

WMO RA VI Hydrology Forum  
2 - 4 April 2019  
Bratislava, Slovakia

# WMO Global Hydrological Status and Outlook System (HydroSOS)

Current Situation and How RAVI Can Get Involved?

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WMO OMM

World Meteorological Organization  
Organisation météorologique mondiale

# What will HydroSOS provide?

WMO capability to provide information on:



The current global hydrological status including groundwater, river flow and soil moisture



An appraisal of where the current status is significantly different from 'normal,' for example indicating drought and flood situations

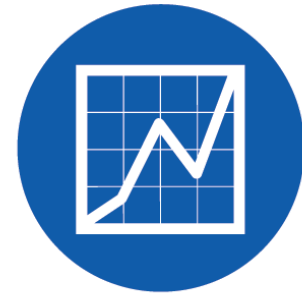


An assessment of whether this is likely to get better or worse over coming weeks and months



# HydroSOS Objectives

- To provide easily access to hydrological status and outlook from products from NMHSs around the world through a WMO web-based platform.
- To use local data and analysis, complemented with information from downscaling global models where gaps are identified.
- To be used by National Meteorological and Hydrological Services, as well as agencies related to water management, ecosystems, agriculture, disaster risk reduction, energy, etc for decision making related to water resources.
- To inform decisions and prevent conflicts related to the use of water resources, especially in transboundary river basins.



