

Basic elements of  
**SUSTAINABLE**  
and  
**PRODUCTIVE**  
Water Resources  
Management



# *The search for solutions...*

- Rio (Rio+5, Rio+10)
- Dublin
- World Water Forum (I, II, III, IV...)
- Global Water Partnership
- World Water Council
- Global Dialogue
- IWMI's Comprehensive Assessment
- Earth Summit
- UNESCO World Water Assessment
- Millennium Development Goals

# RIO+20!!

109. We recognize that a significant portion of the world's poor live in rural areas, and that rural communities play an important role in the economic development of many countries. We emphasize the need to revitalize the agricultural and rural development sectors, notably in developing countries, in an economically, socially and environmentally sustainable manner. We recognize the importance to take the necessary actions to better address the needs of rural communities through, *inter alia*, enhancing access by agricultural producers, in particular small producers, women, indigenous peoples and people living in vulnerable situations, to credit and other financial services, markets, secure land tenure, health care and social services, education and training, knowledge, and appropriate and affordable technologies, including for efficient irrigation, reuse of treated waste water, water harvesting and storage. We reiterate the importance of empowering rural women as critical agents for enhancing agricultural and rural development and food security and nutrition. We also recognize the importance of traditional sustainable agricultural practices, including traditional seed supply systems, including for many indigenous peoples and local communities.



# *World Water Forum III:*

## *The topics...*

- Groundwater
- Floods
- Water and Climate
- Water and Information
- Water and Youth
- Water and Poverty
- Agriculture, Food and Water
- Water, Nature and the Environment
- Water and Cities
- Water and Gender
- Water Supply, Sanitation and Pollution
- Water and Cultural Diversity
- Water and Energy
- Water for Peace
- Water, Food and the Environment
- Water as an Economic Good
- Water and Governance
- Water and Public Private Partnerships
- Integrated Water Resources Management
- Participatory Management

Perhaps we need something  
simpler...

# ABCDE in the water sector...

# The components

- Understanding how much water is available



- Understanding how much water is available
  - Precipitation
  - Hydrology/hydrogeology
  - Committed flows to specified uses

*Scarce? Plentiful? Variable? Seasonal?...*

# The components

- Understanding how much water is available
- Prioritizing Allocation

- **Prioritizing Allocation**

*A **political** process involving:*

*Sectoral priorities (food security, poverty)*

*Economics (productivity, growth)*

*Special interest groups (wetlands, fish...)*

*Historical rights, cultural heritage...*

**DEBATE!!**

# The components

- Understanding how much water is available
- Prioritizing Allocation
- Setting Rules

- **Setting Rules**

*Translation of the priorities into laws, regulations and procedures*

- Surface water rights
  - Drought
  - Flood
- Groundwater rights
- Emergencies

# The components

- Understanding how much water is available
- Prioritizing Allocation
- Setting Rules
- Assigning responsibility

- **Assigning responsibility**
  - Basin Management Authorities (national, international)
  - Regional agencies
  - Project operators (municipal, hydro, irrigation)
  - Farmer organizations
  - *Note that “intersectoral” competition can occur at every level!*



# The components

- Understanding how much water is available
- Prioritizing allocation
- Setting Rules
- Assigning responsibility
- Developing the facilities

- Developing the facilities

- Dams
- Canals
- Well fields
- Drainage/sewerage collection and processing

*The facilities must be able to deliver the agreed service*

## Summary

- Understanding how much water is available
  - ACCOUNTING
- Prioritizing allocation
  - BARGAINING
- Setting Rules
  - CODIFICATION
- Assigning responsibility
  - DELEGATION
- Developing the facilities
  - ENGINEERING

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- ACCOUNTING (HYDROLOGY)

- BARGAINING (POLITICS)

- CODIFICATION (LAW)

- DELEGATION (INSTITUTIONS)

