



THE INECO EXPERIENCE

MAIN OUTCOMES & LESSONS LEARNED

FROM PARTICIPATORY PROCESSES & CASE STUDIES

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*Cyprus Water Week, Conference on Institutional and Economic Instruments towards
Integrated Water Resources Management in the Mediterranean Region*

Nicosia, Cyprus 11th June 2009

INECO...

- ◆ Stands for “Institutional and Economic Instruments for Sustainable Water Management in the Mediterranean Region”
 1. To built on previous research and disseminate methods and approaches for constructively engaged IWRM
 2. To facilitate the uptake of research outcomes through the active participation of local communities

The INECO Consortium



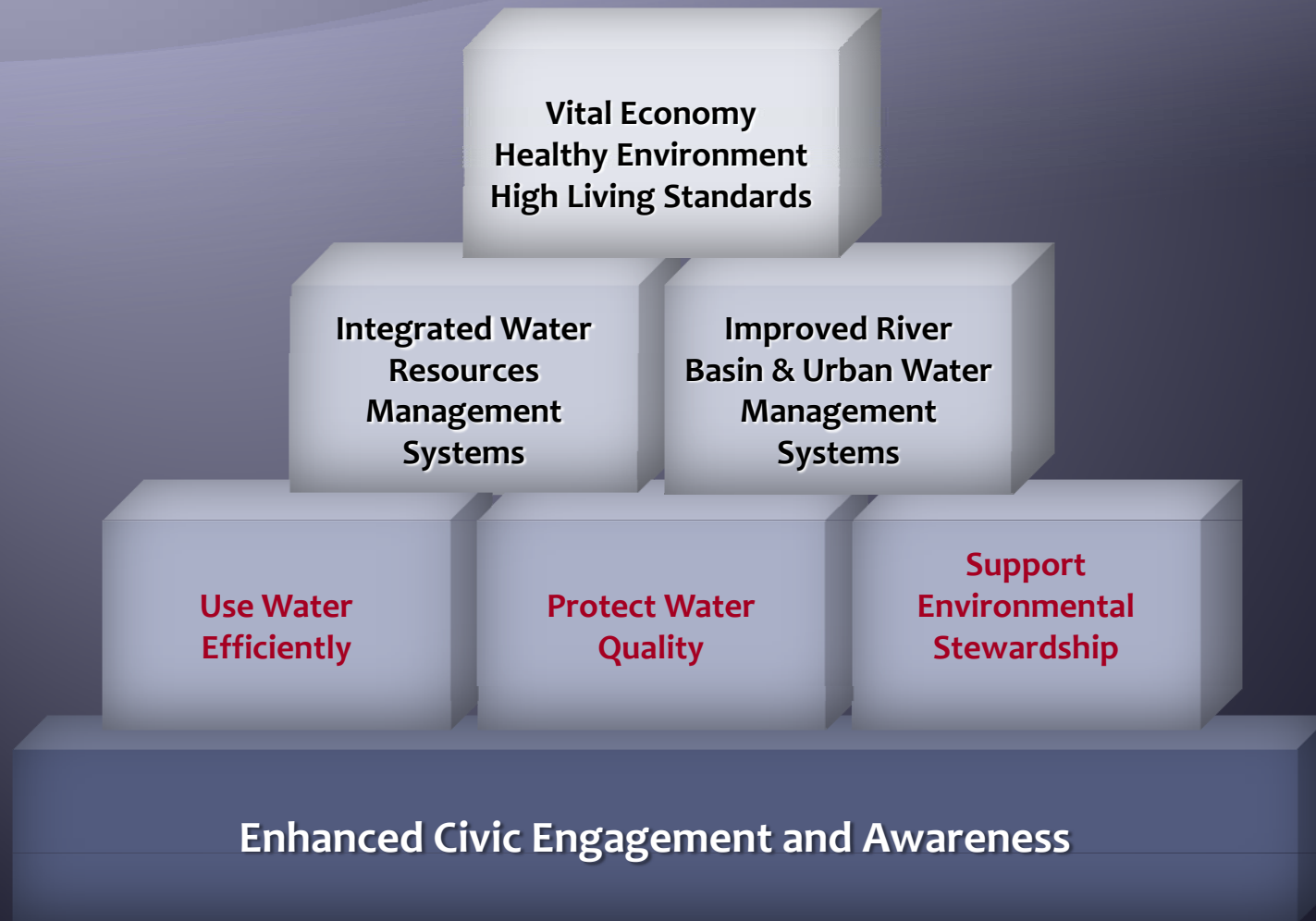
1. School of Chemical Engineering, National Technical University of Athens, **Greece**
2. International Office for Water, **France**
3. International Network of Basin Organisations
4. Istituto di economia dell' energia, dell' ambiente e della tecnologia, Luigi Bocconi University, **Italy**
5. Water Development Department, Ministry of Agriculture, Natural Resources & the Environment, **Cyprus**
6. Aeoliki Ltd, **Cyprus**
7. Tunis International Centre for Environmental Science & Technology, **Tunisia**
8. Water Management Research Institute, MWRI, **Egypt**
9. Soil, Water and Environment Research Institute, Ministry of Agriculture & Land Reclamation, **Egypt**
10. International Consultants, **Egypt**
11. Conseil et Developpement S.a.L, **Lebanon**
12. Studies & Integration Consulting, **Syrian Arab Republic**
13. Agence de Bassin Hydrographique de Constantinois-Seybousse-Melegue, **Algeria**
14. Iskane Ingenierie, **Morocco**

