

# The INECO Project

Framework and activities in  
Tunisia

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*Project web site: <http://environ.chemeng.ntua.gr/ineco>*

**INECO**

# Water management challenges of the 21<sup>st</sup> Century

- Meeting basic needs
  - Recognise that access to safe and sufficient water and sanitation are basic human needs and essential to health and well-being
- Securing the food supply
  - Enhance food security, particularly of the poor and vulnerable, through the more efficient use, and the more equitable allocation of water for food production
- Protecting ecosystems
  - Ensure the integrity of ecosystems through sustainable water resources management
- Managing risks
  - Provide security from floods, droughts, pollution and other water-related hazards

# Water management challenges of the 21<sup>st</sup> Century

- **Sharing water resources**
  - Promote peaceful co-operation and develop synergies between different uses of water at all levels, whenever possible, **within** and, in the case of boundary and trans-boundary water resources, **between** states concerned, **through** sustainable river basin management or other appropriate approaches
- **Valuing water**
  - Manage water in a way that reflects its **economic, social, environmental** and **cultural values** for all its uses, and to move towards pricing water services to reflect the cost of their provision
  - Take account of the need for equity and the basic needs of the poor and the vulnerable
- **Governing water wisely**
  - Ensure good governance, so that the **involvement of the public** and the **interests** of all stakeholders are included in the management of water resources

# Water management challenges in the MENA Region

- Much progress has been made in terms of infrastructure development
  - Supply-oriented projects to meet increasing demand and economic development goals
  - Significant expansion of the knowledge-base on water resources
- Further steps
  - Improve the integrated management of water and environment
  - Further infrastructure development & rehabilitation
  - Strengthen the Institutional and Socio-economic environment

# The Institutional challenge

- Foster end-users capacity to adopt technical innovation
- Enhance capacity for updating and enforcing legislation
- Provide economic incentives & disincentives and increase awareness towards demand management
- Encourage stakeholder participation in decision-making

# The INECO Project

- **Title:** Institutional & Economic Instruments for Sustainable Water Management in the Mediterranean Region
- Period: 2006-2009
- Coordination Action, supported by the European Commission (6<sup>th</sup> Framework Programme)
- Thematic Priority: Specific Measures in Support of International Cooperation (INCO) – Mediterranean Partner Countries (MPC)

# Who we are...

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 and Technology, Tunisia
8. Water Management Research Institute, MWRI, Egypt
9. 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

# ... and what we intend to do

- Establish Multi-Stakeholder Fora
- Identify, propose & evaluate alternative instruments which can address focal Water Management problems