**INFORMATION  
PRODUCTS**



**INFORMED  
DECISION-MAKING**

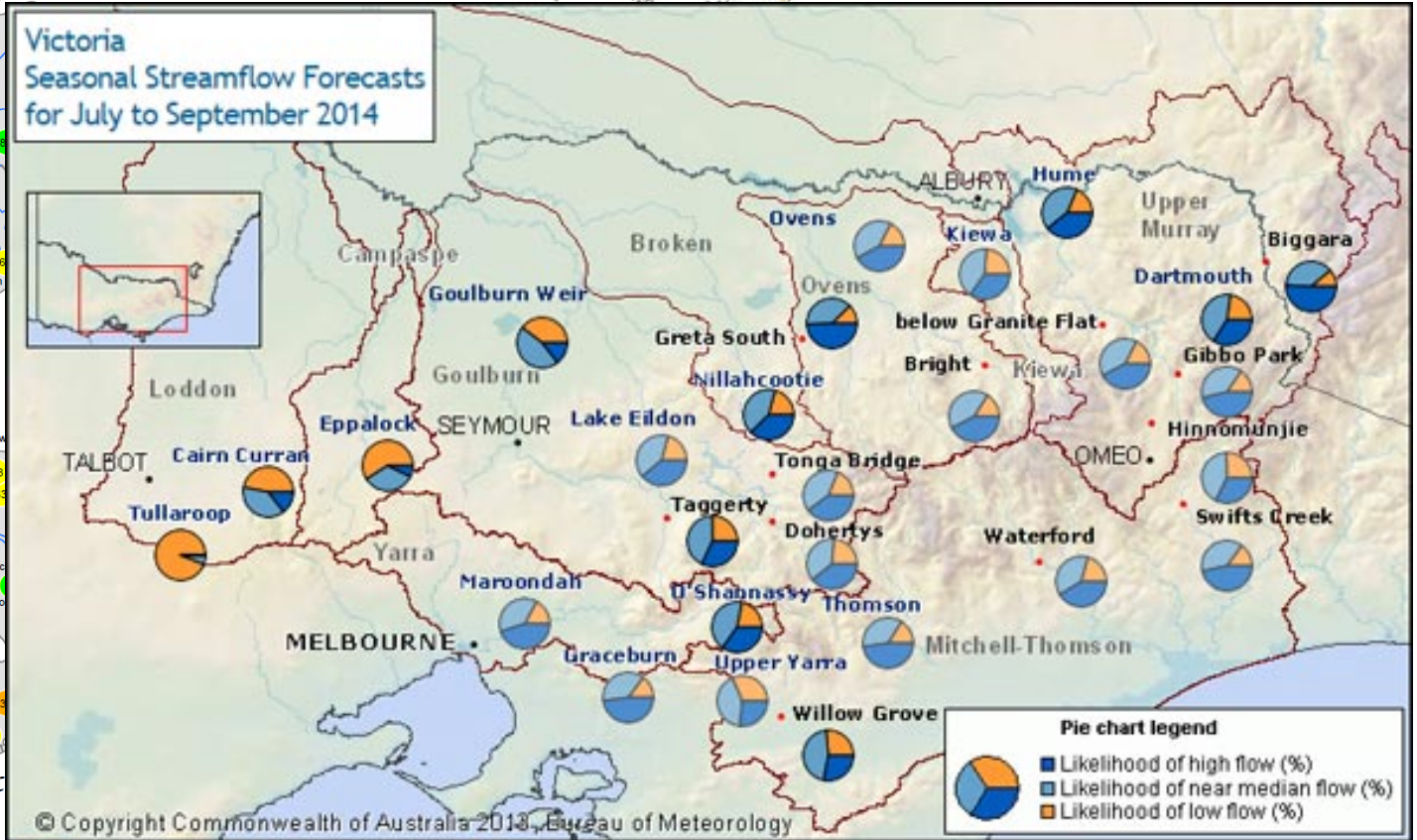


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# Current National Capability