The Challenges of WRM

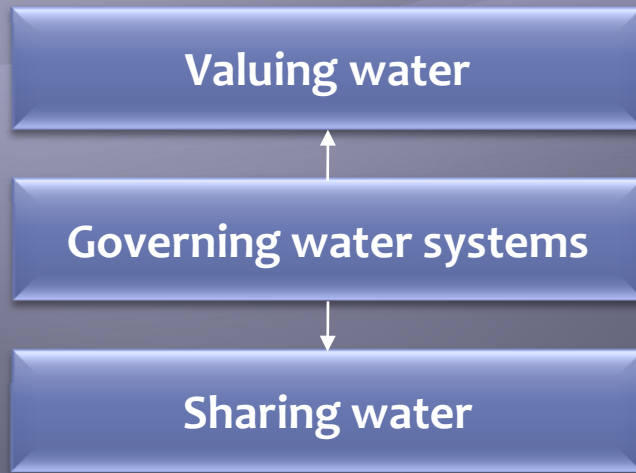
- ◆ Climate change & increasing water stress
- ◆ Inefficient land use
- ◆ Lack of access to basic water services
- ◆ Poor maintenance of infrastructure
- ◆ Overuse of non-renewable water resources
- ◆ Pollution, environmental damage
- ◆ Environmental protection vs. other (sectoral) policy objectives

Potential solutions to water problems are in most cases well known but have often not been implemented

Effective Water Management: The Elements...



Sustainable Water Management: The Elements...



True costs and values, Socio-economic importance of water use, Maximization of economic efficiency, Recovering and sharing costs

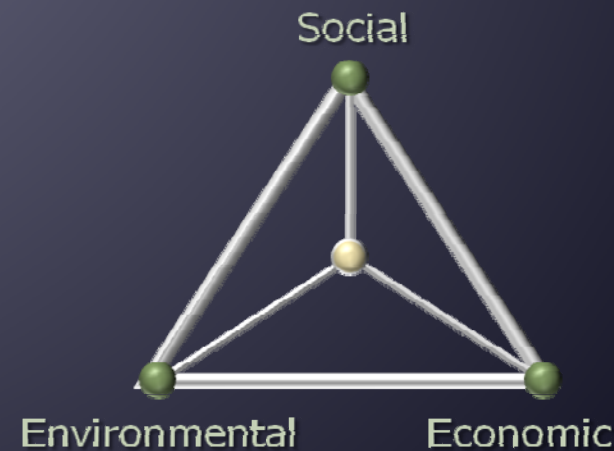
Accountability, Transparency, Financial sustainability, Public participation, Decentralisation (subsidiarity principle)

Managing effectively shared resources, taking into account the interests of all users and ensuring access to water services and social cohesion



Engaging Multi-stakeholder Fora

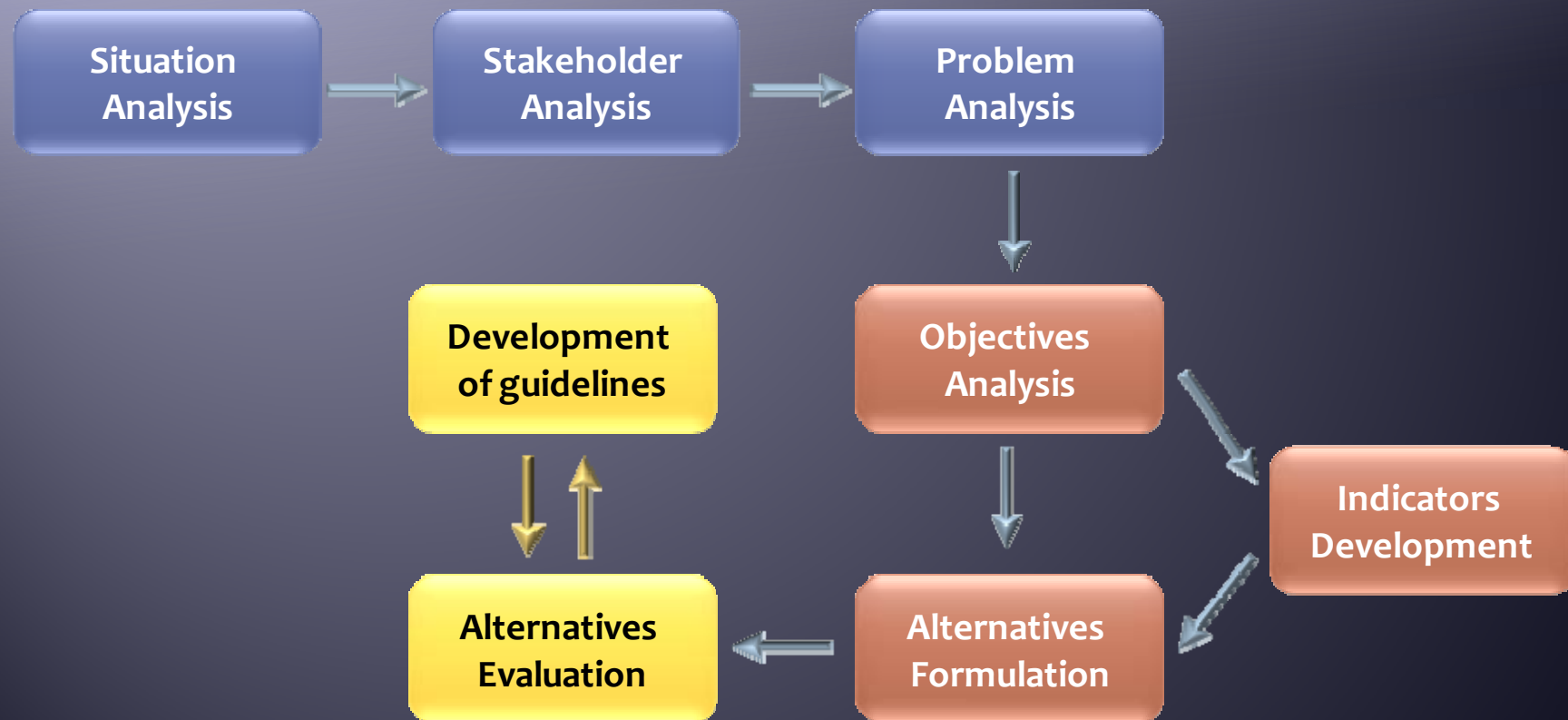
Promote capacity building for constructively engaged IWRM



