



流域组织国际网

Международная сеть водохозяйственных организаций,
Réseau International des Organismes de Bassin
International Network of Basin Organizations
Red Internacional de Organismos de Cuenca

الشبكة الدولية لهيئات الأحواض



**International
Office
For Water
PARIS-FRANCE**



**International
Network
Of Basin
Organizations**



Mr. Jean - François DONZIER

General Manager

International Office for Water

Permanent Technical Secretary

INTERNATIONAL NETWORK OF BASIN ORGANIZATIONS



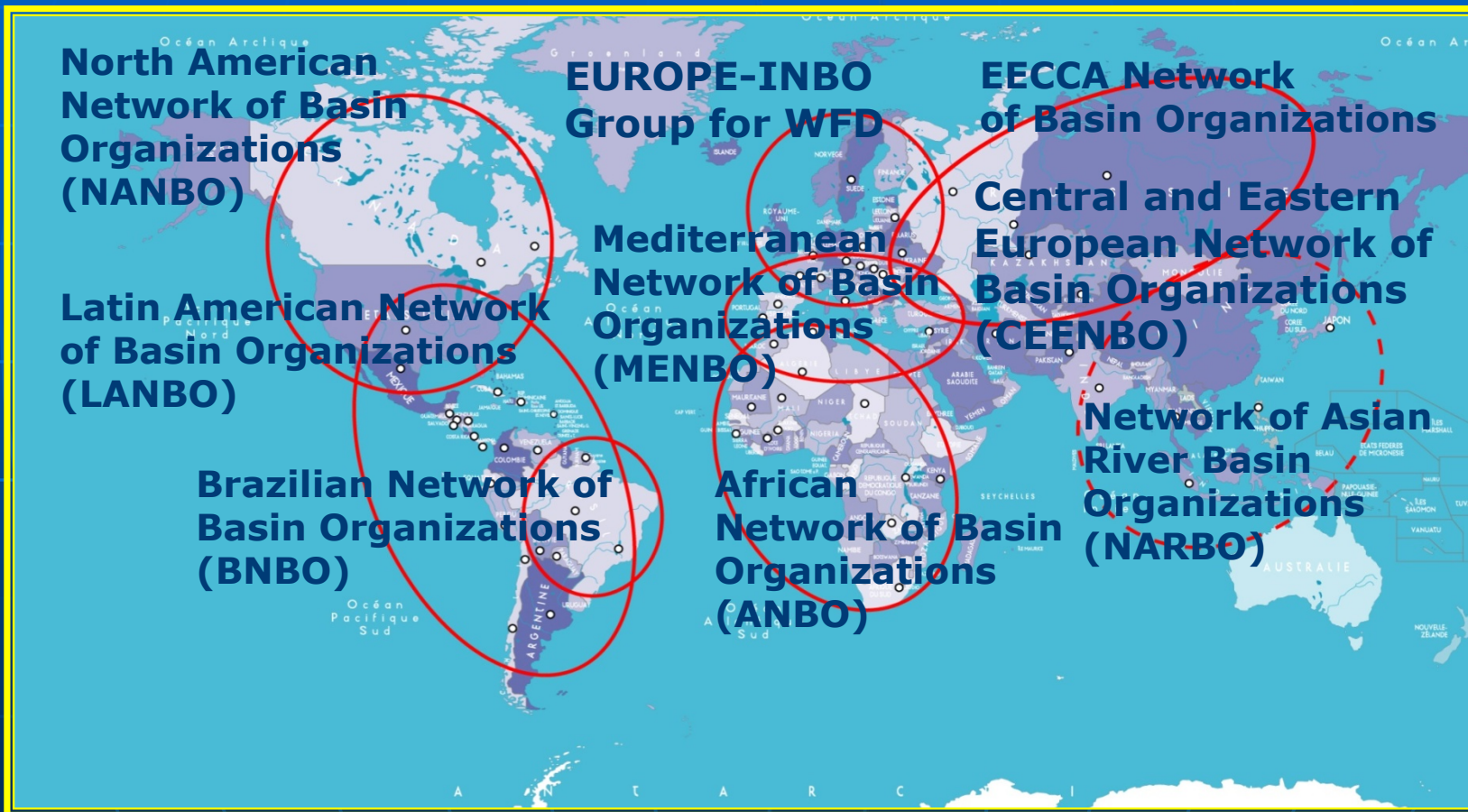
INTERNATIONAL NETWORK OF BASIN ORGANIZATIONS

Created in 1994 to facilitate operational exchanges between BO



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INBO's REGIONAL NETWORKS



191 FULL MEMBERS or PERMANENT OBSERVERS
in 81 COUNTRIES



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« Water has no boundary »

?!?

**RESEAU INTERNATIONAL DES ORGANISMES DE BASSIN
INTERNATIONAL NETWORK OF BASIN ORGANIZATIONS
RED INTERNACIONAL DE ORGANISMOS DE CUENCA**



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TWO HUNDRED AND SEVENTY SIX RIVERS OR LAKES AND HUNDREDS OF AQUIFERS ARE TRANSBOUNDARY ONES



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Transboundary basins per continent.

			<i>Pourcentage du territoire</i>
<i>Afrique</i>		59	62 %
<i>Asie</i>		57	39 %
<i>Europe</i>		69	54 %
<i>Amerique du Nord</i>		40	35 %
<i>Amerique du Sud</i>		38	60 %
TOTAL		276	45 %



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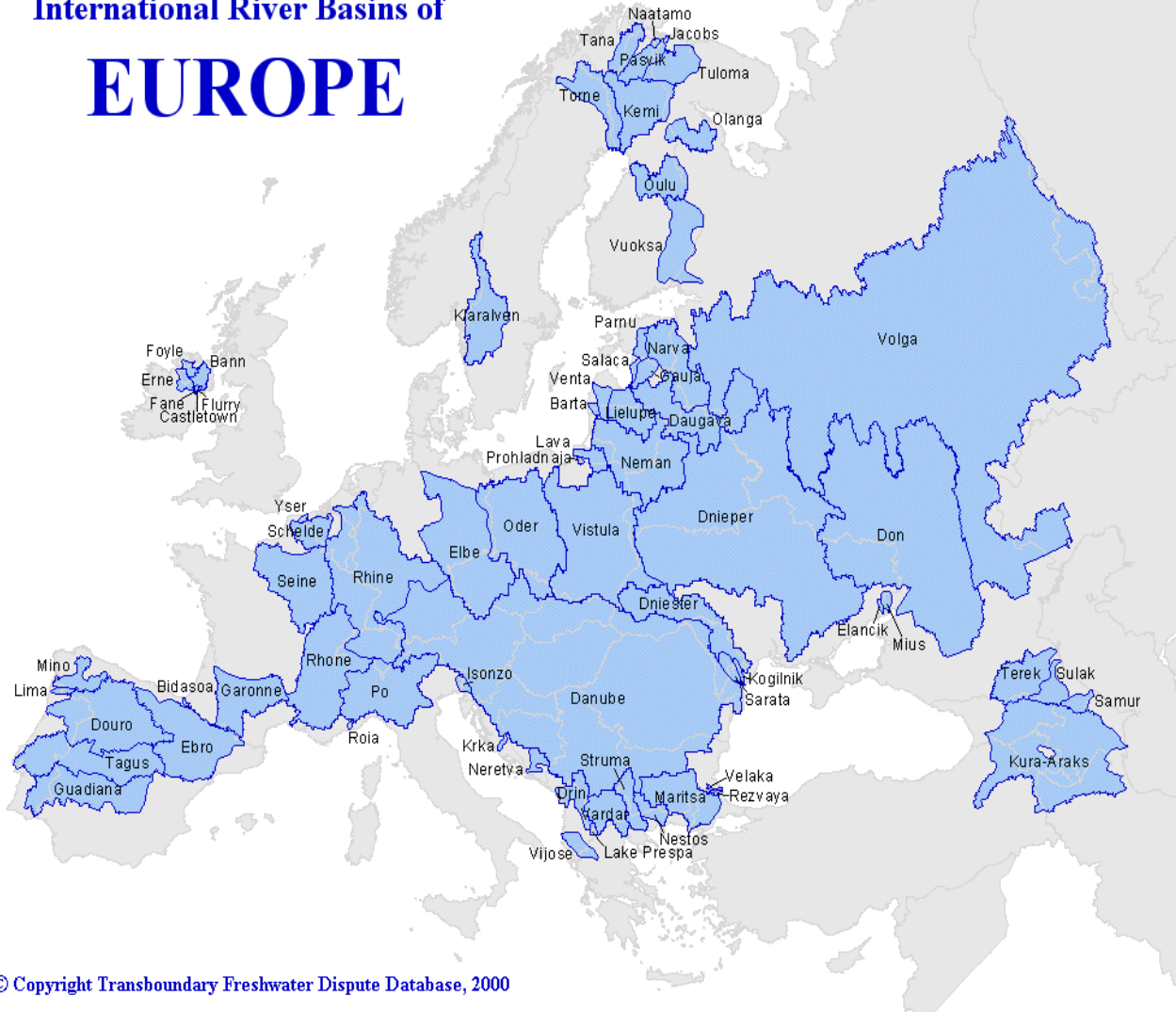
In Europe a majority of basins are transboundary ones!



