



# REGIONAL WORKSHOP ON MONITORING, ASSESSMENT AND INFORMATION SHARING IN TRANSBOUNDARY BASINS IN CENTRAL ASIA

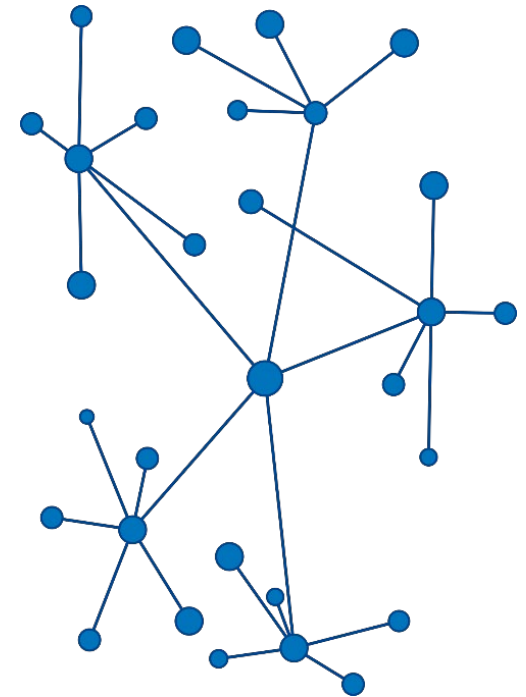
## Water information systems and procedures for integrated and shared water data management at transboundary level



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Astana – February 2023

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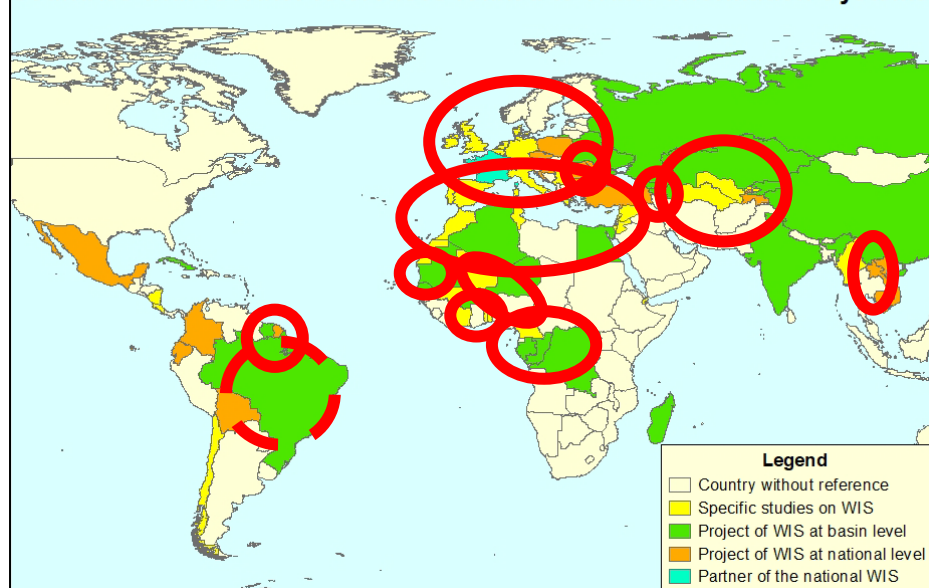


# INBO/OiEau: 30 years supporting transboundary, national and basin organizations in the development of their Water Information System

In addition to the actions carried out in France on the SIE/Sandre and at European level (SIIF, etc.) =>

... more than 50 countries concerned by specific actions related to data management

Countries with IOWater references related to Water Information Systems



Projects with transboundary activities

=> 25 countries with WIS actions in 2022...

... many references on transboundary basins and regional contexts:

- Euro-Mediterranean Water Information System
- FFEM Central Asia project developed with the "Convention on the protection and use of transboundary watercourses and international lakes" / UNECE
- Various projects with activities related to the strengthening of water data exchanges (MRC, OMVS, OMVG, CICOS, ...)

... MOUs/collaborative agreements and joint actions with various international bodies: WMO, UNECE, WHO, UNESCO, MRC, AMCOW,

..... and with organizations such as IRD, CNES, ...

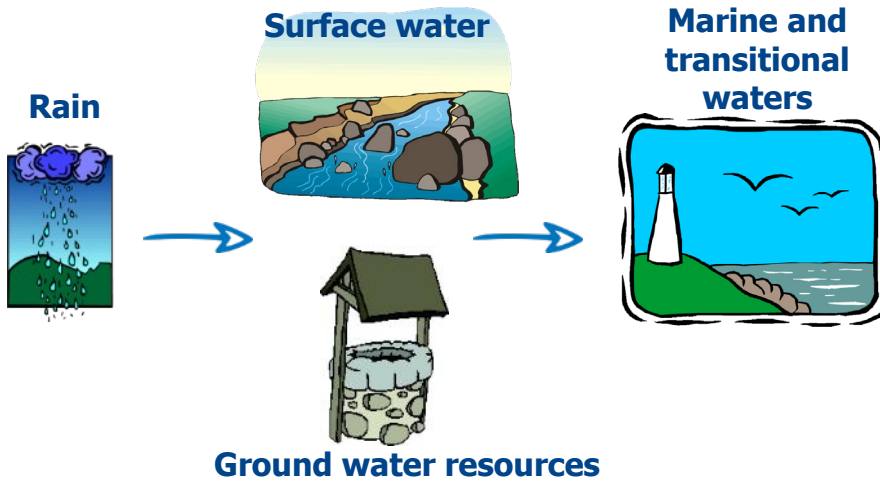
Focusing on the “**data sharing**” chapter:

- ***“In any case, as the majority of the data used for transboundary water resources management is provided by national organizations, the transboundary information system should ideally be built to rely on national information systems with (direct) access to datasets made available by national partners.”***

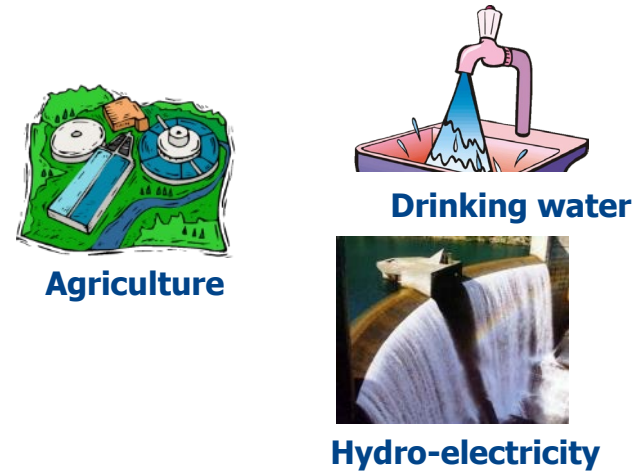
# Remind about the multiplicity of topics and data producers



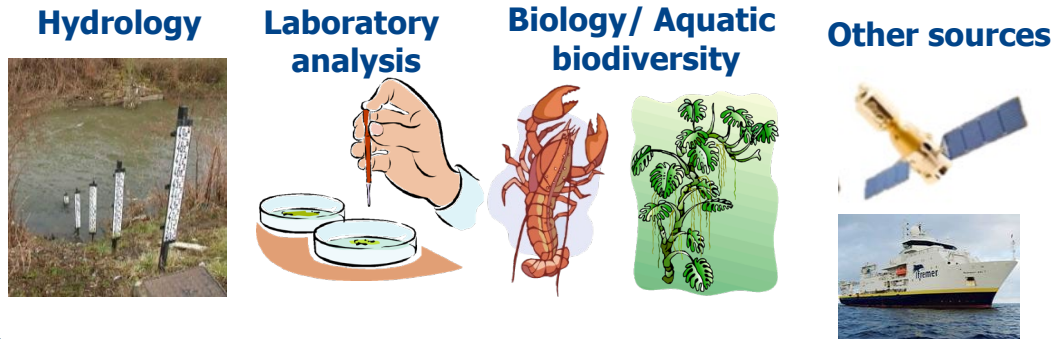
## Water resources



## Users, uses and infrastructure



## Monitoring quantitative and qualitative aspects



## Others

- Environmental aspects (DEM, soils, ...)
- Risk related data
- Health indicators
- Socio -economical aspects
- ....



# ... and about the new potentialities of satellite data



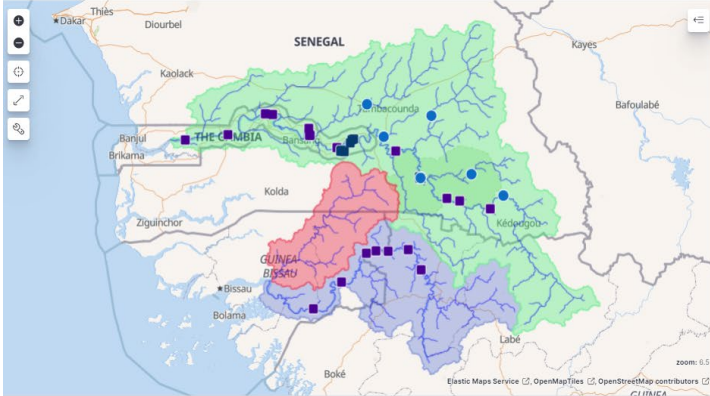
Sélection de stations hydrologiques

- Stations hydrologiques DGRH - Guinée Bissau x
- Stations HYDROWEB x
- Stations OMSG des limnimètres x
- Stations hydrologiques DGPRE - Sénégal x
- Stations hydrologiques - Gambie x

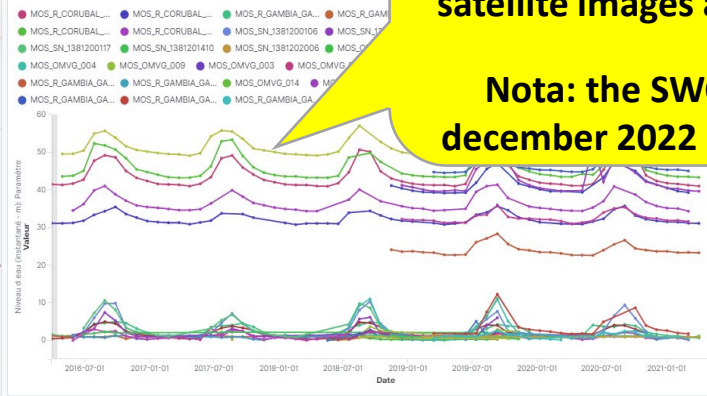
Niveau d'eau (instantané - m)

Select...