September 2016 -  
October 2016

Victoria  
Seasonal Streamflow Forecasts  
for July to September 2014

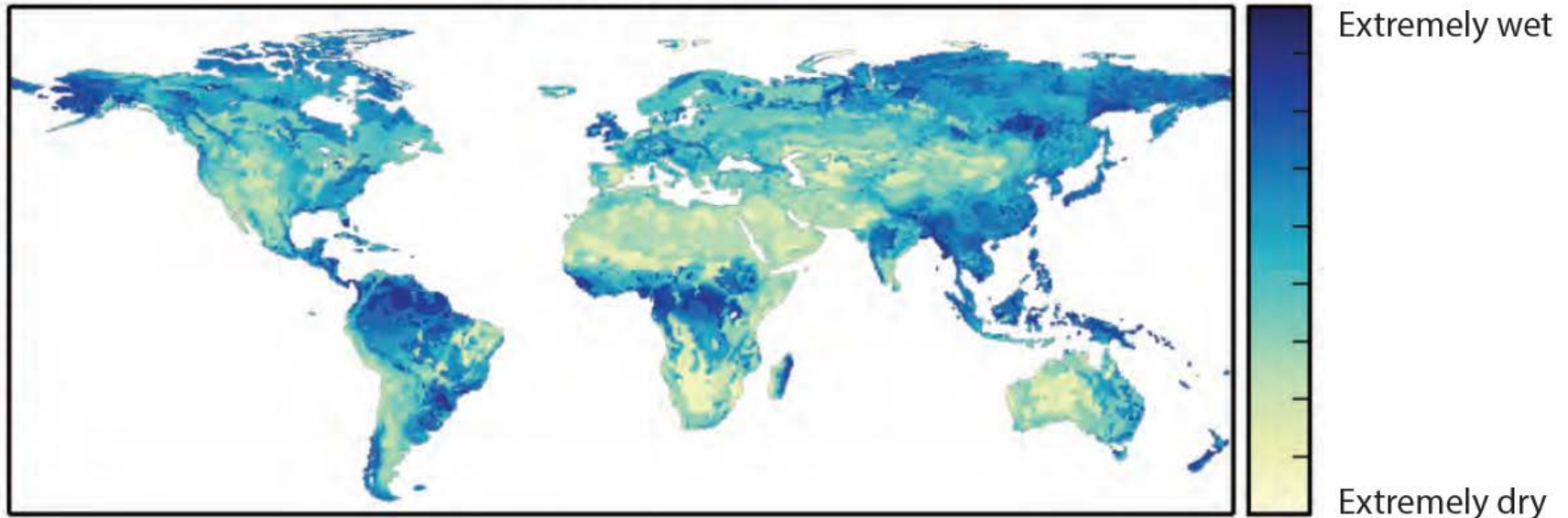


Moderate to high skill

Low skill or missing climate data

Very low skill or missing antecedent condition data

# Current Regional/Global Capability



Multiple data sources

Multiple large-scale hydrological models

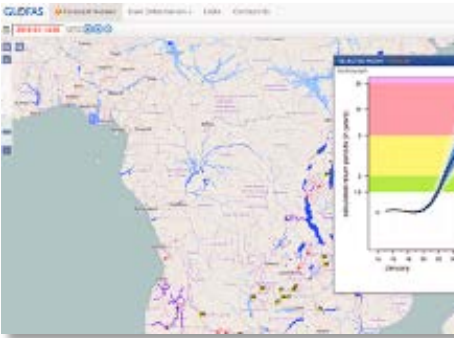
An additional information source

# A Possible Future?



Global Products

Existing Operational Products



# What data/models will HydroSOS use?



Local scale  
ground based data  
River flow, soil moisture,  
lake levels and  
water table depths



Global scale remotely  
sensed satellite data  
Precipitation, soil moisture,  
groundwater and  
snow cover/depth



Global/regional  
weather and climate  
forecast models  
Temperature and rainfall



Hydrological  
models  
River flow, soil moisture,  
groundwater

A framework for generating common outputs and products

No specified model or technique

An ensemble approach



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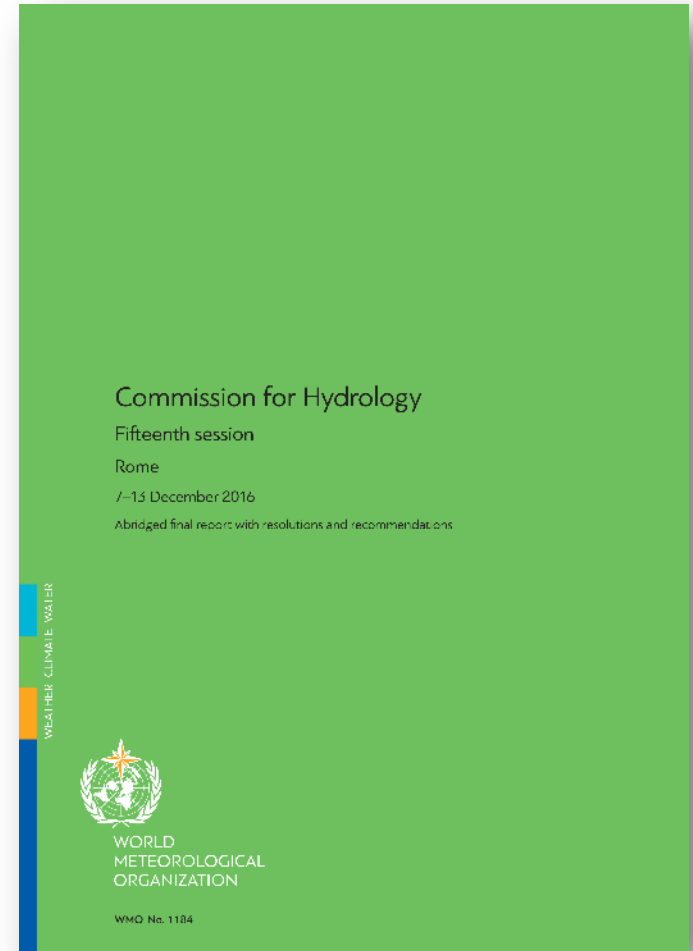
# Resolution 8 (CHy-15)

## CHy Decided:

- 1) To initiate the WMO Global Hydrological Status and Outlook System;
- 2) To approve the formation of an expert task team to oversee the pilot phase of the initiative and report the findings to the Commission at its sixteenth session;

## CHy Urged:

Members to provide support to the initiative by contributing expertise, current capabilities, information on their requirements and validation of the System products based on observed data.