Building on local participation: The Reasons...

- ◆ Project implementation lies largely in the hands of the local community
- ◆ Communities are instigators of policies and bear their impacts
- ◆ Community needs must be addressed when policies are formulated and not after their implementation has started
- ◆ Participation of the community fosters civic responsibility towards water conservation

Building a constructively engaged IWRM: The INECO Approach



From Situation to Problem Analysis

◆ Situation analysis in regions

- ◆ Water supply, demand & water use patterns
- ◆ Water pollution, resource depletion
- ◆ Provision of water services, infrastructure
- ◆ Current institutional and financial context for WRM and protection

◆ Stakeholder analysis & consultation



◆ Problem analysis

- ◆ Identification of critical (focal) water management problems

The INECO Case Studies

◆ Problem Tree analysis

- ◆ Mapping of causal interrelationships
- ◆ Development of indicators relevant to the specific water management issues, their causes and effects

The INECO Case Studies

A typology of water management issues

River Basin Management

- ◆ Water stress & allocation conflicts
 - ◆ **Lebanon:** Water stress in the Damour River Basin
 - ◆ **Morocco:** Inefficient water use in the Oum Er Rbia River Basin
- ◆ Groundwater management
 - ◆ **Cyprus:** Aquifer depletion and sea intrusion - Pegeia
 - ◆ **Tunisia:** Aquifer depletion and salinisation

Urban Water Management

- ◆ Water quality degradation & inadequate services
 - ◆ **Egypt:** Water quality deterioration in the region of Bahr Basandeila
 - ◆ **Syria:** Water pollution in the Barada River Basin (Greater Damascus Area)
 - ◆ **Algeria:** Water pollution in the Seybouse River Basin (Greater Annaba Area)

... and of underlying causes

Country	Sharing water			Valuing water			Governing water				
	S1	S2	S3	V1	V2	V3	G1	G2	G3	G4	G5
Syria		✓	✓	✓	✓		✓	✓	✓	✓	✓
Tunisia		✓		✓	✓	✓	✓	✓	✓		
Cyprus	✓	✓			✓			✓	✓	✓	
Morocco	✓	✓		✓	✓	✓		✓			
Lebanon	✓	✓	✓	✓	✓	✓	✓		✓		✓
Egypt		✓	✓	✓	✓		✓	✓		✓	
Algeria		✓		✓	✓		✓		✓		✓

- S1** Water allocation conflicts (scarcity & stress)
- S2** Inefficient management of shared resources
- S3** No access to basic water services

- V1** Low recovery of costs
- V2** Ineffective application of the polluter-pays principle
- V3** Inefficient water allocation

- G1** No financing/planning for technical solutions & water works
- G2** Limited/no public participation
- G3** Limited legislation enforcement
- G4** Overlaps in responsibility
- G5** Lack of capacity (technical, human)

