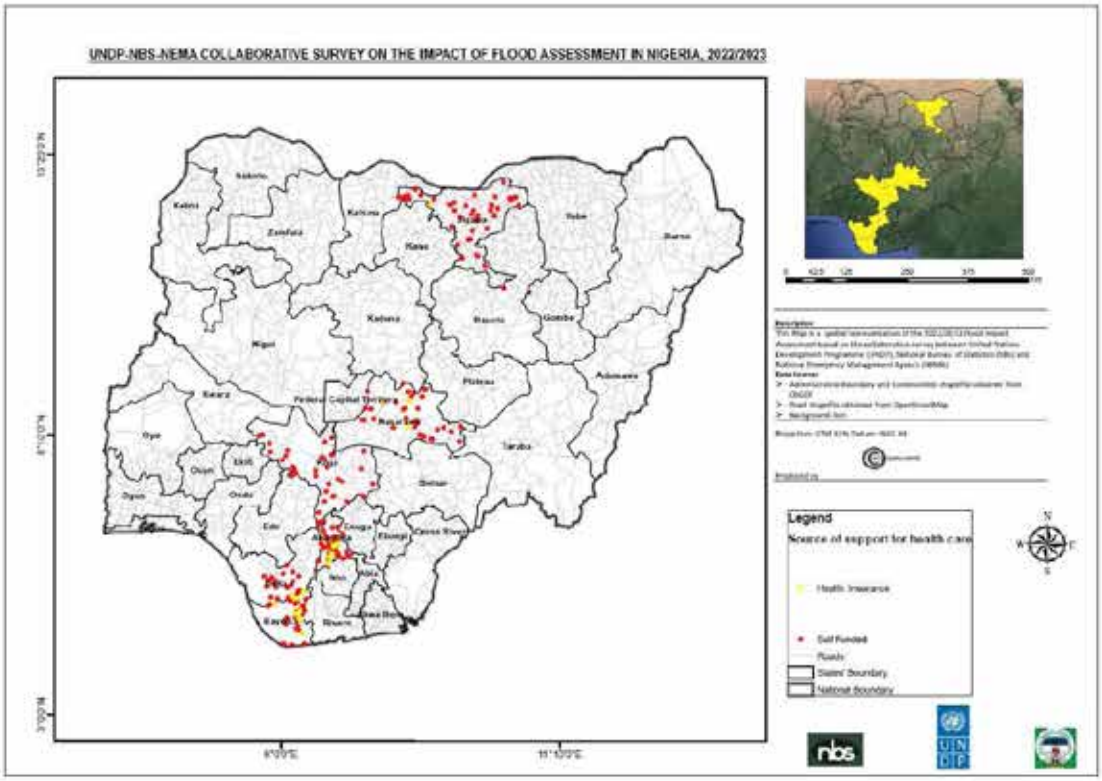
Map 7: Impact of Floods on Businesses by Localities



