



INTERNATIONAL  
RIVERSYMPIOSIUM



## 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



# FRESH WATER IS A TIME BOMB!!!





Permanent  
Technical  
Secretariat  
PARIS



International  
Network  
of Basin  
Organizations



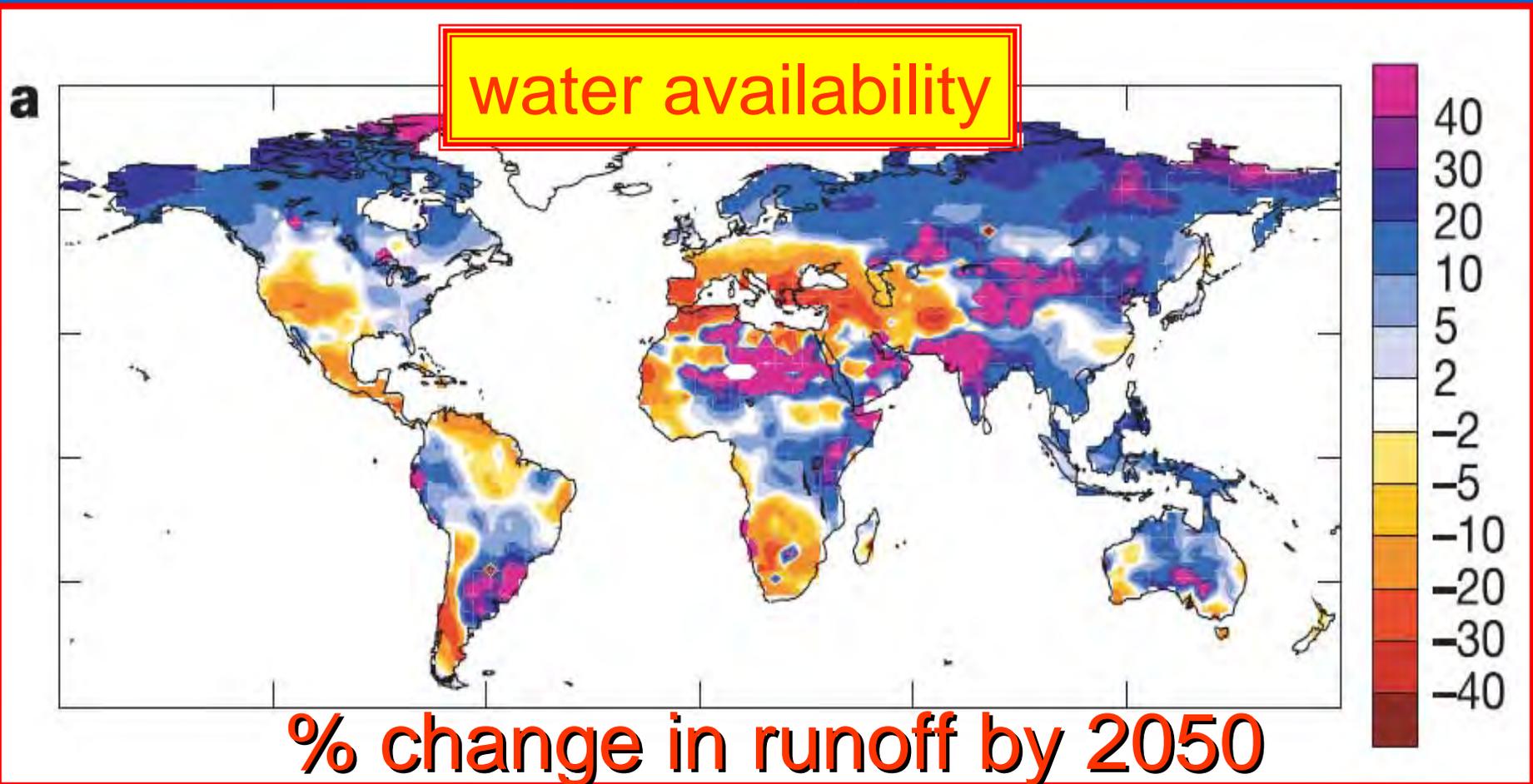
WATER OVER THE WORLD,  
A worrying situation:

- Natural hazards are poorly controlled,
- Wastage is inadmissible,
- Water pollution is significantly increasing,
- The situation of the poorest people is intolerable,
- Ecosystems are destroyed...

**Wastage and pollution of inland freshwater  
might limit development  
in most countries of the world!**

# Global warming cannot now be avoided.

Fresh water resources will be directly affected in the coming years!



- Many of the major “food-bowls” of the world are projected to become significantly drier
- Globally there will be more precipitation
- Higher temperatures will tend to reduce run off
- A few important areas drier (Mediterranean, southern South America, northern Brazil, west and south Africa)



# Climate change consequences



**The climate change is likely to increase the frequency of extreme events, such as floods and droughts:**



**Adaptation of water management  
to climate change is needed**

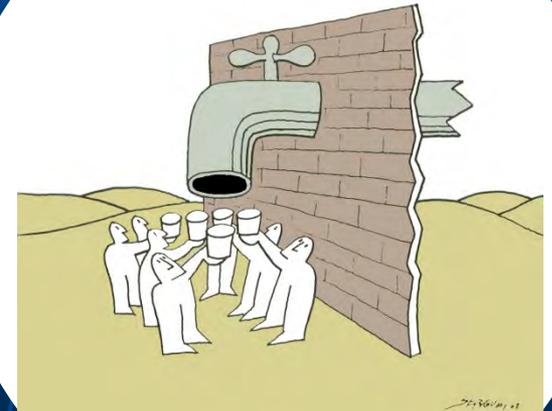


**The demographic, economic and ecological consequences of the climate change are likely to be very significant.**

**It is thus essential to adapt water resources management policies, by taking into account the new elements of this change.**

**It is especially necessary to quickly evaluate the hydrological consequences of this change, according to various scenarios, to increase the thinking about and prospective, by developing adapted research programs.**

# Water resources and global changes



# Conflicts!!



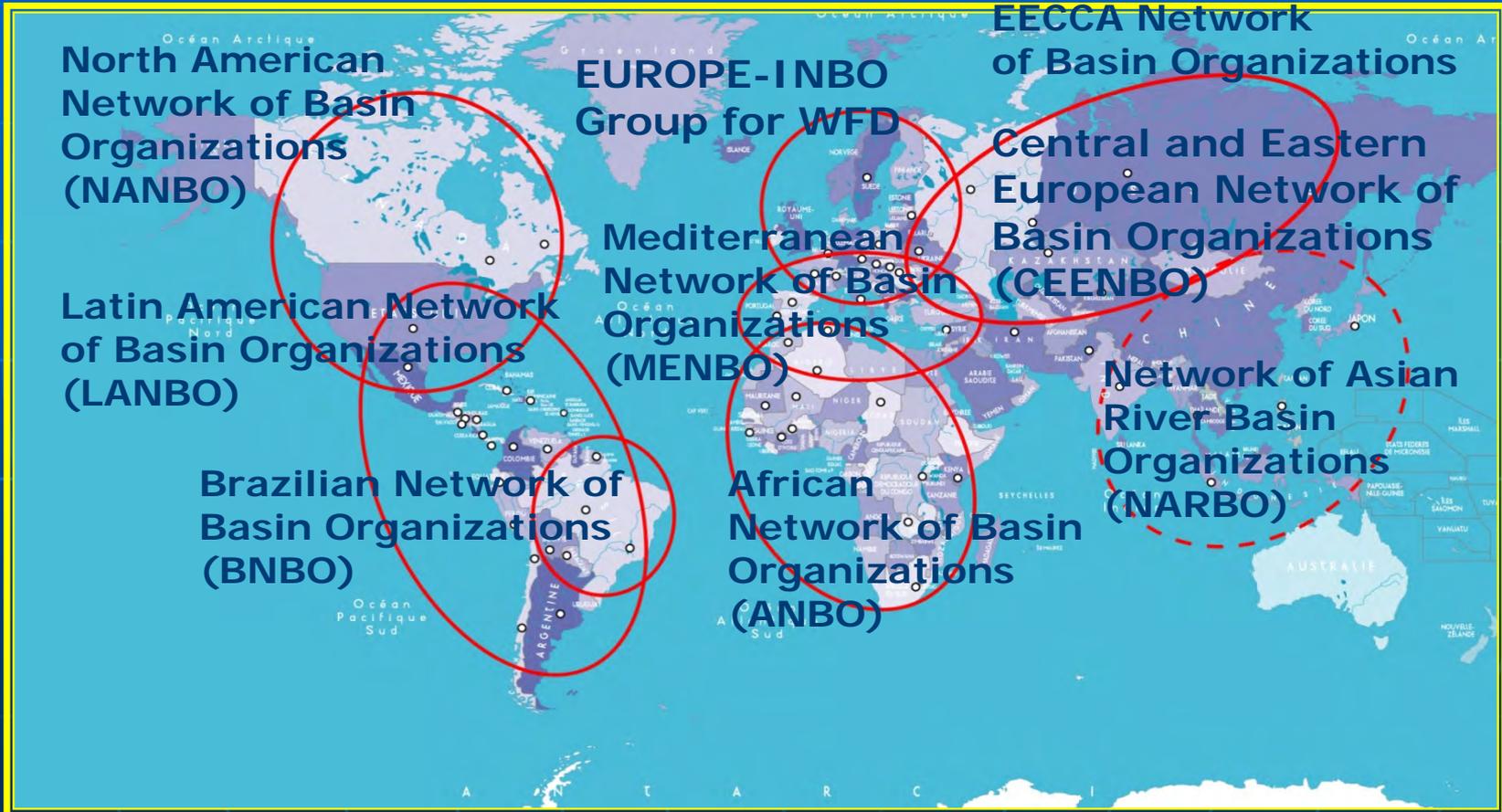
# INTERNATIONAL NETWORK OF BASIN ORGANIZATIONS

