



**FLOOD  
MONITORING  
AND  
ASSESSMENT  
SERVICES IN  
NIGERIA:  
CONTRIBUTIONS  
FROM NIHSA**

UN-SPIDER International  
Bonn Conference (virtual),  
16<sup>th</sup>-18<sup>th</sup> November 2021

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NIGERIAN HYDROLOGICAL SERVICES AGENCY(NIHSA)**

# Presentation Outline

- ✓ About the Agency.
- ✓ Activities of the Agency in relation to flood monitoring and assessment services in Nigeria.
- ✓ Collaboration With Other Agencies and International Organizations.
- ✓ Conclusion.

# ABOUT THE AGENCY

## OUR MANDATE

To provide the services required for assessment of the Nation's surface and ground water resources in terms of quantity, quality, distribution and availability, in time and space; for efficient and sustainable management of water resources.



**NIGERIA HYDROLOGICAL SERVICES AGENCY (NIHSA)**  
FEDERAL MINISTRY OF WATER RESOURCES  
Water Resources Data for Sustainable Development



## FUNCTIONS OF THE AGENCY

The agency operates and maintains hydrological stations nationwide

The agency issues flood and drought monitoring and forecasting

The agency provides information on the status and trend of water resources

Ground water exploration.

# ACTIVITIES OF THE AGENCY IN RELATION TO FLOOD MONITORING AND ASSESSMENT SERVICES IN NIGERIA

## ANNUAL FLOOD OUTLOOK (A PUBLICATION)

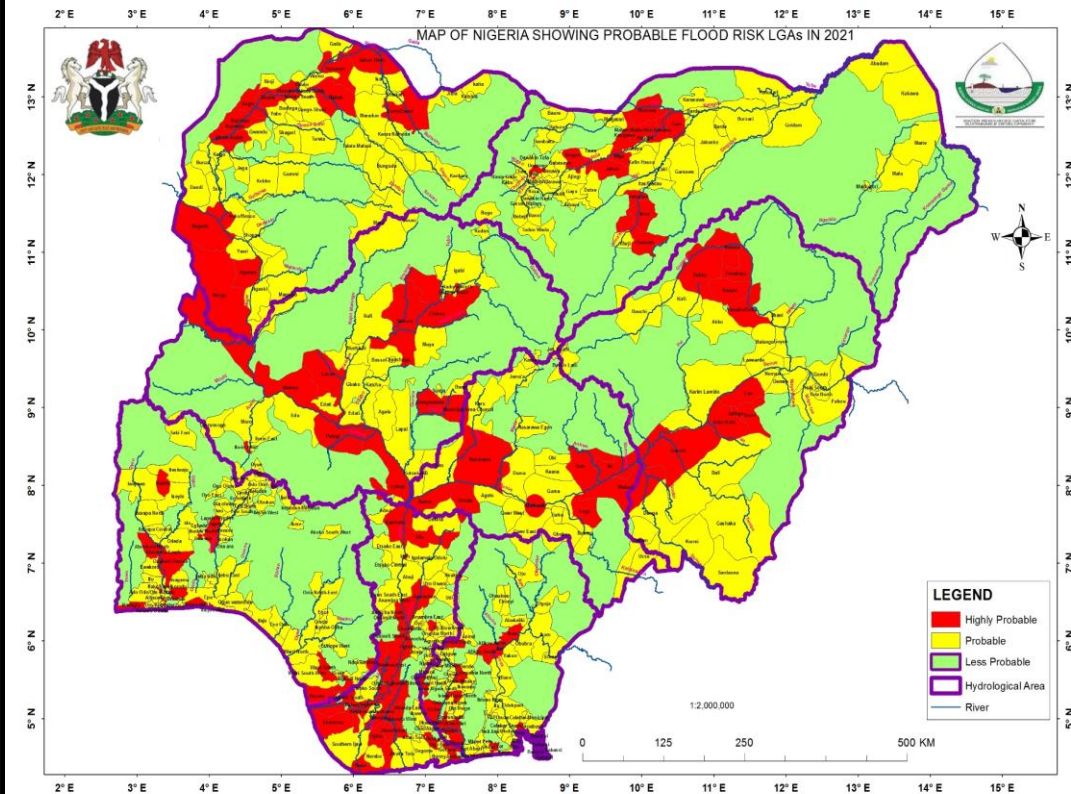
- The aim of AFO is to present probable flood scenarios in a given year and to sensitise Nigerians on flood management towards disaster reduction for sustainable socio-economic development.