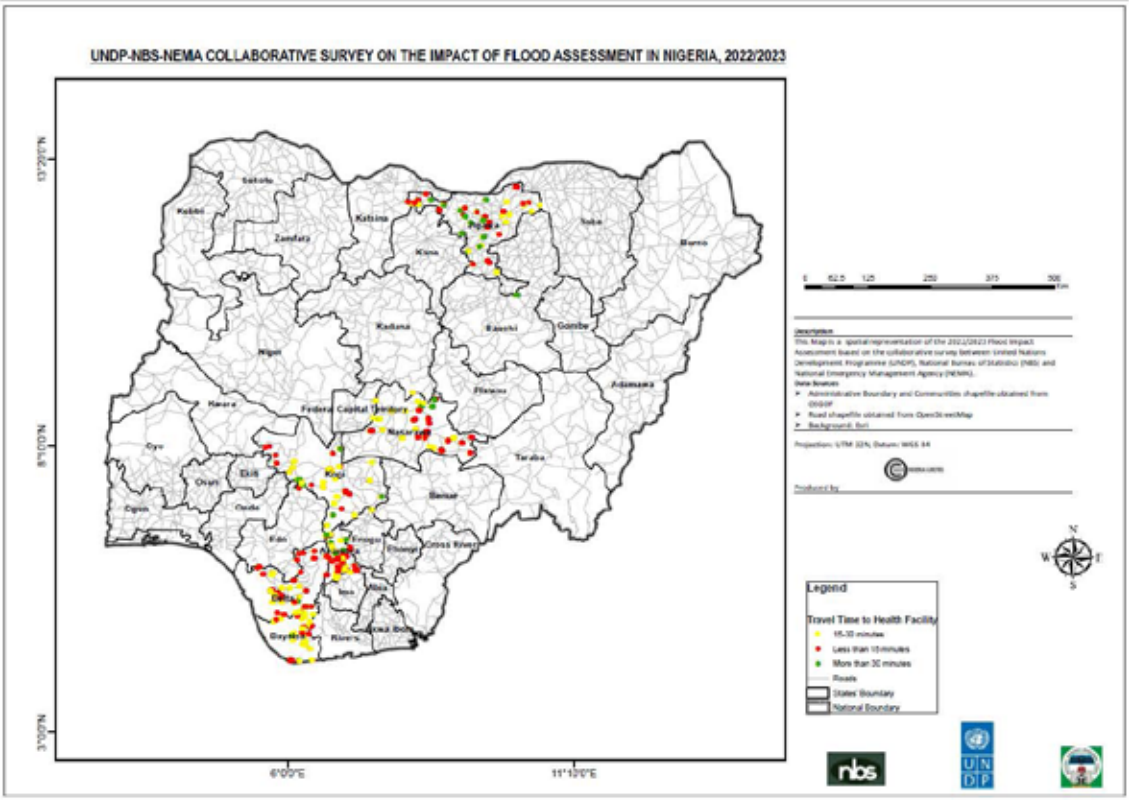
Map 8: Impact of Floods on Crops



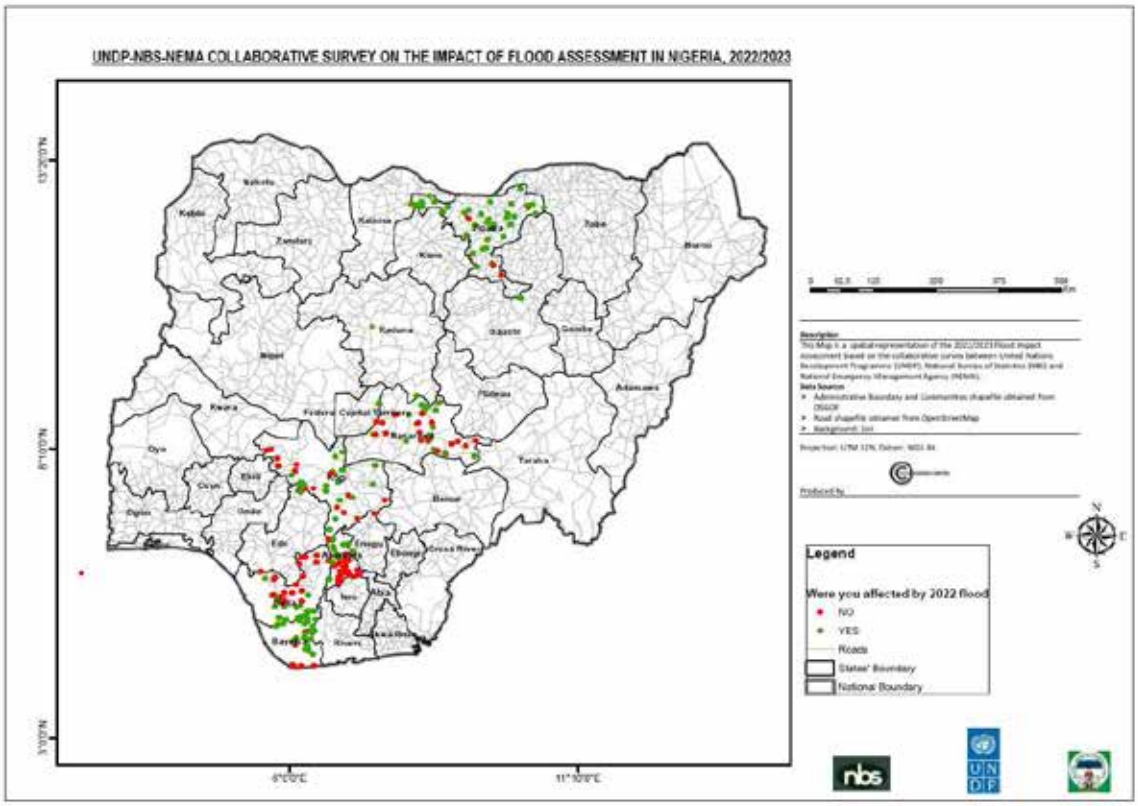
Map 9: Source of Health Care Financing



Map 10:Travel Time to Health Facility



Map 11: Those Affected by 2022 Floods by Localities



Endnotes

1 Relief Web (2022a): Nigeria - Floods Response: Flash Update 2 (Last Updated: 1 November 2022), https://reliefweb.int/report/nigeria/nigeria-floods-response-flash-update-2-last-updated-1-november-2022

2 Relief Web (2022b): ACAPS Briefing Note - Nigeria: Country-wide flooding (21 October 2022), https://reliefweb.int/report/nigeria/acaps-briefing-note-nigeria-country-wide-flooding-21-october-2022

3 Relief Web (2022a): Nigeria - Floods Response: Flash Update 2 (Last Updated: 1 November 2022), https://reliefweb.int/report/nigeria/nigeria-floods-response-flash-update-2-last-updated-1-november-2022

4 World Bank (2022), Re: 2022 Flood Situation in Nigeria – Results of the GRADE assessment.


nbs
NATIONAL BUREAU OF STATISTICS
UN
DP