

Abstract

**United Nations/Indonesia International Conference on
Integrated Space Technology Applications To Climate Change – 2
to 4 September 2013; Jakarta, Indonesia.**

By J. A. Shamonda (Nigeria)

**Use of Space-based Technology Information
in the regional Niger Basin in the West and
Central Africa for Mutual Use of the Shared
Water Resources for Sustainable
Development and Mitigation of Climate
Change Challenges.**

River Niger, in the West and Central Africa, is 4,200kmlong. It is the third longest river in Africa. The river drains an active basin area of 1.5 million sq km that is occupied by over 110 million people (2011 population) in nine countries in the sub-region

- The countries In the basin are **Benin, Burkina Faso, Cameroon, Cote d' Ivoire, Guinea, Mali, Niger, Nigeria and Tchad**. There is a framework of cooperation by the nine countries under an institution called Niger Basin Authority (**NBA**) based in Niamey, Niger Republic. The framework is to ensure joint management and peaceful use of the common resources in the shared basin for integrated and sustainable development.

The Niger Basin Authority (NBA) Mandates under the Framework of the cooperation are :-

- To promote cooperation between member states and ensure integrated development of the basin by the development of its natural resources;**
- Harmonize and coordinate national policies for development of the resources of the basin;
Plan the development of the basin by drawing up and implementing an integrated development plan;**
- Design, implement, operate and maintain the works and joint projects;**
- Ensure the control and regulation of all forms of navigation on the river, its tributaries and sub-tributaries;**
- Participate in the formulation of requests for assistance and the mobilization of funding of studies and works necessary for the development of the basin resources.**

NBA INSTITUTIONAL ORGANS OF OPERATION

These are :

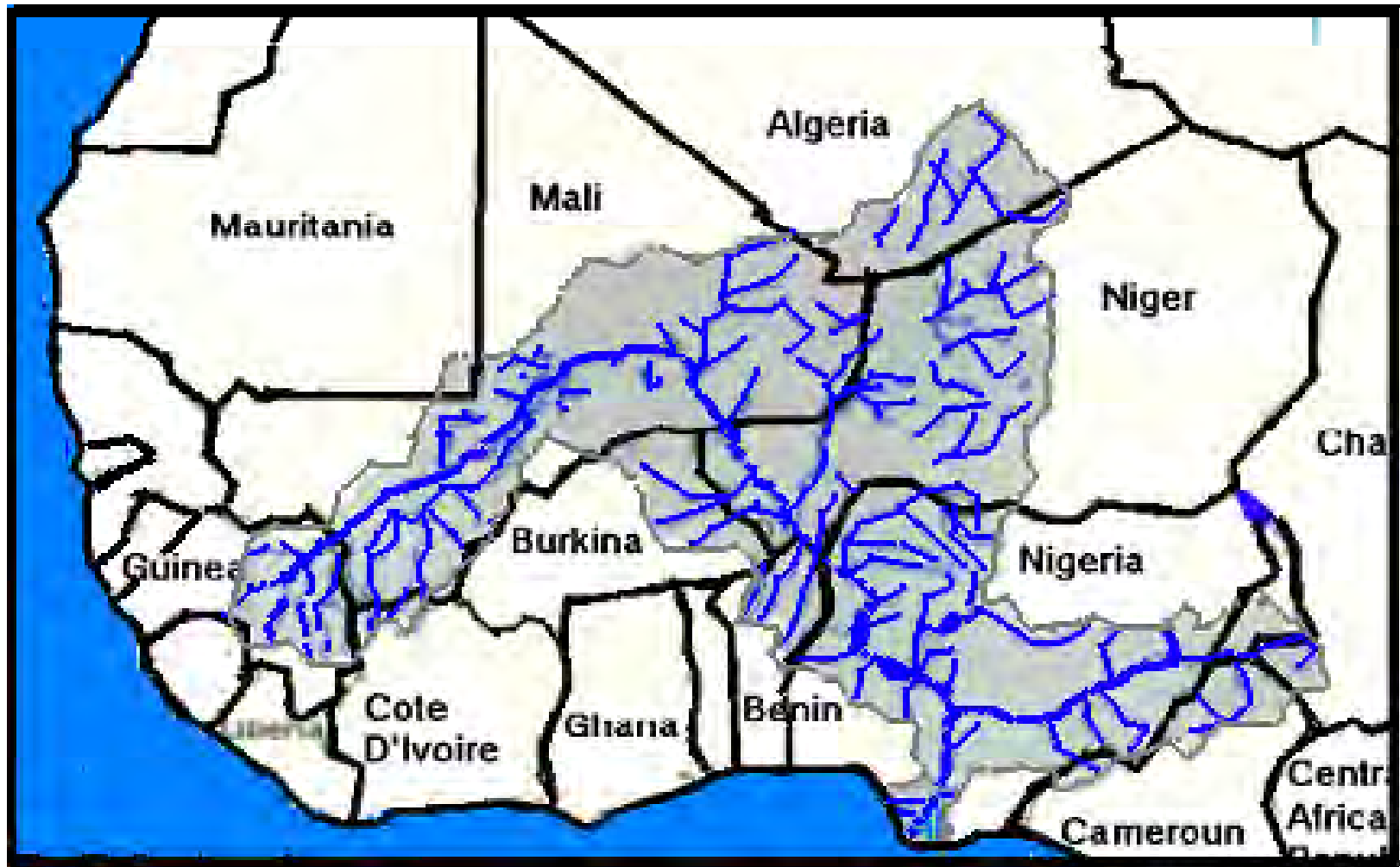
- **1)- Summit of Head of States and Government:** is the NBA's highest decision-making body and is responsible for guiding its development policy;
- **2)- Council of Ministers:** is the oversight body responsible for monitoring the activities of the Executive Secretariat and reporting back to the Summit;
- **- Technical Committee of Experts:** responsible for preparing the Council of Ministers sessions and preparing reports and recommendations for the Council;
- **3)- Executive Secretariat** responsible for the administration of the **NBA** and all the bodies required to implement the decisions adopted by the higher bodies;
- **4)- National Focal Structures:** in each member state represents NBA and liaises with actors in the field.