Carte de localisation de stations hydrologiques

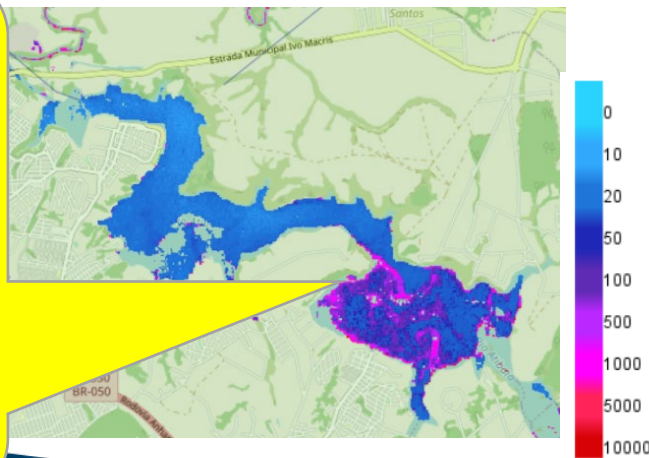


Courbes avec les données hydrologiques

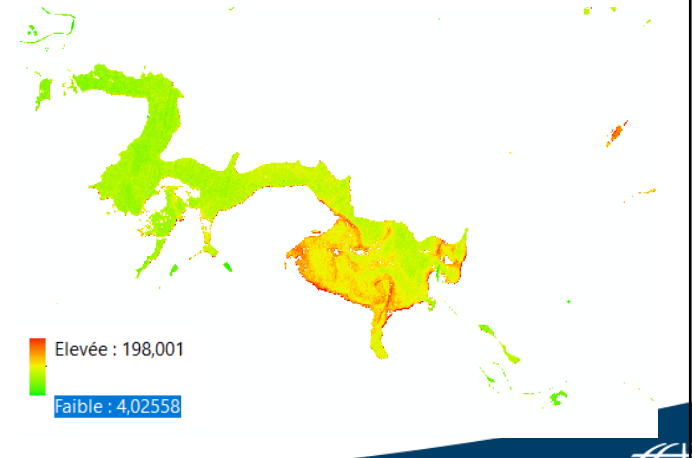


**Hydrological data**  
Data on water level data of the virtual stations resulting from the processing of satellite images are automatically updated  
Nota: the SWOT satellite launched in december 2022 will give new oportunities

Suspended solid (mg/l)



Chlorophyll-a (µg/l)



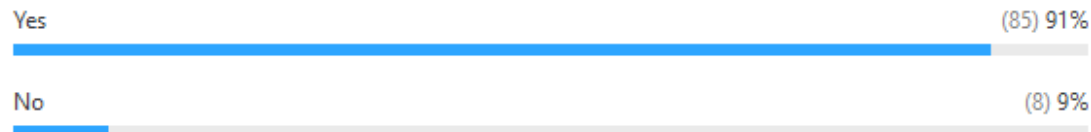
## Water quality data

Surface water quality data can also be regularly produced thanks to free images such as the ones from EU satellites (Source Maru Projet - Brazil)



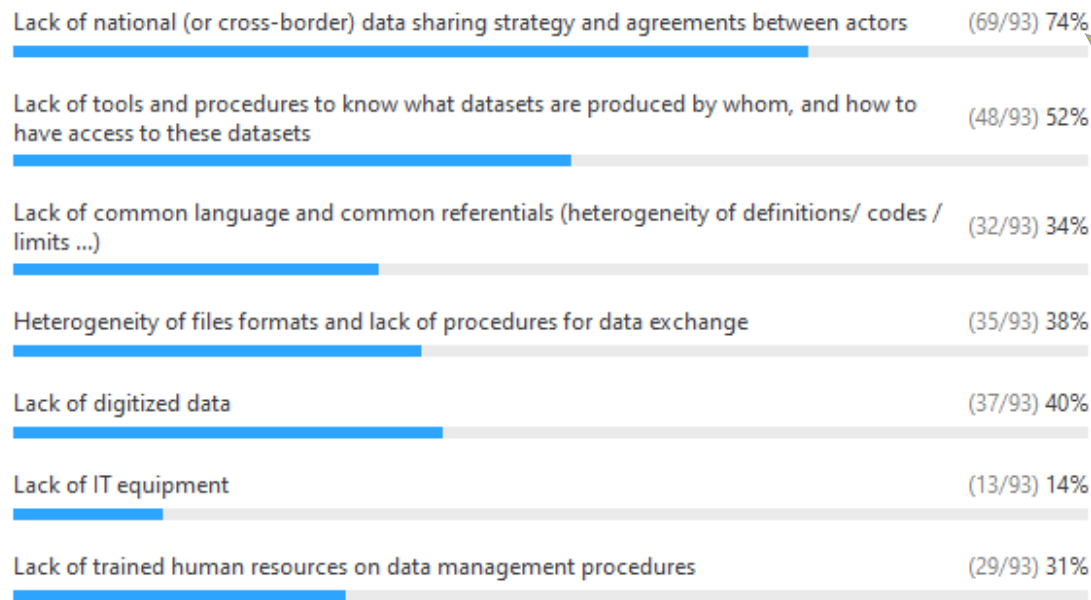
# Answers to the on-line survey done during the previous INBO webinar related to Water Information Systems (2020)

## 1. Do you face issues for having access to data produced by various institutions?



**91% => A main issue of access to existing datasets**

## 2. In your opinion, what are the main difficulties limiting data sharing between institutions in your context? (Choix multiple)