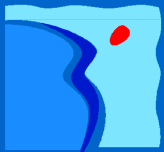
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International River Basins of

EUROPE



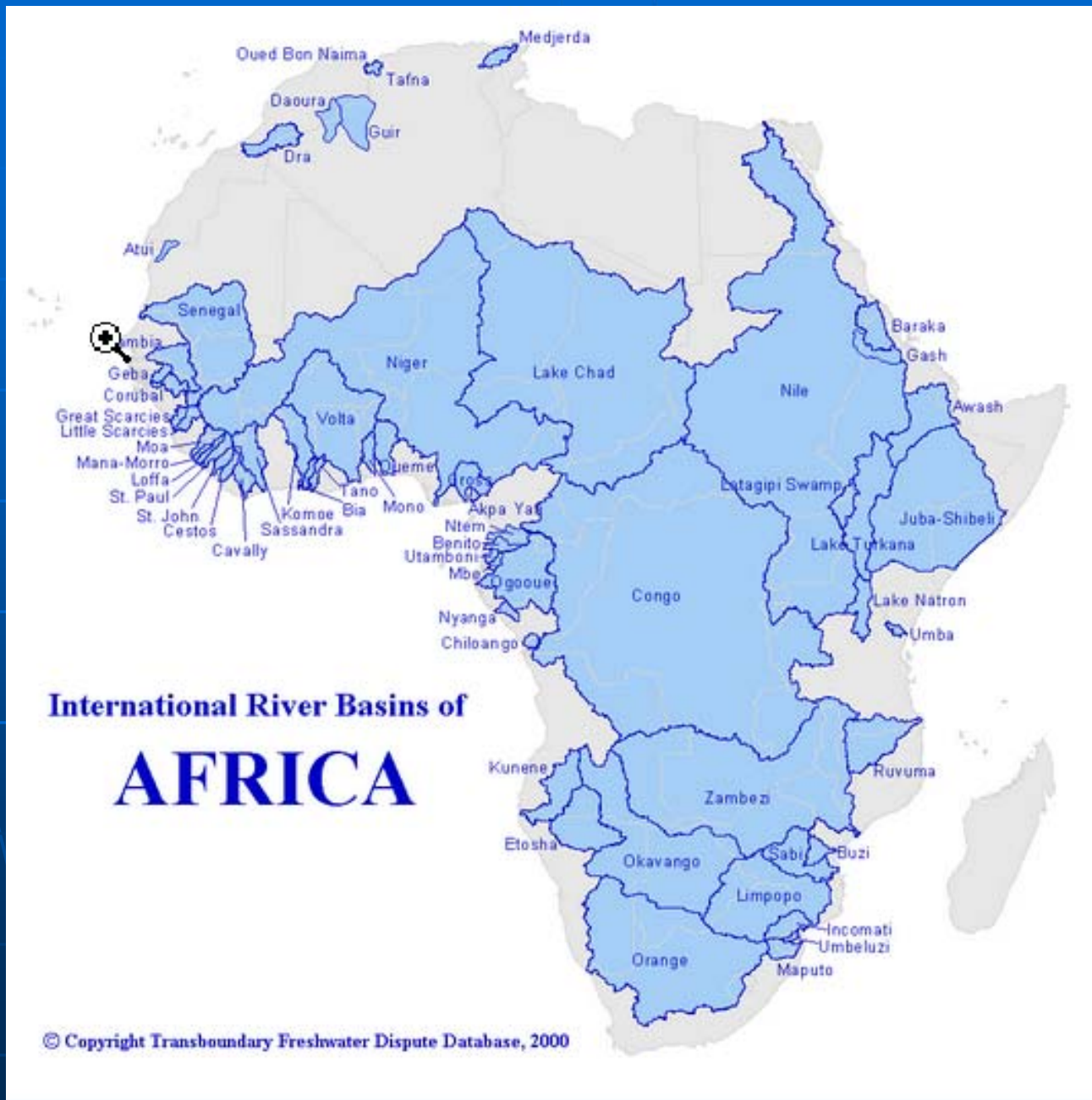
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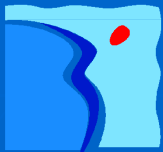


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**IN NORTHERN AFRICA
THE MAIN AQUIFERS
ARE SHARED**



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*EX: the Algerian hydrological basin Agency
of the Sahara is mainly concerned by their management.*

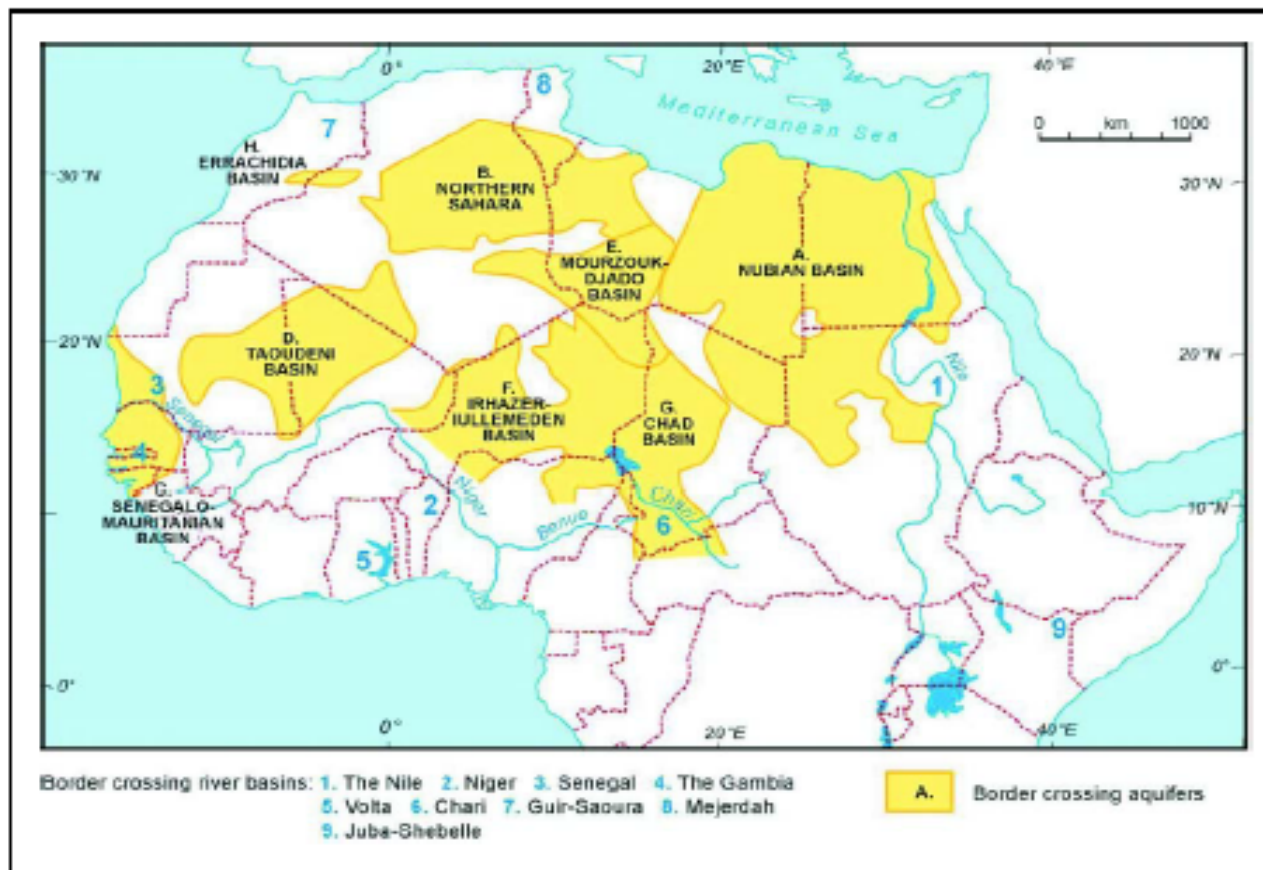
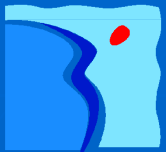


FIGURE 1. Transboundary aquifers in N Africa



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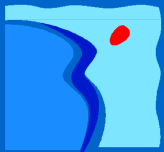


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International River Basins of NORTH AMERICA



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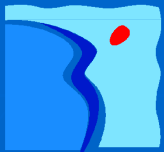


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International River Basins of **SOUTH AMERICA**



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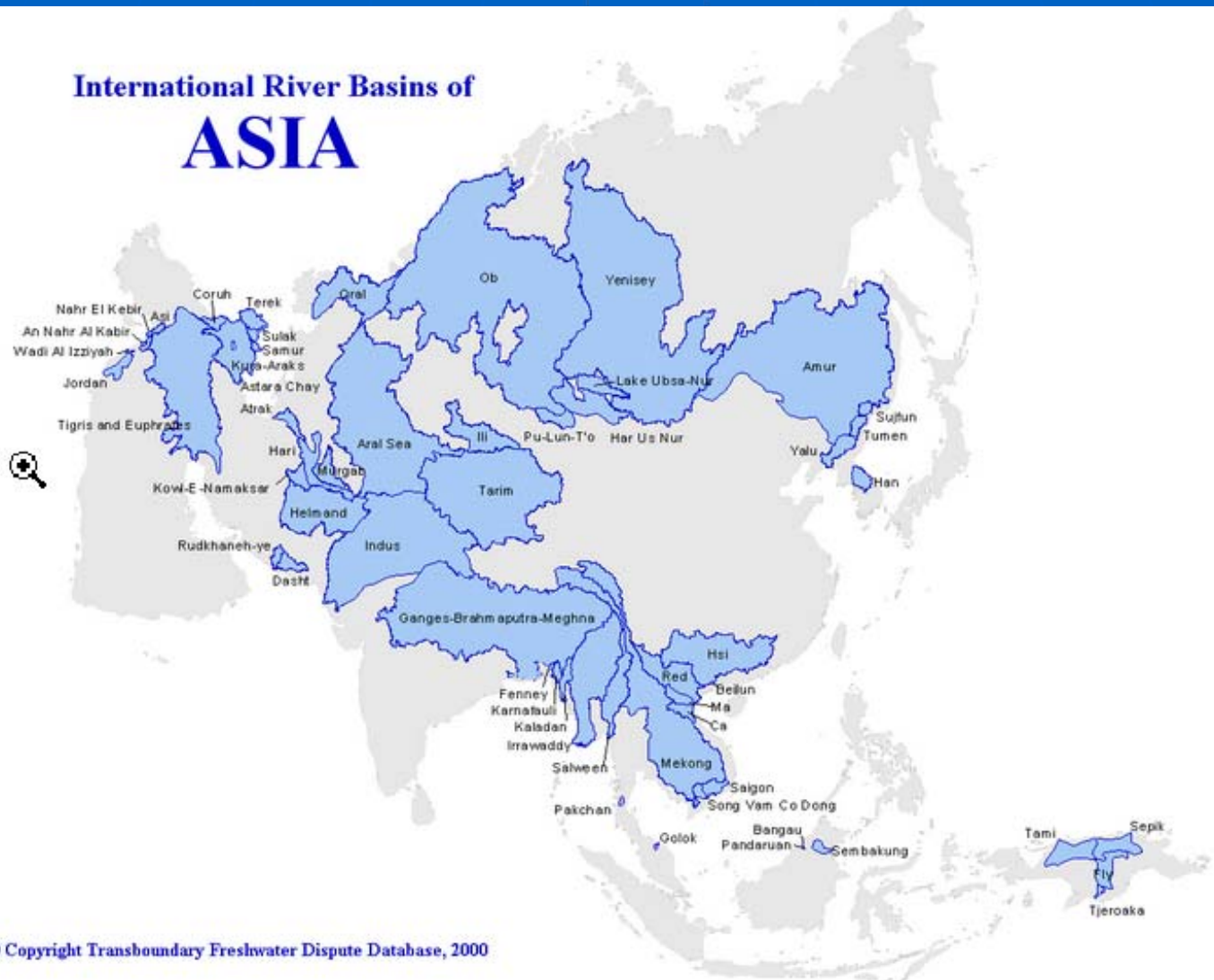


