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NIGERIAN HYDROLOGICAL SERVICES AGENCY(NIHSA)

FLOOD **MONITOORING** AND **ASSESMENT SERVICES IN** NIGERIA: **CONTRIBUTIONS FROM NIHSA**

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

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.



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)

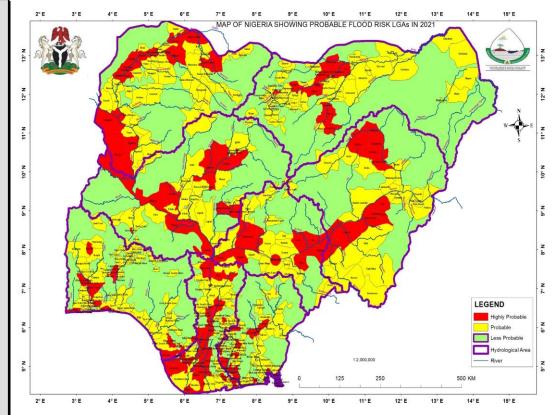
• The aim of AFO is to present probable flood scenarios in a given year and to sensitise Nigerians on flood management towards disaster reduction for sustainable socio-economic development.

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

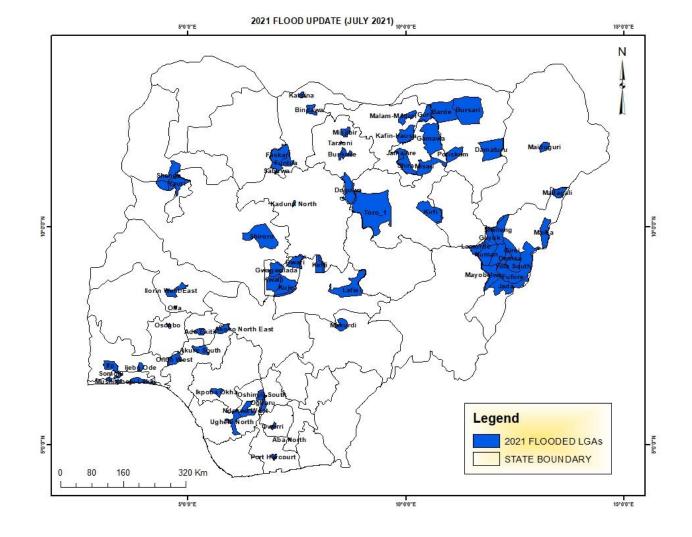


Homes destroyed by flood in kebbi state

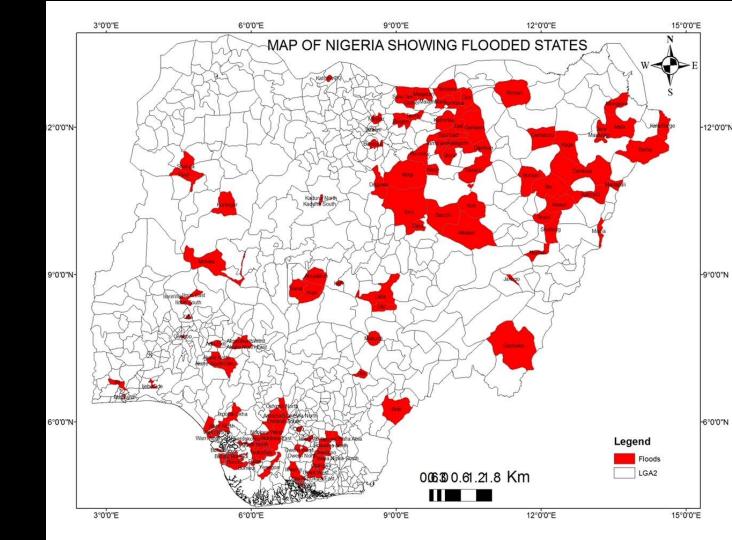
Rice worth N10Bn lost to flood in kebbi

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2021 Flood Incidents by STATES (as at July, 2021)