**74% => the lack of national data sharing strategy and agreements between actors is classified as a main difficulty**

# DATA MANAGEMENT/WIS/INTEROPERABILITY ELEMENTS OF STRATEGY

Water data and information management particularly needed for

Sectorial water management

Integrated Water sector planning

Climate change adaptation

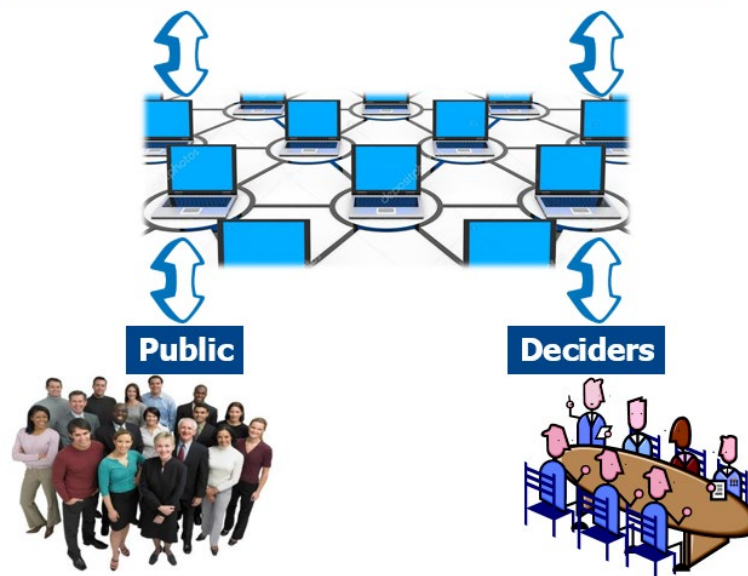
Risk management

Reporting

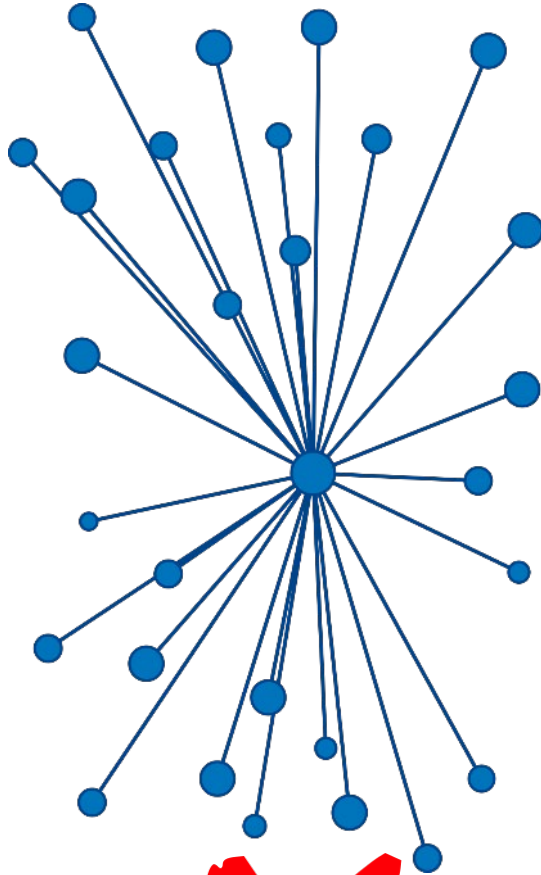
Specific decision taking

Other water sector activities

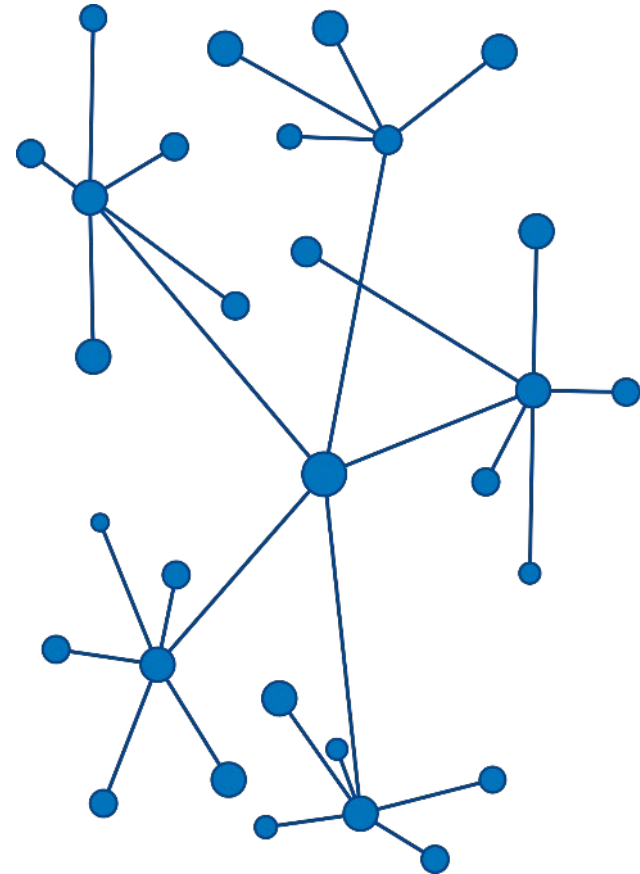
- STRATEGY : A NETWORK OF DATA PRODUCERS/USERS
- REINFORCING NATIONAL LEVEL INFORMATION SYSTEMS, CAPACITIES OF NATIONAL AND LOCAL DATA PRODUCERS AND ORGANIZATIONAL ASPECTS