# Pilot Phase

1. The establishment, through linking with other WMO initiatives (such as WIGOS and in particular WHOS), of reliable and **routine data streams** for the priority monitoring and forecast information needed for the system;
2. The development of **multiple pilot projects** which provide hydrological status and outlook assessments for demonstration regions around the world;
3. Development of **governance frameworks** for the initiative which ensure widespread collaboration amongst NHMSs from across all WMO Regions;
4. Development of an open network of NHMSs across the world who act as global/regional/sub-regional processing and analysis centres for the initiative (linked to the GDPFS).



# Initial Planning Meeting

(September 2017, Uganda)

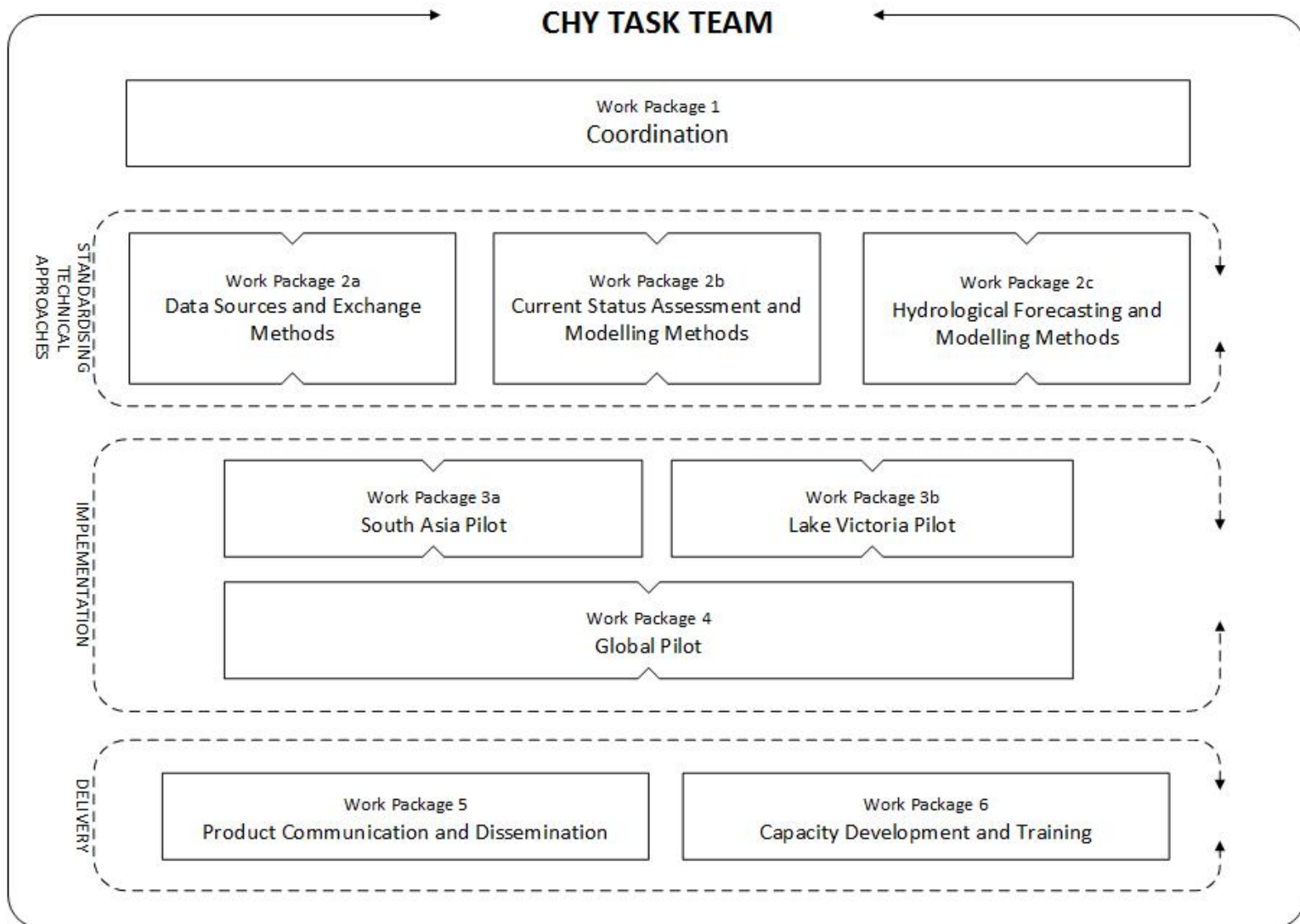


<http://www.wmo.int/pages/prog/hwrrp/chy/hydrosos/index.php>



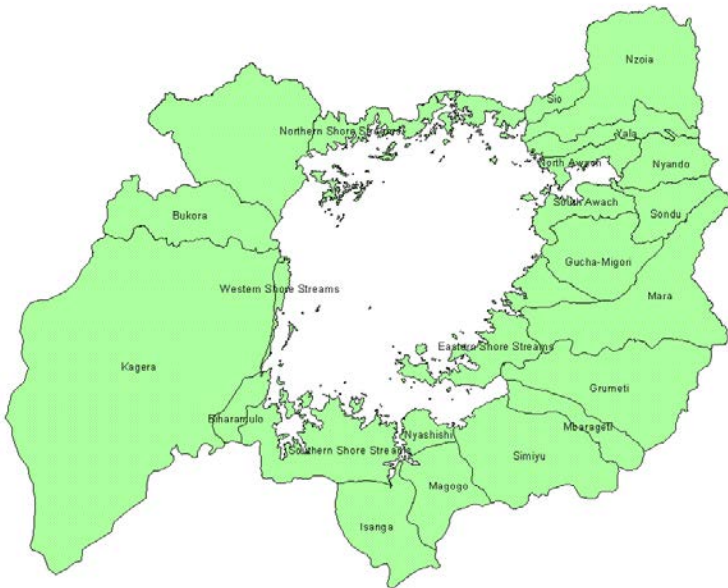
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# Structure of the Programme

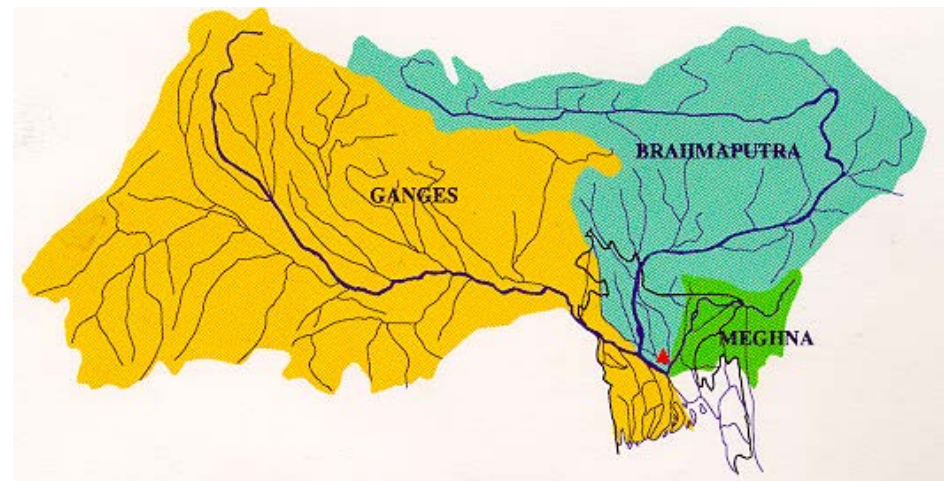


# Pilot Projects

- Two regional pilots are being developed:
  - South Asia (Work Package 3a)
  - Lake Victoria Basin (Work Package 3b)
- Both will with a Global pilot (Work Package 4)