Created in 1994 to facilitate operational exchanges between BO



International Network of Basin Organizations

## INBO's REGIONAL NETWORKS



188 FULL MEMBERS or PERMANENT OBSERVERS  
in 81 COUNTRIES



# RIVER BASIN MANAGEMENT EXPERIENCED A QUICK DEVELOPMENT IN MANY COUNTRIES



## 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



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,



Permanent  
Technical  
Secretariat  
PARIS



International  
Network  
of Basin  
Organizations

Implementation of  
the European Water Framework Directive  
in the 28 countries  
of the enlarged European Union,  
as well as in the candidate countries for accession,  
is a major milestone for promoting the principles  
of good governance advocated by INBO.

Directive 2000/60/EC of 23 October 2000

*establishing a framework for the Community action in the field of water policy.*



## **water resources management should be organized:**



- 1) on the scale of local, national or transboundary basins of rivers, lakes and aquifers;**
- 2) 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.**
- 3) with the participation in decision-making of the concerned Governmental Administrations, local Authorities, the representatives of different categories of users and associations for environmental protection or of public interest.**



**water resources management should be organized:**



- 4) based on management plans or master plans that define the medium and long-term objectives to be achieved;**
- 5) through the development of Programs of Measures and multiyear priority investments;**
- 6) with the mobilization of specific financial resources, based on the « polluter-pays » principle and « user-pays » systems;**



Permanent  
Technical  
Secretariat  
PARIS

## DEFINING ROLES AND RESPONSIBILITIES OF EACH:

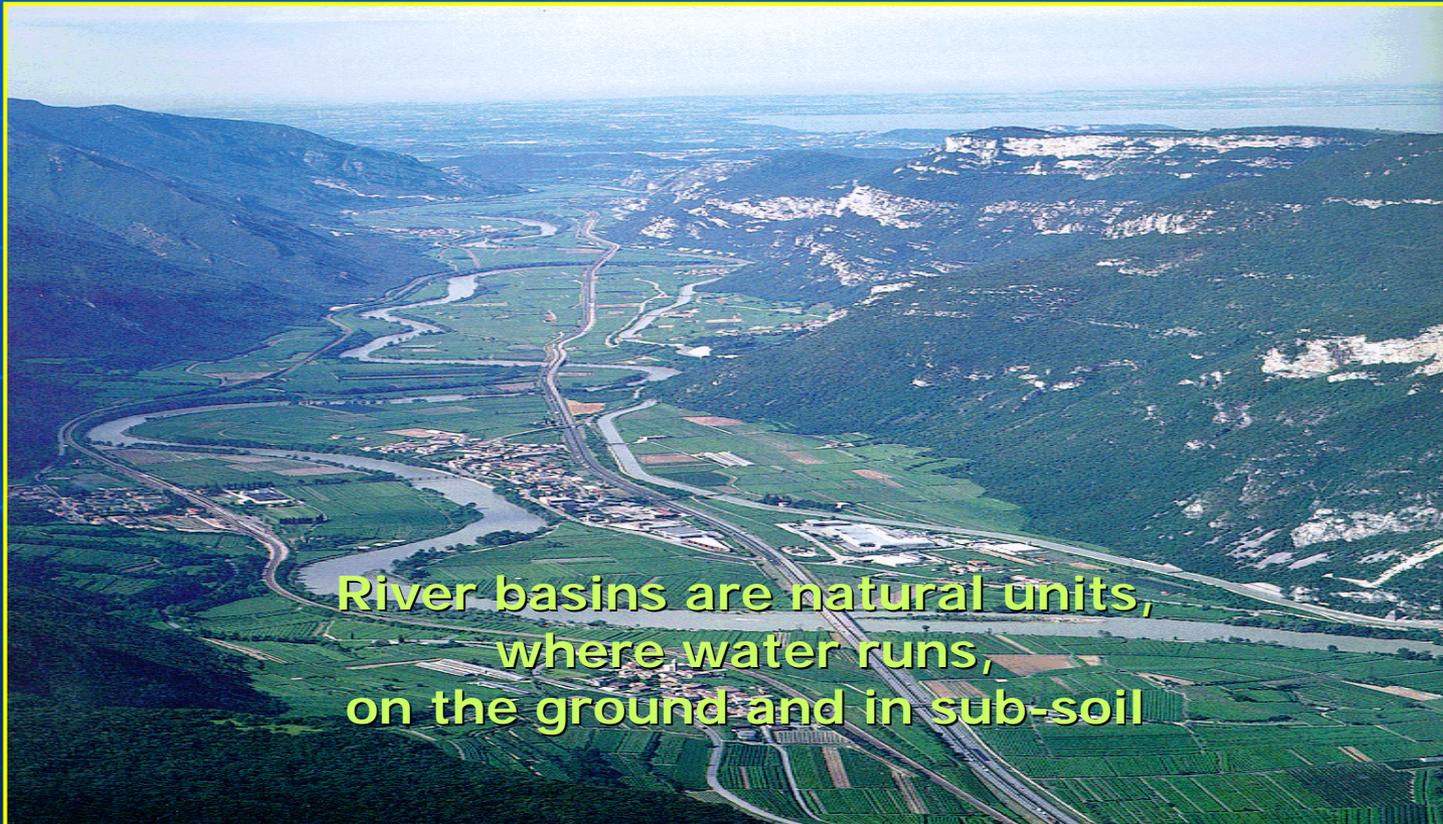


International  
Network  
of Basin  
Organizations

- **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,

**water resources management should be organized:**

**1) on the scale of local,  
national, transboundary  
basins of rivers, lakes and aquifers**



**River basins are natural units,  
where water runs,  
on the ground and in sub-soil**

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

What do we consider as a *Basin* ?