# About the global architecture



Centralized system



Decentralised system





# The SEIS principles: A good example of procedures for data management/sharing



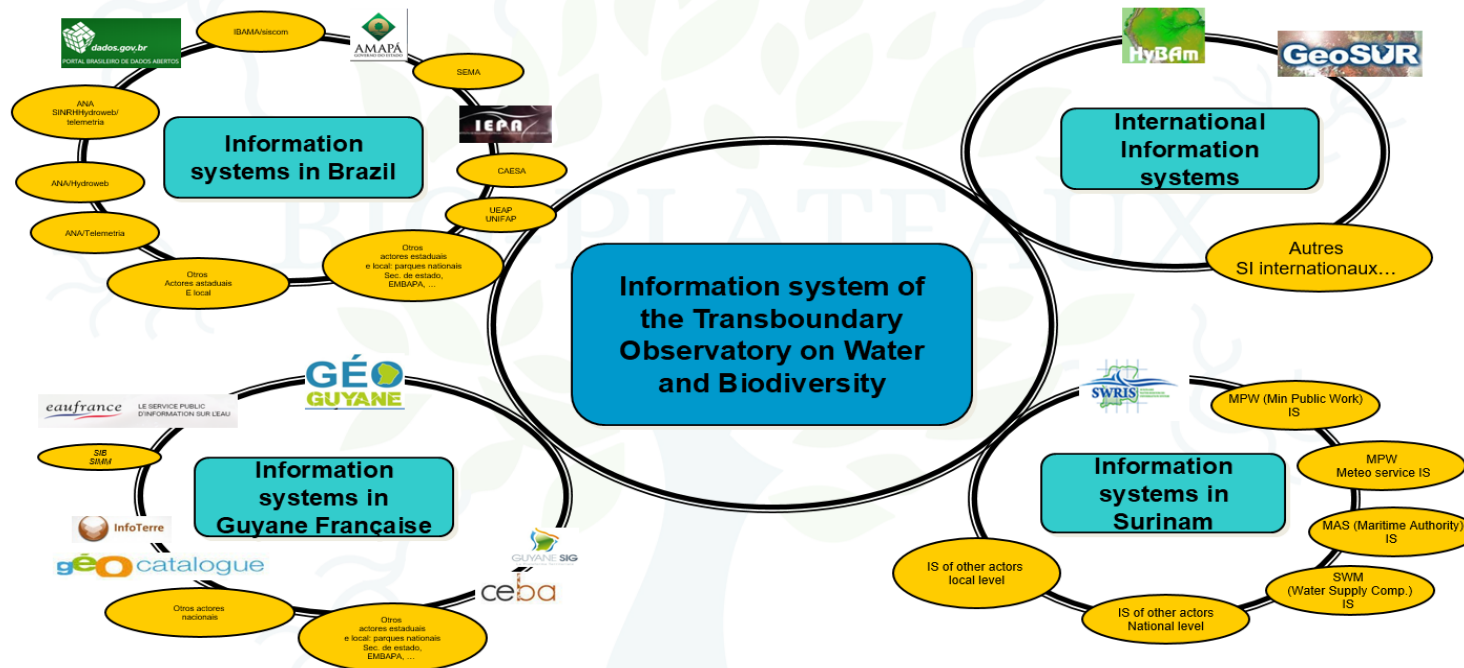
On 1st of February 2008, the **European Commission** adopted a Communication on **SEIS (Shared Environmental Information System)**. The principles are described as follows:

- Information should be **managed as close as possible to its source**;
- Information should be **collected once, and shared with others for many purposes**;
- Information should be **readily available to public authorities and enable them to easily fulfil their legal reporting obligations**;
- Information should be **readily accessible to end-users, primarily public authorities at all levels from local to European, to enable them to assess in a timely fashion the state of the environment and the effectiveness of their policies, and to design new policy**;
- Information should also be **accessible to enable end-users, both public authorities and citizens, to make comparisons at the appropriate geographical scale (e.g. countries, cities, catchments areas) and to participate meaningfully in the development and implementation of environmental policy**;
- Information should be **fully available to the general public, after due consideration of the appropriate level of aggregation and subject to appropriate confidentiality constraints, and at national level in the relevant national language(s); and**;
- Information sharing and processing should be supported through common, **free open standards**.



# Case of Bio-Plateaux project: Data sharing development in the frame of the Maroni / Oyapock transboundary basins (Brazil/French Guyana/Surinam)

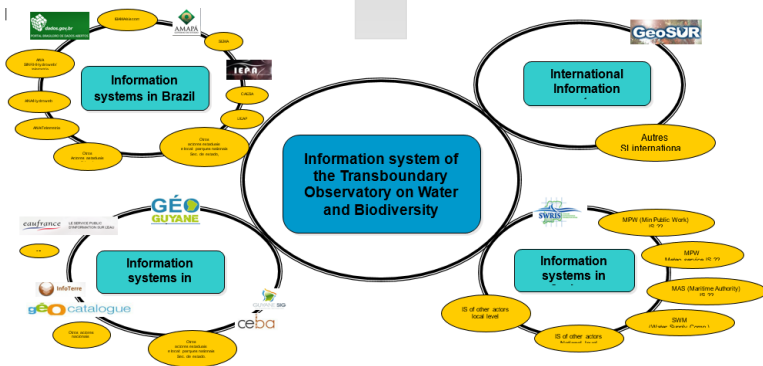
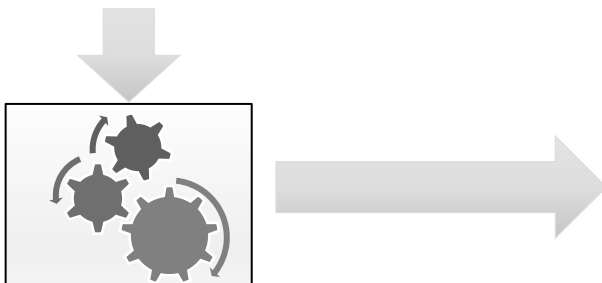
## Organization of water/aquatic biodiversity information systems Transboundary Observatory on Water and Biodiversity Proposal of global organizational diagram



