



TRAINING SESSION

« **HYDROLOGICAL EXPERTISE AND INTEGRATED WATER RESOURCE MANAGEMENT AT NATIONAL AND REGIONAL ESCALES** »

Ouagadougou, from March 26th to 30th, 2007

INTRODUCTION TO IWRM : DEFINITION AND PRINCIPLES

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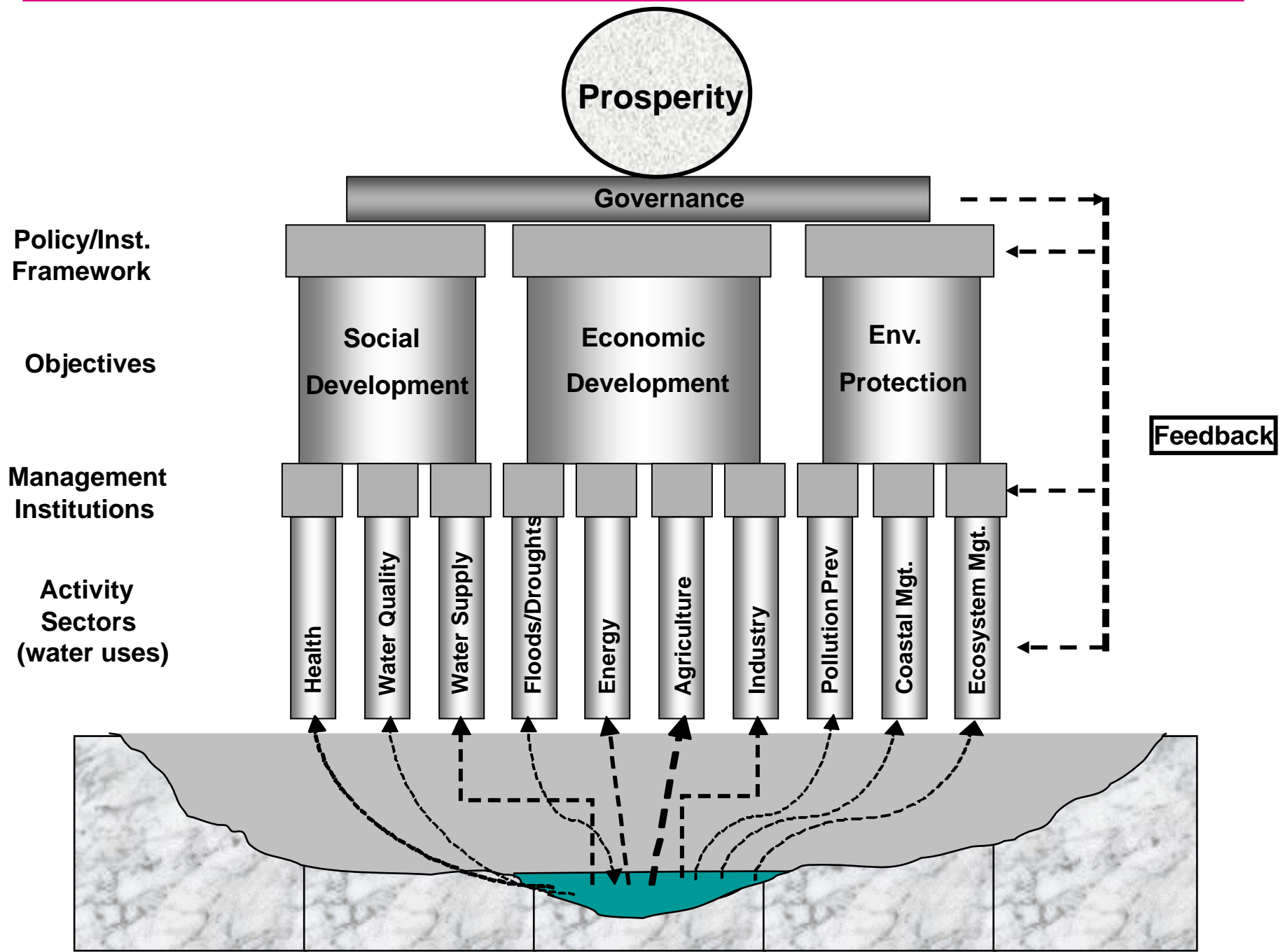
Definition of IWRM:

Process which promote the development and the coordinated management of water, lands and related resources, in order to **maximize**, in an equitable way, **the social and economical well-being**, without necessarily compromising the permanence of vital ecosystems.

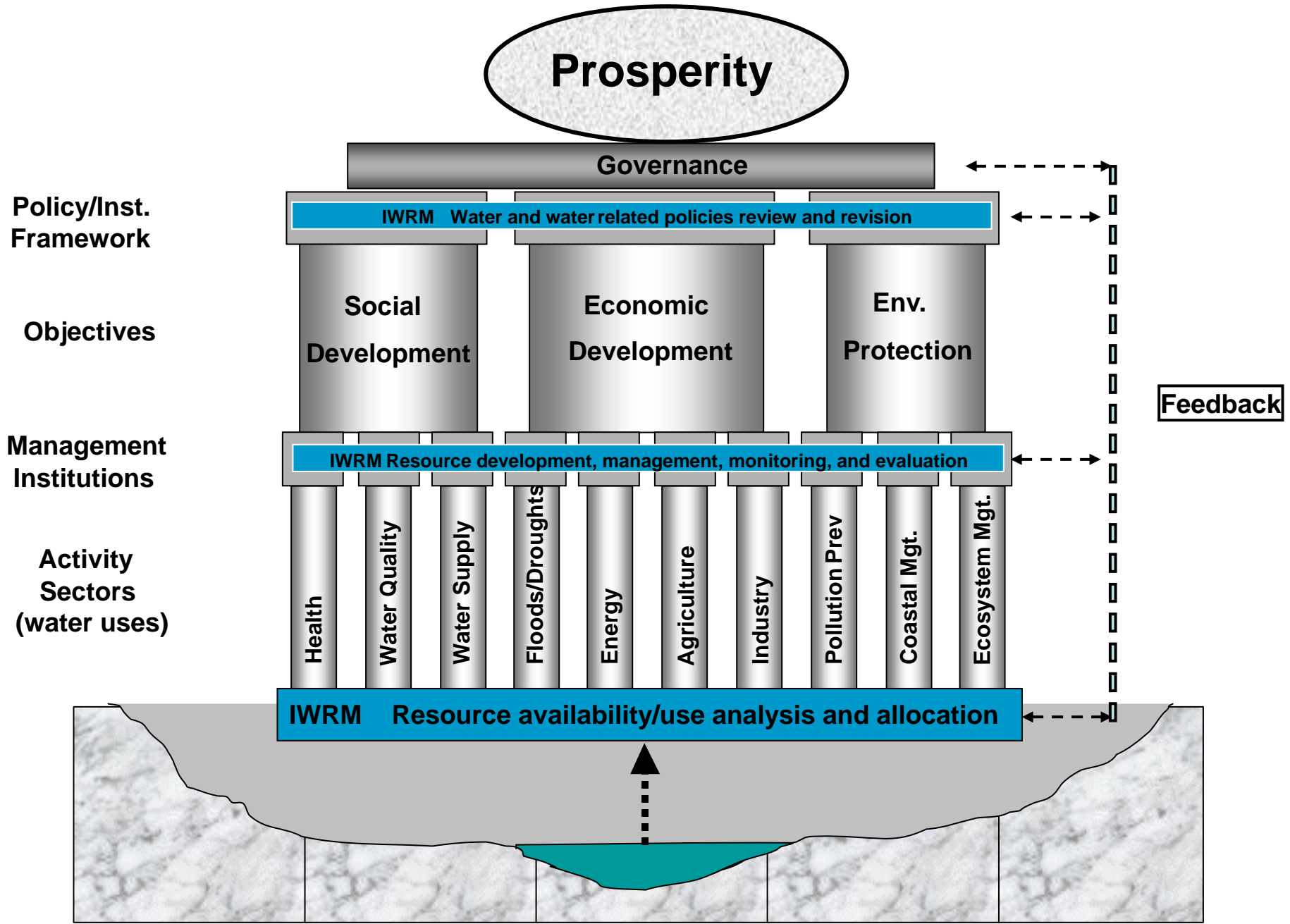
(According to *World Water Partnership/ Technical Consultative Committee*)