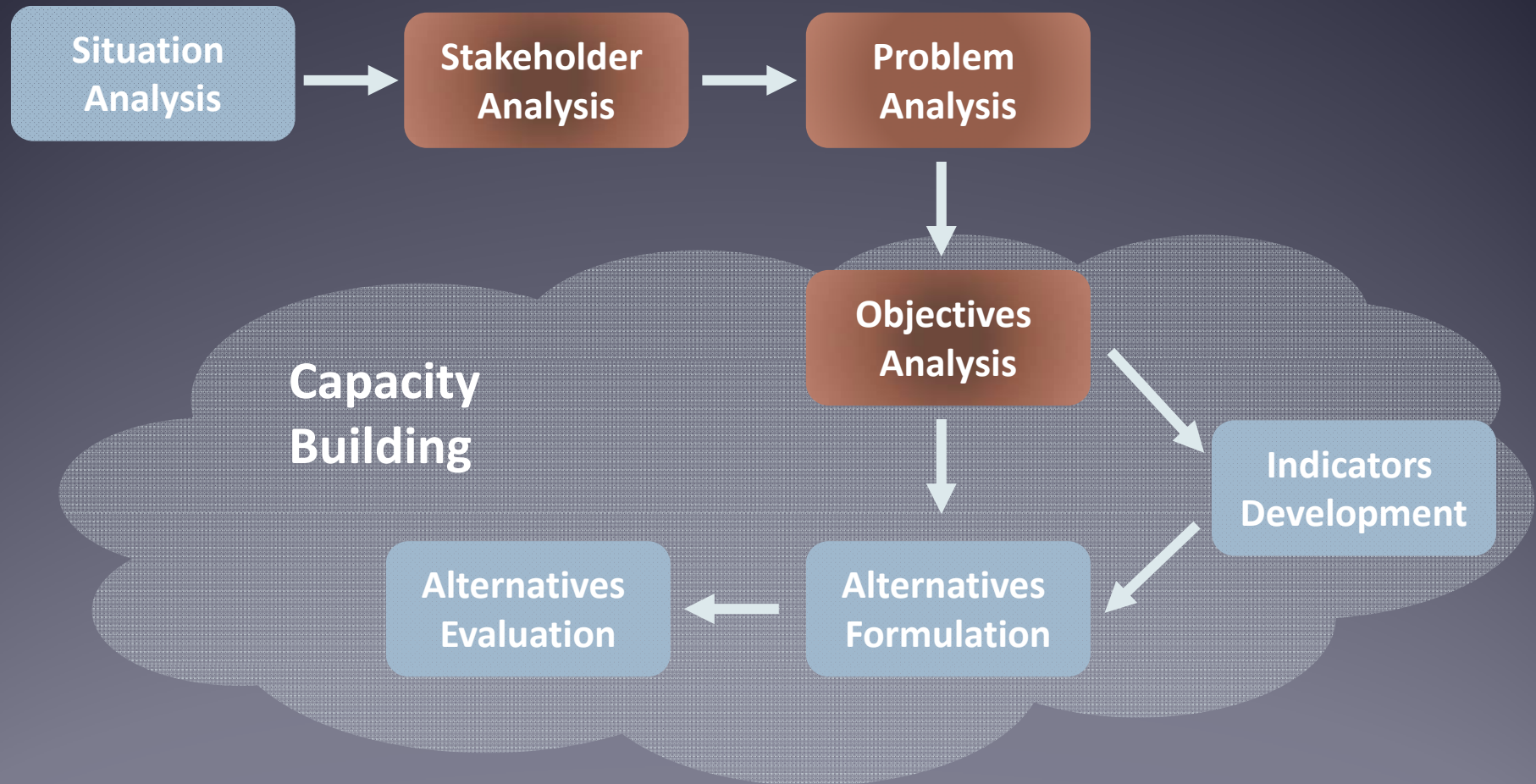
Promote capacity building for constructively engaged IWRM



