MedWater Policy

Policy Initiative to Overcome Water Competition between the Vital Economic Sectors of Agriculture and Tourism in the Mediterranean

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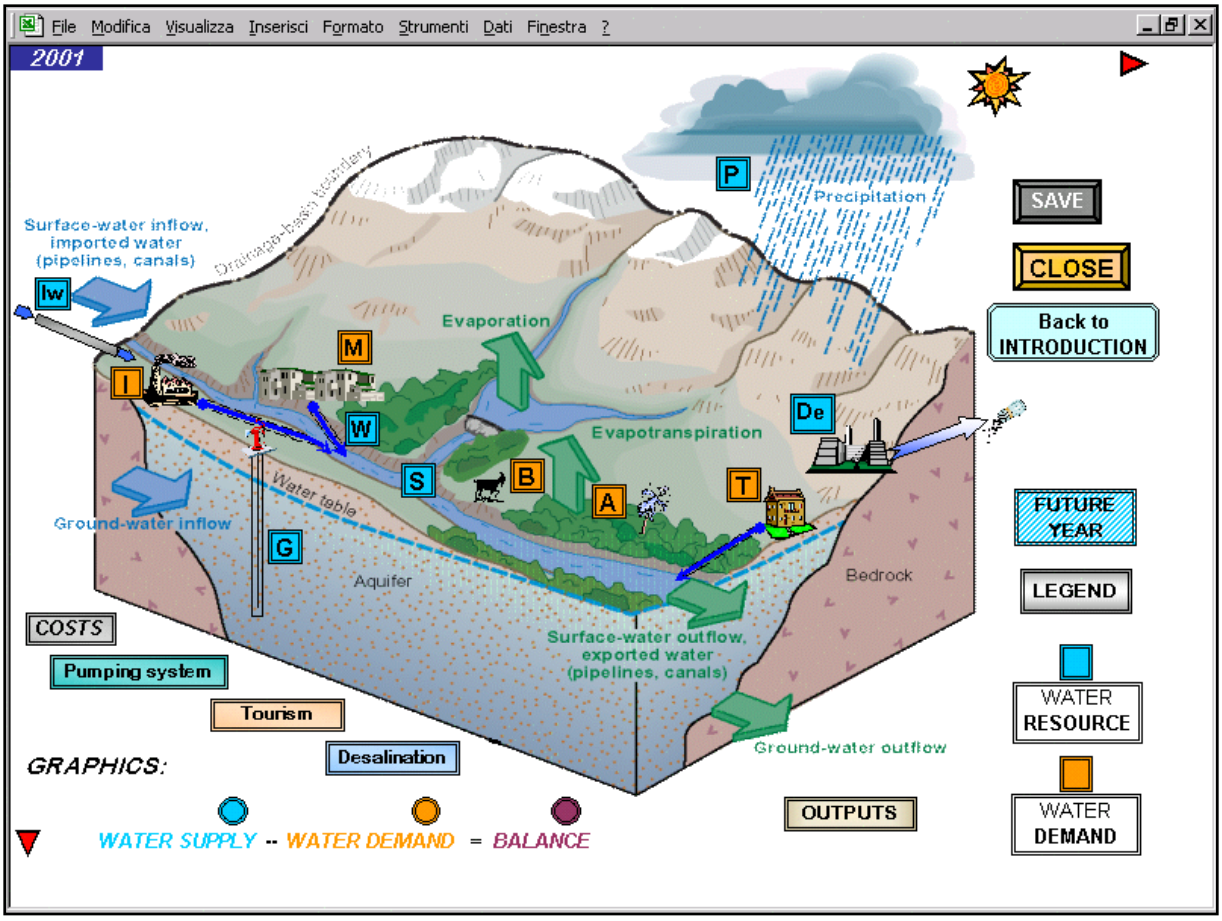

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Structure of the MedWater Model

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1. Introduction

The water demand, and the actual use of water, in the Mediterranean area is currently rapidly increasing while, at the same time, the locally available water resources are becoming more and more limited and partly affected by poor quality. Especially the use of water for non–private purposes has to be adapted in a way that it complies with the overall aim of economic and ecological sustainability, and social and environmental standards.
Most of the countries in the Mediterranean exercise water management but, in most cases, the approaches have known a limited success due to the lack of an integrated view of the entire water chain from supply to wastewater treatment. With a strong increase in the demand and low efficiency and narrow resource base of the actual water supply schemes the current level of use of water seems not sustainable. In addition, the water sector, in particular those facilities which enlarge the water resource base like desalination plants, require huge amounts of energy for their operation which is up to now mostly imported. The increasing use of locally available renewable energy sources, now within the realm of realistic options, would put the water supply on a sustainable base in the long–term, not only with regard to explorable water resources, but also to available energy resources.