The results for 2021 AFO show that:

1. 121 LGAs in 27 states including the FCT fall within the **highly probable flood risk areas**.
2. 302 LGAs in all the 36 states including the FCT fall within the **moderately flood risk areas**.
3. The remaining 351 LGAs fall within the **low probable flood risk areas**.

The peak flood flow and flood areal coverage in 2021 is expected to be lower than that of 2020.

## 2021 PROBABLE FLOOD FORECAST AND SCENARIO)



## CURRENT FLOOD EVENTS IN NIGERIA

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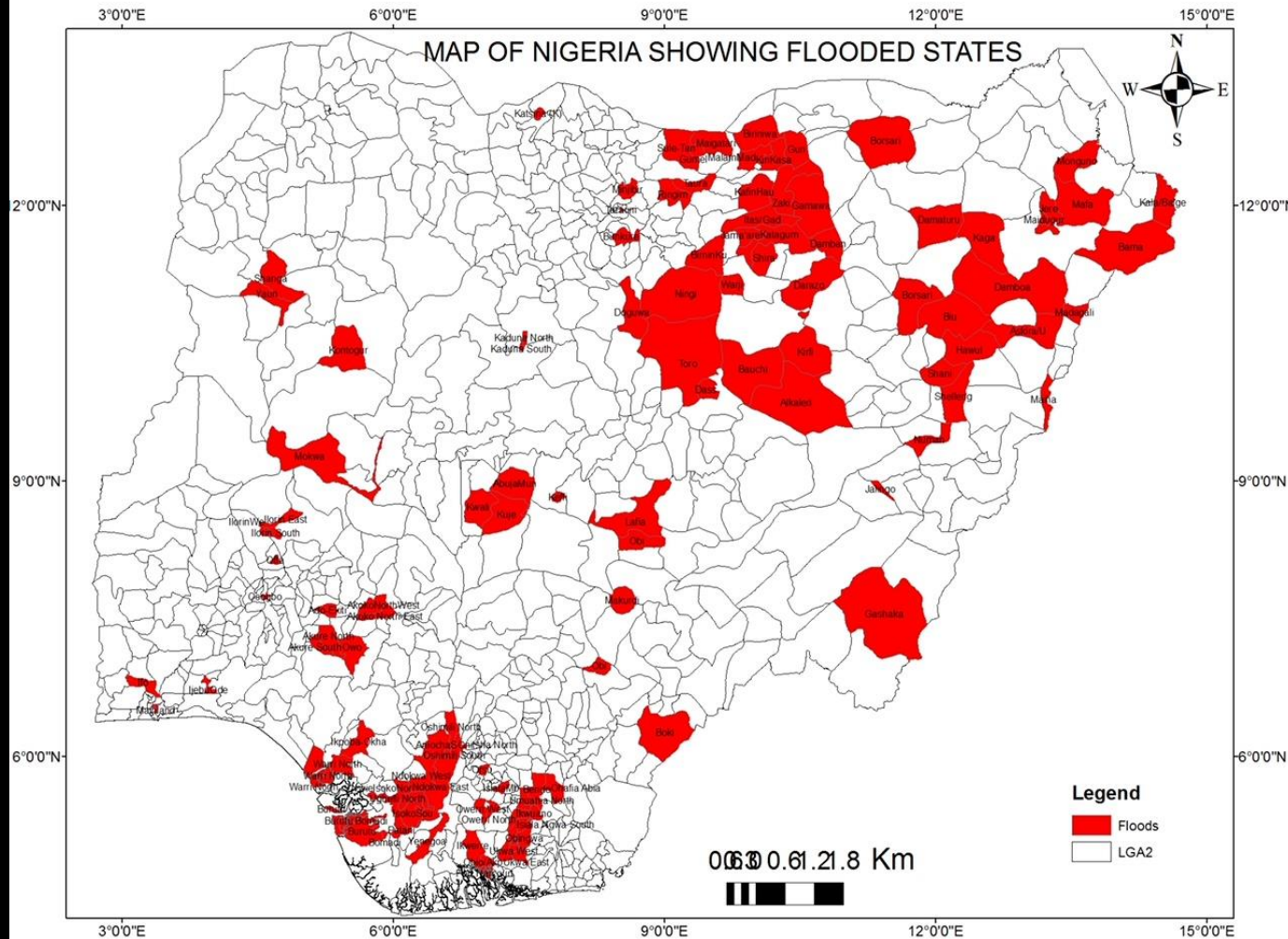
Homes destroyed by flood in kebbi state