ADOPTION OF SHARE VISION PROCESS AT NBA

*– provides opportunities for external assistance –
including the WMO-assisted project of NIGER-HYCOS*

- **Decision of NBA Heads of State and Government, at the 7th Summit in (Abuja 2002), to develop a CLEAR AND SHARED VISION with a Sustainable Development Action Plan;**
- **The "Shared Vision" is a Political statement which reflects the strong commitment from the states to have a common agenda. It consists of an overview of the development of the basin negotiated and accepted by all member states;**
- **The Shared Vision Process promotes understanding, strengthen cooperation between the States and thereby make all the countries to have the best sustainable use of the resources in the shared basin.**

Regional Niger Basin in the West and Central Africa – (The Basin spreads over nine countries)



The World Meteorological Organization (**WMO**), a technical body of the United Nations, initiated an assisted project called World Hydrological Cycle Observation System tagged **WHYCOS**.

A Typical Data Collection Platform Station in Nigeria under the Niger-Hycos of telemetric system transmitting data on in-situ through the satellite dome.



The components inside the Data Collection Platform (DCP) – that sensor the water levels of river-flows and transmit the data through satellite.



A TYPICAL MANUAL STAFF GAUGES STATION OF NIHSA ON RIVER TARABA AT GASSOL, TARABA STATE, NIGERIA



DATA COLLECTION PLATFORM (DCP) (Sutron Type) AT WURO-BOKKI ON RIVER BENUE, ADAMAWA STATE, NIGERIA.

DCP equipment has a satellite dome and a pair of solar panels to supply energy.



Joint Maintenance of DCP equipment by all the countries in the shared basin.

(One basin, Nine countries – common resources in the shared basin)



Joint Discharge Measurement of the River Niger and the Tributaries in the regional Basin by all the countries