The INECO Workshops: A Decisive Step



Damour, Lebanon
12/09/2007



Damascus, Syria
10/09/2007



Tunis, Assembly Workshop
15-16/07/2008



Pegeia, Cyprus
26-27/10/2007



Basandeila, Egypt
21-22/07/2007



Afourer, Morocco
21/03/2008



Nabeul, Tunisia
06/12/2007

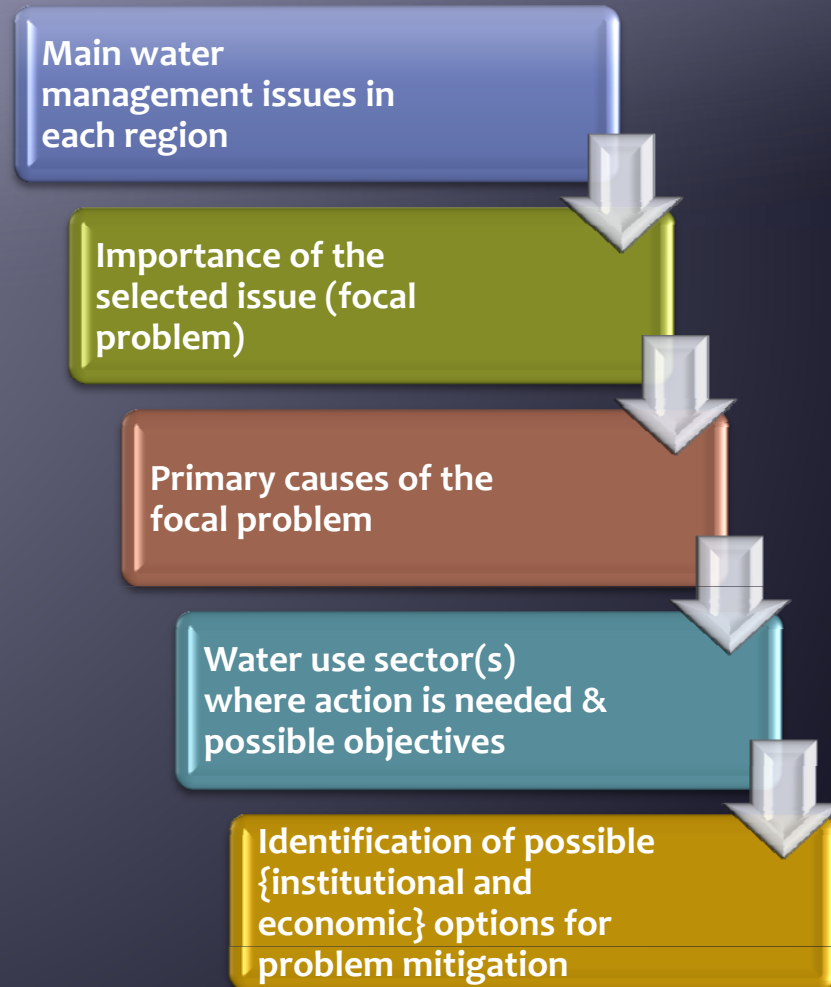


Annaba, Algeria
19/01/2008

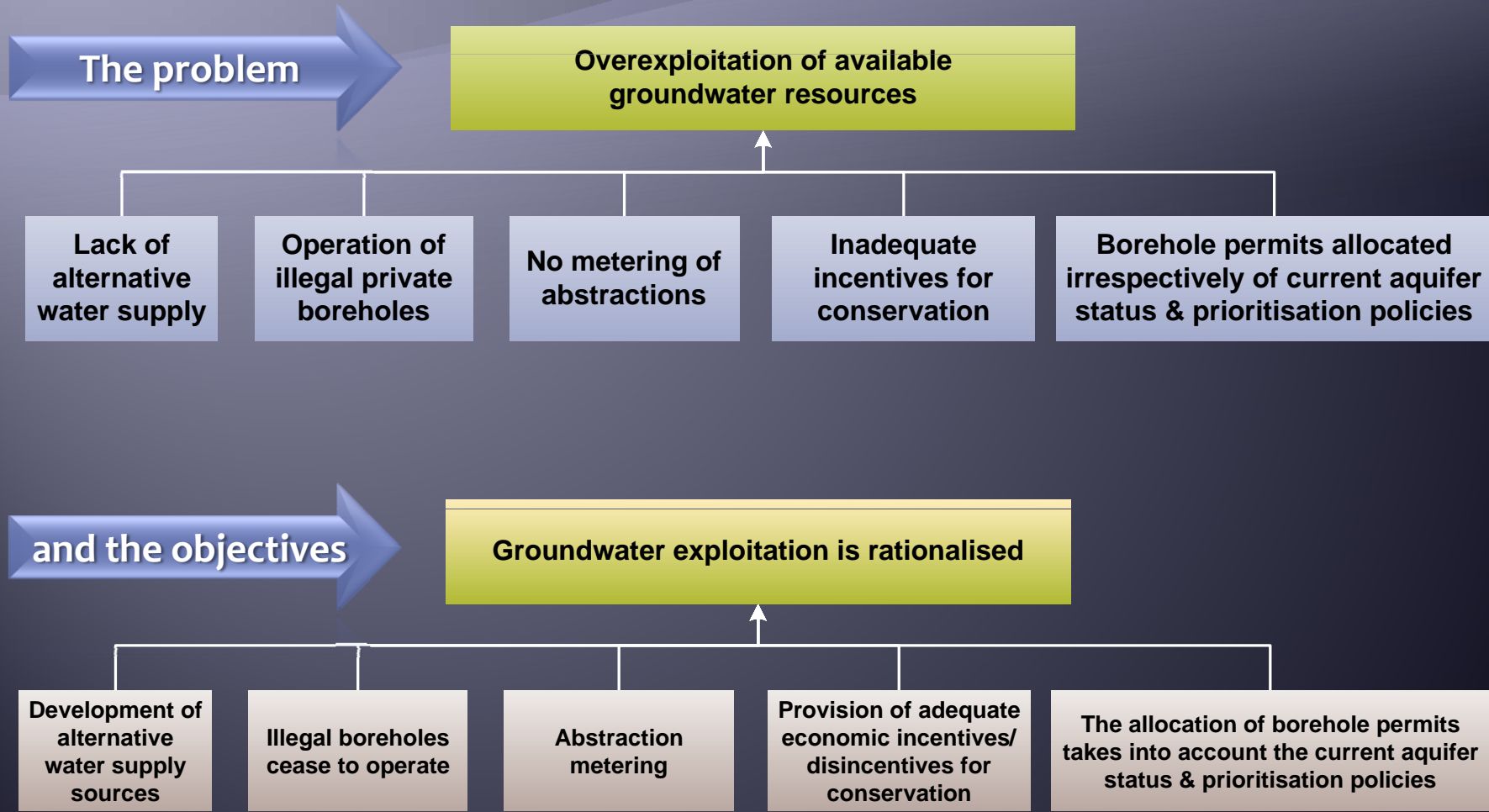
Regional workshops

Objectives & Focus of discussions

- ◆ Engagement in a constructive dialogue
 - ◆ Maximize opportunities for multi-faceted solutions
 - ◆ Learn from stakeholders
- ◆ Establishment
 - ◆ Shared frame of reference
 - ◆ Shared goals
 - ◆ Shared plan to achieve goals