Rice worth N10Bn lost to flood in kebbi

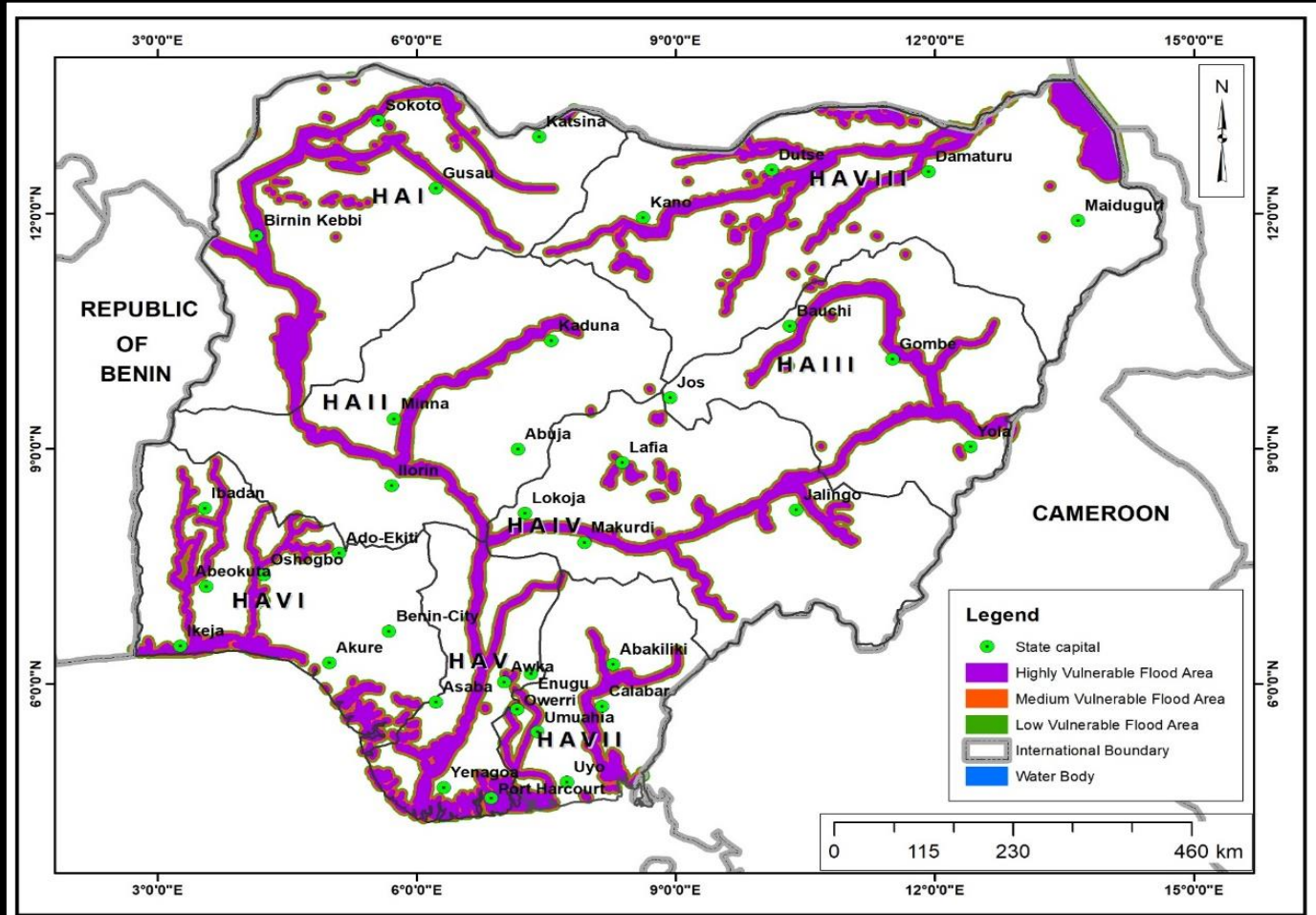


# 2021 Flood Incidents by LGAs (OCT, 2021)



# Production