The concept includes all water resources

**SURFACE and**



**Groundwater**





Permanent  
Technical  
Secretariat  
PARIS

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

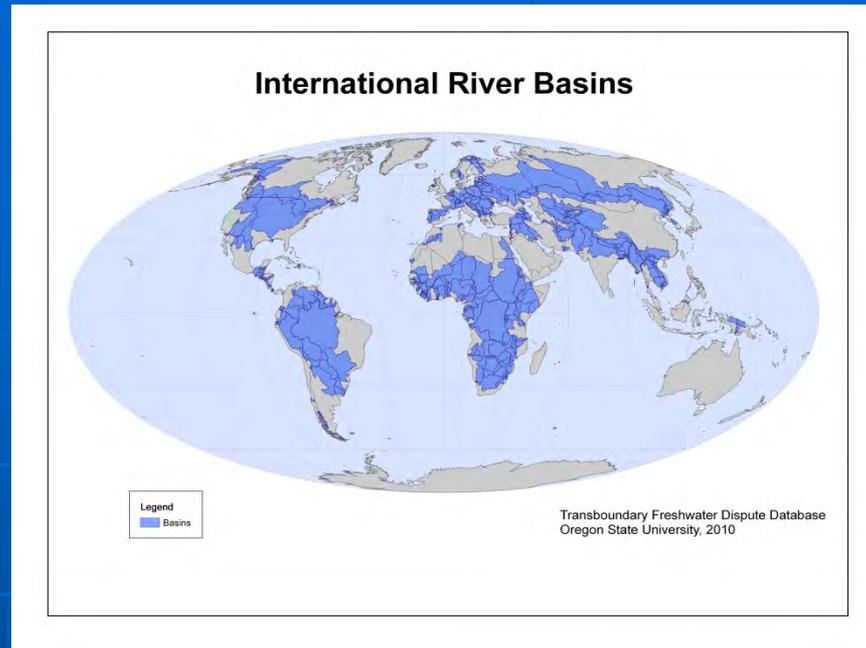


International  
Network  
of Basin  
Organizations



## *Transboundary basins per continent.*

		<i>2002</i>	<i>Percentage Of territory</i>
<i>Africa</i>		59	62 %
<i>Asia</i>		57	39 %
<i>Europe</i>		69	54 %
<i>America North</i>		40	35 %
<i>America South</i>		38	60 %
<b><i>TOTAL</i></b>		<b>276</b>	<b>45 %</b>



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 and aquifers basins.**



Permanent  
Technical  
Secretariat  
PARIS



International  
Network  
of Basin  
Organizations

# Implementation of the UN Convention for the international water courses management in Europe – HELSINKY 1992

Building the data administration and sharing capacities of the national and local Authorities involved in 2 pilot basins, by using methodologies that can be replicated in other transboundary basins of the region.



Secretariat

Plenary assembly (PLEN)  
Coordination Committee (CC)  
Delegation Head

Strategy Group (SG)  
Editorial Group

WG Flooding  
(H)

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

WG Ecology  
(B)

Expert Groups  
GIS  
Economy (E)

Riparian states \*

RHINE

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



# WITH REGARD TO FLOODS:



India



Reuters August 11, 2006  
"Indian floods:  
kill 350,  
leave 4m homeless  
in 5 Indian states"

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

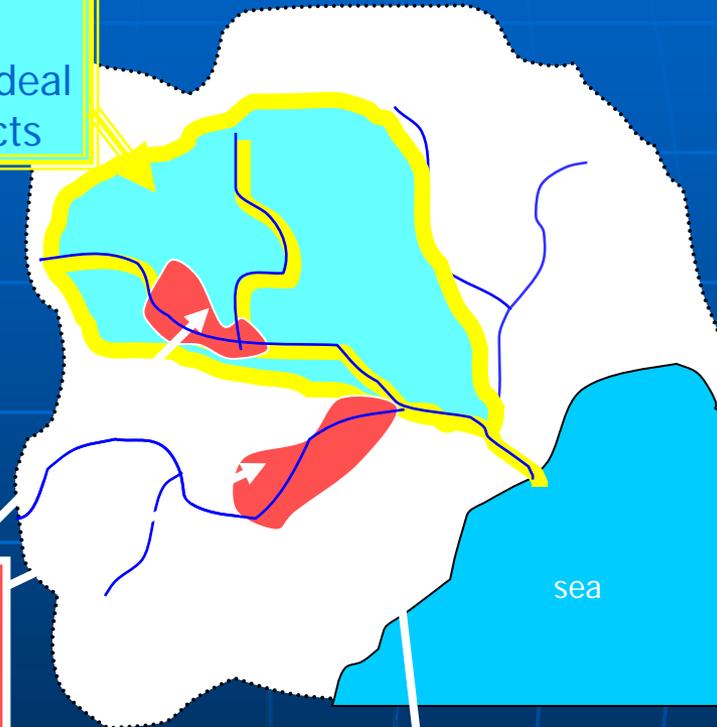
Sub-basin/Sector/  
Water type

element of district to deal  
with particular aspects

## THE DIFFERENT HYDROLOGICAL SCALES:

Water bodies

scale of evaluation  
of the achievement  
of good status



District =

river basins + associated  
groundwaters and coastal waters





# FLOOD CONTROL: PROTECTION, FORECAST, PREVENTION.



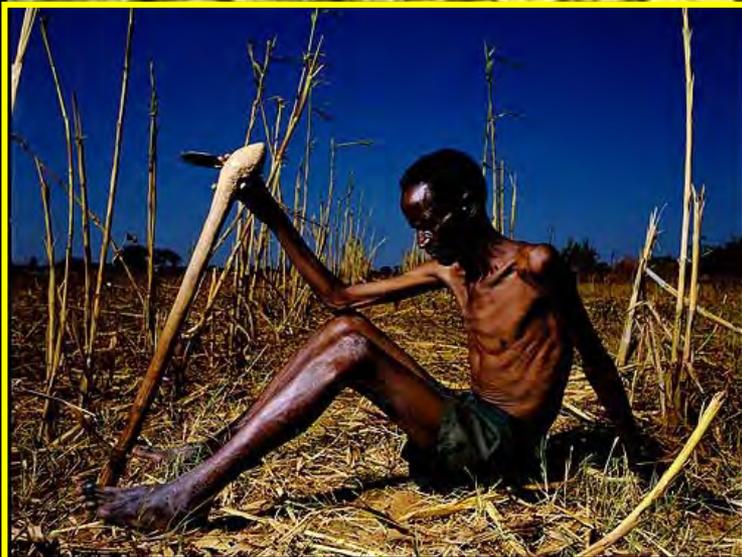
**PROTECTION AGAINST FLOODS  
MUST PASS THROUGH A COORDINATED APPROACH,  
COMBINING, ON THE SCALE OF BASINS AND SUB-BASINS:**

- Protecting people and properties,
- Reducing vulnerabilities,
  - *Restoring the free flow of rivers,*
  - *Preserving - rehabilitating the natural flooding areas,*
- Foreseeing hazardous events,
  - *Identification of hazardous areas,*
  - *Prohibition of buildings in the exposed areas,*
- Warning and educating.