From problems to policy objectives



Groundwater overexploitation in Pegeia, Cyprus

From objectives to options: The Alternatives

- ◆ **Economic instruments & voluntary measures**
 - ◆ Aim: Promote self-regulation and behavioural change
 - ◆ Pricing, subsidies, environmental taxation, indirect taxation, tradable permits, voluntary agreements
- ◆ **Command-and-control approaches**
 - ◆ Regulation by authorities
 - ◆ Stricter enforcement of legislation/stricter standards/stricter forms of sanction
- ◆ **Capacity building & enabling instruments**
 - ◆ Awareness, education, stewardship
 - ◆ Public engagement
 - ◆ Decentralization & collective management
 - ◆ Institutional reforms, private sector involvement

From objectives to options

Development of alternative options

An example for industrial pollution abatement in the Seybouse River Basin, Algeria

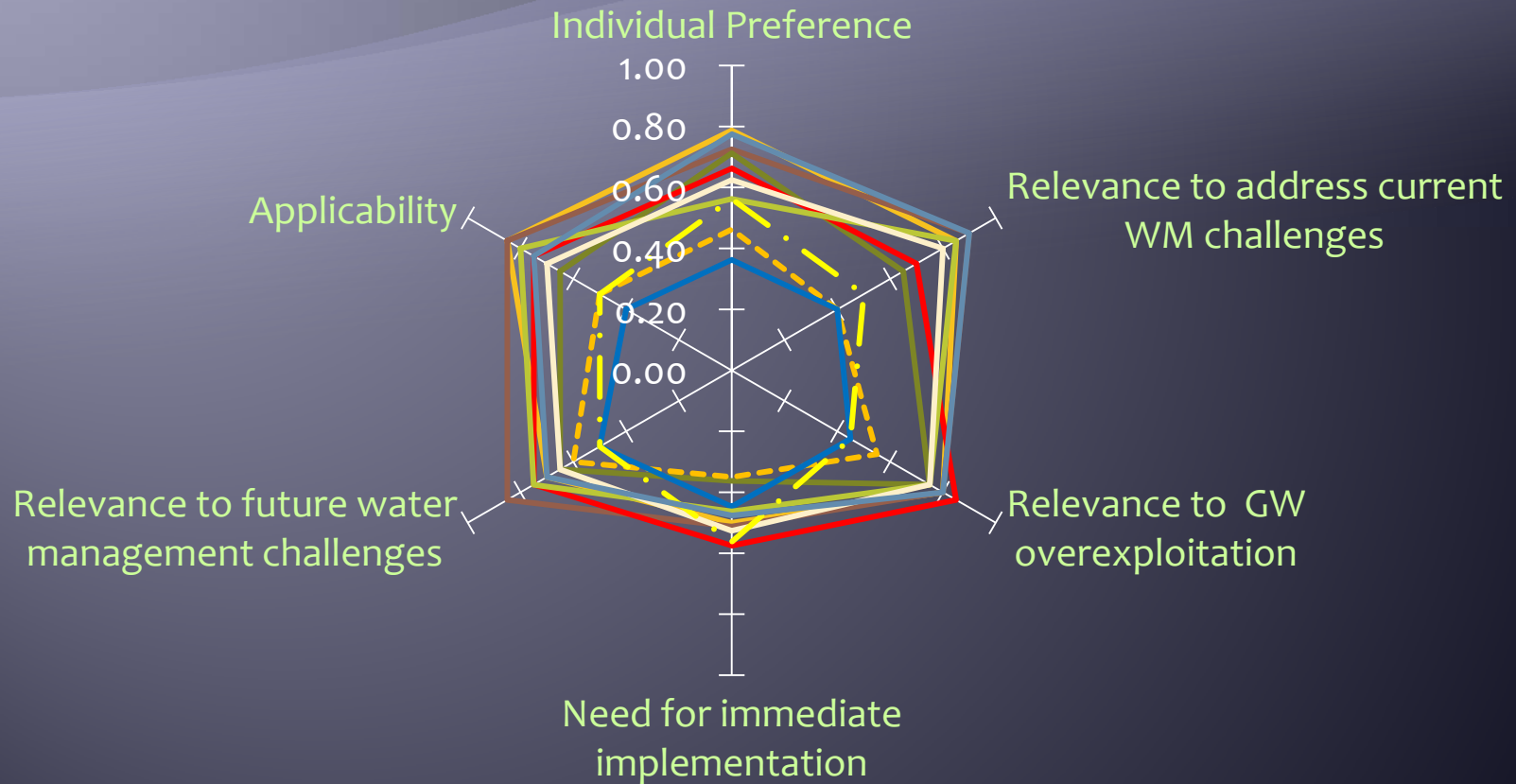
- ◆ (Stricter) effluent standards and delineation of vulnerable/protected areas
- ◆ Technology standards for specific industrial processes
- ◆ Discharge permits
- ◆ Surveillance, monitoring and enforcement of legislation on wastewater discharge:
 - ◆ Penalties for non compliance with emission standards
 - ◆ Reduction of potential government subsidies in case of non-compliance
- ◆ Effluent charge systems – Environmental taxation
- ◆ Voluntary agreements with industries to reduce wastewater production and discharge of polluting effluents
- ◆ Environmental performance bonds for industries
- ◆ Training on wastewater treatment and water recycling in the industrial sector
- ◆ Revolving funds for financing collective effluent treatment schemes
- ◆ Grants, tax incentives for the relocation of polluting industries
- ◆ Tradable discharge permits