of Flood Vulnerability & Hydrogeological Maps

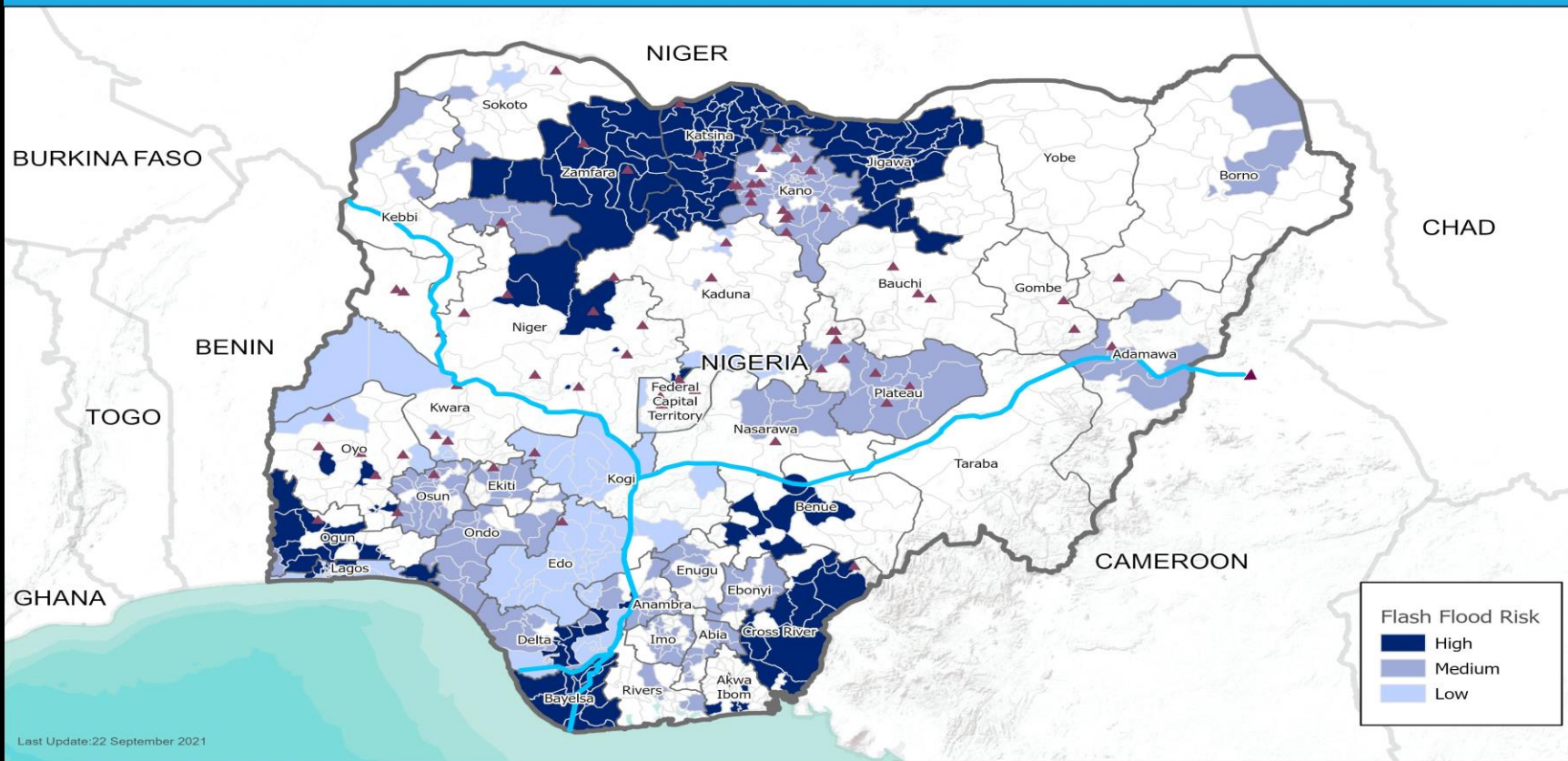
## Nigeria's 2021 Flood Risk Vulnerability Mapping:





# Risk Analysis Map (Flash Flood Areas)

## Flash Flood Risk in Nigeria

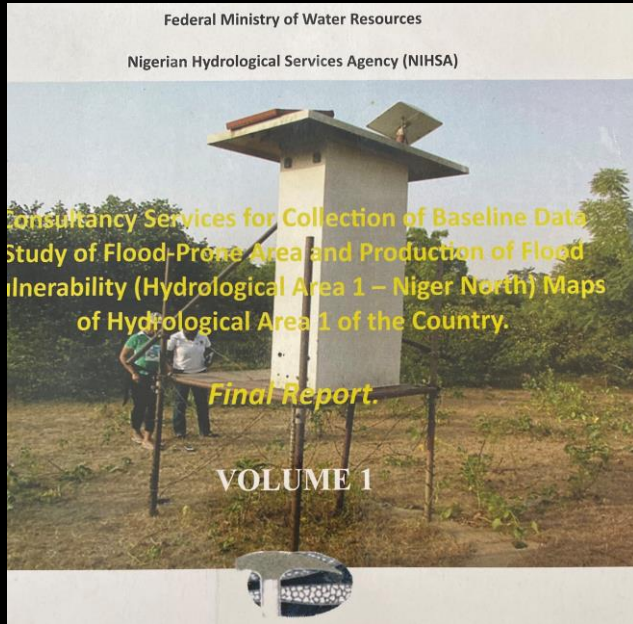


The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

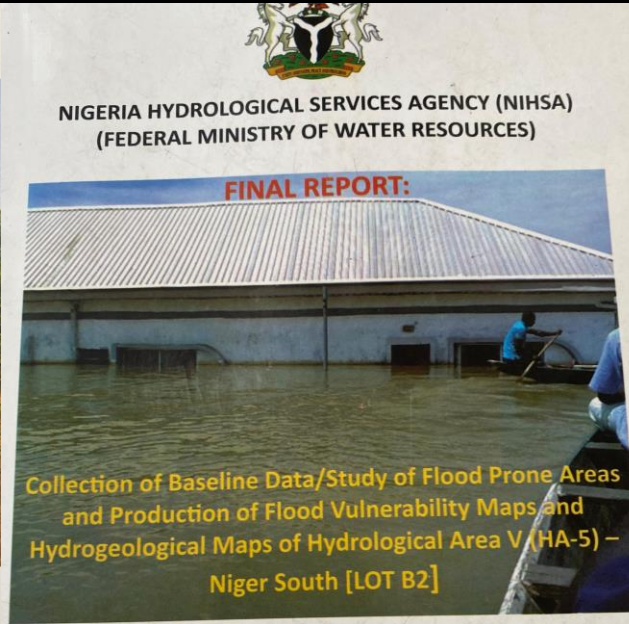


Data Source: Nigeria National Emergency Management Agency (NEMA), National Space Research and Development Agency, (NSRDA), Office of the Surveyor General of the Federation (OSGOF), UN Map, ESRI Base Map