# Persistent droughts

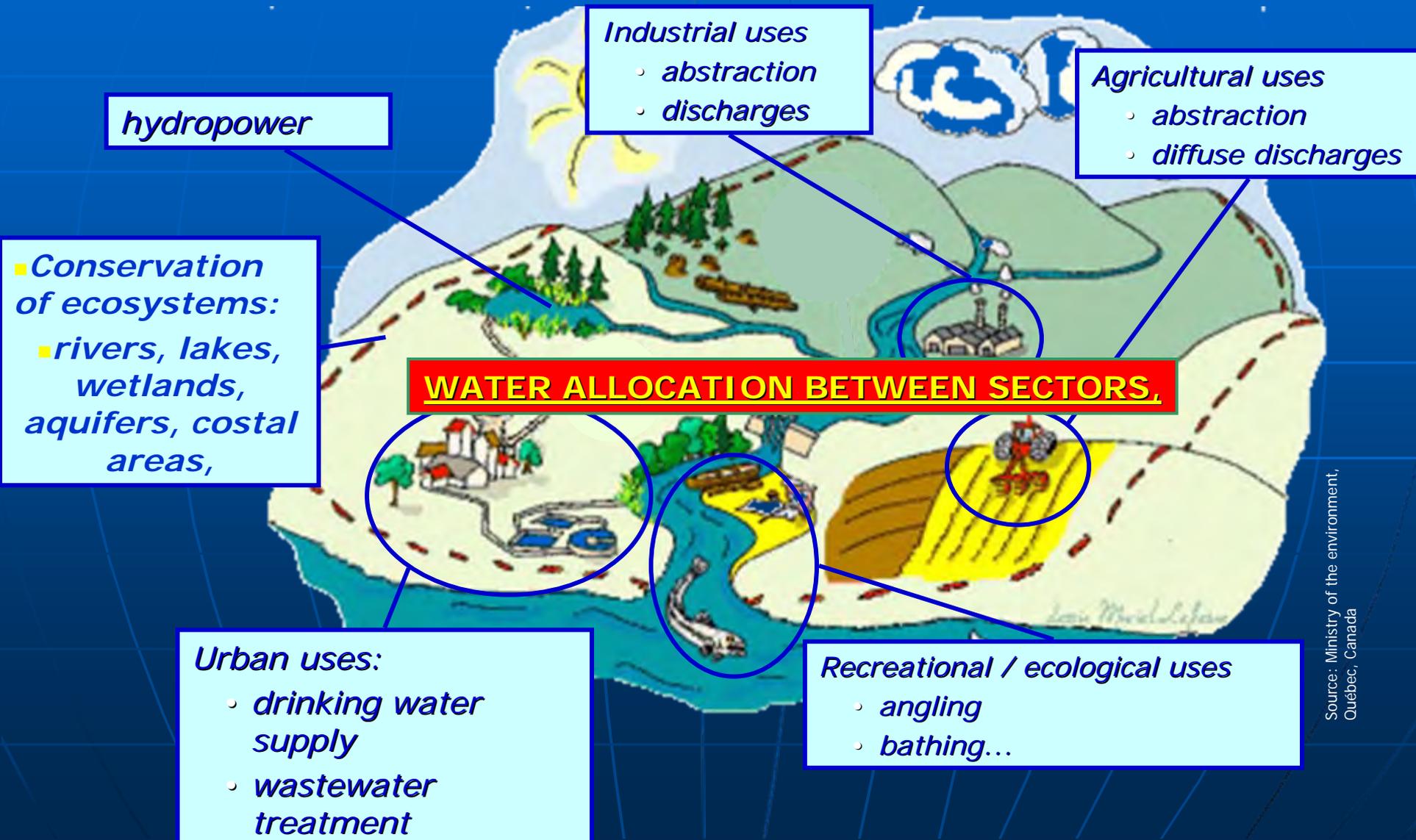
Reuters, Feb. 20, 2006

“Approximately 11 million people are threatened by starvation in Djibouti, Ethiopia, Kenya, Somalia and Tanzania... Rain is unlikely before April”



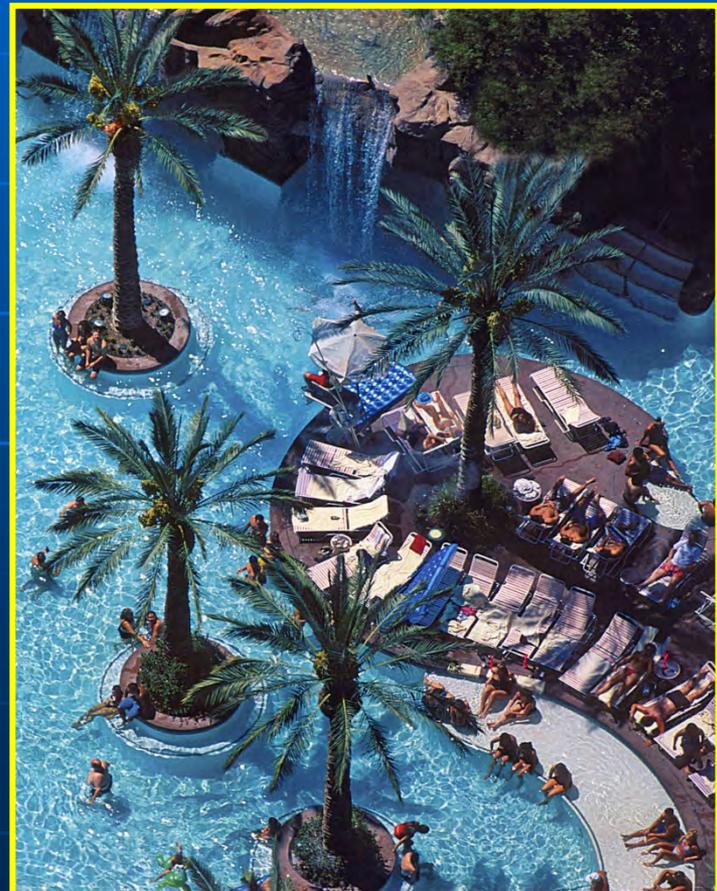
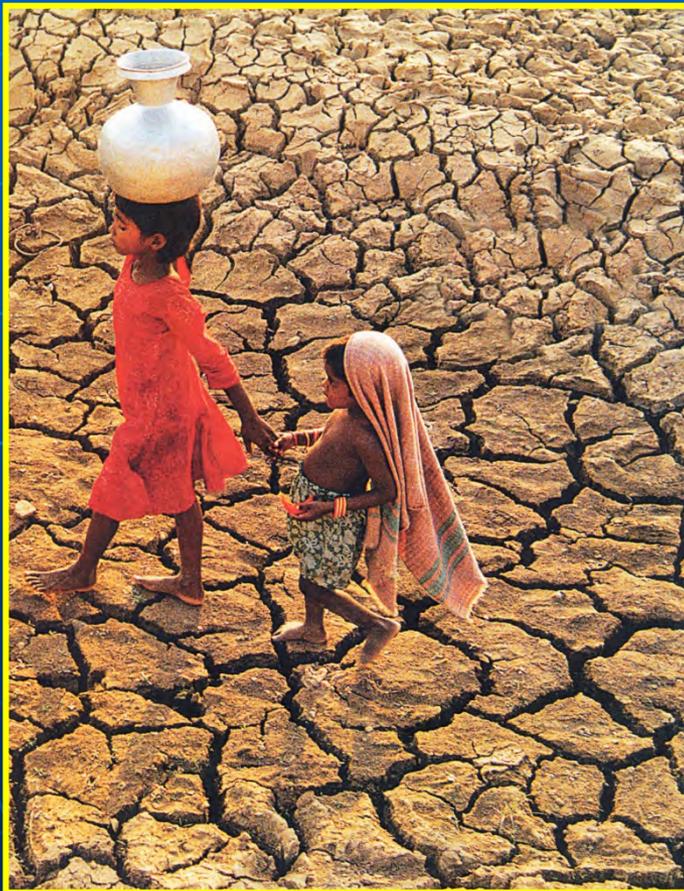


# CLIMATE CHANGE CONCERNS ALL MAJOR WATER USES





# IS WATER EQUITABLY AND SOUNDLY SHARED BETWEEN THE VARIOUS USES, ENSURING A BETTER OPTIMIZATION OF WATER AND AVOIDING WASTAGES?