The Integrated Water resource Management is thus a global approach of water, in terms of uses and impacts, at the basin scale (minimal scale). It is based on a transversal multi-sectoral approach and vertical from local (river, resource, ...) to global scale (basin, region, ...).

The Water Resources Development Process: Sectoral (or Use) Approach



Water Resources Development : The IWRM Process



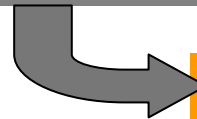
Two systems are identified:

The **natural system** (water availability, quality...)

Challenge = permanence of the system

The **human system** (water uses, wastewater production,...)

Challenge = socio-economical well-being



In a equitable way

The notion of *integration* :

'art' of assembling different elements together in a **relevant way** in order to form a **coherent** system working efficiently.

Remarks :

- ☞ The **coherence and efficiency** depend on the **current context of the system**.
- ☞ The **integration** must be done within the two systems but also between the two systems!!

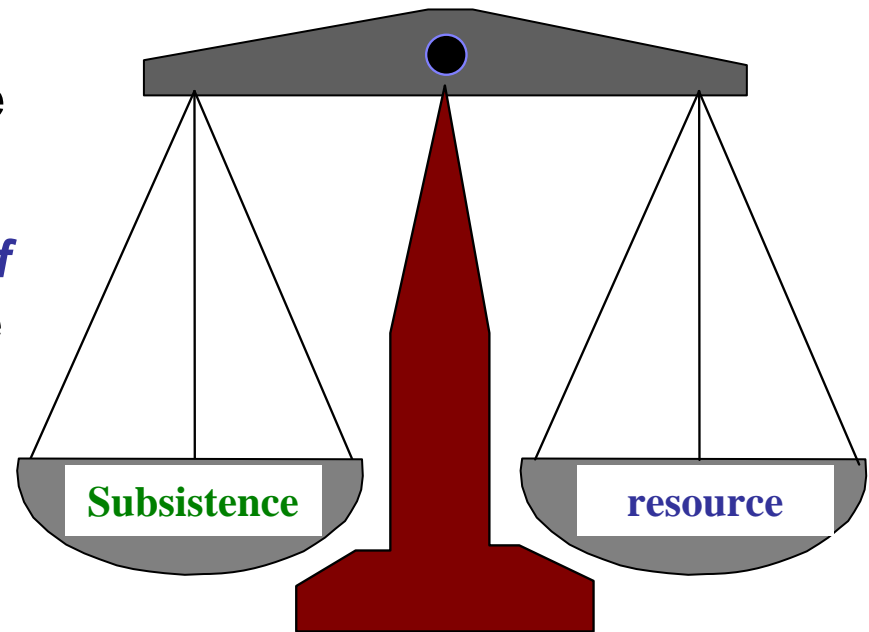
Example: the water demand must be adapted to the resource availability (quantity and quality)

➡ **water price setting allows to adapt the demand to the availability.**

Challenges of IWRM:

Find an equilibrium between:

- **Use of water** for the subsistence of a world growing population,
- *protection and conservation of the resource* so that to guarantee its permanence