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International River Basins of ASIA



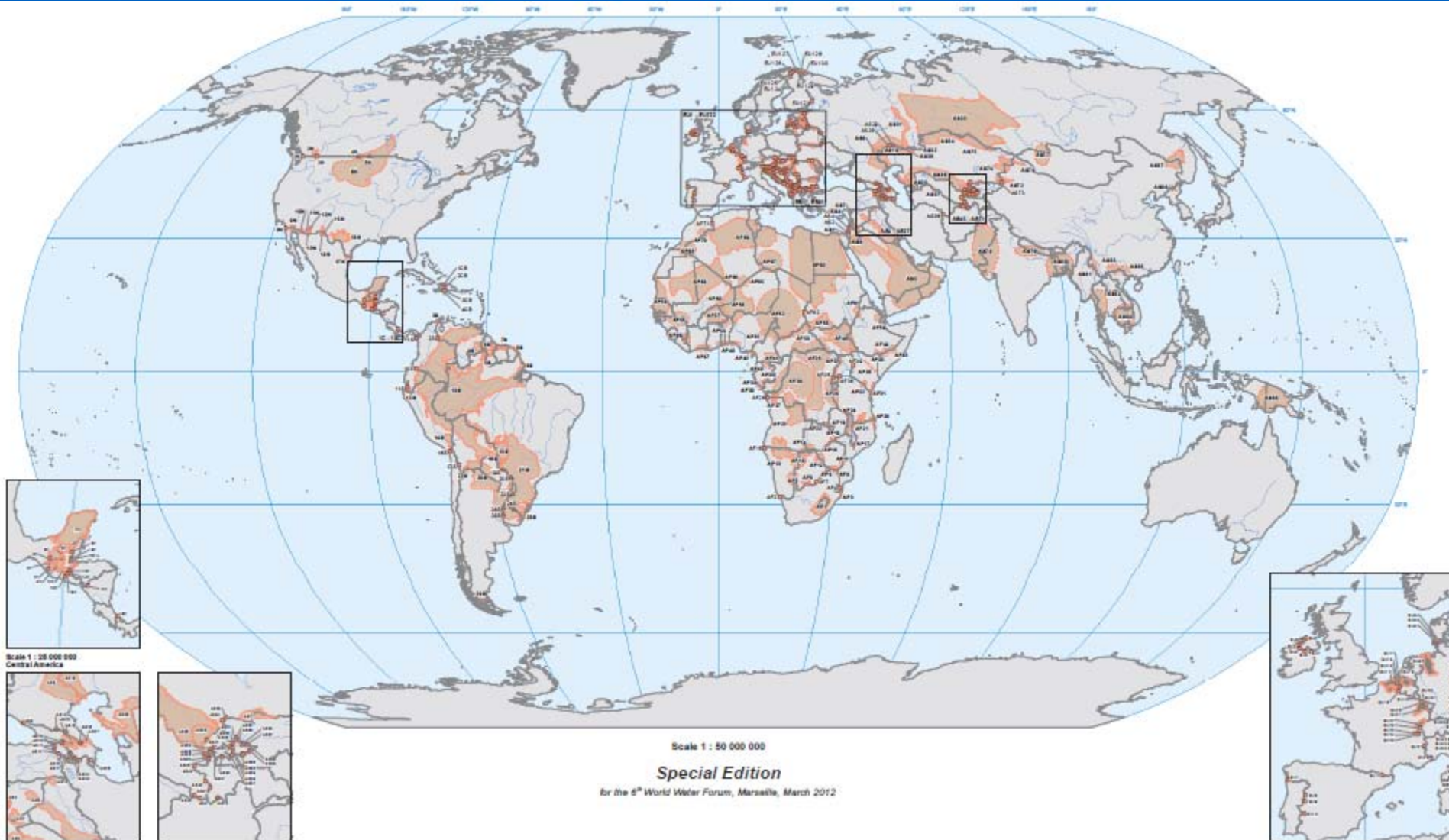


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Transboundary aquifers



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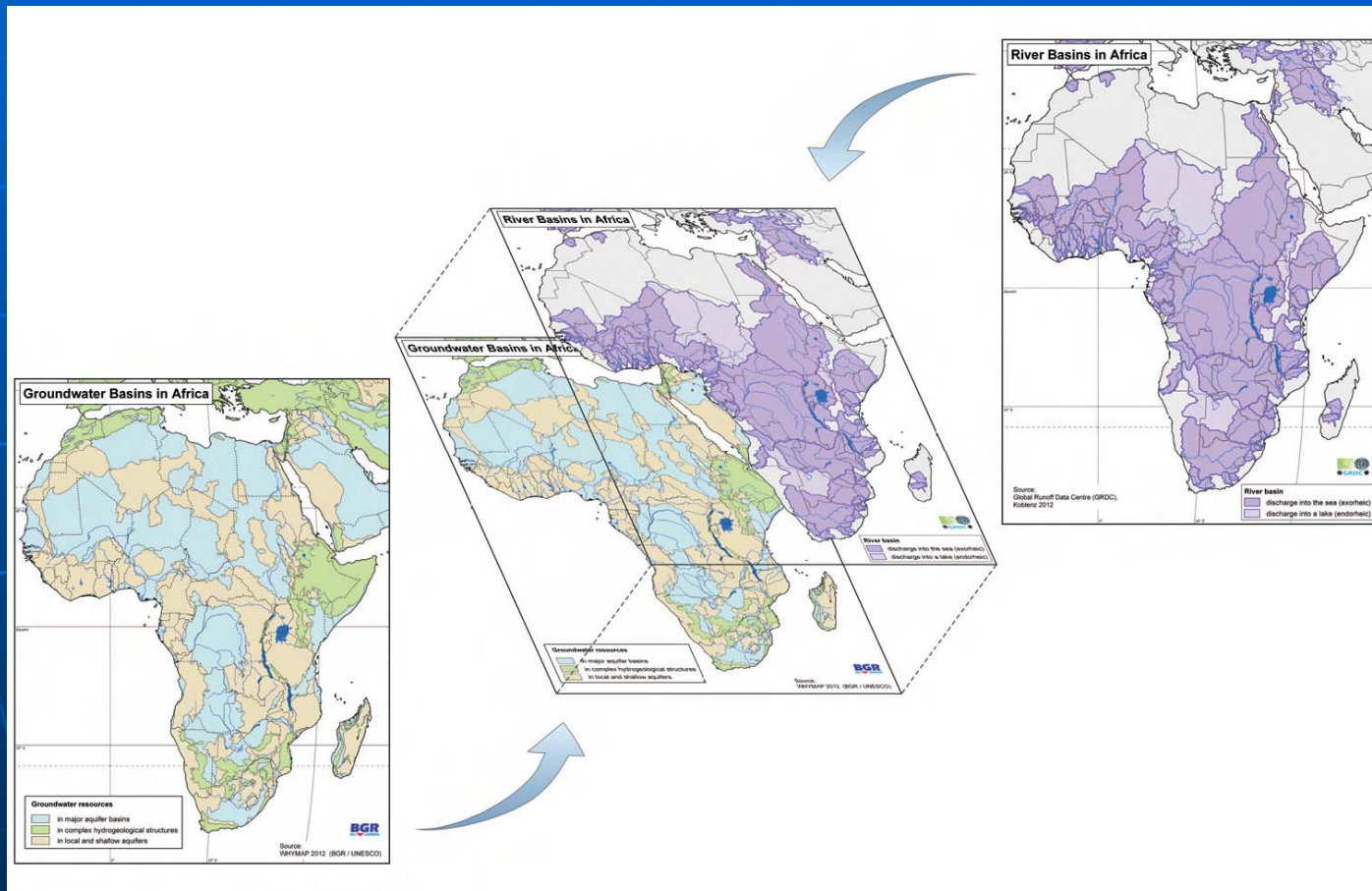




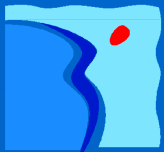
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Areal extent of surface basins and aquifers sometimes differs radically

