



## Water Information System

Governance and the interest of remote sensing

CICOS's Experience



Mrs Judith ENAW  
Secretary General of CICOS



**"We only manage what we know."**

Without data, it is difficult to ensure the proper management of water resources in the Congo Basin.

# Outline

1. State of the hydrometric network in the basin
2. Congo Basin Hydrological Information System
3. Experience in water resource monitoring using spatial altimetry
4. Data Sharing Framework Agreement Challenges and lessons learnt
5. Conclusion

## I- State of the hydrometric network in the Congo basin

### **a- In-situ hydrometric network**

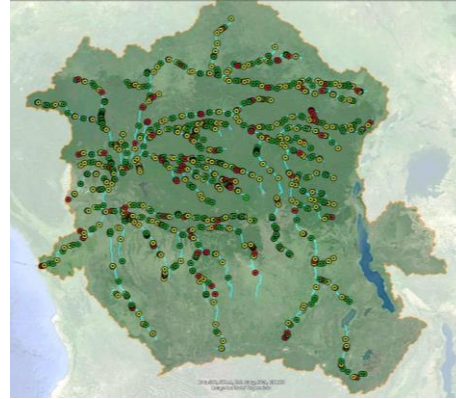
- Around 10 hydrometric stations existed within the basin
- The "in situ" Stations and there fore data are the property of the CICOS member countries.
- Densification of the hydrometric network with the support of partners such as: the World Bank through the HYDROMET project, the EU, AFD/FFEM.
- Presently, the network has increased to about a hundred in-situ stations, and more than 500 virtrial stations.
- The producers of hydrometeorological data are National Hydrological Services (INRH, DMH, CRH, DMH, IRSEN, SCEVN, ANAAC, RVF, METTELSAT, etc.).

# Current status of the Network

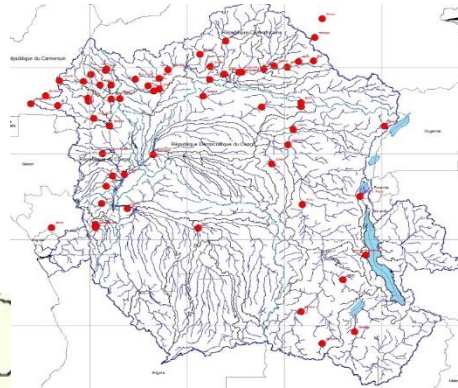
More than 800 virtual stations  
by 2019



More than 100 in-situ  
stations in 2015



10 in-situ stations  
in 2002



The network has increased from twenty stations to about one hundred in-situ stations.



## 2. Congo Basin Hydrological Information System

CICOS's Hydrological Information System (HIS) is one of the components of the Congo Basin Information System (SIBCO).

HIS fulfils three technical functions, storage, retrieval, exchange and information on hydrological data, central for the IWRM implementation by RBOs like CICOS.

CICOS's HIS link is: [www.sih-cicos.brl.fr/](http://www.sih-cicos.brl.fr/)