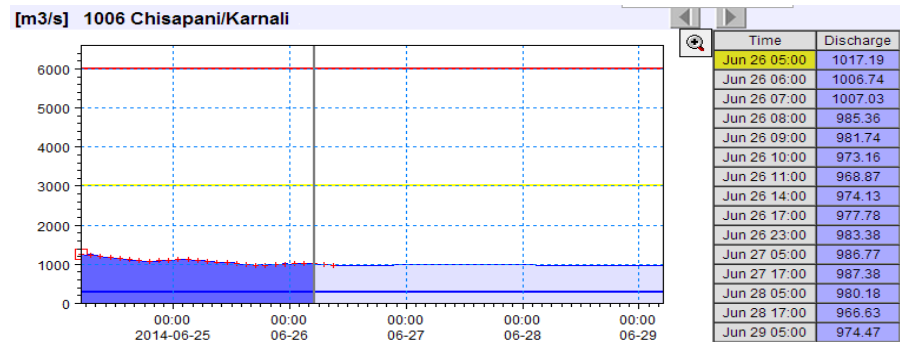
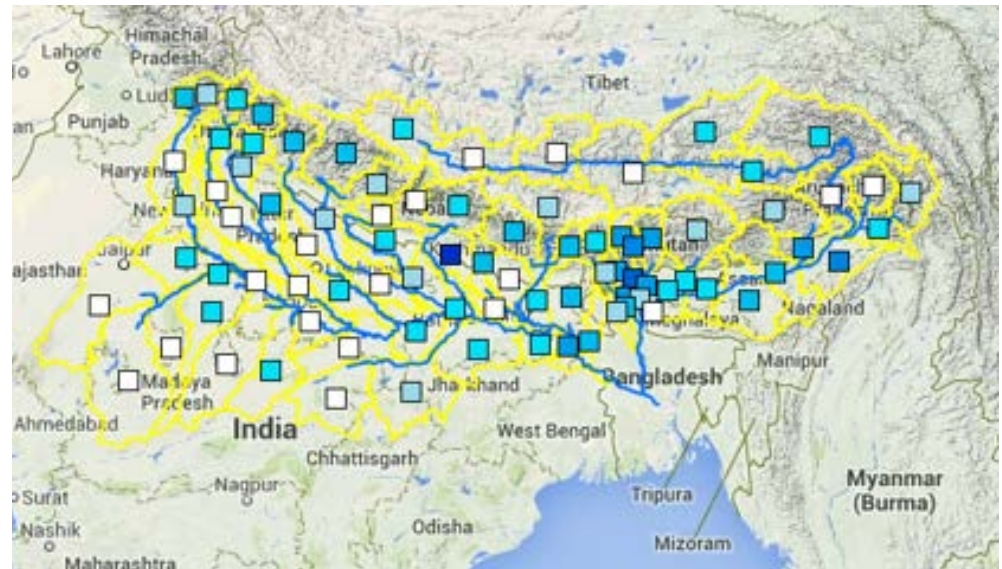
Lake Victoria Basin and it's major sub-basins



Ganges-Brahmaputra-Meghna basin

# South Asia Pilot

- «Proof of concept» in an Indian basin
- Pilot in the Ganges, Brahmaputra and Meghna (G-B-M) basin
  - HKH-HYCOS G-B Basin flood outlook will serve as the basis of this Pilot, Meghna basin to be added.
  - Meetings with NMHSs of the basin to assess their capacities regarding water resources monitoring