The main milestones concerning the IWRM

| | |
|-----------|---|
| Years 80 | The concept appeared in the North countries |
| 1985 - 90 | The notion entered the UE political arena |
| 1992 | International Conference on Water and Environment, Dublin |
| 1992 | UN Conference on Environment and Development, Rio Janeiro |
| 1996 | Creation of the World Water Partnership and World Water Council |
| 1997 | First World Water Forum, Marrakech |
| 1997 | Creation of the World Water Commission of 21st century |

The main milestones (following ...)

| | |
|------|--|
| 2000 | Second World Water Forum, La Haye |
| 2001 | International Conference on fresh Water, Bonn |
| 2001 | UN Declaration of Millenium |
| 2001 | New Partenership for Developement in Africa |
| 2002 | UN Conference on Developement Funding, Monterrey |
| 2002 | World Summit on Sustainable Development (WSSD), Johannesburg, IWRM PLan |
| 2003 | 3rd Word Water Forum, Kyoto |
| 2004 | Launching of initiatives promoting the IWRM |
| 2006 | 4 th Word Water Forum, Mexico |

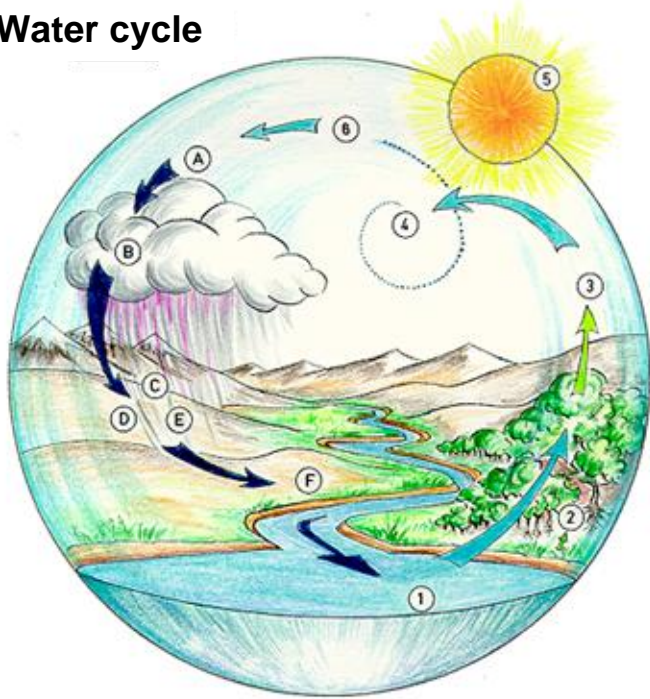
The IWRM principles:

(Conference of Dublin, 1992)

- 1. The fresh water is a limited and vulnerable resource, indispensable for life, development and environment.**
- 2. The development and management of water should be based on a participatory approach involving users, planners and decision makers at all levels.**
- 3. Women are at the heart of water supply, management and conservation processes.**
- 4. For all the different uses, sometimes competitive, water has an economical dimension. It is why, it should be considered as an economical good.**