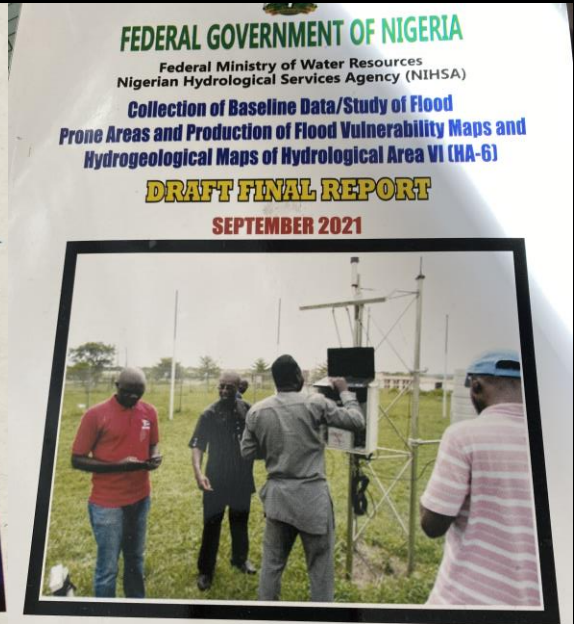
# Production of Flood Vulnerability & Hydrogeological Maps



MAY 2018



APRIL 2019

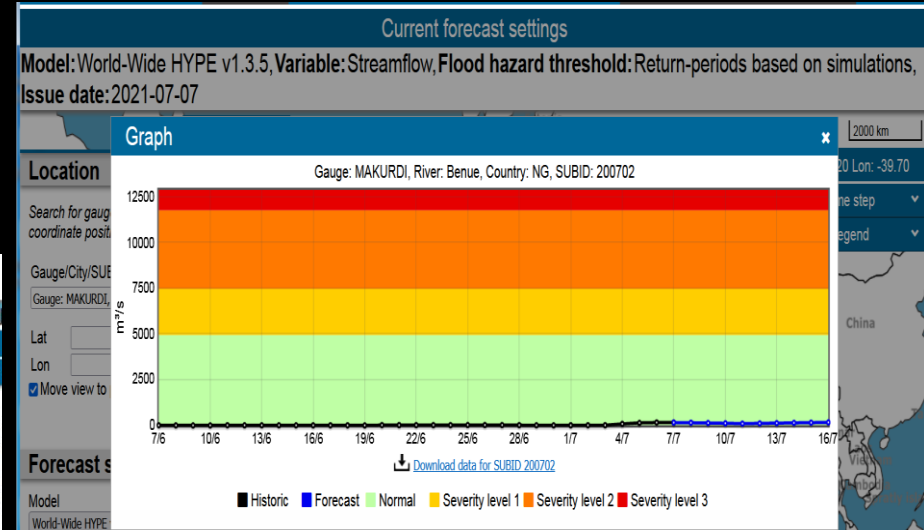
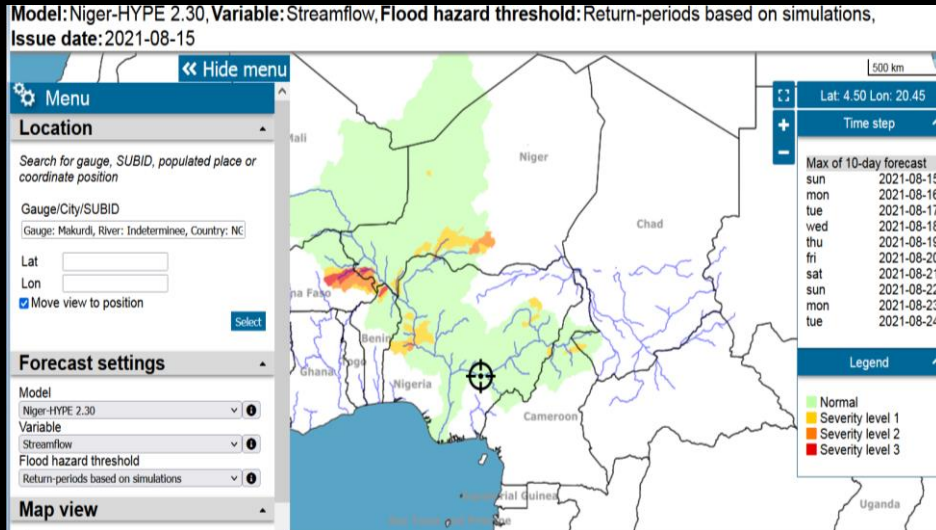


SEP 2021



# Production of weekly and bi-weekly flood forecasts

## FANFARE– Operational Flood Forecasting and Alert in West Africa (EU-assisted project) – daily flow level and drought monitor.