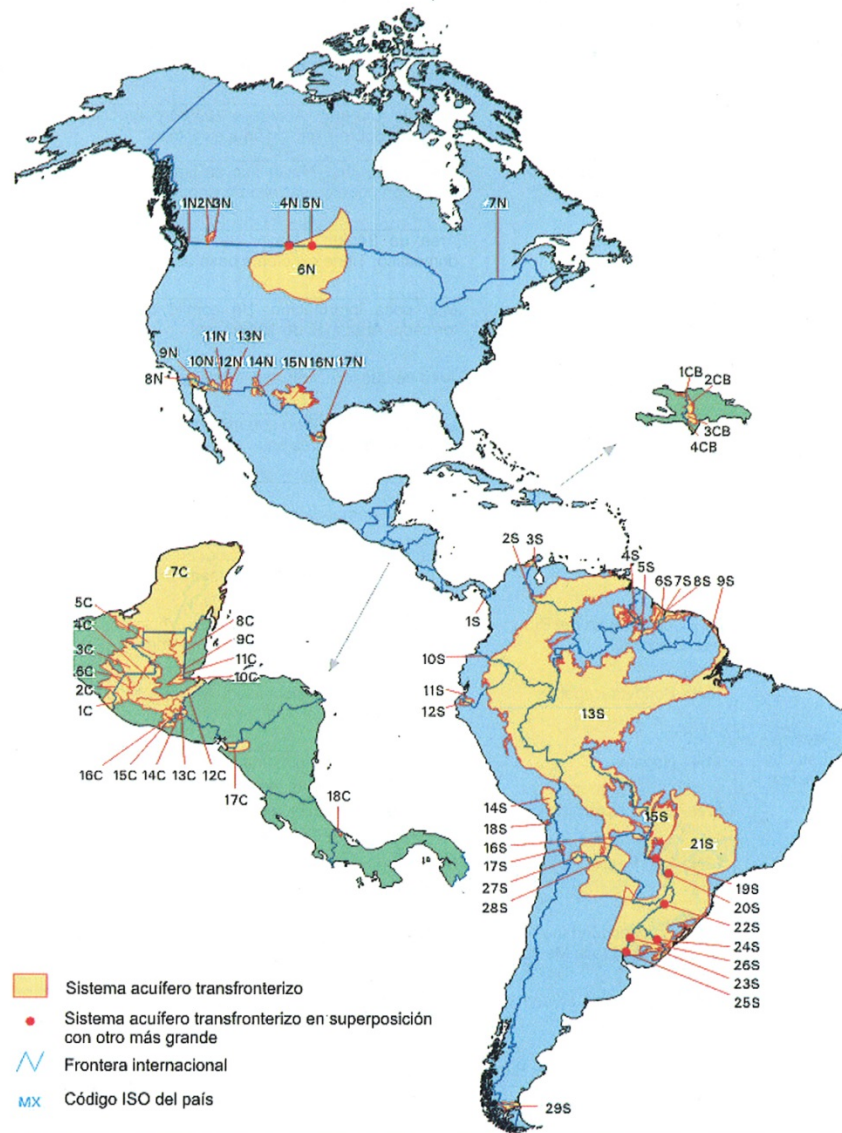


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Sistemas Acuíferos Transfronterizos de las Américas





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**Indeed, basins are the natural territories,
in which water runs,
on the soil or in the sub-soil,
whatever are the national or administrative boundaries
or limits crossed.**



**An overall approach should be organized
on the relevant scale
of basin areas of rivers, lakes and aquifers,**



« UPSTREAM-DOWNSTREAM » COMMON CAUSE ON THE SCALE OF BASINS AND SUB-BASINS



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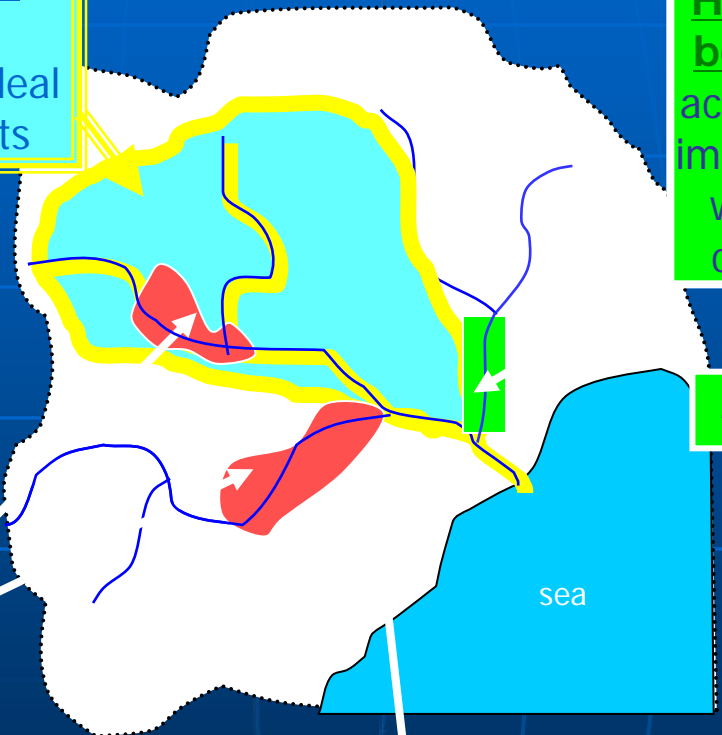
Sub-basin/Sector/
Water type
element of district to deal with particular aspects

Heavily modified water bodies (HMWB): human activity carried out makes it impossible to reach the goal without disproportionate costs (change activity...)

⇒ no link with pollution

THE DIFFERENT HYDROLOGICAL SCALES:

Water bodies
scale of evaluation of the achievement of good status



District =
river basins + associated groundwaters and coastal waters

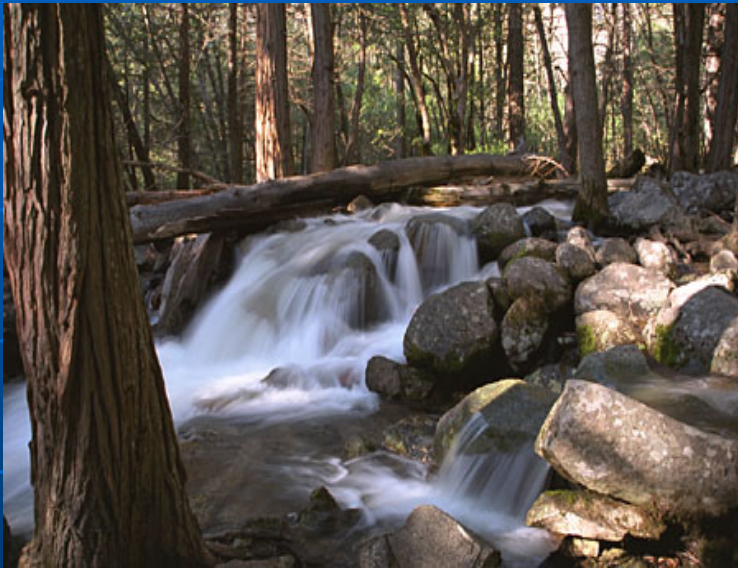


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All kinds of water Are taken jointly into consideration



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- * surface waters
- * groundwater



- * transitional water
- * coastal waters...



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What do we consider as a *Basin* ?



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the concept includes all

SURFACE and



Groundwater



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INTEGRATED WATER RESOURCE MANAGEMENT : MAIN BASIC FUNCTIONS



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- International agreements**
- Legislation - Regulations**
- Standardization**
- Authorizations for abstraction or discharge - Water policing**
- Monitoring**
- Follow-up of the environment and uses**
- Warning and protection**
- Planning**
- Funding - Programming**
- Investments**
- Operation - Maintenance**
- Research**
- Training**
- Information**



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INTEGRATED WATER RESOURCE MANAGEMENT :



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DEFINING ROLES AND RESPONSIBILITIES OF EACH:



basin organizations?



Multilateral organizations

International commissions

Central or federal government

**Local authorities = states (Federation)
= municipalities
= villages**

Large public regional planners

**Water users : = community
= individuals**

**Civil Society : = enterprises
= researchers
= NGOs**



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DEFINING ROLES AND RESPONSIBILITIES OF EACH:



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- **A clear legal framework** must specify, in each country, the rights and obligations, the possible levels of decentralization, the institutional responsibilities of the different stakeholders, the processes and means needed for good water governance,

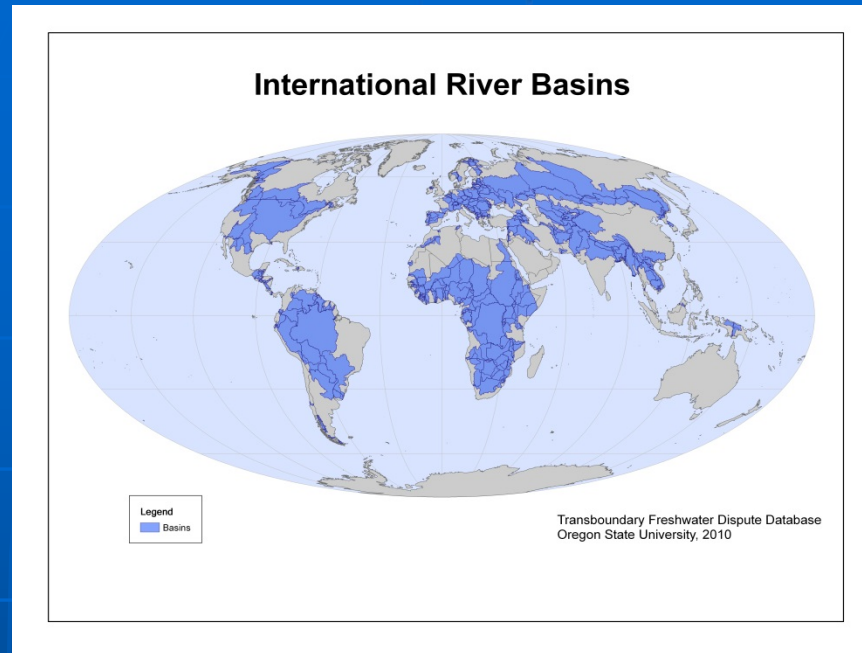
« UPSTREAM-DOWNSTREAM » COMMON CAUSE
ON THE SCALE OF BASINS AND SUB-BASINS



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Many agreements were signed,
in the past centuries,
between riparian countries
of transboundary rivers, to ensure:

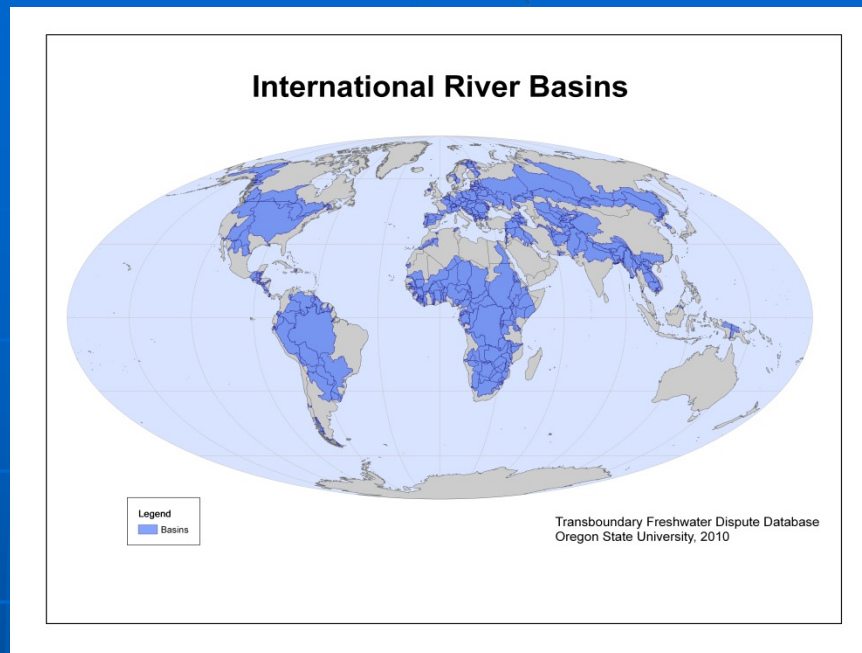
- free navigation,
- the share of river flows,
- the prevention of floods,
- the building of hydropower dams.