**MOBILIZING NEW RESOURCES  
SHOULD BE PLANNED  
WHEN THEY ARE ECOLOGICALLY ACCEPTABLE  
AND ECONOMICALLY REASONABLE.**





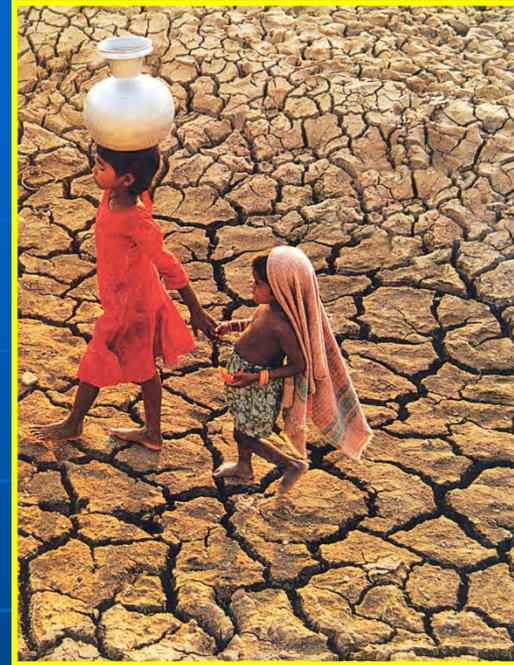
Permanent  
Technical  
Secretariat  
PARIS

## WITH REGARD TO DROUGHTS:



International  
Network  
of Basin  
Organizations

**AVOIDING WASTAGES!**



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

**... MUST BECOME PRIORITIES.**



# A NEW APPROACH TO WATER USES IN AGRICULTURE SHOULD BE LOOKED FOR.



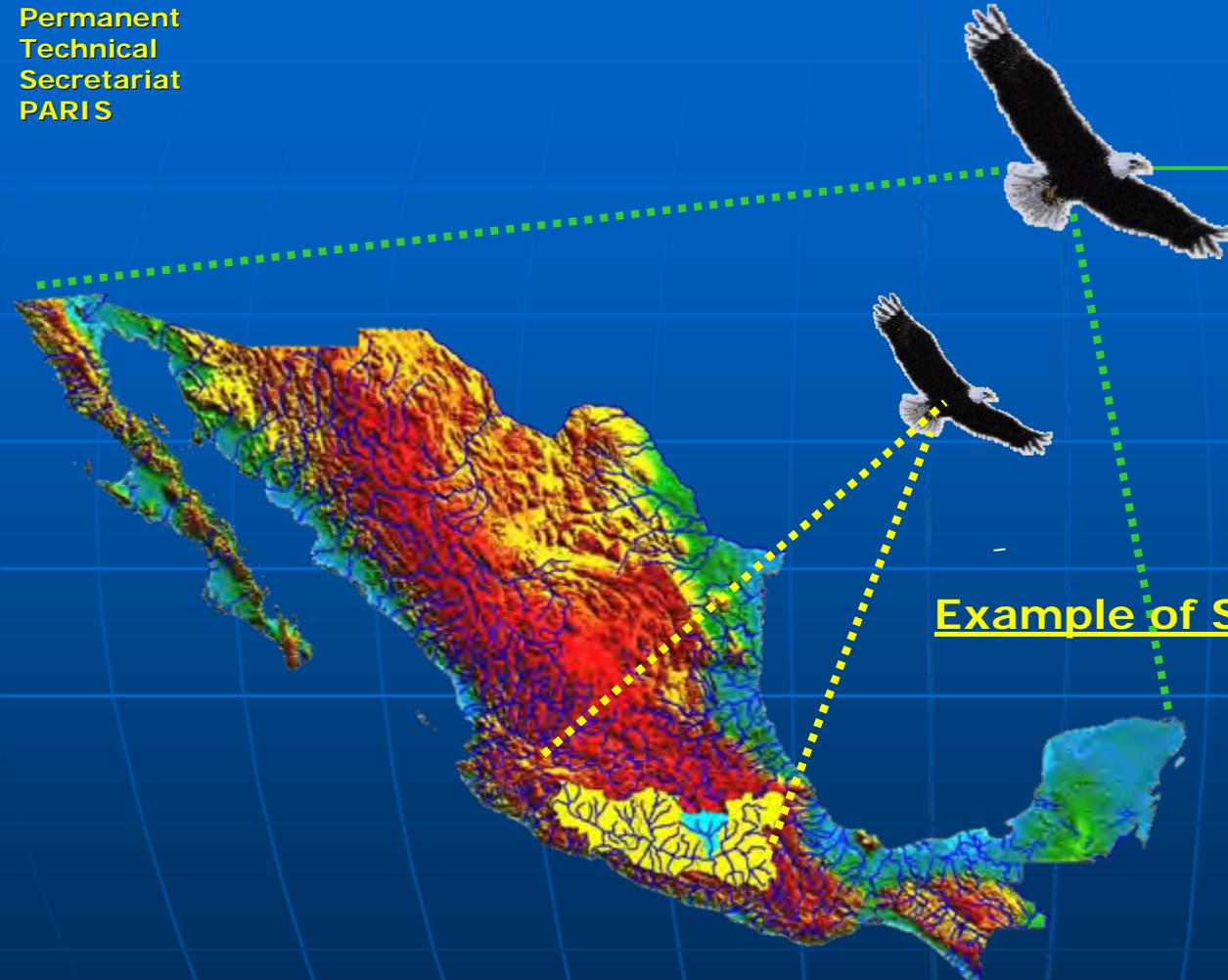


**water resources management should be organized:**



**International  
Network  
of Basin  
Organizations**

**Permanent  
Technical  
Secretariat  
PARIS**



**Example of SINA and SIRA in Mexico**

**2) 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.



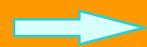
If we cannot measure, we cannot manage!!



## DIALOGUE



## INFORMATION



### Resources

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

- Quantity
- Quality
- Ecology



### Uses

- Requirements
- Abstractions
- Discharges
  - Flowrates
  - Pollution



### Seasonal variations

- Frequencies



### Geographic locations

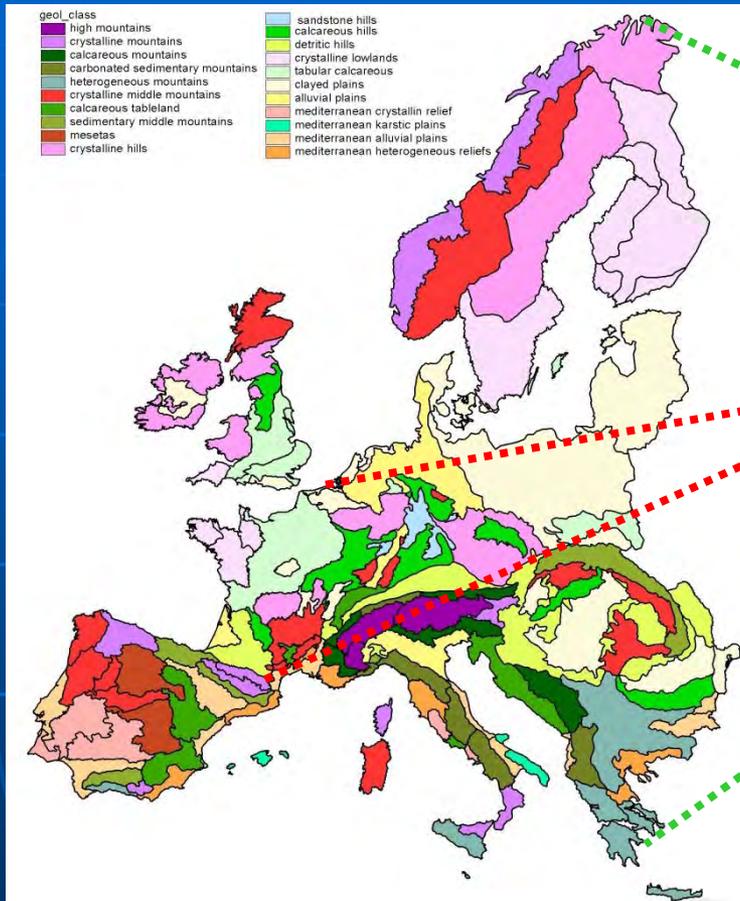
- G.I.S



### Economical informations

- Cost, budget...