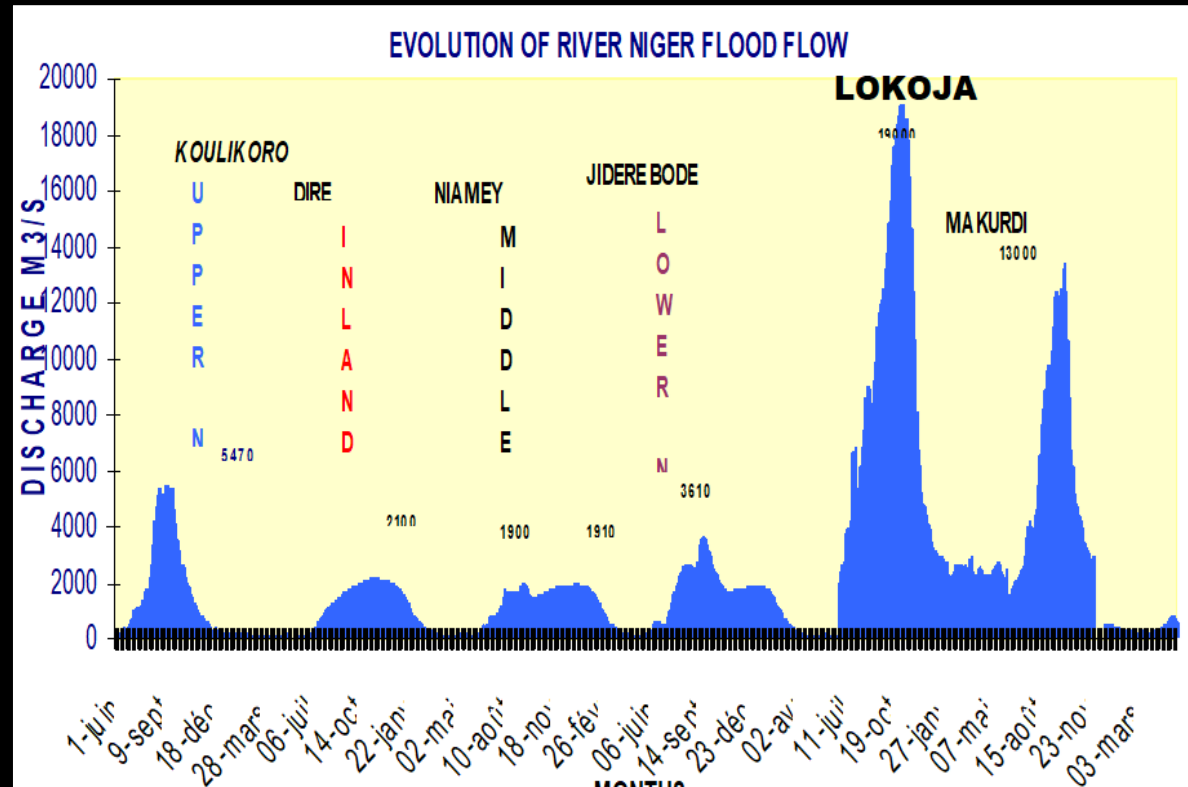
# MONITORING OF TRANSBOUNDARY FLOOD FLOW INTO NIGERIA

## A TYPICAL FLOOD SCENARIO ALONG THE RIVER NIGER

- The transboundary flood flow into Nigeria during the 2020/21 consist of flows from River Niger coming from Guinea and River Benue coming from Cameroon and Chad.