Option Analysis

Criteria for Proposed instruments

- ◆ **Effectiveness**
 - ◆ Contribution to the achievement of the key objective
 - ◆ Mobilization of local community
 - ◆ Promotion of technological/institutional innovation
- ◆ **Social considerations**
 - ◆ Affordability for sensitive user groups (poor, women etc.)
 - ◆ Promotion of inclusion of all user groups
 - ◆ Cultural/ethical acceptance
 - ◆ Alleviation of conflict among user groups
- ◆ **Economic efficiency**
 - ◆ Financial cost of implementation
 - ◆ Negative economic impact on important sectors
 - ◆ Impact on regional economic development strategies
- ◆ **Ease of implementation**
 - ◆ Need of institutional and legislative reforms
 - ◆ Required effort for integrating with other existing sectoral policies (e.g. agriculture, industry)
 - ◆ Administrative barriers to implementation

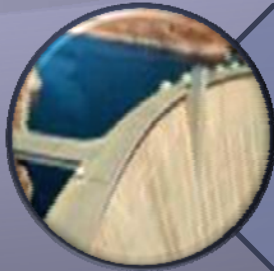
Screening of instruments by stakeholders



- Water pricing
- Environmental charges and taxes
- Taxes on production inputs/outputs
- Voluntary/cooperative agreements
- Decentralization
- Subsidies
- Market instruments
- Stricter legislation enforcement
- Command-& control approach
- Public participation

Looking back at the broader picture

Policy approaches to water stress mitigation



Enhance supply

Doing *more* with *more* raw water

- Who bears the cost?



Increase productivity

Doing *more* with the *same* raw water

- Public subsidies vs. economic efficiency for low-value uses



Phase out some uses

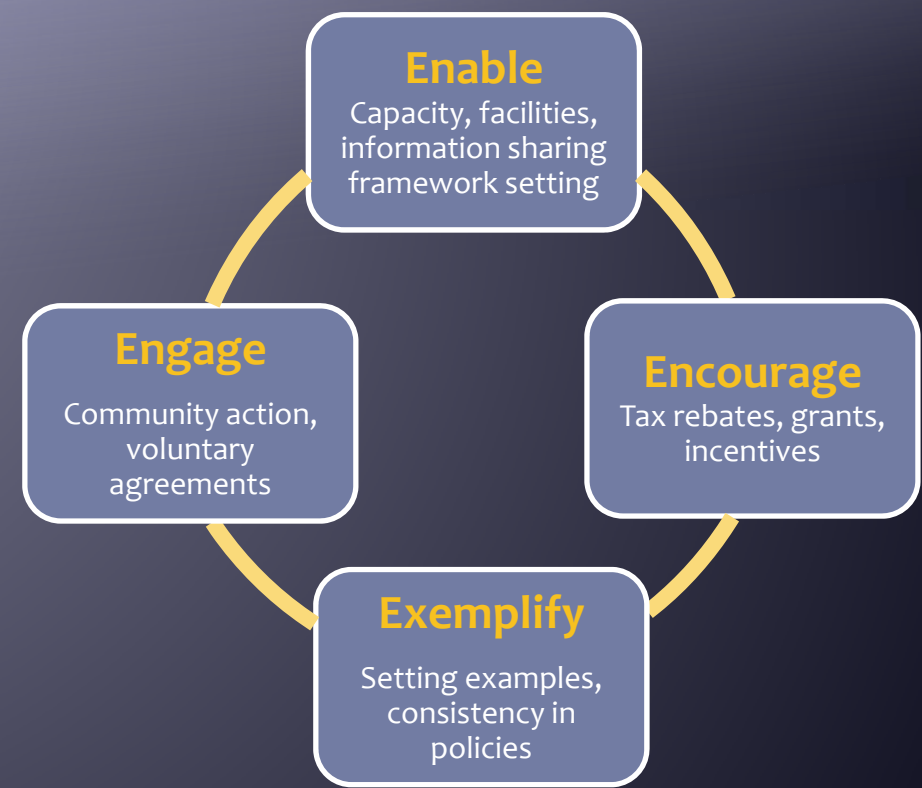
Doing *less* with the *same* raw water

- Often socially & politically undesirable
- Enforcement?

Looking back at the broader picture

Which pathway is most suitable?

- ◆ How can underlying issues be addressed?
- ◆ Which principles are accepted by local societies & decision makers for:
 - ◆ Sharing costs for water services
 - ◆ Creating Incentives for water conservation and environmentally responsible behaviour
 - ◆ Sharing environmental costs (do polluters pay or do we –in fact– think that the entire society should pay)
- ◆ How can we make these processes more effective now and in the future?
- ◆ Everybody talks about public participation and governance, but what do they actually mean?