# Bio-Plateaux: *Transboundary Observatory on Water and Biodiversity*

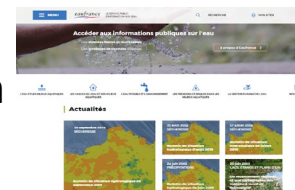
## Some products and potential services

**Expectations from partners and public**

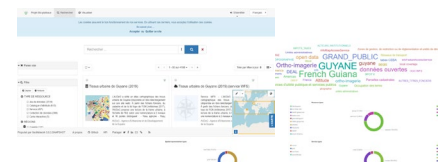


**Products and potential services**

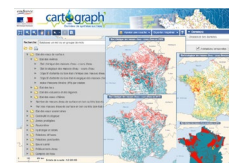
Portal for dissemination



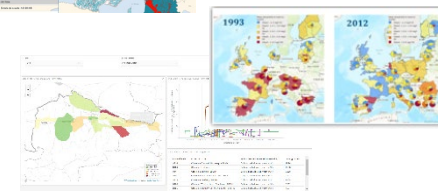
Metadata catalogues



Interactive maps



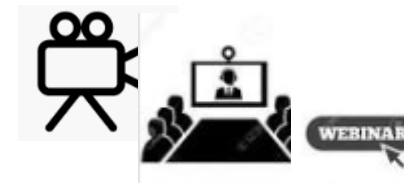
Processing and Visualization of indicators



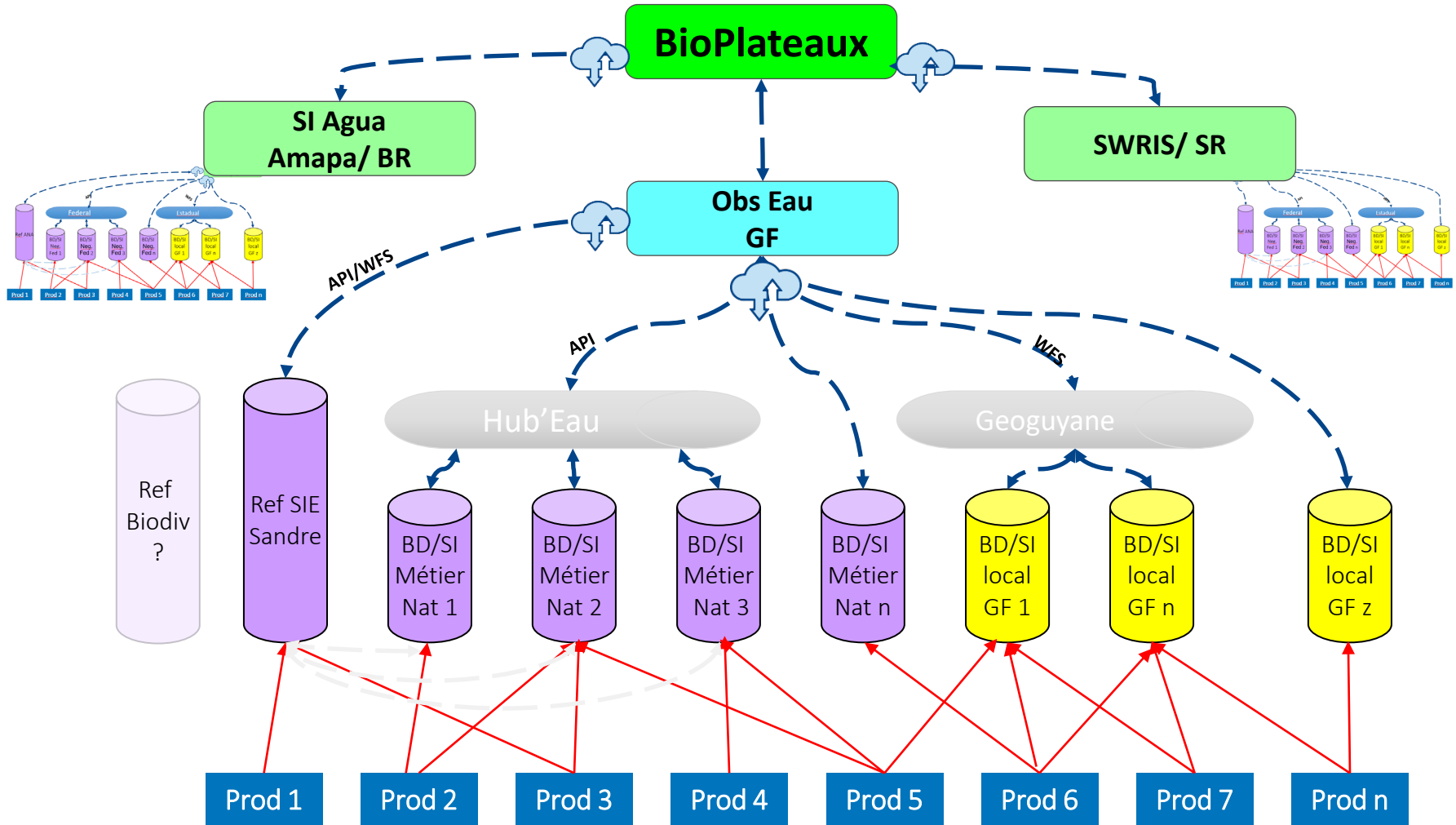
Bulletins, documents supports for training, ...