Two types of flood events along River Niger:

- 1. White Flood (Rainy Season)
- 2. Black Flood (Dry Season)

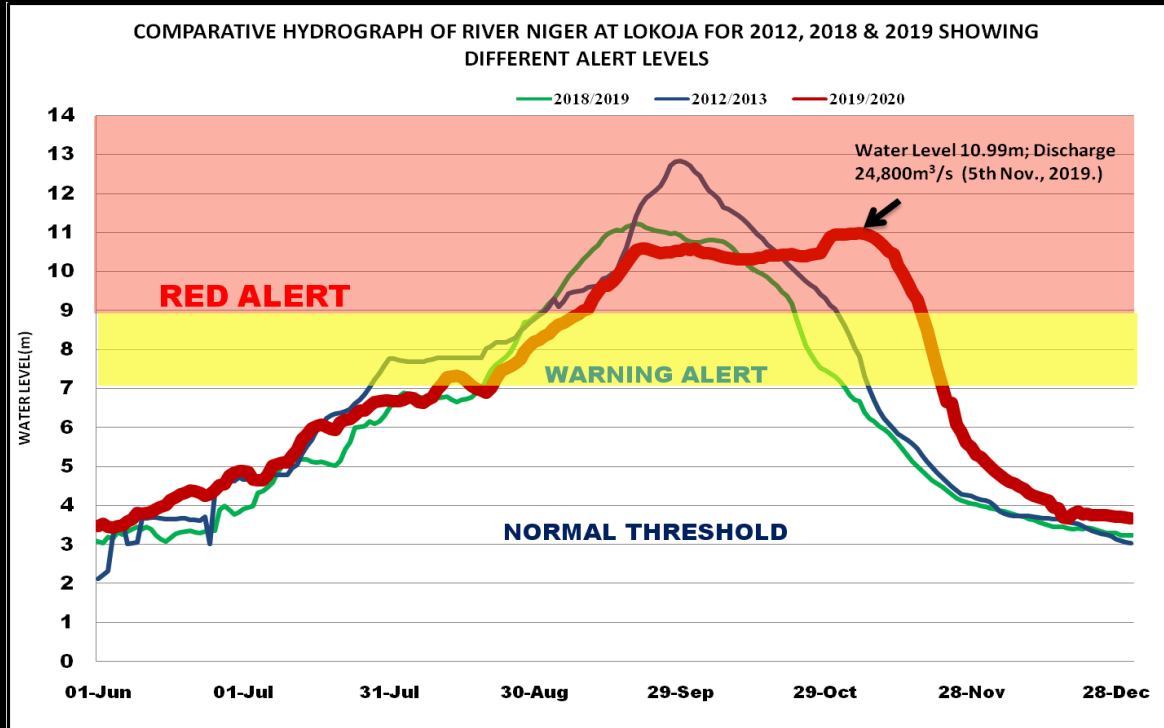


# FLOOD EARLY WARNING SYSTEM

NHISA Flood Early Warning System is based on the regular collection of Surface Water data to monitor flooding event along the river channels.

## Example:

- The 2019/2020 Hydrological Year began in June 2019 with resultant increase in water level and discharge across the river channels in the country.
- Water Level (WL) downstream the confluence of rivers Niger and Benue at Lokoja (Kogi State), steadily rose from a minimum of 4.89m corresponding to a discharge of 6,638m<sup>3</sup>/s on the 1<sup>st</sup> July 2019 to a maximum of 10.99m corresponding to a discharge of 24,800m<sup>3</sup>/s on 5<sup>th</sup> November 2019



Comparative Hydrographs of River Niger downstream the Confluence in Lokoja.

# COLLABORATION WITH OTHER AGENCIES

## **NATIONAL LEVEL:**

- NIMET, NEMA, NASRDA, OSGOF.

## **REGIONAL LEVEL:**

- Niger Basin Authority (NBA), Sahara Sahel Observatory (OSS), Lake Chad Basin Commission (LCBC).

## **INTERNATIONAL LEVEL:**

World Meteorological Organisation (WMO), United Nations Platform For Space-Based Information For Disaster Management And Emergency Response (UN-SPIDER).

## **INTERVENTIONS:**

- World Bank Assisted Nigeria Erosion and Watershed Management Project (NEWMAP), European Union– FANFARE Project for forecasting on trends of River Niger in West Africa, World Bank Assisted Transforming Irrigation Management (TRIMING) Project.

## **Conclusion**

- Over the years, NIHSA has made concerted efforts toward flood management and mitigation through its various activities.
- The Federal Government of Nigeria and other foreign agencies have also made efforts to ensure that those within the flood prone areas are properly catered for.