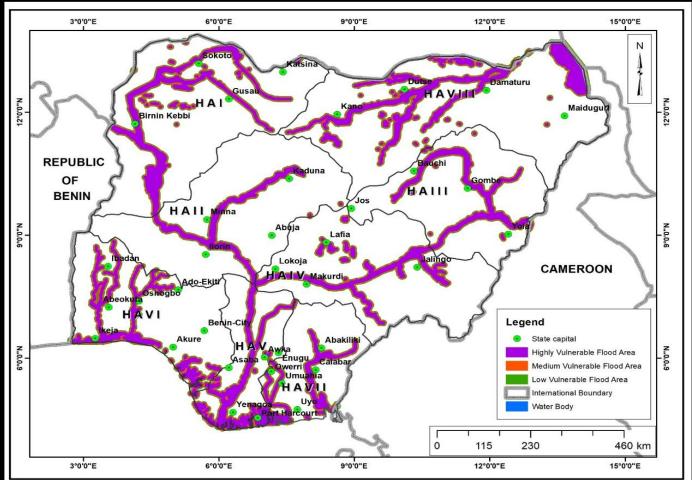


2021 Flood Incidents by LGAs (OCT, 2021)

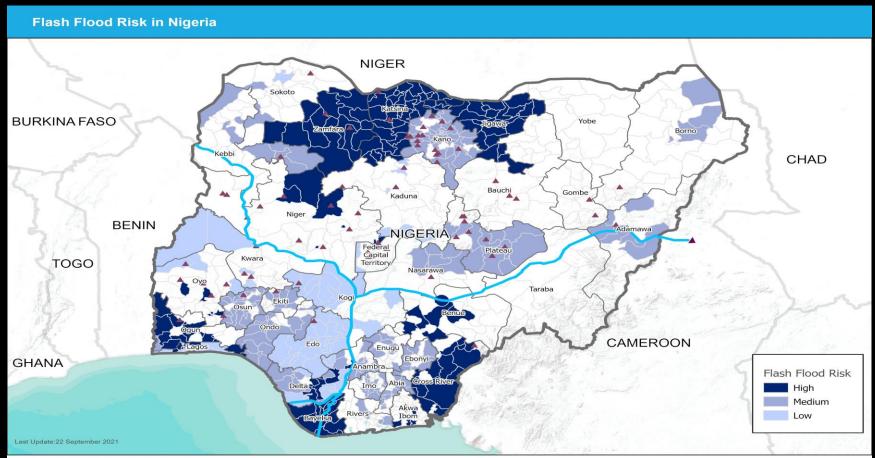


Production of Flood Vulnerability & Hydrogeological Maps

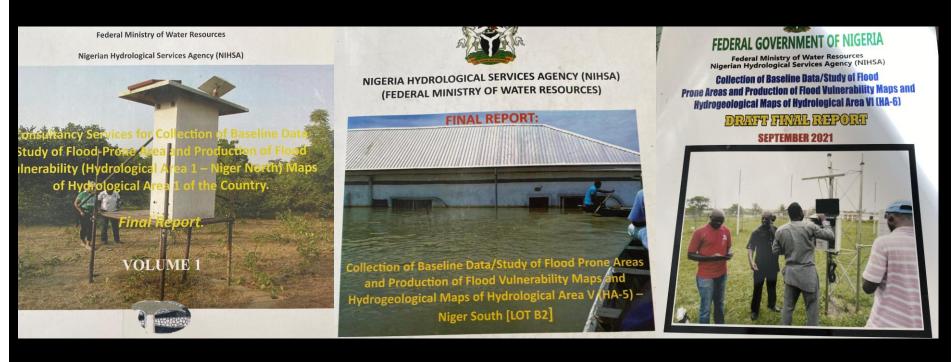
Nigeria's 2021 Flood Risk Vulnerability Mapping:



Risk Analysis Map (Flash Flood Areas)



Production of Flood Vulnerability & Hydrogeological Maps



MAY 2018 APRIL 2019 SEP 2021

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Publication of monthly flood and drought bulletins

Monthly Flood and Drought Monitor (July – September, 21): Creating awareness and sensitizing the people.



GERIA HYDROLOGICAL SERVICES AGENCY (NIHSA)



MONTHLY FLOOD & DROUGHT MONITOR

RIVERS MIGER AND BENUE WATER LEVELS RISING RAPIDLY IN HIGERLA CLEAR THE WATERWAYS TO PREVENT FLOOD DISASTERS!

be transfoorday rivers Niger and Borue Woter Levels 5653 are rapidly ming in Algeria on a result of naroff how towerful randel causing devotating Sout incorners as predicted in the Algeria Redinlogical Services Agency (MRGA) Armost Favoir Challende (AMO); in resety Scotter of the fabriation. Some Status are harding to Agency's warrings and imprissing their materiways but many are still yet to comply with the Agency's retronwide provincion's prevent flood eleasters as the meters is gradually moving into the pask of flooting sesson is the months of August, Sestendar and our ly Ochsten

The States that are currently experiencing high-degree of devoluting flood modums are Lacor (Mushin, Shomelu, Vetterly Island, Label, Marine, etc., Namerous (NeWS. Anamies (Christy), Ime (Desert), Ithis (Miss). Kerara Honox, editor, hote hipschool, blint Outer SNIS Open Histor Odel, Detailstake, Onder Discretions, Image Street, Alex Stind. Exture (Kadule), Runntberli, Opun John-Other, Brown, Karsowa and Tanada Calingoli.