Other products and services



# Transboundary projects : an opportunity to reinforce data sharing at transboundary but also at national level

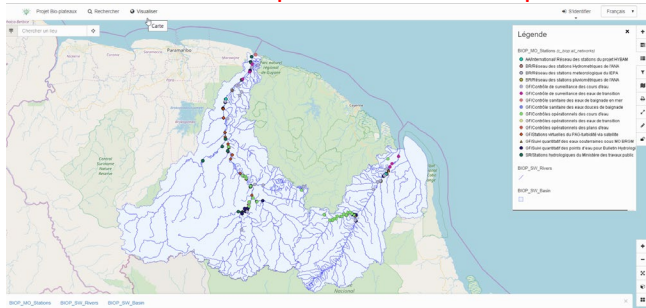


# Bio-Plateaux: On-line visualisation of data

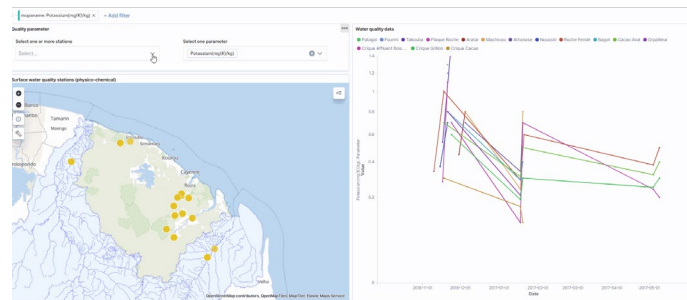
## Examples with real data

### Monitoring stations for all networks

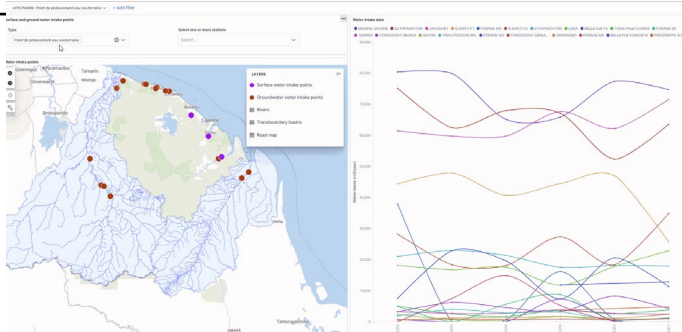
... with access to last updated data of the producers