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But,

today, there are still too few agreements, conventions or treaties, dealing with:

- **pollution control,**
- **aquifers management,**

and, a fortiori,

- **the integrated management of shared river basins.**



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DIFFERENT TYPES OF BASIN ORGANIZATIONS:



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- **Administrative Commissions, with or without permanent secretariat,** in which mainly participate representatives of the « ministries » concerned to coordinate their various projects on the same river or aquifer, to exchange information or data, formalized or not, on emergency situations in particular, to define common rules (navigation, etc.), and whenever necessary, to allocate the available resources between the categories of uses, the countries or regions, especially in periods of crisis or when regulation structures do exist, etc.,
- **Arbitration « Authorities »,** to which the interested « parties » refer for decision-making on the conflicts which arise; this is the case of the **Joint International Commission** (IJC) between the USA and Canada, for example.



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DIFFERENT TYPES OF BASIN ORGANIZATIONS:



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- **Organizations taking charge of contracting large structuring or combined installations;** this is the case for navigation, flood control, the building of reservoirs, especially for irrigation, hydropower production, etc.
These organizations, often created as public or private « companies » have usually the concession of community facilities for which they are responsible for their construction and long-term management, generally for providing services, raw water or by levying specific taxes.
- **« Agencies »**, which are in charge of carrying out tasks for medium-term planning and for collecting taxes on abstractions and discharges to finance or support the investments necessary for achieving the set objectives. In some cases, they can also be responsible for water policing, studies, data production or collection, etc.



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DIFFERENT TYPES OF BASIN ORGANIZATIONS:



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- « **Basin Committees or Councils** », which gather, at the side of administrations, representatives of local authorities, economic sectors using water, the civil society, etc. They can be advisory or decisional, especially regarding planning, the definition of taxes, the allocation of available resources, etc.
- « **Associations, unions or consortiums** », of local authorities, users or NGOs, which are often spontaneously organized to solve a common problem or to have some influence in water management.
- « **Projects** », which are usually temporary for specifically implementing and action plan with specific financing.



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The Rhine : an international river basin district

185 000 km²
50 millions inhabitants

9 States involved

Austria
Belgium
France
Germany
Italy
Liechtenstein
Luxemburg
Switzerland
The Netherlands



Secretariat

**Plenary assembly (PLEN)
Coordination Committee (CC)**

Delegation Head

Strategy Group (SG)

Editorial Group

Riparian states *

**WG Flooding
(H)**

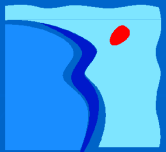
**WG Water
Quality /
Emissions (S)**
incl. Groundwater (GW)

**WG Ecology
(B)**

**Expert Groups
GIS
Economy (E)**

RHINE

*cf. Diagram 2: Expert coordination / Coordination of reporting



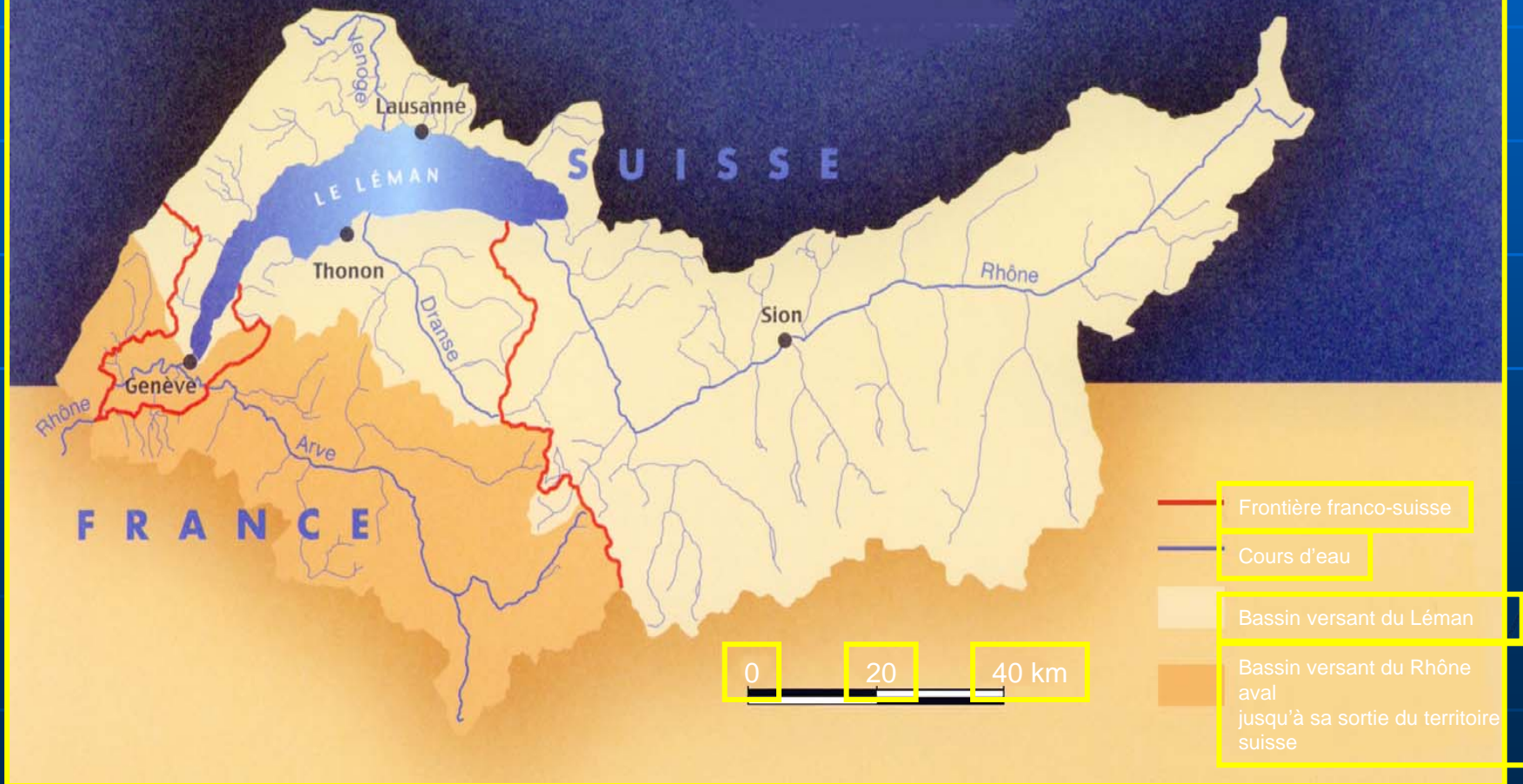
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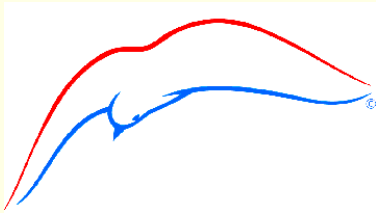
International Commission for the Léman Lake



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Zone géographique concernée par la CIPEL