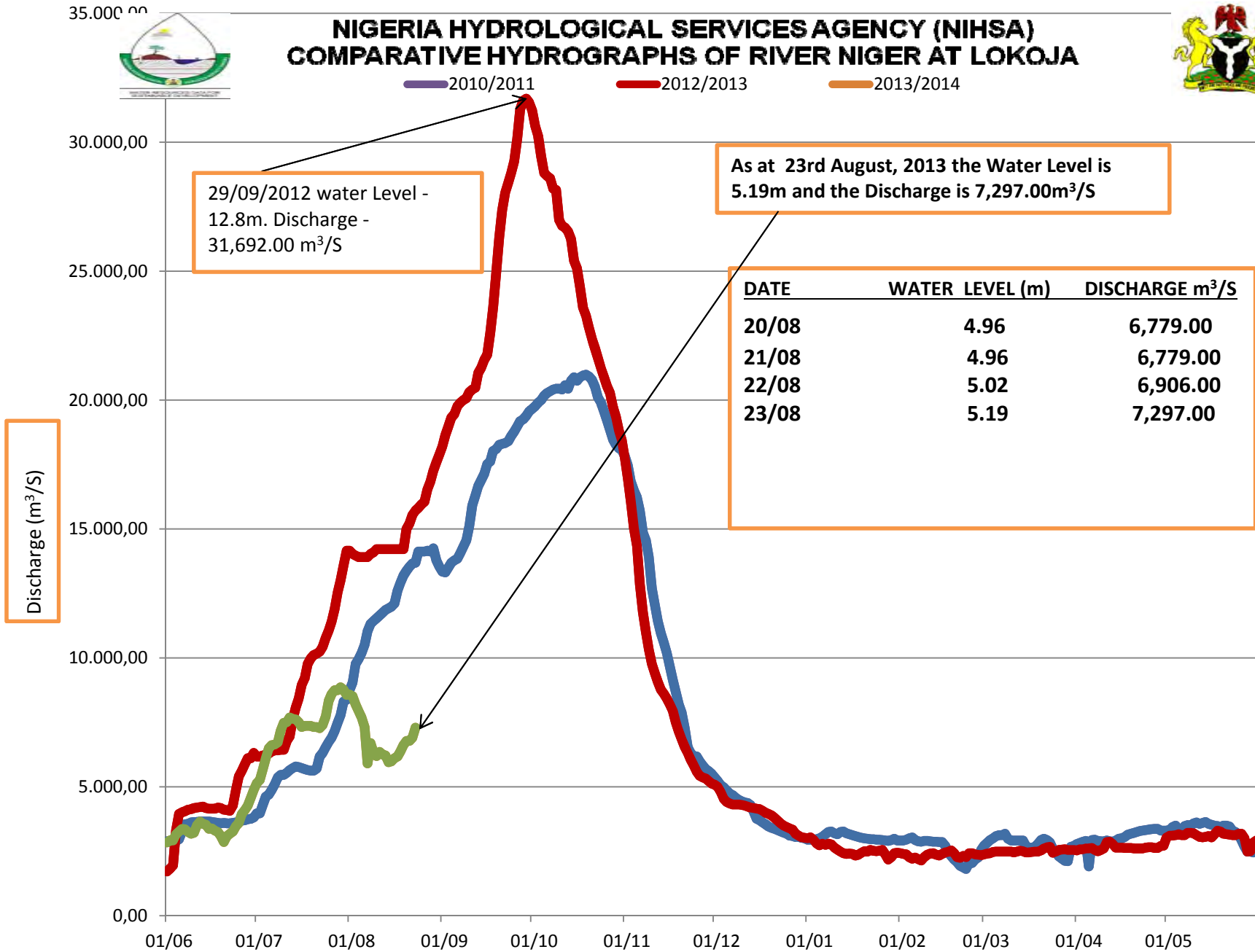




NIGERIA HYDROLOGICAL SERVICES AGENCY (NIHSA) COMPARATIVE HYDROGRAPHS OF RIVER NIGER AT LOKOJA



2010/2011 2012/2013 2013/2014



The **Niger-Hycos** project has helped all the nine countries in the basin to have the data and information of the available resources in the shared basin, in time and space, about the same time, thereby making them to have a better understanding of the water resources potentials and potentials of other resources for sustainable development.

The data that are provided are consistent, and are of high quality and on real time basis at the national and regional levels.

Hence the resources of the shared basin are used and managed mutually, without conflict. The space-technology system have afforded the opportunity to develop flood-forecasting models for risk disaster management at both national and regional levels.

Peak Flow and Peak Level in 2012 of Stations in Nigeria

S/N	Name of Station	River	Peak Flow (m ³ /s)	Peak Level (m)	Date of Occurrence
1	Kende	Sokoto	648.76	563.00	03/09/2012
2	Jiderebode	Niger	3,362.80	543	09/09/2012
3	Kainji	Niger	#	140.96	11/11/2012
4	Jebba	Niger	1,567.60	103.08	14/09/2012
5	Wuya	Kaduna	574.00	495.00	31/08/2012
6	Baro	Niger	8,533.13	764.38	25/09/2012
7	Umaisha	Benue	18,860.00	1,106.00	14/10/2012
8	Lokoja	Niger	31,692.00	1,284.00	29/09/2012
9	Makurdi	Benue	16,387.50	1,222.33	29/09/2012
10	Kastina Ala	Kastina Ala	3,018.33	#	20/09/2012
11	Ibi	Benue	12,075.60	563.00	04/10/2012
12	Gassol	Taraba	1,430.00	507.00	20/09/2012
13	Wuroboki	Benue	3,362.40	552.00	29/08/2012

**DCP Station (ELTA type – with Antenna not Dome) for
transmission**

NBA Countries: Guinea, Mali, Cote d'Ivoire, Burkina-Faso, Niger, Benin,
TChad, Cameroun and Nigeria



Benefits Of The NIGER-HYCOS project In the Basin are -

- Reliable and regular hydro-environmental data and information for socio-economic development of the region;
- Cooperation and Collaboration strengthened in the aspiration for regional development;
- Provide the basis for equitable share of the resources for even and sustainable development in the region;
- Peace and Security in the management of the available resources in the shared basin;

Thank You For Listening