Mahaald be instead that the devastating flood. events that sendered over 300 horseless and ever 4,000 people distributed in tallings, Taristia districts rateful coupled with prior dramages - continuation of small resonant-air tributaries



Pipere I: Pland in Julyan Render State Couled, Warn't

and enection of structures on the automates. There was no eater releases from the Earthrosonian Lagito Com-

The Agency is also exercising transformularly Street Street, Nivers Niger and Benear and is to contact with the Openeropsian Authorities with regardly to water relations from the Laplic short that could requirely impact the countrie. Autwithstanding this, the Agency is strongly appealing to the general public to continue to take neutrality precoudonary resource to present. Receiving memors by clearing all the drainings poliums and carolic, relocation of people living in the floodplains and to construct dylas, Soothwalls, Buffer dame, high such at a result of the interpret long. Attention books for returning major. The



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NINSA ADVOCATES FOR CONVERSION OF FLOODWATERS TO POSITIVE USE

blessed with huge amount of surface. the country. and groundwater resources which if properly managed with the construction of small cottage dams to barrest the foodwater will enhance adequate all your round water for brigated agriculture, rural water supply grasslands for ranching and desertification control individuals should also be encouraged to develop cottage slaves with the support from the Federal, States and Local Government Authorities by providing anabilities emuleocoment and local

Nigeria Hydrological. The improvement of rivers Niger and Services Agency (NEHSA) is of a Benue channels will also enhance strong view that the increasnt effective food mitigation, drought and flood incidents being experienced in climate change control while tensily the country can be turned into clearance and freeing of the advantage through the convention of waterways, semulai of structures from Spodwaters into positive use for the Spodolains and Spod paths as well agriculture, hydropower, domestic as clearing blockages in gutters and water supply and recreational drainage automs will also enhance the purposes. Nigeria is tremendously mitigation of urban food disasters in



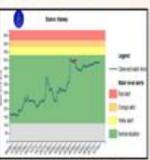


& DROUGHT MONITOR

SITUATION IN NIAMEY

ansboundary floodwater Wi, is still rising to Niamey Wiger Republic with a maximum of 4.73m corresponding to a discharge of about 1,304 m'/s attained on 30" September, 2021 and a minimum WL of 4.36m corresponding to a discharge of 1,036 m/s on 9' September, 2021 with a mean WL of 1.64/m corresponding to a discharge of 81.50 m /s. These records are within the Normal Flood Situation in shown inflavor L.

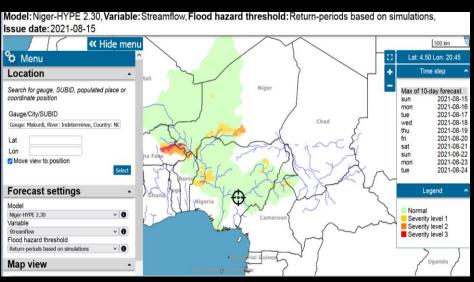
The incoming transboundary floodwaters from upstream Nigeria (if and will be impounded at keinji dams hence, no significant level of flooding in anticipated downstream in the country, bence the riparian populace

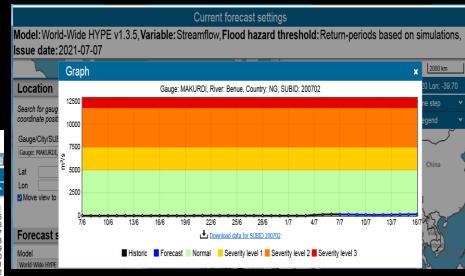


are strongly advised to continue to take necessary precaution by avolding waterways to prevent posible food disesters.

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.





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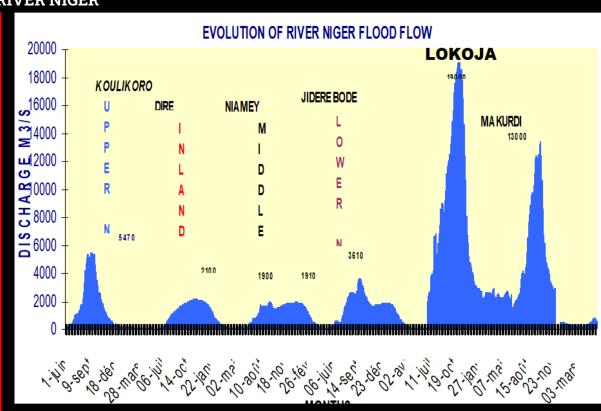
MONITORING OF TRANSBOUNDARY FLOOD FLOW INTO NIGERIA

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)



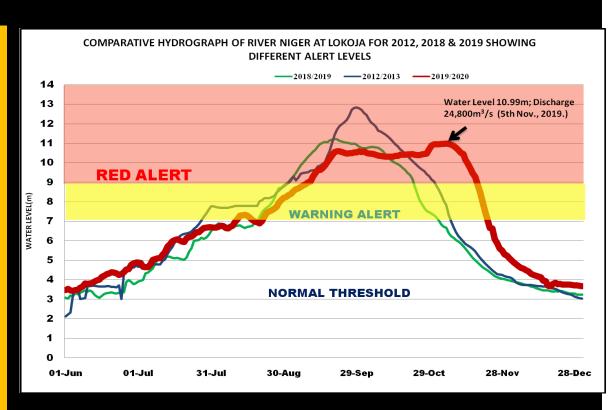
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FLOOD EARLY WARNING SYSTEM

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 6,638m³/s on the 1st July 2019 to a maximum of 10.99m corresponding to a discharge of 24,800m³/s on 5th 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 Meteoreological 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.