Vaud
Valais
Genève

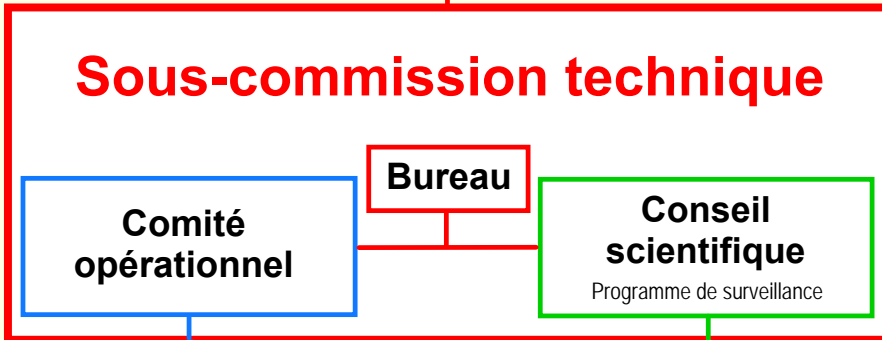


Secrétariat
permanent

Collaboration F - CH
en cas de pollution

Relations
publiques

**International
Commission
for
the Léman Lake**



Pollutions
domestiques

Pollutions
agricoles




Pollutions
industrielles

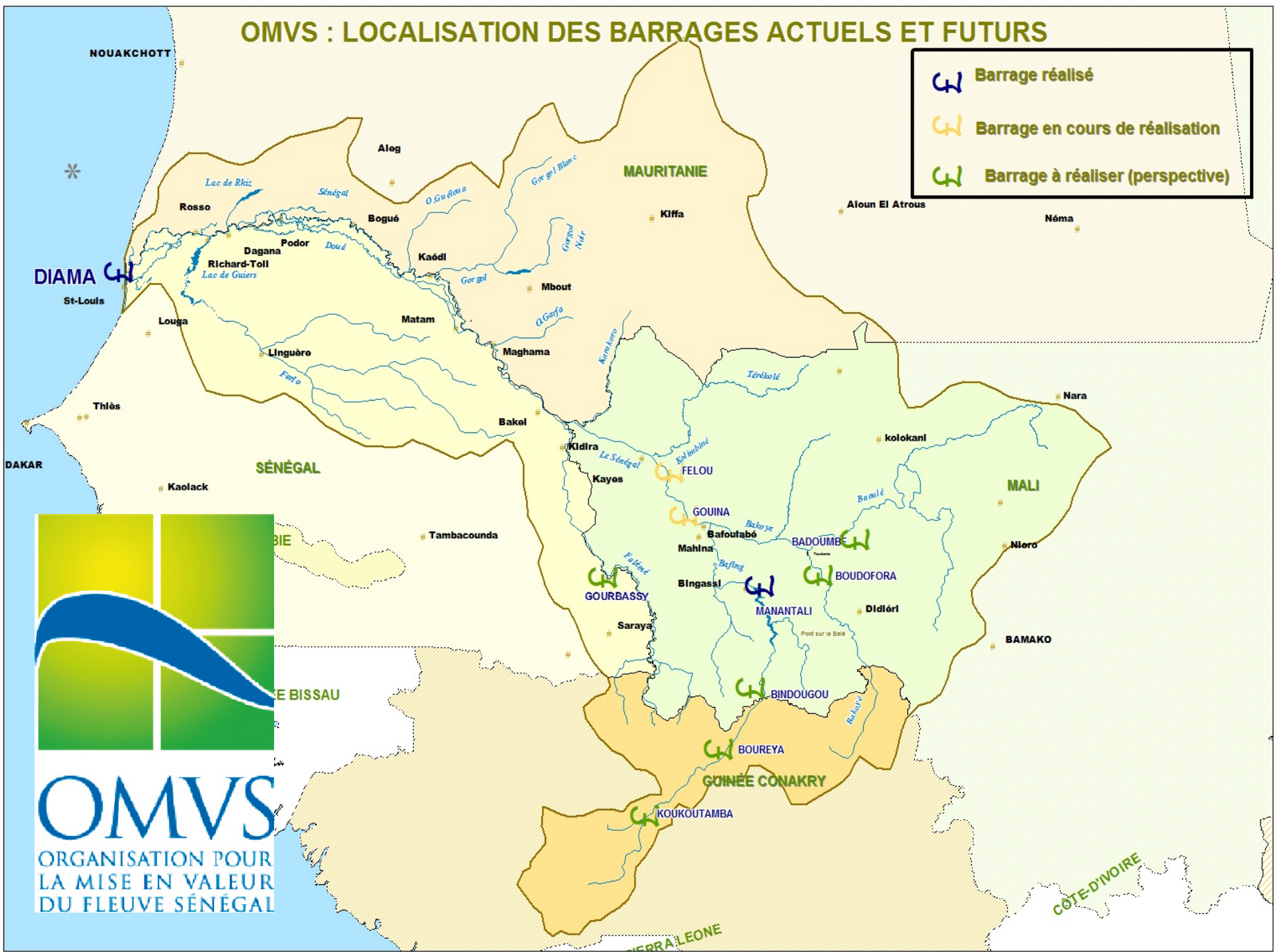
Renaturation

Méthodologie

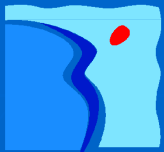
Subvention à la
déphosphatation

OMVS : LOCALISATION DES BARRAGES ACTUELS ET FUTURS

-  Barrage réalisé
-  Barrage en cours de réalisation
-  Barrage à réaliser (perspective)



OMVS
 ORGANISATION POUR
 LA MISE EN VALEUR
 DU FLEUVE SÉNÉGAL



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The Mekong River Basin

Characteristics:

- Area: 795,000 km² (21)
- Length of mainstream: 4,800 km (12)
- Average discharge: 15,000 m³/s (8)



- LEGEND**
- International boundary
 - ~ Basin boundary
 - ~ River
 - Yellow box: Upper Mekong Basin
 - Green box: Lower Mekong Basin (MRC)
 - (n) Rank in the world
 - n% Flow contribution



MRC Secretariat, 1999



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INTEGRATED WATER RESOURCE MANAGEMENT

- **OVERALL MEETING OF RATIONAL AND LEGITIMATE DEMANDS**
 - Agriculture
 - Domestic uses
 - Industry
 - Fish farming
 - Electricity
 - Transports
 - Leisure
 - Fishing
- **WASTEWATER TREATMENT AND RECYCLING,**
- **CONSERVATION OF ECOSYSTEMS:**
rivers, lakes, wetlands, aquifers, costal areas,
- **RISK PREVENTION :**
 - Erosion
 - Drought
 - Floods



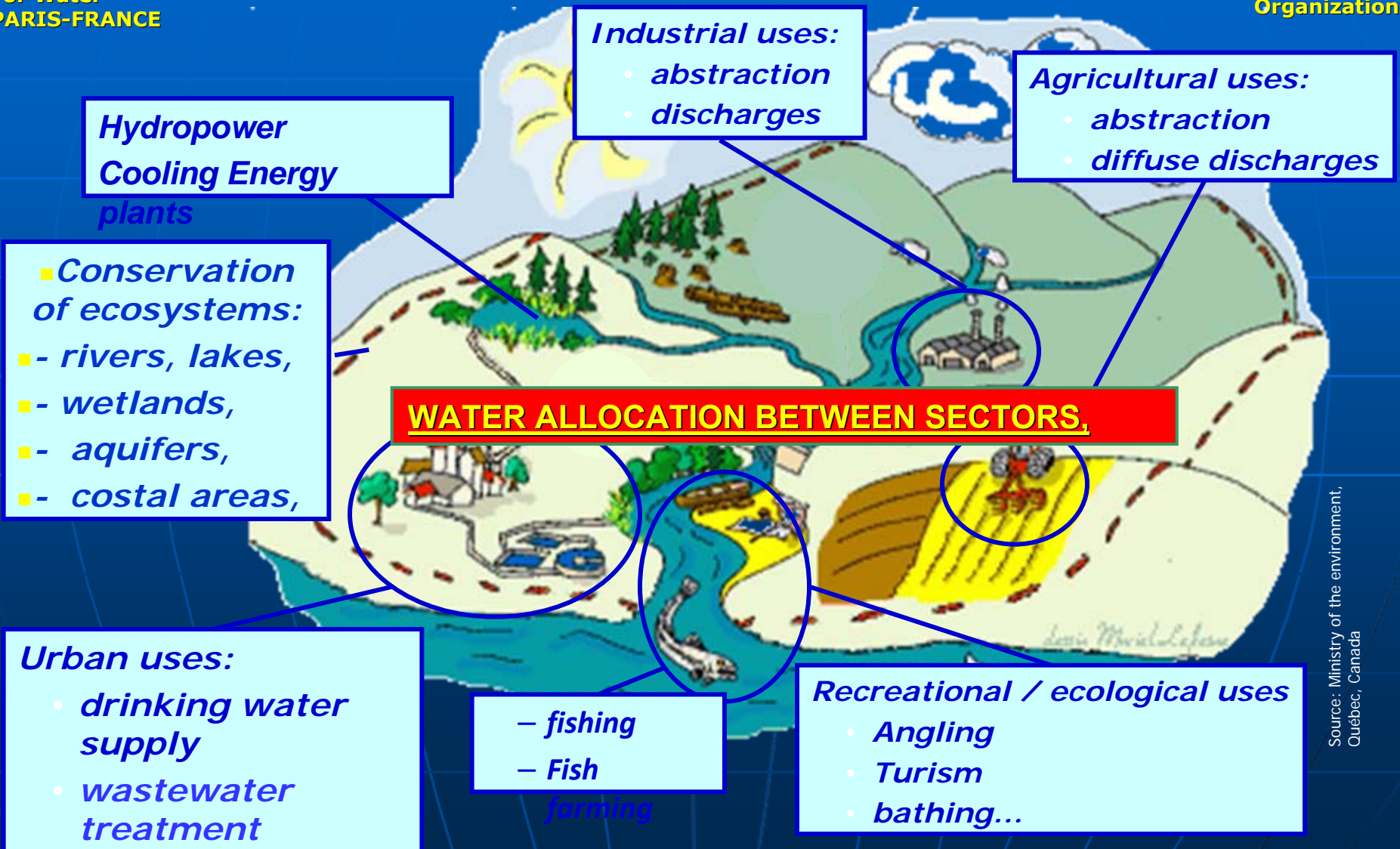
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IWRM CONCERNS

ALL MAJOR WATER USES





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FLOOD CONTROL: FORECAST, PREVENTION, PROTECTION

- **Foreseeing hazardous events,**
- **Reducing vulnerabilities,**
- **Protecting people and properties,**
- **Warning and educating.**



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WITH REGARD TO DROUGHTS:



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- WATER SAVING,
- AVOIDING WASTAGES,
- LEAK DETECTION,
- RECYCLING,
- THE REUSE OF TREATED WASTE WATER,
- GROUNDWATER RECHARGE,
- THE DESALINATION OF SEA WATER,
- RESEARCH ON LOW-CONSUMPTION USES...

... MUST BECOME PRIORITIES.