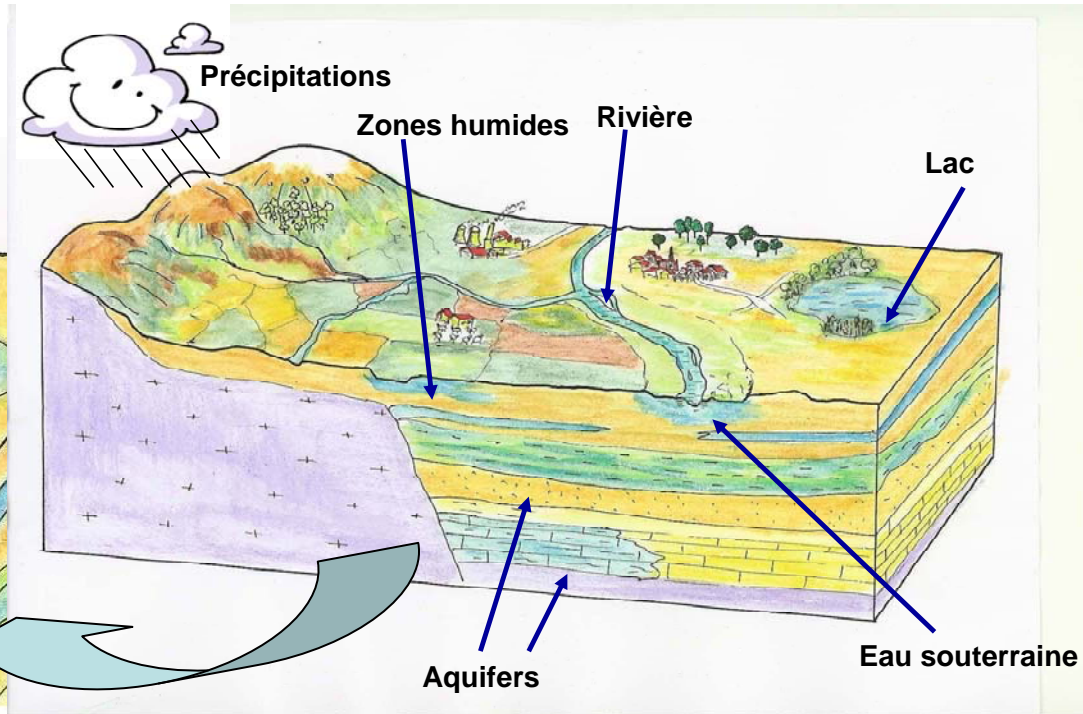
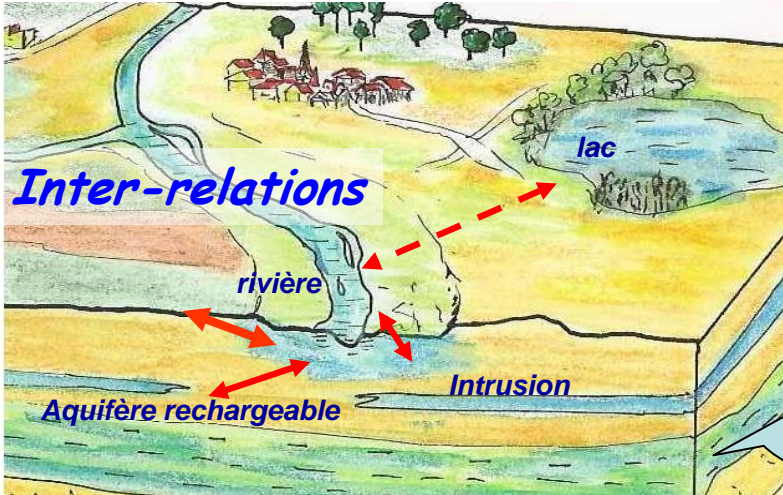
1. The fresh water is a limited and vulnerable resource, indispensable for life, development and environment.