1.1. General objectives

Within this competition for water two vital economic sectors hold a special position: the agriculture and the tourism.
Both sectors represent crucial sources for sustaining the growth of economic wealth and need a tremendous amount of water as a key factor for the business. Moreover, disputes over water has also fuelled national and international conflicts in the area.
The aim of this project is to overcome the present, and prevent future, water competition between the vital economic sectors of agriculture and tourism in the Mediterranean area. The outcome is recommendations for a necessary framework for a water management system promoting the efficient and effective use of water, new supply technologies and treatment and reuse of water.
This is achieved by the development of a transboundary water policy initiative including an integrated water planning model which take the current water supply and water demand situation, available water saving, reuse, treatment and desalination options and the socio–economic, legal and administrative framework into account.

1.2. Specific objectives

To overcome the single issue view on the various aspects of water supply and use the project focuses on an integrated and inter–sectoral approach towards the thematic. The work is based on a broad assessment and analysis of the actual situation in selected Mediterranean regions and of available technology and policy options. The terms of reference guiding the development of this policy particularly include:

- Water saving in agriculture and tourism and at the level of water supply facilities;
- Water reuse and wastewater treatment to cover part of the total water demand;
- Sea water and brackish water treatment and desalination as means for enlarging the water resource base;
- Water supply and treatment related energy supply from locally abundant renewable energy sources: solar and wind energy as well as biomass use energy;
- Trans–boundary co–operation as a means for optimising the use of regional natural and human resources.

The main outcome of this MedWater model is to: give a clear understanding of the consequences of policy decisions on all sectors of the water chain; give general concepts about how water can be saved or water productivity increased; give a comprehensive overview of the water chain, for integrated water planning that can be used for analysing water competition in the Mediterranean area and provide a basis for the choice of proper water policy options to overcome inter–sectoral water competition.
The MedWater model integrates the entire water chain from supply to purification and discharge as well as multiple water reuse cycles.
The proposed objectives can be achieved through two main actions:

- Analysis assistance: provide support for the analysis of the water sector situation;
- Action assistance: provide support to understand, in a qualitative way, the consequences of policy decisions, as well as to define actions and technical options (both in the supply and demand side) to be implemented to improve water management and avoid conflicts.

Following list shows the characteristics of the MedWater model:

- High flexibility;
- Water optimum management model;
- Constituted by two modules, water supply and water demand, each one composed by corresponding sub–modules;
- Based on a total water balance and inter–sectoral approach;
- Level of detail: basin, sub–basin or local governments (single or associated).

1.3. Features of the Integrated Model

Policy and decision makers involved in natural resources management are increasingly confronted with questions concerning water management: in particular water scarcity and a more and more severe competition between tourism and agriculture sector in arid and semiarid regions are serious obstacles to the development of the concerning regions. They may find this tool useful to determine future directions in water policy. For example, if decision makers aim at a certain increase of tourist sector in the future year, what are the paths to take to achieve this goal: croplands decrease, irrigation efficiency and water efficient technologies increase, desalinated water production, wastewater treatment, etc.? What is the appropriate mix of policy measures? The last objective of the proposed MedWater model is to allow users to analyse the water situation through an integrated approach, as well as visualize the results of own decisions in quantitative/qualitative way by numerical outputs and graphics.
The MedWater model, in fact, determines a water balance of a region in both present and future years, comparing the outputs of the water resources to outputs of the water demands. Present year is used as a base year for testing the available data and then for calculating the water balance in future year. The MedWater model gives the user ample opportunity to modify assumptions to the regional context and to test different future scenarios. Of course the MedWater model does not aspire to give precise and difficult predictions but rather analyses “what–if” questions. For example, it helps analysing and answering questions such as:
If municipal demand will increase of 50 litres per day per capita in the future, what does this mean in terms of balance and what will be the consequence for other sectors like tourism?
Is it possible “natural” water resources will compensate for increase in water demand in the future year?
And, if you have negative answer, is it possible imported water, treated wastewater and/or desalinated water will compensate for increase in water demand?
Moreover, if tourist demand will increase in the future year, what does this mean for irrigation policy and water supply in general?

The user can insert the required data and can modify all major variables and directly monitor the effects of these changes on water demand and on water supply. This feature makes the program a very suitable tool for scenarios testing and sensitivity analysis.
The analysis carried out by means of the MedWater model is of course strongly dependent on the “quality” of the inserted data; above all for the calculation of the groundwater and surface water resources available in the region an accurate estimation carried out with analytical instruments is necessary.

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