IWRM as a Tool for Adaptation to Climate Change

Adaptation in Water Management

Goal and objectives of the session

Goal

Consider how adaptation to climate change can be incorporated in water resources management at all levels.

Learning objectives

- Understand the water resources management instruments available to address climate change manifestations.
- Strategize the use of different policies and instruments.
- Promote adaptation at the appropriate level.

Outline presentation

- **How can IWRM help?**
- **Adaptation at different levels**
- **Climate change in IWRM planning**
- **Within river basin management**
- **Adaptation at appropriate level.**

Introduction

IWRM is to ensure:

- Sufficient access to the resource
- Availability for productive use
- Environmental functions of water

What do we need to do in water management to address climate change issues?

How can IWRM help?

Climate change will have big impact on water resources:

- IWRM provides a policy and decision-making framework for water resource management actions.
- IWRM provides the planning framework for water.
- An IWRM approach provides a system for stakeholder consultation and interaction.

How can IWRM help?

Improving the way we use and manage water today will make it easier to address the challenges of tomorrow

Adaptation through 'hard (infrastructure) and 'soft' (management, people, environment) measures.

The three main challenges are:

- Establishing dynamic organizations able to respond strategically and effectively to changing circumstances are needed
- Making decisions based on forecasts rather than historical data, and on managing uncertainty
- Securing funding.

Why is it important to address climate change manifestations in water management?

- Impacts of climate change on freshwater systems
- The number of people in severely stressed river basins is projected to increase significantly
- Semi-arid and arid areas are particularly exposed to the impact of climate change on freshwater
- Higher water temperatures, increased precipitation intensity and longer periods of low flows lead to more pollution and impacts on ecosystems, human health and water system reliability and operating costs
- Climate change affects the function and operation of existing water infrastructure and water management practices
- Adaptation procedures and risk management practices for the water sector are being developed.

(Source: IPCC, 2007)

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Possible management measures

In a situation of water stress:

- Water pricing
- Seasonal water rationing during times of shortage
- Adapt industrial and agricultural production to reduce water wastage
- Increase capture and storage of surface run-off
- Reuse or recycle waste water after treatment
- Desalination of salty or brackish water (costly)
- Better use of groundwater resources (risk: siltation)
- Rainwater harvesting.

Possible management measures

In a situation of water quality risks:

- Improvements to drainage systems
- Upgrading or standardizing of water treatment
- Better monitoring
- Special measures during high precipitation seasons.

What kind of special measures?

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Adaptation at different levels

- Transboundary level
  - Treaties and agreements
- National enabling environment
  - Water laws and institutions
- National planning
  - IWRM plans, policies and strategies
- Basin water management
  - Functions of water management.

Adaptation at transboundary level

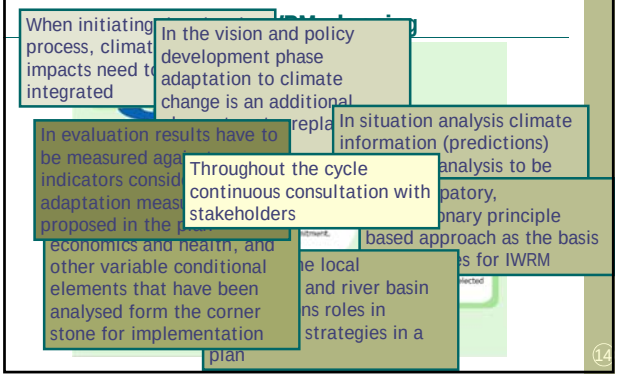
- International water agreements may be impacted by CC
  - Review agreements.
  - Include flexibility to respond to CC at a future time.
  - Include actions considered relevant now, such as strengthened cooperation on water management.

Improving the enabling environment

- Water laws:
  - Do they support the integrated (IWRM) approach?
  - Do they allow flexibility of action for possible CC impacts?
    - Reallocation of water in case of reduced resources
    - Environmental protection
    - Pollution management.

Improving the enabling environment -2-

- Institutions: Climate change affects all sectors.
  - ❖ Are the water management institutions based on stakeholder collaboration?
  - ❖ Is there a framework to enable collective planning and decision making on climate and water? The sooner this starts the better.



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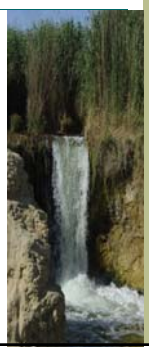
Adaptation at river basin level

Typical functions of water resources management are:

- Water allocation
- Pollution control
- Monitoring
- Basin planning
- Economic and financial management
- Information management
- Organization of stakeholder participation
- Flood and drought management.



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Match IWRM functions with measures and effects

Possible adaptation measures	IWRM function	Anticipated effect
Water pricing, cost recovery, investment	Economic/financial management	Reduced per capita consumption Improved efficiency
Seasonal water rationing, re-allocation, managing water use	Water allocation Pollution control	Availability and access improved Uninterrupted flow Purification function secured
Flood and drought risk mapping, infrastructure, scenario development	Basin planning	Reduced impact of extreme events
Increase capture and storage of surface runoff.	Basin planning	Improved availability Reduced polluters in the system.

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Match IRWM functions with measures and effects

Possible adaptation measures	IWRM function	Anticipated effect
Reuse and recycle, better regulation, pressure for improved sanitation	Pollution control Water allocation Basin planning	Improved availability Reduced groundwater pollution
Groundwater usage	Water allocation Basin planning	Improved availability
Rainwater harvesting, warning systems	Water allocation Stakeholder participation	Improved availability Reduced drainage damage
Improving drainage systems and water treatment	Pollution control Basin planning	Reduced pollution Improved availability and recovery
Better monitoring.	Information management Monitoring.	Improved action responding to real needs.

Adaptation means action

How do we mobilize for action?

- ❖ The right message for decision makers
- ❖ The right message for communities
- ❖ Focus on what we can do now.

Mobilising stakeholders …

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Think about it

What conditions make CC adaptation possible **now** where I live ?