Water cycle



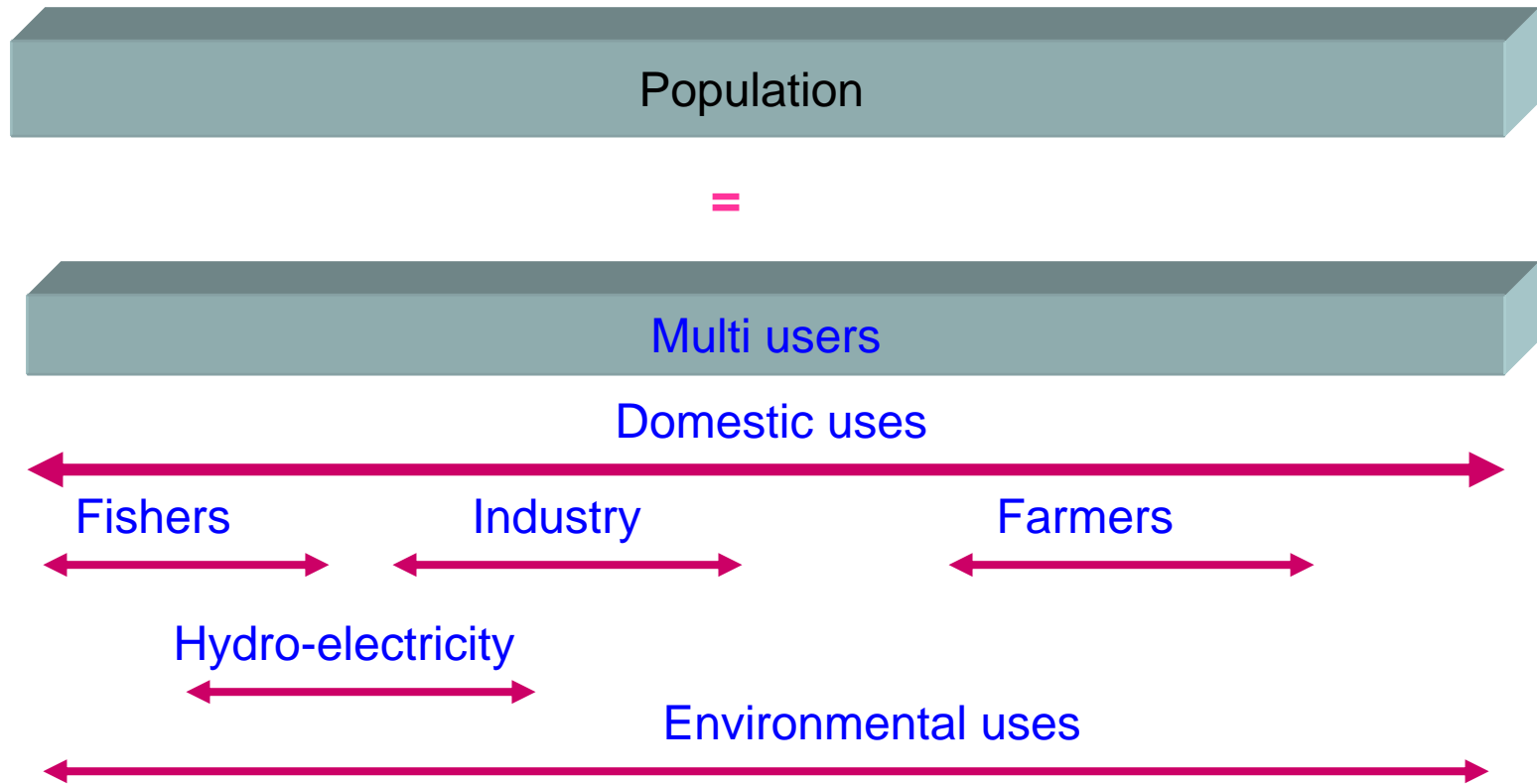
- **Constant volume of water put into play in the water cycle**
- **No "new" resource**
- **No "développement" of resource**

Manage the water as a UNIQUE entity



2. The development and management of water should be based on a participatory approach involving users, planners and decision makers at all levels.

Participatory approach: all actors



Effective participation

- *Conditions of participation:*
 - *system of representation*
 - *democracy*
 - *decentralisation*
 - *"efficient" representatives (active in the two senses + capacities)*
 - *Common and shared understanding of participation*

3. Women are at the heart of water supply, management and conservation processes.

- ***1st remark :***
 - ***Women = important role in water supply, irrigation, water preservation***
 - ***Women = no presence in decisions and water management***
- ***2nd remark :***
 - ***considerable losses through their duties of water supply***
 - ***knock-on effect on work time, girl's education, health,....***

Women = 6 to 8 hours per day for water

4. For all the different uses, sometimes competitive, water has an economical dimension. It is why, it should be considered as an economical good.