# Integrated information and monitoring systems



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

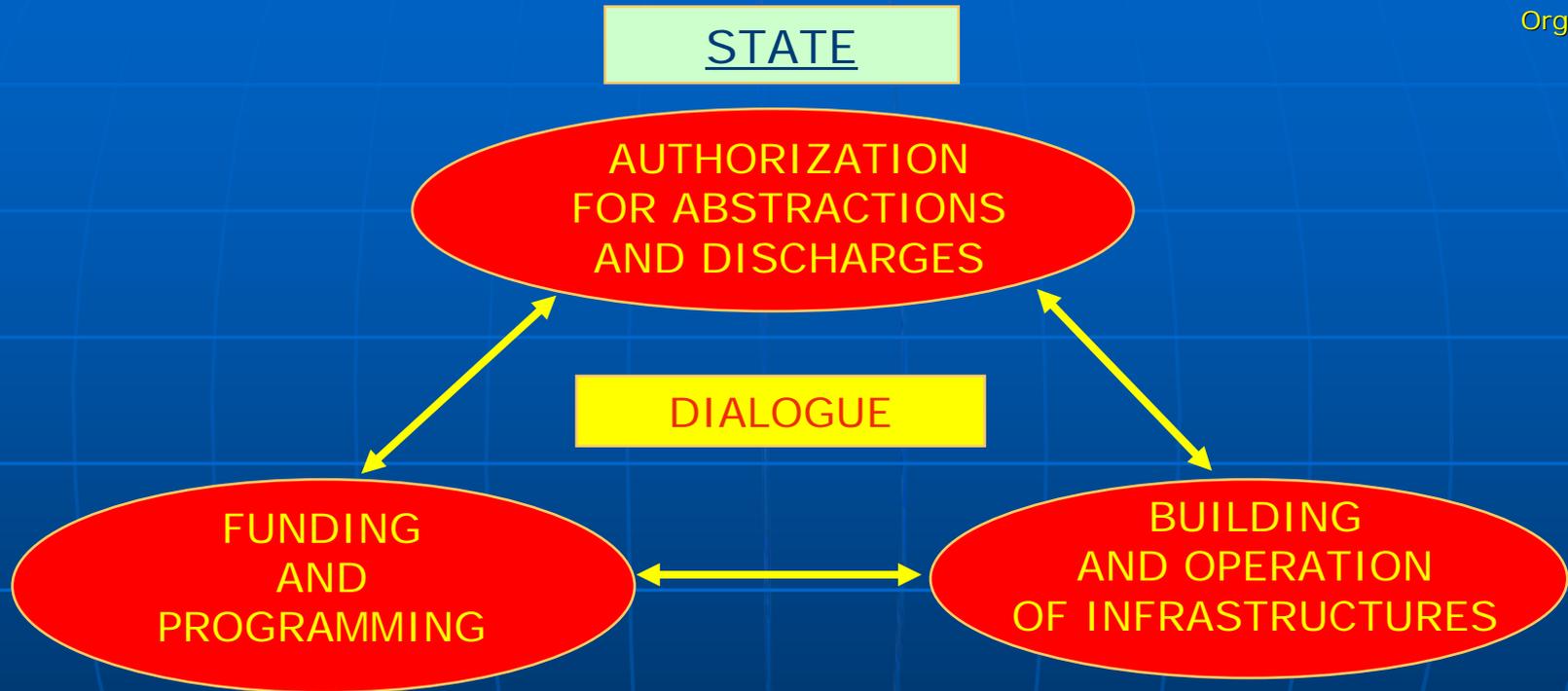


# MORE AND MORE STAKEHOLDERS ARE INVOLVED IN WATER MANAGEMENT



Permanent  
Technical  
Secretariat  
PARIS

International  
Network  
of Basin  
Organizations



- Water Agencies
- River Basin Committees

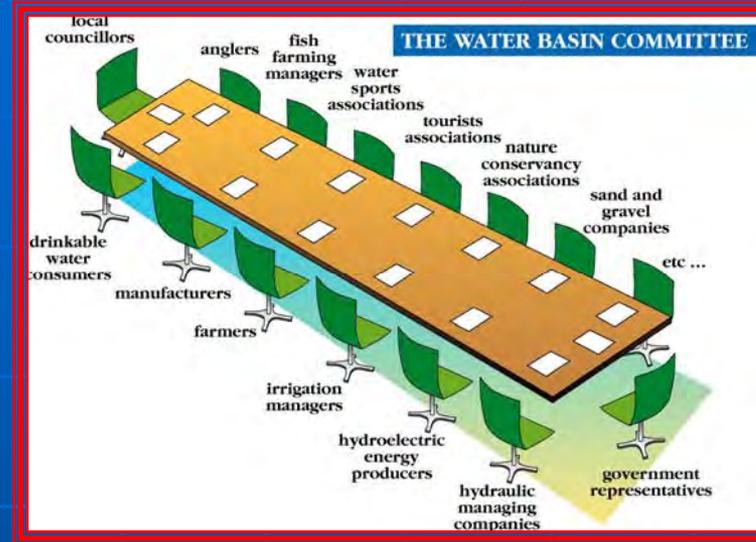
- State administrations
- Municipalities
- Industrialists
- Farmers
- Developers



Permanent  
Technical  
Secretariat  
PARIS



International  
Network  
of Basin  
Organizations



## 2) 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, especially, in Basin Councils or Committees.

- Information, awareness and education of populations or users and of their representatives are essential,

TO SOLVE POSSIBLE CONFLICTS ON WATER USE:  
"DIALOGUE IS THE BEGINNING OF WISDOM".



## Conflicts

requirements collected  
from each point of view



Designing a program  
through **dialogue**



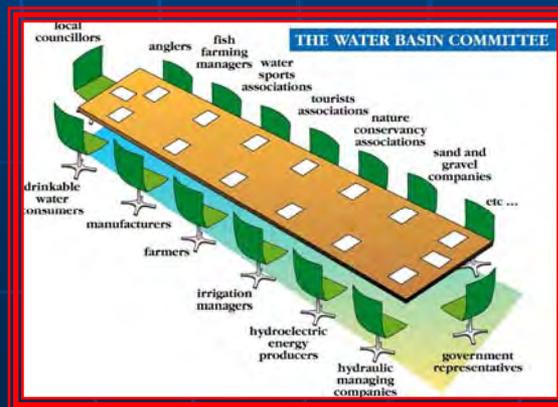
Reaching **agreement**  
with an ambitious program



- **INBO RECOMMENDS THAT THIS PARTICIPATION BE ORGANIZED IN BASIN COMMITTEES OR COUNCILS.**

IN PARTICULAR, THEY SHOULD BE ASSOCIATED TO:

- THE DEFINITION OF LONG-TERM OBJECTIVES,
- **THE PREPARATION OF MANAGEMENT PLANS OR MASTER PLANS,**
- THE SELECTION OF DEVELOPMENT AND EQUIPMENT PRIORITIES,
- **THE JOINT IMPLEMENTATION OF PROGRAMMES OF MEASURES AND MULTIYEAR PRIORITY INVESTMENT PROGRAMMES,**
- THE ESTABLISHMENT OF FINANCING PRINCIPLES AND THE CALCULATION OF WATER TAXES THAT CONCERN THEM.







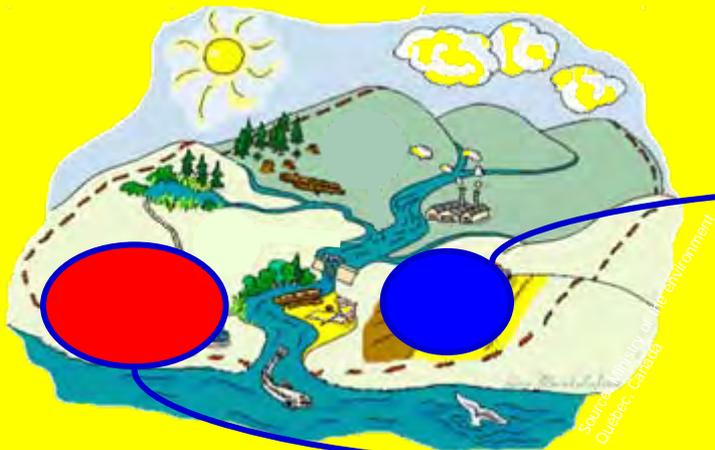
# water resources management should be organized:



Permanent  
Technical  
Secretariat  
PARIS

2000

## Description of the initial situation

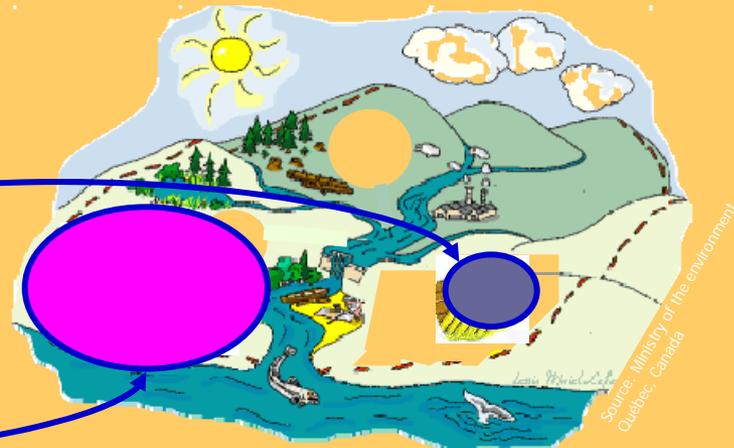


Focus on economic aspects:

- 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



Baseline scenario:

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

**4) based on management plans or master plans**  
that define the medium and long-term objectives to be achieved;

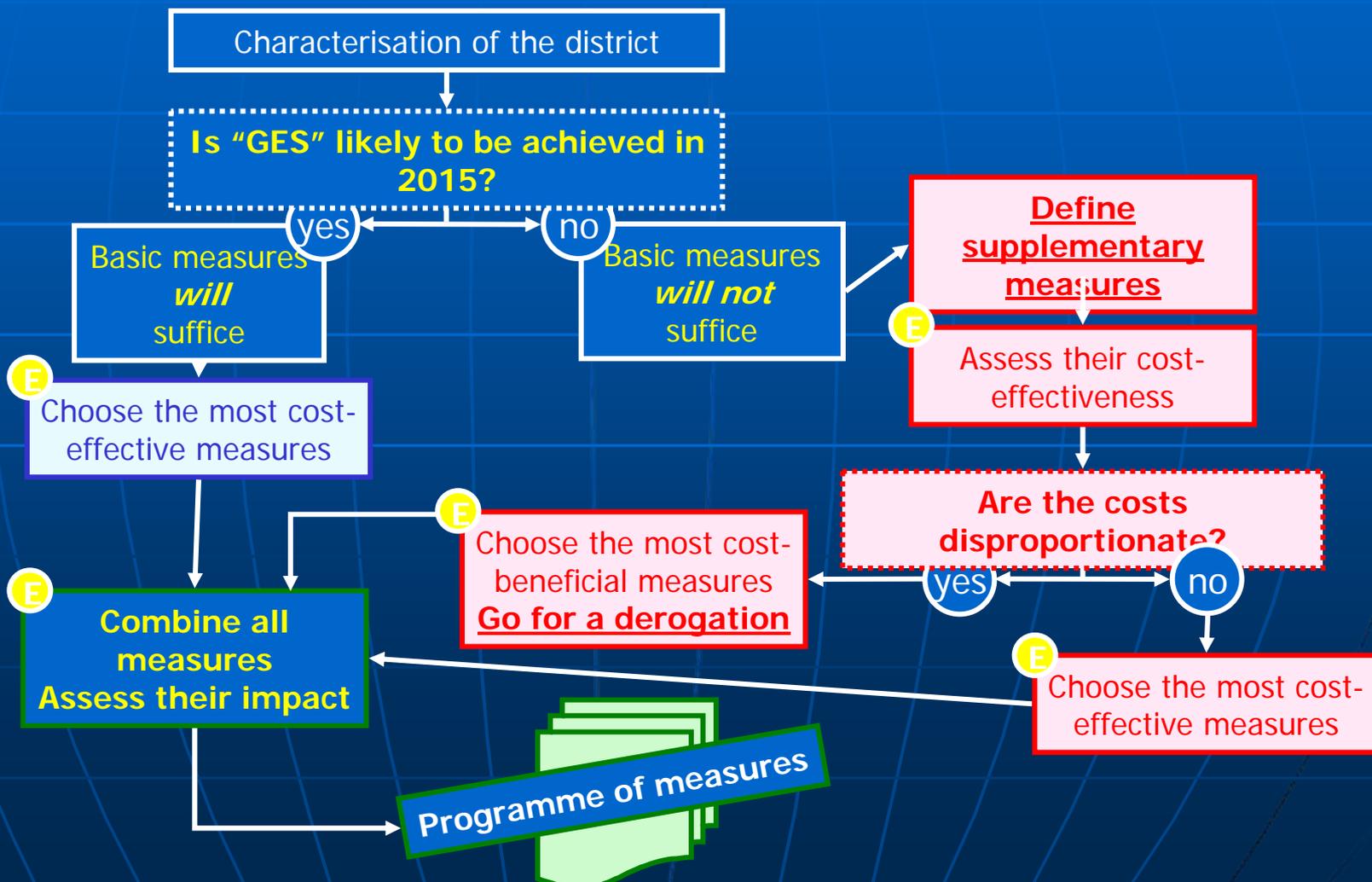


**water resources management should be organized:**



International  
Network  
of Basin  
Organizations

**5) through the development of Programs of Measures and multiyear priority investments;**



Permanent  
Technical  
Secretariat  
PARIS

**6) with the mobilization of specific financial resources,**

**THE « POLLUTER - USER – PAYS » PRINCIPLE**

Abstraction taxes

Pollution taxes

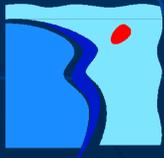
**The Water Agency's Budget  
adopted by the Board of Directors  
with approval of the Basin Committee**

10 % ↓

- Studies & Research
- Operation
- Measurement networks

90 % ↓

- Aid = 6-year Program
- Big developers
- Local authorities
- Farmers
- Industrialists



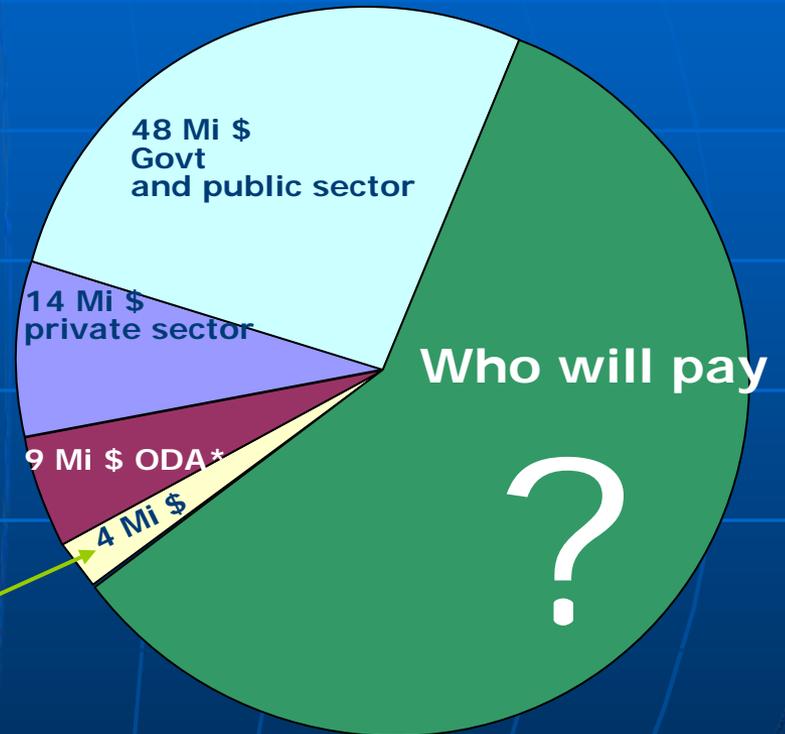
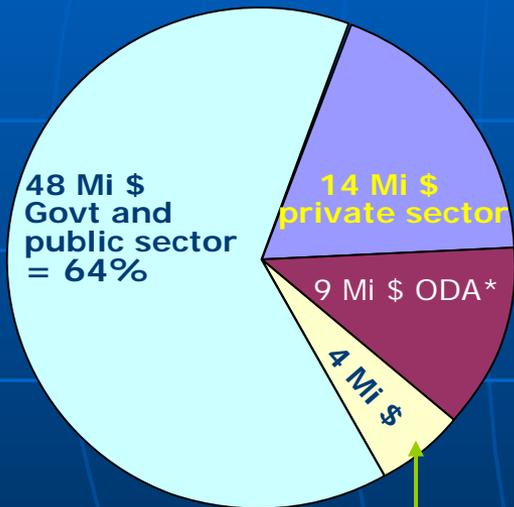
**IF WE ARE NOT ABLE TO MOBILIZE ENOUGH MONEY,  
WE SHALL NOT HAVE THE FRESH WATER WE NEED!**



**Who will pay ?**

**FOR THE NEXT 25 YEARS**

**NOW**



**75 milliards \$ / year**

**180 milliards \$ / year**

\* Official Development Assistance



## FINANCING WATER POLICY:



The international official aid only represents 10% of the investments made worldwide.



