HOW EFFECTIVE WATER GOVERNANCE BE IMPLEMENTED ACROSS BORDERS?

THE CASE OF THE MESTA/NESTOS BASIN

by

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http://www.inweb.gr
International Network of Water-Environment Centres for the Balkans

http://www.inweb.gr
UNESCO-INWEB activities in the Balkans (SEE)

shared aquifer resources management in the MENA region
Databases on Internationally Shared Waters

- Shared Surface Waters in SE Europe
- Shared Aquifers in South East Europe
- Shared Aquifers in N. Africa
- Shared Aquifers in the Middle East
A UNESCO-HELP CASE STUDY
HYDROLOGICAL DOWNSCALING

LOCAL CLIMATE SCALE

ECHAM5/EMPIOM LOCAL CLIMATE MODEL (CLM) 20 x 20 Km

- TEMPERATURE
- PRECIPITATION
- WIND
- HUMIDITY
- RADIATION

RIVER CATCHMENT SCALE

- OROGRAPHY
- LAND USE
- GEOLOGY
- HYDROGRAPHY
- SOILS

- RIVER FLOW
- INFILTRATION
- EVAPOTRANSPIRATION

DOWNSCALING

MODSUR/NEIGE DISTRIBUTED HYDROLOGICAL MODEL 250 m to 2 Km
IV International Symposium on Transboundary Waters Management
Thessaloniki, Greece
15th - 18th October 2008

The “Thessaloniki statement”
AT THE IV INTERNATIONAL SYMPOSIUM ON TRANSBOUNDARY WATERS MANAGEMENT, HELD IN THESSALONIKI, GREECE, FROM 15-18 OCTOBER 2008,

WE THE PARTICIPANTS FROM 42 COUNTRIES AND INTERNATIONAL AND REGIONAL ORGANISATIONS, HAVING

- reviewed the current situation of different transboundary surface and groundwater bodies;
- realised the common obstacles that in many cases detract from the best uses of those resources;
- recognised that the quantity and quality of those resources are affected by various human activities;
- considered that water resources are subject to the increasing influence of global and climate changes;
- considered the scientific, technical, economic, financial, policy and legal aspects involved in the management of transboundary water resources;
- recognised that it would be beneficial to broaden the scope of cooperation among states sharing water resources by involving the various stakeholders;
- recognised that transboundary water resources should be regarded as a common resource for satisfying the basic human as well as ecosystem needs and enhance sustainable socio-economic development of the basin populations;
- recognised that, in order to implement international legal obligations, it is necessary for states to take action within their domestic contexts;
- are of the view that in order to face the above challenges and maximise the advantages from cooperation among countries:

1. **The states sharing transboundary water resources should:**
   a. enter into agreements and understandings for cooperation in the management of these resources, consistent with principles of international law on water resources;
   b. put in place sustainable institutional arrangements at the transboundary river basin or aquifer level;
   c. put in place monitoring and evaluation mechanisms to continuously assess the transboundary river basins and aquifers;
   d. enhance the knowledge base relating to these resources in order to develop effective water resources protection and management mechanisms;
   e. explore alternative institutional approaches for the governance of transboundary water resources at the local users' level.

2. In order to implement international and regional legal obligations within their national contexts, states should put in place adequate national water management policies, legislation and institutions.

3. Arrangements should be made in order to build the capacity of states' multilateral, bilateral and national administrations to implement the provisions of the agreements entered into, and also to promote water education and organise multidisciplinary training programmes.

4. Sustainable financing mechanisms should be established for transboundary water management.

THEREFORE:

We the participants appeal to international institutions, as well as countries and regional and local authorities, in partnership with the private sector, for assistance, technical support and financing in these endeavours.
1: Stakeholder Consultation and Collaboration

2: Problem Definition
   Transboundary Diagnostic Analysis (TDA)

3: Data Sharing

4: Common Strategic Action Plan

5: Modelling

6: Scenario Analysis

7: Implementation
1. NAME OF THE TRANSBOUNDARY LAKE/RIIVER BASIN, LOCATION & COUNTRIES
Please give the name(s) or other identification property of the shared basin, its approximate location (province, department) and countries sharing it.