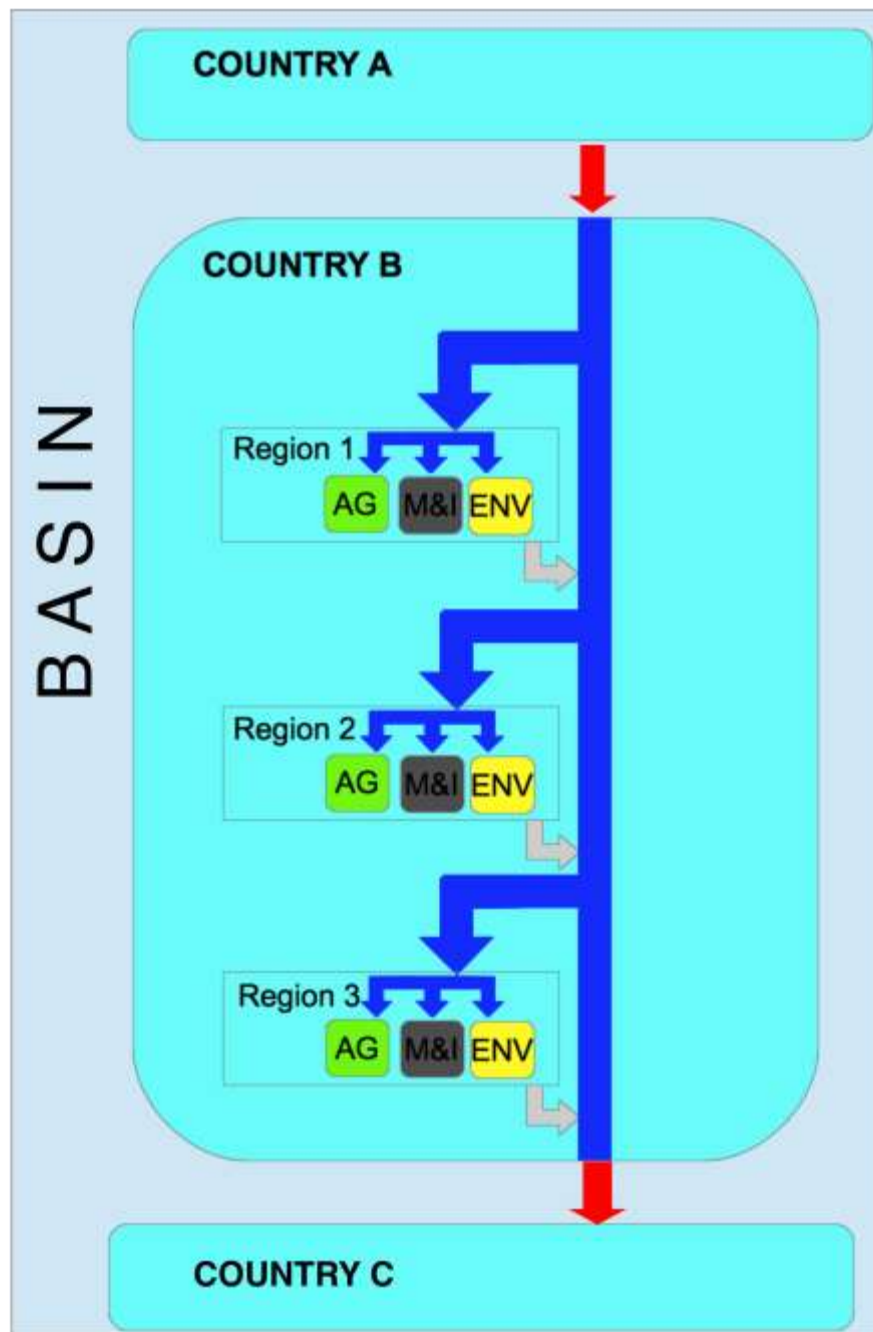
- ENGINEERING

# Implications of the “Key Elements”... (1)

- Hierarchy and interdependence among the elements
  - *Interventions must respect the hierarchy*
- Successful water management is multi-disciplinary
  - *Disciplines must respect each other*

# Implications of the “Key Elements”... (2)

- The “Key Elements” apply at all levels
  - Between countries
  - Between regions
  - Between sectors
  - Between users





# Implications of the “Key Elements”... (3)

There is no unique “right” outcome

Government *always* has “stewardship” functions that cannot be delegated

# Original Topic...

SUSTAINABILITY... sound accounting

PRODUCTIVITY... defined service

ACCOUNTING

BARGAINING

CODIFICATION

DELEGATION

ENGINEERING

FEEDBACK...

TWO EXAMPLES