Public budgets cannot bear alone all the investment and operating costs.



The users must contribute according to the "polluter-pays" principle and the "users-pay" systems.

= WATER MUST PAY FOR WATER



# FINANCING WATER POLICY :



Permanent  
Technical  
Secretariat  
PARIS

International  
Network  
of Basin  
Organizations

## EQUALIZATION OF FINANCIAL EFFORTS:

- Territorial equalization:  
in the same geographic area or basin
- Sectoral equalization:  
between public services – drinking water – electricity – sanitation – solid wastes ...
- Equalization between users:  
rich, poor, big consumers / polluters,  
small consumers / polluters
- Equalization between functions:  
between upstream and downstream areas,  
between commercial services and administrative functions



water resources management should be organized:



**6) with the mobilization of specific financial resources,**

## VARIOUS COMPLEMENTARY SYSTEMS FOR COST RECOVERY : **THE 3x”T”**

**ADMINISTRATIVE TAXES:** paid to the general 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

**THE PRICING 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.



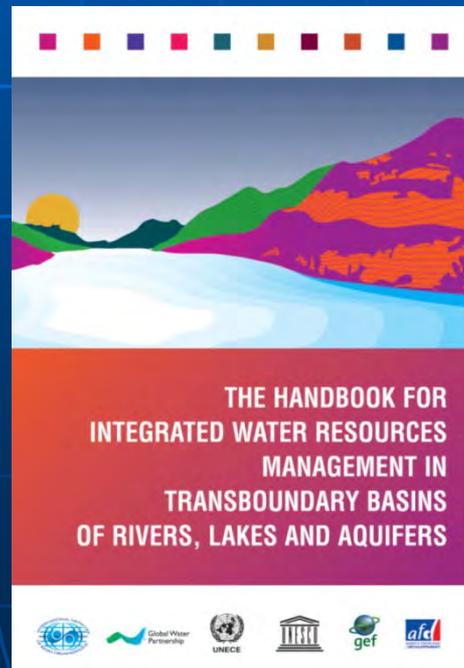
**IN CONCLUSION:  
BUSINESS AS USUAL CANNOT CONTINUE!**

- **integrated and sound water resources management is more than ever a priority when this scarce resource is already a limiting factor for sustainable development in many countries in the world.**

**MOBILIZATION IS ESSENTIAL  
FOR HUMANITY TO WIN  
THE WATER BATTLE  
AND PREPARE THE FUTURE!**



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



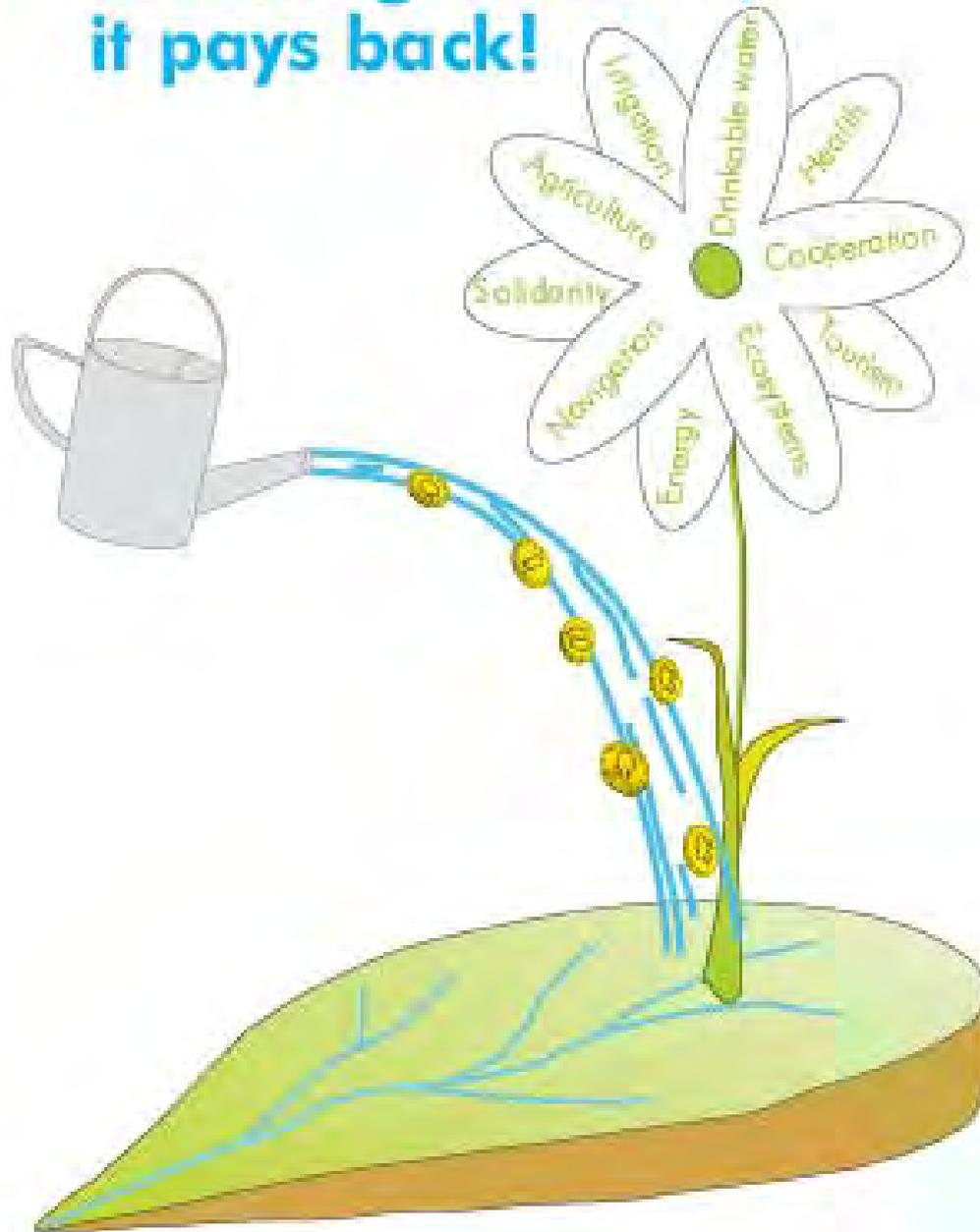


Permanent  
Technical  
Secretariat  
PARIS



International  
Network  
of Basin  
Organizations

# Investing in IWRM, it pays back!





**TODAY, IT IS USELESS TO  
"REINVENT THE WHEEL"**

**!**

**AS ALL EFFECTIVE TOOLS ARE AVAILABLE TO MOVE FORWARD FAST,  
IF THERE IS A POLITICAL WILL TO DECIDE TO DO SO!**

**LET'S GET MOBILIZED !  
YES WE CAN.....**

# THANK YOU FOR YOUR ATTENTION!



Permanent  
Technical  
Secretariat  
PARIS

[www.inbo-news.org](http://www.inbo-news.org)  
mail: [inbo@wanadoo.fr](mailto:inbo@wanadoo.fr)



International  
Network  
of Basin  
Organizations

Réseau International des Organismes de Bassin  
**International Network of Basin Organizations**  
Red Internacional de Organismos de Cuenca



Permanent  
Technical  
Secretariat  
PARIS



International  
Network  
of Basin  
Organizations

# International Network of Basin Organisations

**INBO initiatives are open**  
**to your participation :**  
**your inputs are welcome !**

**<http://www.inbo-news.org>**

***For developing and strengthening  
basin organizations over the world***