2. RIVER BASIN CHARACTERISTICS
Please indicate which of the two pictures below characterises most closely your transboundary river basin.

States border cross the river and divide the river basin in two parts, the upstream and the downstream
The river serves as state border, like the lower course of the Danube River, which serves as the border between Bulgaria and Romania.

3. USES AND FUNCTIONS OF TRANSBOUNDARY SURFACE WATERS
Does the surface waters have direct/instream and/or indirect (offstream) uses?
No or Yes

If Yes:

1. NAME OF THE TRANSBOUNDARY AQUIFER, LOCATION & COUNTRIES
Please give the name(s) or other identification property of the shared aquifer, its approximate location (province, department) and countries sharing it.

2. AQUIFER CHARACTERISTICS
Please indicate which of the four simplified pictures below most closely characterises your transboundary aquifer.

3. USES AND FUNCTIONS OF TRANSBOUNDARY GROUNDWATERS
Does the groundwater in this transboundary aquifer have direct uses and/or other functions?
No or Yes

If Yes:
Thank you!

Ευχαριστώ!
Transboundary Aquifers of the World
- Update 2009 -
TRANSBOUNDARY WATERS: THE FACTS

- Cover 45% of the land surface of the Earth;
- Affect 40% of the world’s population;
- Account for approximately 80% of global river flow;
- Cross the political boundaries of 145 nations.
Breaking Multiple Barriers

Mainly Political Borders
The Mesta/Nestos River Basin
The Mesta/Nestos River basin... a bilateral agreement
THE MESTA/NESTOS RIVER BASIN
Extensive construction activities
Nationalpark Pirin
Main Steps of the WFD Process & Role of Socio-Economics

- Defining Environmental Objectives
  - Analysis of River Basin (impact & pressure)
  - Identify possible measures to meet env. objectives
  - Designation of Heavily Modified Water Bodies
  - Justify extended deadlines for achieving objectives
  - Justify less stringent objectives

- Implementation of selected measures

- Monitoring and Evaluation

- Developing River Basin Management Plan
  - Cost effectiveness
  - Pricing

- Identify and qualify Water uses

- Assessing existing Cost recovery level

- Planning and implementation

- Economic Components
Central socio-economic aspects of the WFD: cost recovery

Member States shall take account of the principle of recovery of the costs of water services, including environmental and re-source costs [...] and in accordance in particular with the polluter pays principle.

Member States shall ensure by 2010 - an adequate contribution of the different water uses, disaggregated into a least industry, households and agriculture, to the recovery of the costs of water services“ (Art. 9 (1)).
HYDROLOGICAL MODELLING: THE GRID
HYDRAULIC MODELLING: THE HEC-ResSim MODEL

<table>
<thead>
<tr>
<th>Dams of Nestos</th>
<th>Level of tailrace tunnel (m)</th>
<th>Power (MW)</th>
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<tbody>
<tr>
<td>Thissavros</td>
<td>226</td>
<td>300</td>
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<td>Platanovryssi</td>
<td>151</td>
<td>100</td>
</tr>
<tr>
<td>Temenos</td>
<td>126</td>
<td>20</td>
</tr>
</tbody>
</table>
HUGE INCREASE OF CO2 (A1FI, A2)

A1B
REALISTIC REDUCTION OF CO2

IPCCP SAR (IS92a)

OPTIMISTIC NEW TECHNOLOGIES) (B1, B2)
CONCLUSIONS

• COMMUNICATION STRATEGIES TO INVOLVE STAKEHOLDERS: SIMPLICITY, PERSISTENCE & USE OF NEW ICTs

(examples: monitoring, common databases, integrated modelling, common management plans)

• IMPORTANCE OF SOCIO-ECONOMICS, CLIMATE CHANGE & ANALYSING THE DECISION MAKING PROCESS

(examples: sharing risks & benefits, multicriteria decision analysis)
Water is the origin of everything

Thales of Miletus
Greek philosopher, 600bc

"Humanity is not determined by what is developing, but by what chooses not to destroy"

Edward Osborn Wilson (1929-)
American biologist