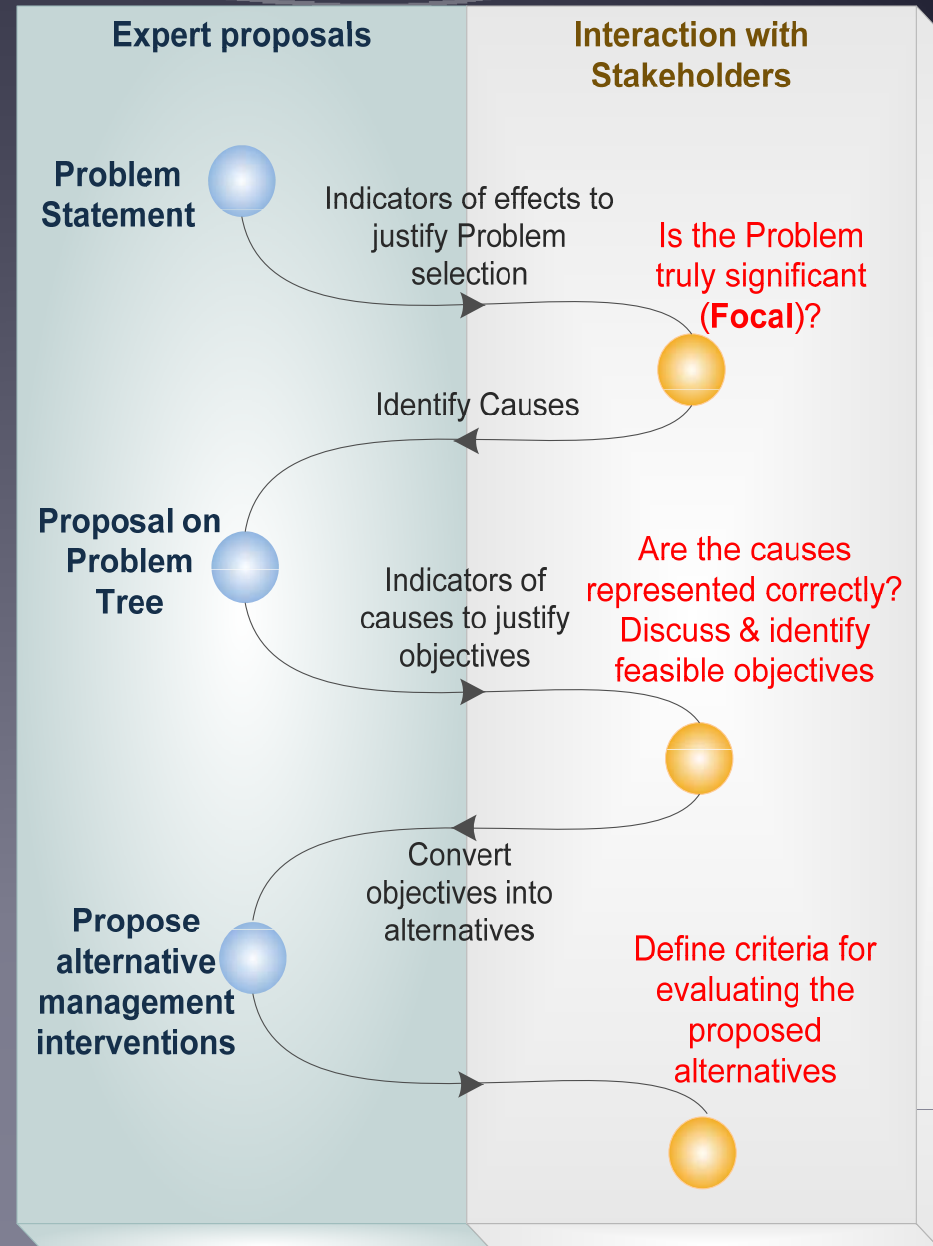
# Key Project Concepts

- Integrated Water Resources Management (IWRM)
- Institutional dimensions of:
  - Valuing water
  - Sharing water
  - Governing water systems
- Public Participation
  - Engagement of all concerned parties in constructive dialogue
- Economic instruments
  - Economic incentives (e.g. subsidies) and disincentives (e.g. pricing, penalties) for sustainable water management
  - Recovery of water service costs to ensure proper maintenance and adequate water service quality

# Approach



# An evolving participatory approach



# Constructive engagement

- Goal: maximize opportunities for multi-faceted solutions
- Discussion among ALL interested parties before an option is selected and planned
  - Stakeholders have an active role in developing plans and proposals



# Focal WM Problems in INECO

- **Cyprus:** Aquifer depletion and sea intrusion
- **Tunisia:** Aquifer depletion and salinisation
- **Lebanon:** Water stress in the Damour River Basin
- **Morocco:** Inefficient water use in the Oum Er Rbia River Basin
- **Egypt:** Water quality deterioration in the region of Bahr Basandeila Canal
- **Syria:** Water pollution in the Barada River Basin (Greater Damascus Area)
- **Algeria:** Water pollution in the Seybousse River Basin

# Commonalities?

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

S.1 Water allocation conflicts (scarcity & stress)  
 S.2 Ineffective management of shared resources  
 S.3 No access to basic water services

V.1 Low recovery of costs  
 V.2 Ineffective application of the polluter-pays principle  
 V.3 Inefficient water allocation

G.1 No financing/planning for technical solutions & water works  
 G.2 Limited/no public participation  
 G.3 Inability/unwillingness to enforce legislation  
 G.4 Overlaps in responsibility  
 G.5 Lack of human resources



# Tangible water management problems

- Widening gap between water supply and demand
  - Inadequate management and population growth
  - Decreasing availability of freshwater supplies
- Water quality deterioration
  - Ecological dimension
  - Health issues, poor quality, water-borne diseases, lack of adequate safe drinking water and sanitation

# Underlying issues

- Organisational problems
  - Lack of funds, facilities, capacity and procedures
  - Inadequate legal imperatives and administrative guidelines
- Perception issues
  - Lack of societal understanding of underlying causes
  - Limited awareness & participation



# Need for...


- Enabling policies that discourage/prevent:
  - Inefficient land use
  - Overuse of non-renewable water resources
  - Pollution
  - Environmental damage
  - Poor infrastructure maintenance