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Pollution
Assessment
and Control

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Conflicts

requirements collected
from each point of view



Designing a program
through **dialogue**

Reaching **agreement**
with an ambitious program

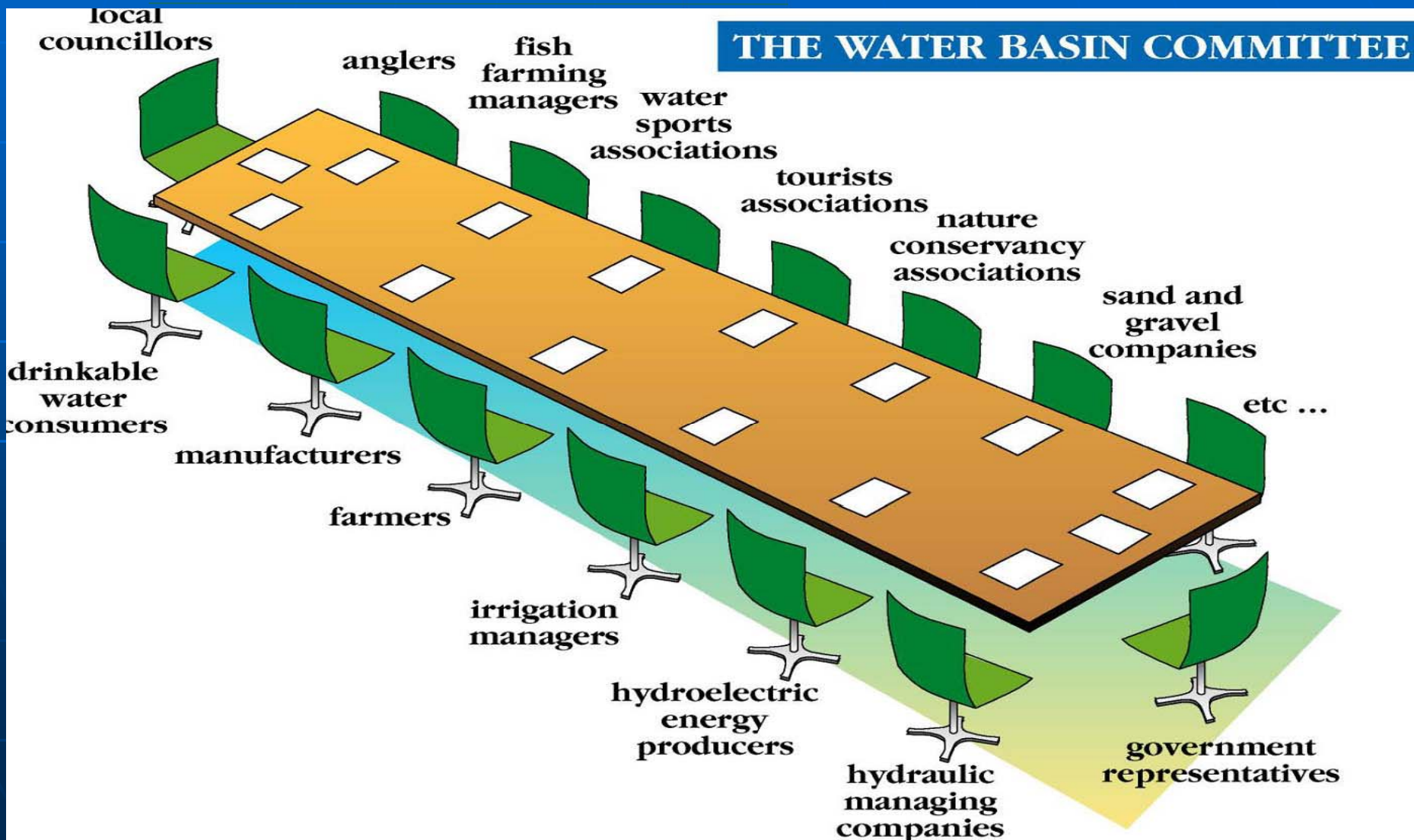


A River Basin Management is integrating various stakeholders



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Integrated information and monitoring systems



International

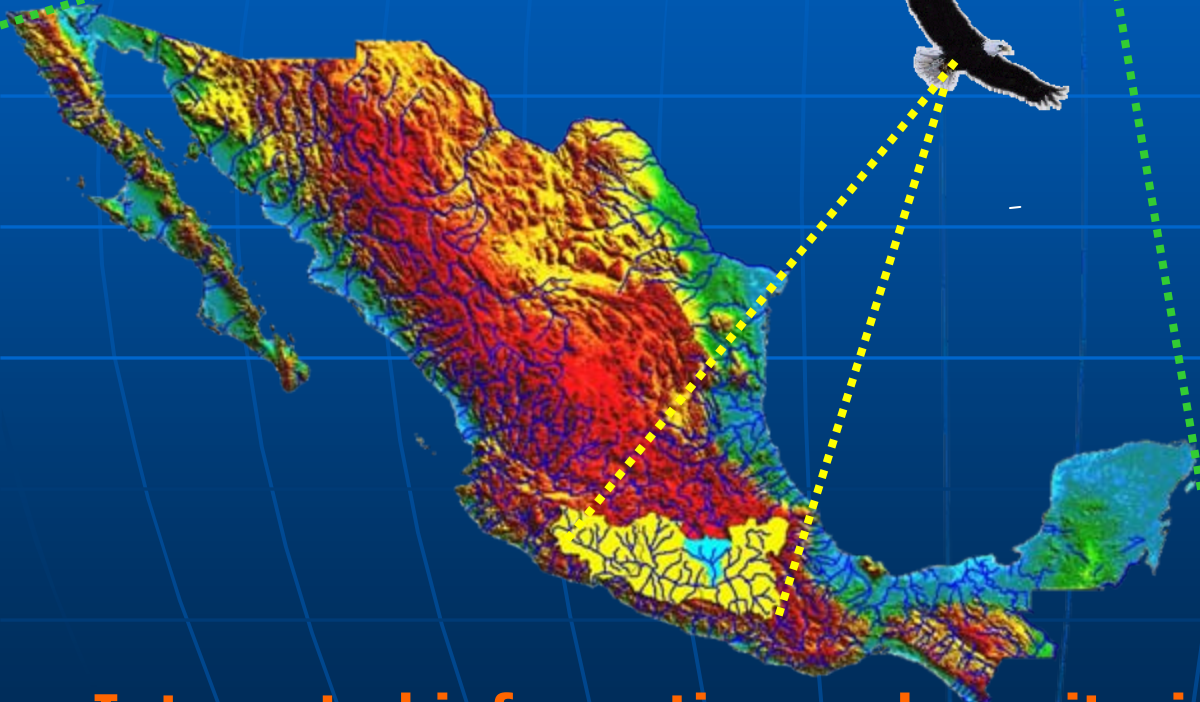
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The National Water Commission

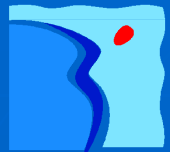
- Allows consistency at national level,
- Defines policy directives,
- Deals with inter-basin strategies and national security.

The Basin Organizations

- Prepare the basin plan,
- Manage the national waters in the basin,
- Coordinate integrated management,
- Harmonize specific actions,
- Facilitate and assist in the involvement of the society through the Basin Council Assembly.



- Integrated information and monitoring systems which are reliable, representative, harmonized and easily accessible, and specific research should be organized in each basin,



If we cannot measure, we cannot manage!!



DIALOGUE



INFORMATION



Resources

- Surface water (Rivers –Lakes)
- Groundwater
- Wetlands



Uses



Seasonal variations



Geographic locations



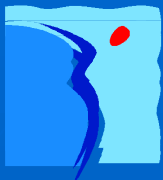
Economical informations

- Quantity
- Quality
- Ecology
- Requirements
- Abstractions
- Discharges
 - Flowrates
 - Pollution

- Frequencies

- G.I.S

- Cost, budget...



ASSESSING WATER QUALITY:



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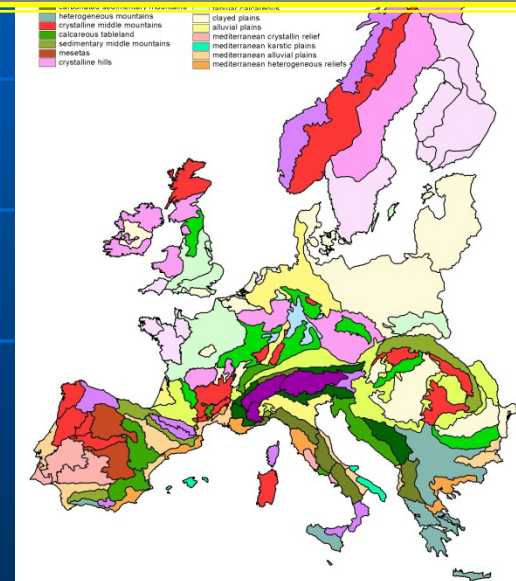
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In Europe,

50,000 "WATER BODIES" have been identified:

- River WB = 27 455
- Lake WB = 10 060
- Groundwater WB = 7 719
- HMWB/AWB = 5 783

European Hydro – eco-regions



IN FRANCE :

- River WB = 3 522
- Lake WB = 471
- Groundwater WB = 539
- HMWB/AWB = 912
- Good Status = 984
- At Risk = 941

**THE DEFINITION
OF COMMON FRAMES
OF REFERENCES.**



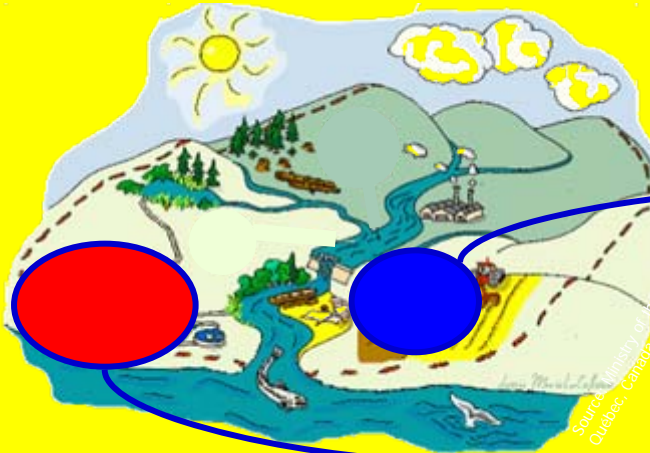
water resources management should be organized:



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2000

*Description
of the initial situation*



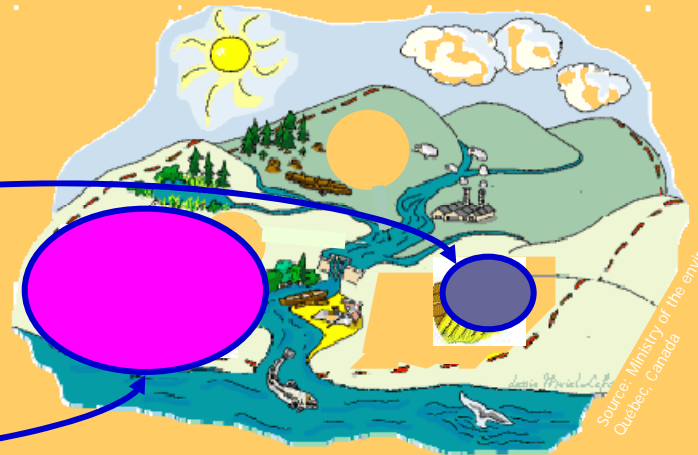
Source: Ministry of the environment,
Quebec, Canada