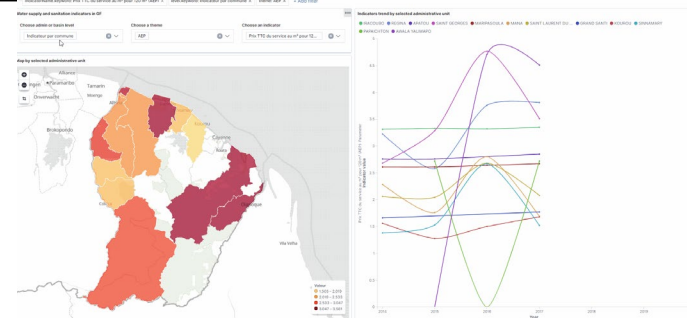
### Surface water quality data



### Water intake data

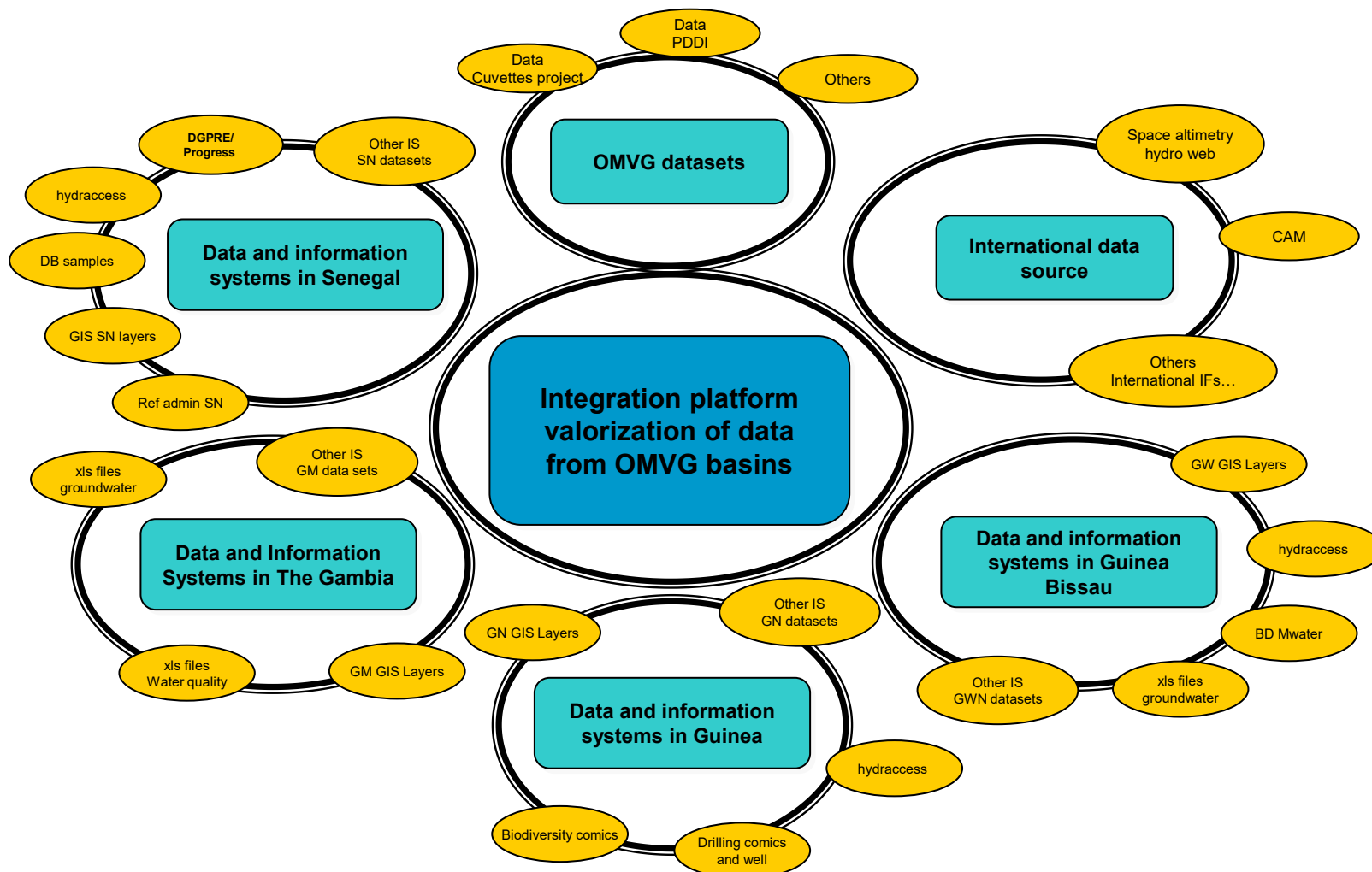


### Water supply/sanitation indicators



# Case of the OMVG transboundary basin

## 1 transboundary basin organisation / 4 countries





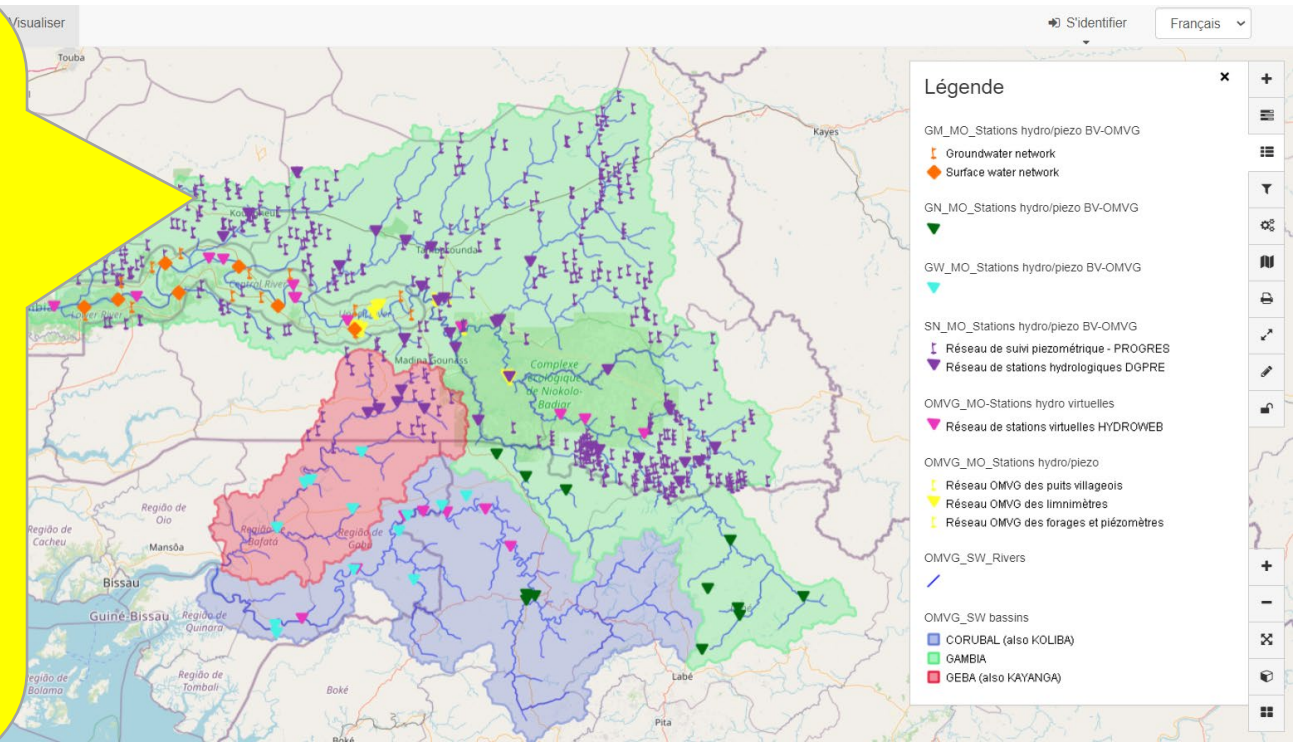
# Case of the OMVG transboundary basin

## Dynamic map of location of monitoring points on the basins

**A concrete example of interoperability:**

**Points with piezometric monitoring in Senegal are displayed on this OMVG map, thanks to the web services made available by the DGPRESenegal**

**Advantage: the OMVG map is automatically updated (without human intervention) each time the national database is updated by the DGPRESenegal**



Nota: Thanks to an efficient framework for collaboration existing at OMVG level and the financial support of the Swiss Cooperation, a transboundary data platform relying on national water information systems was developed and implemented during in the frame of a short project (1 year)



# Conclusions/provisions of the Updated Strategies related to data sharing



- **Data/information sharing is a key instrument for an effective transboundary water resource management: chapters related to data/information sharing should be introduced in all framework agreements and action plan related transboundary water resource management**
- **Specifying the needs in information production and building on the existing situation with information system and data management procedures**, in reinforcing the capacity of the partners to manage/check and process their own data and in **developing scenarios for data sharing**
- **Developing the capacities to share comparable data** and to interconnect the partner information systems (interoperability), using **common language** (concepts/referential dataset) and common procedures (when possible using of web services and APIs)
- **Reinforcing the capacities of each country/national basin to develop their own data management strategy (water data policy) and their own national/basin water information system** and organizing the links between the transboundary and the national /basin water information systems, and the **use of common language and common procedures**
- Organizing the **sustainable financing** of the necessary data production, data management, information dissemination: **return on investment is always positive!**





Thanks for your attention  
and at your disposal for any questions



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