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

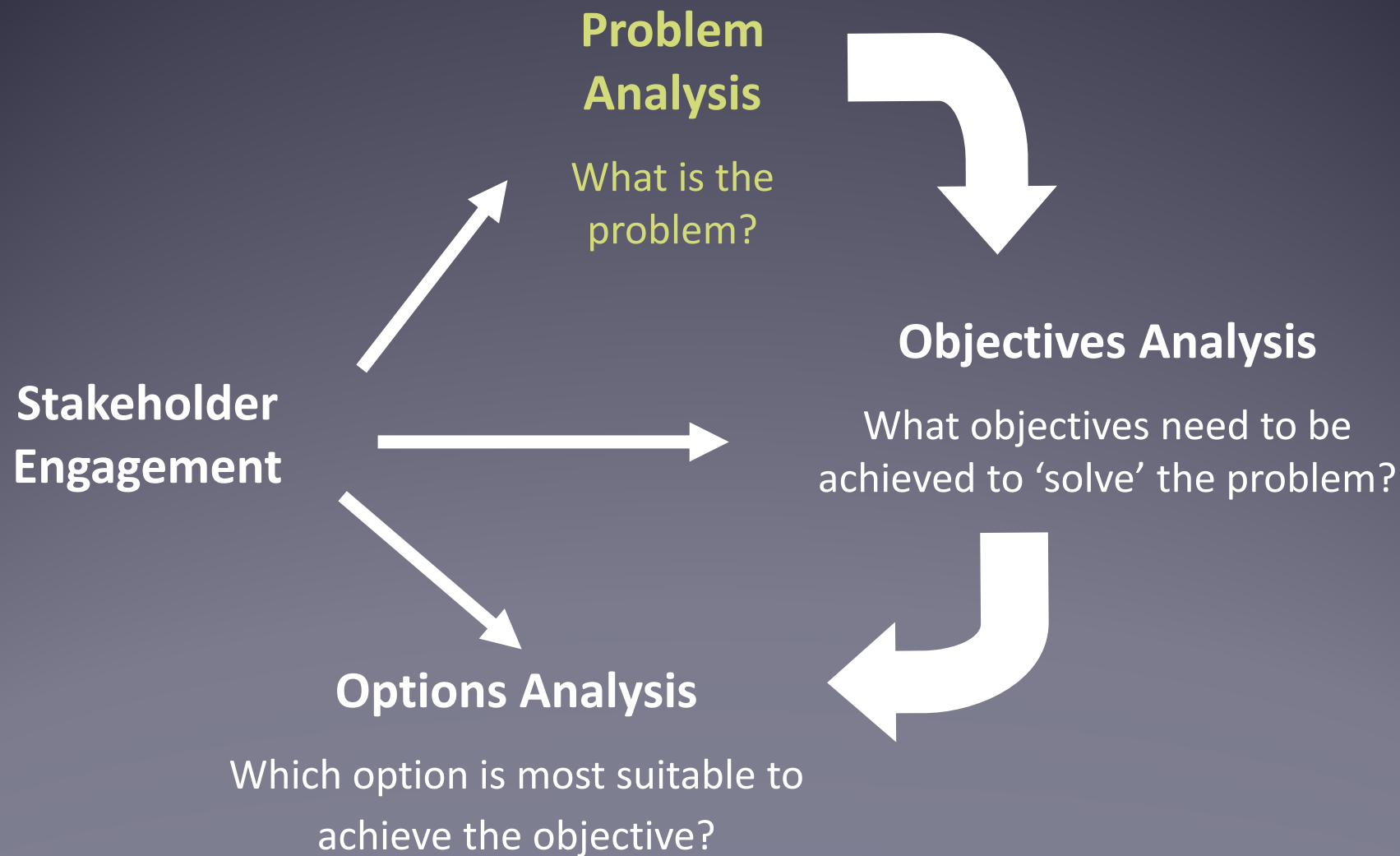
# INECO in Tunisia

- The focal problem
  - Aquifer depletion and salinization
- Summary of reported effects
  - Drying-up of boreholes and wells
  - Drop in water levels and higher pumping costs
  - Deterioration of water quality
  - Lack of strategic water reserves to cope with droughts

# INECO in Tunisia

- Summary of reported causes
    - Illegal borehole drilling & operation
    - No metering of groundwater abstractions
    - Irrational management of groundwater in use
    - Inefficient irrigation practices
    - Water-intensive cropping patterns
- 
- Need for:
    - Integrated strategies for agricultural development
    - Measures that can promote a shift in agricultural practices
    - Regulating and controlling aquifer exploitation
    - Need for developing alternative water supply sources → Higher water supply cost

# The discussion frame



# Today's discussion - Themes

- Importance of the problem
  - Importance of its effects
- What contributes to the problem and how? (Causes)
  - Agreement?
- What is the relative importance (weight) of each cause?
- Potential objectives
  - Agreement?
- Alternative solutions, obstacles and constraints

# What we hope to achieve

- Today
  - Shared frame of reference
  - Shared goals
- In the next two years
  - Shared design of process to achieve goals
  - Shared understanding of the desired local actions