- **Cost of water supply or access**
- **Recovery of costs, an economical commitment**
- **Fundamental principles**
 - **water pays water**
 - **User-payer**
 - **Polluter-payer**
 - **Help for improvements**

Examples of derived principles (IWRM Burkina Faso)

- **the right to access** to a clean water;
- **the principle of equity** in the distribution of water resources;
- **the principle of subsidiarity** (management at appropriate spatial scale);
- **the principle** of harmonious development of regions;
- **the principle** of water management by hydrographical basins;
- **the principle** of equilibrated management of water resources;
- **the principle** of protection of users and the nature;
- **the principle** of user-payer;
- **the principle** of polluter-payer
- **the principle** of participation of users, planners and decision makers, at all levels, in the formulation, the implementation and the evaluation of water policy.

Implementation of the IWRM

The process of the IWRM implementation includes:

- **the creation of institutions**
- **the elaboration of policies**
- **the elaboration of programmes**
- **the development of water resources (understanding and knowledge of water resources, planning, mobilization)**
- **the research of partners (examples: GWP (Global Water Partnership), WWP (World Water Partnership))**

STATE OF IWRM PROCESS IN ECOWAS COUNTRIES (survey of Water Resources Coordination Unit - WRCU)

| | Benin | Burkina Faso | Cap Vert | Côte d'Ivoire | Gambia | Ghana | Guinea | Guinea Bissau | Liberia | Mali | Mauritania | Niger | Nigeria | Senegal | Sierra Leone | Togo |
|---|-------|--------------|----------|---------------|--------|-------|--------|---------------|---------|------|------------|-------|---------|---------|--------------|------|
| Understanding of IWRM by policy makers | ● | ● | ● | ● | ⊙ | ● | ● | ⊙ | ● | ⊙ | | ● | ⊙ | ⊙ | ⊙ | ⊙ |
| Involvement in a IWRM process | ● | ● | ● | ● | ● | ● | | | ● | ● | | ● | ● | ● | | ● |
| Existence of a IWRM Action Plan | ⊙ | ● | ⊙ | ● | | | | | | ⊙ | | ● | ⊙ | ⊙ | | |
| Existence of implementation portfolio of projects of the IWRM Action Plan | | ● | | ● | | | | | ■ | | | ● | | | | |
| Existence of funding strategy for the IWRM Action Plan | | ● | | ● | | | | | ■ | | | ● | | | | |
| Projects under execution | | ● | | | | ■ | ■ | | | ■ | | ● | ■ | | | |

● existing/yes

⊙ In progress

IWRM PROCESS

Limiting factors

| | Benin | Burkina Faso | Cap Vert | Côte d'Ivoire | Gambia | Ghana | Guinea | Guinea Bissau | Liberia | Mali | Mauritania | Niger | Nigeria | Sénégal | Sierra Leone | Togo |
|---|-------|--------------|----------|---------------|--------|-------|--------|---------------|---------|------|------------|-------|---------|---------|--------------|------|
| Legislation/regulation non update | ● | ● | ● | | ● | | ● | ● | | | | | | | ● | |
| Legislation/regulation in conflict with the traditional access right to water | | | | | | | | | | | | | | ● | ● | |
| Legislation/regulation not completed | | ● | ● | ● | ● | | | | | ● | | ● | | ● | ● | |
| Legislation/regulation is too complicated | | | | | | | | | | | | | | | | |
| Lack of personnel to take care of the application | ● | | ● | | | | ● | ● | | ● | | ● | | | ● | |
| Lack of means for the personnel | ● | | | | | | ● | ● | ● | ● | | ● | | ● | ● | |
| Legislation/regulation is not in coherence with other sectors | ● | | ● | | | | | | | | | | ● | | ● | |

Conclusion to do the IWRM

- Well know resources and needs
- Well know the current management system
- Participatory approach at all levels
- Identify problems
- Transparency
- Priorities
- Plan, programme, future vision