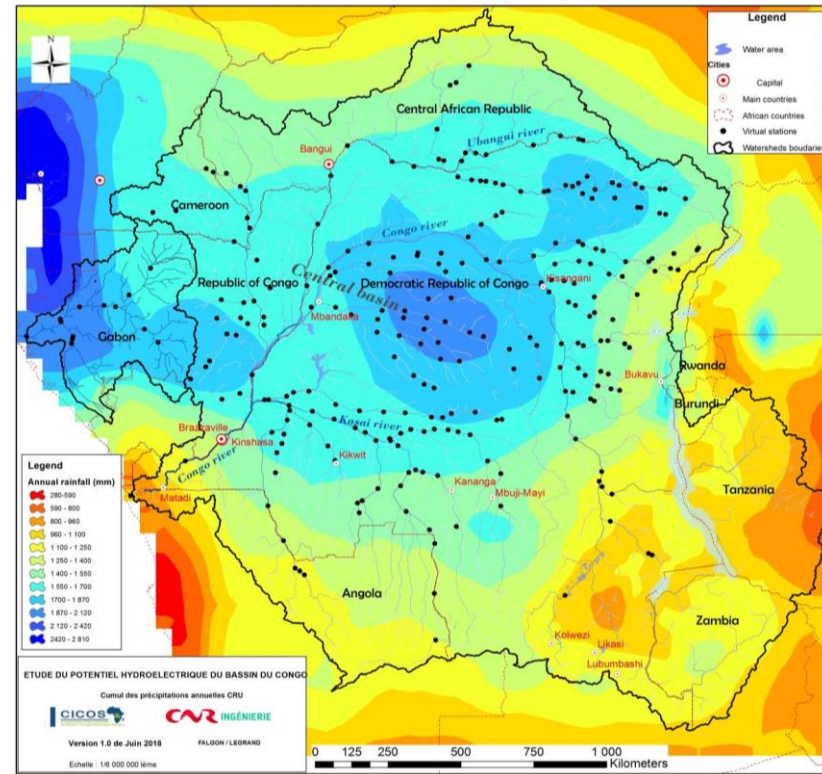
CICOS site [www.cicos.int](http://www.cicos.int) is operational and accessible to the general public.

# 3. Experience in water resource monitoring using spatial altimetry

Six of the ten riparian countries that make up the Congo watershed are CICOS member states. The Hydrological monitoring in the Congo basin is particularly difficult due to its size, accessibility and the low density of in situ hydrometric stations.

Spatial altimetry activities started with the AMESD project and continued through the MESA project, the AFD project and GMES & Africa.

The Congo Basin Altimetry Database includes 550 virtual stations. It has been realized by IRD-LEGOS.



# . CICOS's experience on spatial altimetry

This database is more complete than the Hydroweb platform. The virtual stations come from the following space missions: Envisat, Saral, Jason-2&3, Sentinel-3A, etc.

Some downstream services have been developed using data from spatial altimetry. Among these, we have :

- the water level alert bulletin for navigation ;
- Setting up and updating of the rating curves ;
- setting up of the longitudinal stream profiles ;
- identifying the suitable sections for hydroelectricity ;
- flow measurement from spatial altimetry data.



## 4. Data Sharing Framework Agreement and Challenges and lessons learnt



The process of having CICOS member countries to each sign a framework protocol for data sharing, is on course.

CICOS has signed data exchange protocols with hydrometeorological data producing structures.

### Challenges

- Improving the hydrological information system of the National Hydrological Services and ensuring capacity building at national level;
- Ensuring the reception and distribution of " downstream services " in an automated way and based on " real time " data. Mainly the SWOT downstream services;
- Ensuring the updating of the Decision Support Tool (Allocation Model).
- Generating political interest in and support for data exchange.

# Data Sharing Framework Agreement challenges and lessons learnt

## Lessons learnt

- The sharing of data at technical experts level from the National Hydrological Services is really easy;
- The administrative process often blocks the data exchange among actors;
- The lack of data sharing tools also hinders data sharing ;
- The compensation aspects of data use is a major issue in data sharing

## 5. Conclusion

HIS is a key tool for transboundary IWRM implantation.

CICOS's HIS was developed in the close collaboration, transparency and empowerment.

CICOS's HIS is based on the latest, most open, scalable and interoperable technology so that CICOS can autonomously develop downstream services using all HIS data.

CICOS is a member of the Working Group on Spatial Altimetry with six French companies (AFD, CNES, IRD, BRLi, OIEau, IRSTEA, CNR and CLS) on the SWOT (Surface Water and Ocean Topography) satellite program of the CNES and the NASA that will provide, by 2022 and for the first time, space-time variations in water levels on a global scale of large rivers, lakes streams and ocean levels.



**Thank you for your attention**