# Lake Victoria Basin Pilot

## Major Objective

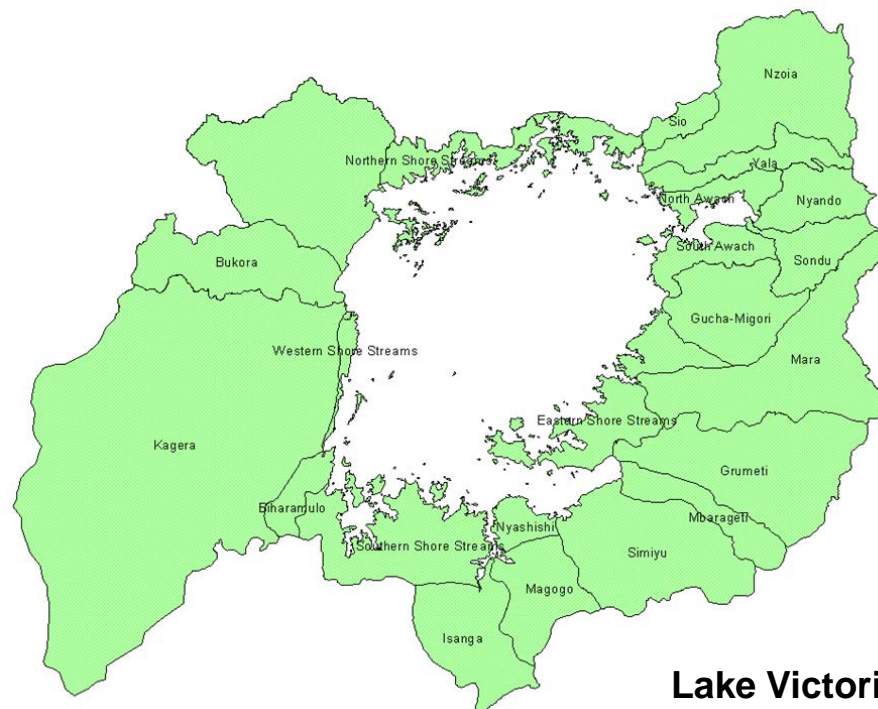
To develop a proof-of-concept pilot in the African region (Eastern Africa sub-region) providing information to benefit a wide community; fisheries & marine sectors, disaster management agencies among others

## Basin Countries

- Burundi
- Kenya
- Rwanda
- Tanzania
- Uganda

## Basin Area

- 130,000 km<sup>2</sup>



**Lake Victoria Basin and  
it's major sub-basins**

# Current Developments in HydroSOS

- Teams have been assembled for each Work Package (WP)
- Techniques work packages are busy comparing methods which could be recommended.
- Meetings with NMHSs are being/will be held to assess their capacities regarding water resources monitoring:
  - Ganges Brahmaputra Meghna Basin countries (with two WMO consultants from Nepal and Bhutan) – Mar-Apr 2019
  - Lake Victoria Basin countries (with one WMO consultant from RA VI and a staff of the NHS of Uganda). To be conducted second half of June (in Burundi, Kenya, Rwanda, Tanzania, and Uganda).

# Current Developments in HydroSOS

- CEH and NCAR to develop a HydroSOS prototype web-portal (Apr-Sep 2019).
- Coordination meeting to be held 23-25 Jul 2019 in Wallingford with all WP leaders (Task Team).
- Technical Workshop to be held 11-15 Nov 2019 in Nanjing China with the Task Team, the WP team members and selected experts.



# HydroSOS Linkages

- HydroSOS plugs in the functionalities of other WMO programmes and their systems to reduce costs and times and to ensure compatibility.
- For example links will be developed with the [World Hydrological Cycle Observing System \(WHYCOS\)](#), the [WMO Hydrological Observing System \(WHOS\)](#), and the [Global Data-Processing and Forecasting System \(GDPFS\)](#).



# A Global Collaboration

HydroSOS is a collaboration between many different organizations including:



**Ministry of Water and Environment**  
REPUBLIC OF UGANDA



**Please join in!**

# How can RAVI get Involved?

1. Nominate experts for the WG teams
2. Provide information to the TT about:
  - the services you currently have;
  - what you would like to develop;
  - who key users might be in your country.
3. Provide data streams for the demonstration prototype

More information available at:

<http://www.wmo.int/pages/prog/hwrp/chy/hydrosos/index.php>



# Thank you



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