Focus on economic aspects:

- estimate the economic "weight" of water uses and services
- assess the level of recovery of costs of water services

2025

*Baseline scenario:
projection for 2025*



Source: Ministry of the environment,
Quebec, Canada

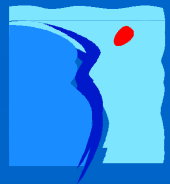
Baseline scenario:

- appraisal of evolutions of uses, pressures...
- identification of potential gaps in water status with GES

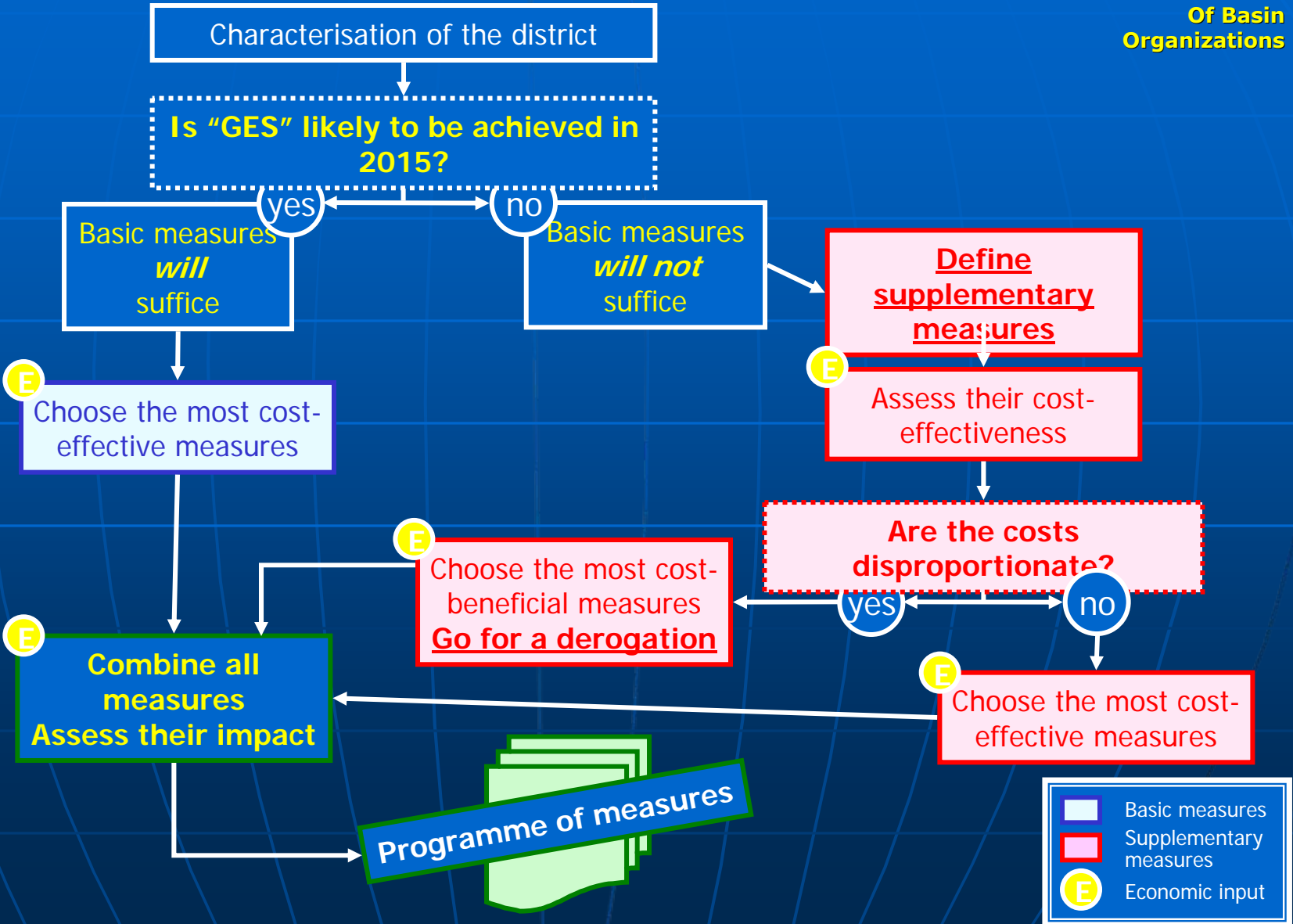
based on management plans or master plans

that define the medium and long-term objectives to be achieved;

As adaptation actions will take several decades before having a visible and significant effect



FLOW CHART OF THE CONSTRUCTION OF THE PROGRAMME OF MEASURES



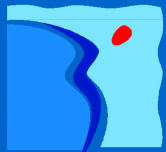


TRANSPARENCY OF COSTS AND POLLUTER-PAYS PRINCIPLE:



Costs	Definition	Example
Direct cost	Capital costs	<i>Principal and interest, depreciation</i>
	Operating costs	<i>Wages, electricity, maintenance of equipment, analyses of the quality of water...</i>
Environmental cost	Costs of the damages to the environment caused by a given activity	<i>Contamination of an aquifer, destruction of wetlands...</i>
Resource cost	Value of the alternative foregone by choosing a particular activity (= opportunity costs)	<i>Cost of electricity that could have been produced if water would be available instead of being pumped for irrigation</i>

Sum = full cost



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water resources management should be organized:



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VARIOUS COMPLEMENTARY SYSTEMS FOR COST RECOVERY: THE 3x"T" the mobilization of specific financial resources:

TAXES:

* Paid to the GENERAL STATE BUDGET:

- General taxes or penal fines
- New ecological tax.

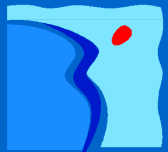
* Water-related CHARGES:

- National water charges – transiting through
"Special Accounts of the Treasury"
- Basin water charges – levied by the Water Agency

TARIFFS OF COMMUNITY SERVICES:

- Price of raw water – levied by big developers
- Price of drinking water – levied by the municipalities
or water suppliers

TRANSFERTS: International aid or from other economical sectors.



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THE « POLLUTER - USER – PAYS » PRINCIPLE

**Abstraction
taxes**

**Pollution
taxes**

**The Water Agency's Budget
adopted by the Board of Directors
with approval of the Basin Committee**

10 % ↓

Studies & Research

Operation

Measurement networks

90 % ↓

Aid = 5-year Program

Big developers

Local authorities

Farmers

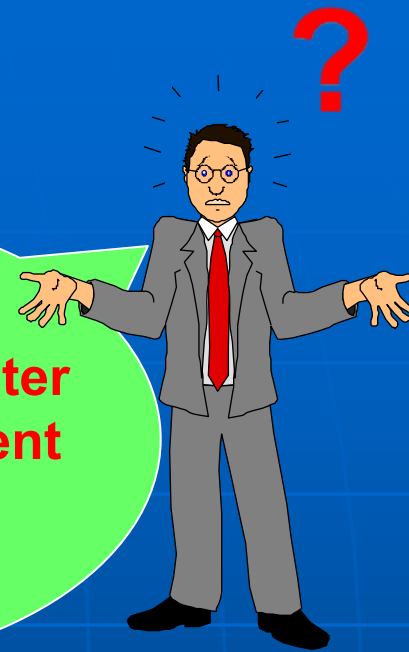
Industrialists



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**Could we say that water
resources management
would be organized:**



- 1) on the scale of local, national or transboundary basins of rivers, lakes and aquifers;**
- 2) with a joint management of surface and ground waters,**
- 3) based on integrated information systems, allowing knowledge on resources and their uses, polluting pressures, ecosystems and their functioning, the follow-up of their evolutions and risk assessment.**
- 4) with a set of indicators to follow progresses and to facilitate comparisons,**



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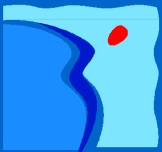
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**Could we say that water
resources management
would be organized:**



- 5) based on management plans or master plans that define the medium and long-term objectives to be achieved:
“the share vision of the future”;
- 6) through the development of Programs of Measures and multiyear priority investments;
- 7) with the mobilization of specific financial resources, “OECD 3T” ;
If possible based on the « polluter-pays » principle and « user-pays » systems;
- 8) with the participation in decision-making of the concerned Governmental Administrations and local Authorities, the representatives of different categories of users and associations for environmental protection or of public interest.



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INVESTING IN IWRM... IT PAYS BACK!



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■ CONCLUSION:

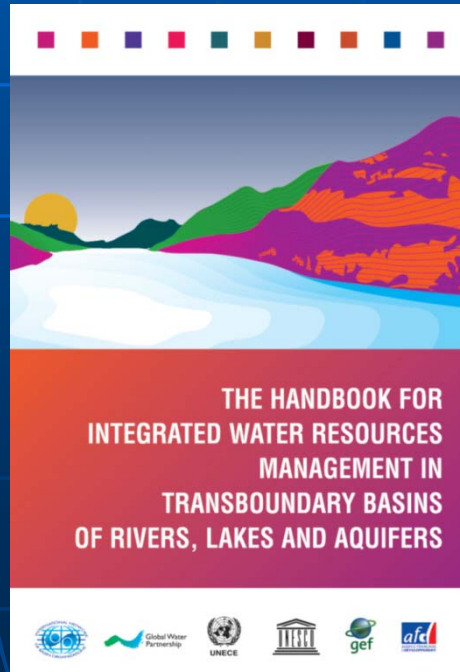
- Various combinations of responsibilities are possible,
- There is no system better than the others:
 - The results depend on:
 - ❖ A strong political will,
 - ❖ A long-term stability of the established mechanisms,
 - ❖ The efficiency of the management of each organization,
 - ❖ The available human and financial resources.
 - The implementation of reforms can only be gradual,
 - The real involvement of local authorities, users and collective interest groups in decision-making facilitates its « acceptability », an offer/demand adequacy and the establishment of new financing systems.



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The International Network of Basin Organizations (INBO), The Global Water Partnership (GWP), The French Development Agency (AFD), The GEF, UNESCO and UNECE,



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your inputs are welcome !

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