Articulated perceptions: An example

Describe what you have in mind when speaking about public participation

◆ Pegeia, Cyprus

- ◆ *“My perception for public participation is first of all awareness. This includes all aspects of the water problem from the problems affecting people to the problems affecting the environment. The public should be active about all aspects, reporting whenever there is a misuse of water. The public cannot make decisions, just give its view about how it is affected. This way it can put pressure on decision makers and make them have public interest as their number one goal.”*

◆ Seybouse, Algeria

- ◆ *“Refer automatically to a level of real democracy and a more advanced development generally, a level that our society has not yet reached.”*
- ◆ *“Public participation to achieve sustainable management of water should pass through awareness at all social levels in order to make everyone aware of the interest to safeguard and respect a resource that becomes more and more scarce in the world.”*

◆ Damour, Lebanon: Largely not answered

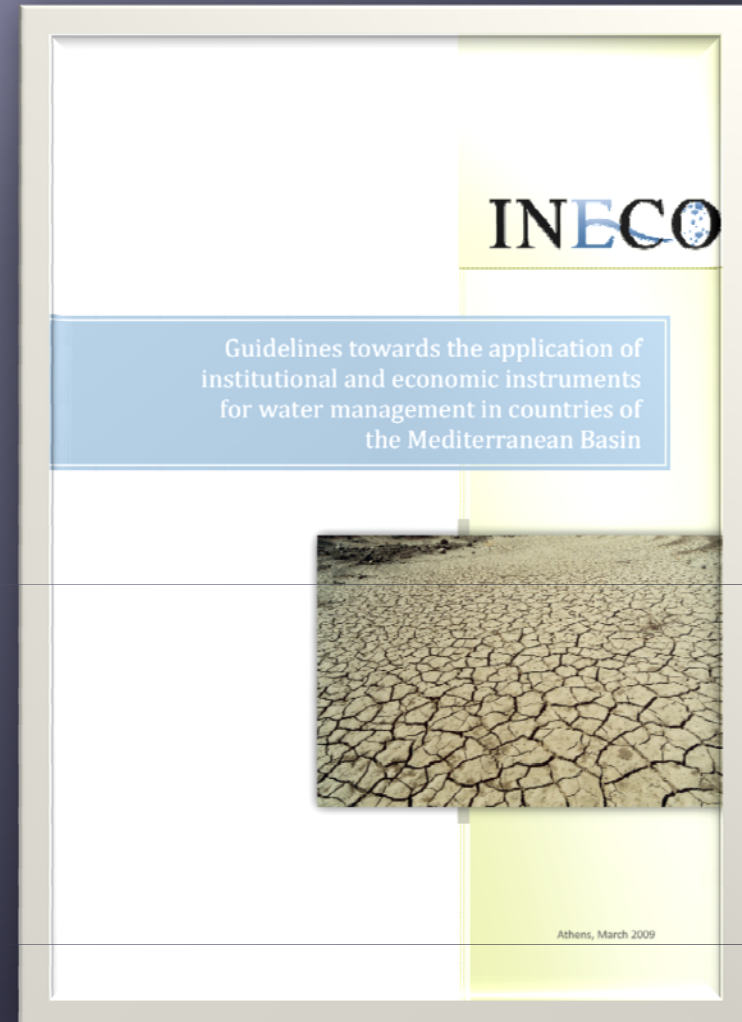
- ◆ *“One way is to create Water Users Association (WUA) with proper legislation that allows representation in decision making”*

Therefore... what have we learned?

- ◆ Incentive-based policies are both desired and accepted
 - ◆ Stakeholders (even citizens) are becoming largely aware of their potential
 - ◆ But such policies require capacity and enabling frameworks
 - ◆ Institutional and administrative transformations are often not so desired and take a lot of time
- ◆ Transition to new water management paradigms requires broad societal changes and understanding of their complexity
 - ◆ Progress towards IWRM is slow...but is there
- ◆ The uptake of research outcomes is based on the active participation of the local communities and the understanding of the societal and institutional changes required

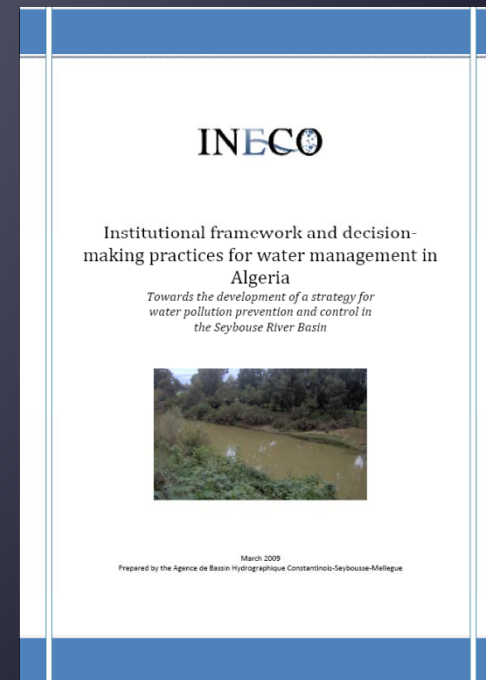
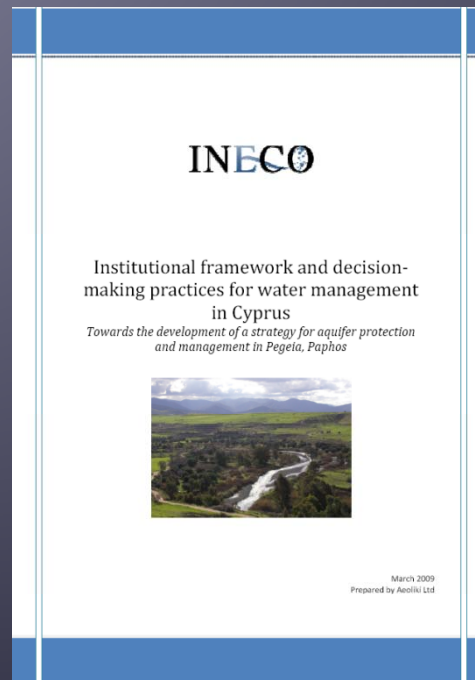
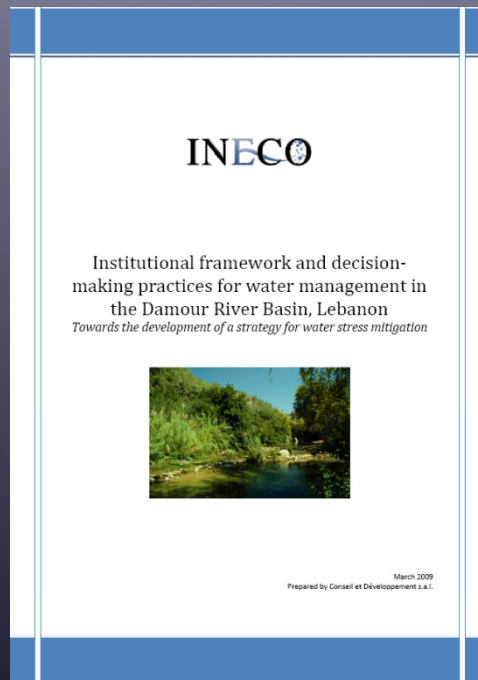
The INECO Guidelines

- ◆ Document summarizing the outcomes of INECO
 - ◆ Background on institutional and economic instruments
 - ◆ INECO Methodology
 - ◆ Typology of the INECO Case Studies
 - ◆ Emerging policy needs in the local context
 - ◆ Broader considerations towards policy development and implementation, as identified by local stakeholders



The INECO Regional Reports

- ◆ Seven regional reports describing the INECO Case Studies and analyses



The INECO Web toolbox

- ◆ Available at: <http://environ.chemeng.ntua.gr/toolbox>
- ◆ Offers:
 - ◆ Available information on institutional and economic instruments for water management
 - ◆ Principles
 - ◆ Application examples
 - ◆ Library of documents
 - ◆ Ability to develop participatory planning processes using the Objective Oriented Planning Method (which was used in INECO)
 - ◆ Different tools for supporting the expression of views (surveys, discussion fora ...)

INECO Toolbox

The INECO Web Toolbox

Institutional and Economic Instruments

- Market instruments
- Liability and assurance regimes
- Financial and fiscal instruments
- Fee-based measures
- Voluntary Agreements

Participatory Tools for Strategic Planning

Perception Surveys

Discussion Fora

The INECO Case Studies

- Groundwater exploitation in Pegeia, Cyprus
- Groundwater overexploitation in Tunisia
- Water quality deterioration in the Bahr Basandeila area, Egypt
- Water Stress in the Damour River Basin, Lebanon
- Water pollution in the Seybouse River Basin, Algeria
- Water stress and low efficiency in irrigation water use in the Oum Er Rbia Hydraulic Basin, Morocco
- Water quality degradation in the Barada River Basin, Syria

Log In

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Home > Institutional and Economic Instruments

Policy instruments refer to legal, institutional, economic, social change and management mechanisms employed to improve efficiency in water management. However, they do not operate in a vacuum; incentive-based policies towards water conservation can be effective only when the required capacity exists both at the policy and decision-making levels and in society.

Economic instruments refer to mechanisms that create the economic incentives for individuals to freely opt for modifying or reducing their activities, thus indirectly producing an environmental improvement. They encompass a rather diverse toolkit of policies whose main characteristic is that they provide market signals by affecting or modifying relative prices, in order to influence the behavior of consumers, polluters and other economic agents, and provide incentives to them for internalizing the externalities that they may be producing. A tentative classification of instruments based on their type is presented in the Figure below.

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graph TD
    PR[Property rights] --- MR[Market instruments]
    PR --- FS[Fiscal instruments]
    PR --- CS[Charge systems]
    PR --- LI[Liability systems & assurance regimes]
    PR --- BD[Bonds & Deposit - refund systems]
    MR --- TEP[Tradable emission permits]
    MR --- TQU[Tradable water use quotas]
    MR --- TRU[Tradable water use rights]
    FS --- PT[Pollution taxes]
    FS --- AT[Abstraction taxes]
    FS --- IT[Input taxes]
    FS --- POT[Product (output) taxes]
    FS --- TD[Tax differentiation]
    CS --- PC[Pollution charges]
    CS --- WU[Withdrawal (use or abstraction) charges]
    CS --- CWS[Charges for water services]
    CS --- AC[Administrative charges]
    FI[Financial instruments] --- FSub[Financial subsidies]
    FI --- SL[Soft loans]
    FI --- G[Grants]
    FI --- LRI[Location/relocation incentives]
    FI --- SSI[Subsidized interest on investment loans]
    FI --- RF[Revolving funds]
    FI --- SF[Sectoral funds]
    LI --- ExPost[Ex post internalization]
    LI --- LL[Legal liability]
    LI --- NCC[Non-compliance charges]
    LI --- NRD[Natural resource damage liability]
    LI --- EI[Enforcement incentives]
    BD --- ExAnte[Ex ante internalization]
    BD --- EPB[Environmental performance bonds]
    BD --- DRD[Deposit-refund systems]
    
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**THANK YOU FOR YOUR
ATTENTION**