Tools to support and improve Integrated Water Resources Management: STRATEAU and AQUATOOL.
A Mediterranean Perspective

20th of September 2012, 9:00-18:30
Sala de Juntas de Rectorado
Technical University of Valencia (Spain)

The workshop "**Tools to support and improve the Integrated Water Resources Management: STRATEAU and AQUATOOL. A Mediterranean Perspective"** organised by the Mediterranean Network of Basin Organisations (MENBO) and the Technical University of Valencia (UPV) in collaboration with the Global Water Partnership Mediterranean (GWP-Med) and the Water Embassy took place the 20th of September 2012 in the premises of the UPV in Valencia (Spain).

This event brought together more than 50 experts from the Mediterranean region; amongst them water managers, professors, researchers, students, representatives of water user organisations, private companies and other stakeholders working for well known Mediterranean institutions. This workshop was focused mainly on the applicability of two tools that support the integrated water resources management: AQUATOOL and STRATEAU, developed respectively by the Technical University of Valencia (Spain) and the Water Embassy (France).

All presentations given on the occasion of the workshop can be found and downloaded on the following MENBO website: www.remoc.org.

In a first place **technical overviews** on both tools and demonstrations on their practical application have been given.

Mr. Florent Guibert, representative of Artois Picardie Water Agency in France and a STRATEAU expert, gave an overview on the STRATEAU tool and described it as a "strong computing infrastructure for data transfer" based on a simple hydrological model for academic education, which could be exported to other Mediterranean countries, given the fact that it is free of charge.

STRATEAU is a decision making support tool that considers all relevant data on the terrain: physical, climatic, social, industrial, etc., from country to the regional and municipal level. These data are processed by a server that, once analysed, offers comprehensive water management scenarios.

After a first introduction Mr. Guibert offered an online presentation on the practical functioning and application of the tool.

Further information on STRATEAU is available in French, English and Arabic and can be found under www.ambassade-eau.com/en/STRATAU.

Mr. Abel Solera, member of the Water and Environmental Engineering Institute – Water Resources Engineering Group of the UPV and AQUATOOL expert gave a technical overview on AQUATOOL, a tool for the decision support systems development to facilitate an Integrated Planning and Management of Water Resources. AQUATOOL allows the integrated analysis of quantitative, qualitative, economic and environmental aspects at watershed-scale, also incorporating other aspects such as priorities and management rules. This tool allows gathering all the information in a single application, evaluating multiple alternatives for different scenarios, obtaining exchanges (trade-offs) among the different objectives, sensitivity analysis, and assessing the associated risks. Furthermore it provides the user with multi-objective performance indicators (reliability, resiliency and vulnerability) and environmental requirements indicators. It is a unique and user friendly interface that provides easiness of data management, model use and results analysis.

The tool is available under http://www.upv.es/aquatool.

Mr. Javier Paredes member of the Water and Environmental Engineering Institute – Water Resources Engineering Group of the UPV and AQUATOOL expert focused in his presentation on the practical application of AQUATOOL that is actually used in nearly all Spanish river basin authorities, with only few exceptions. On the international scale it is implemented in Argentina, Chile, Italy, Brazil, Algeria, Bosnia, Mexico, Colombia, Brazil, Ecuador, between others and provides most valuable experiences. These applications demonstrate the robustness and the modelling flexibility of the tool. Every module has been designed oriented to consolidate methodologies for water resources systems analysis, many of them developed in the IIAMA of the UPV, or their precursor groups from the Department of Hydraulic and Environmental Engineering of the UPV.

In the following the workshop was organised in **three round tables** on:

1 - **Perspectives and application of the tools in River Basin Organisations.**
2 - **Integrated water resources management in education: STRATEAU and AQUATOOL as examples.**
3 - **Integrated water management tools in the Mediterranean.**

Round table 1: Perspectives and application of the tools in River Basin Organisations.

Participants:

Mr. Teodoro Estrela Monreal, Head of the Hydrological Planning Office Júcar RBA (Spain) and Permanent Technical Secretary of MENBO

Mr. Rui Jose Rodrigues, Deputy Water Director of the Portuguese Environmental Agency (Portugal)

Mr. Ángel García Cantón, Head Hydrological Planning and Studies Department of the Centre for Studies and Experimentation on Public Works (CEDEX) (Spain)

Mr. Bruno Ballesteros, Head of the Valencian regional department of the Geological and Mining Institute of Spain (IGME) (Spain)

Chair: Mr. Francisco Cabezas Calvo-Rubio, General Director of the Euro-Mediterranean Water Institute (IEA) (Spain)

Presentations on concrete implementation of AQUATOOL, STRATEAU and other models.

The speakers stresses the need for a further and intense cooperation and coordination between river basin organisations and the developers of the models (researchers, consulting companies, etc.) and call authorities to further promote investigation programmes in order to further improve the availability of models that are extremely valuable for the decision taking of water managers. Special attention requires the use of these modelling tools when it comes to Spanish hydrological planning, where water allocation is approved by a legal framework (Law or Royal Decree).

The participants also underlined that a continuous use of the models is absolutely necessary **to guarantee their high reliability** and through this facilitate a secure water supply and an optimal decision making process.

Round table 2: Integrated water resources management in education: STRATEAU and AQUATOOL as examples.

Participants:

Ms. Jeannette Pretot, President of the Water Embassy (France)

Mr. Luis Garrote, Technical University of Madrid (Spain)

Mr. David Haro Monteagudo, Student UPV (Spain)

Chair: Mr. Javier Ferrer, Water Commissary of the Júcar RBA (Spain) and former Permanent Technical Secretary of MENBO

The president of the Young Water Ambassadors Organisation, a University professor and a student discussed about the integrated water resources management in education and used AQUATOOL and STRATEAU as examples in an educational milieu.

The experts came to the conclusion that both tools are very useful in education as they permit students to get in contact with a way of supporting the integrated water resources management. Furthermore they explain that those models are in the first place developed for the use by experts but that especially STRATEAU can be also used by non-professionals. Both instruments can serve to demonstrate the consequences of several politics of water resources management to all type of stakeholders.

Round table 3 Integrated water management tools in the Mediterranean.

Participants:

Mr. Miguel Ángel Ródenas Cañada, President of the Segura RBA (Spain)

Ms. Milagros Couchoud, President of Mediterranean Water Institute (IME)

Mr. Javier Ferrer, Water Commissary of the Júcar RBA (Spain) and former Permanent Technical Secretary of MENBO

Mr. Hachmi Kennou, Mediterranean Water Institute (IME)

Chair: Mr. Teodoro Estrela Monreal, Head of the Hydrological Planning Office Júcar RBA (Spain) and Permanent Technical Secretary of MENBO

The participants presented the integrated water management with the support of decision tools using the example of two Spanish River Basin Organisations: Júcar RBA in Valencia and Segura RBA in Murcia and focusing also on their value for the whole Mediterranean Region that suffers extremely from water scarcity and that needs solutions to face this complicated situations.

Final Results

As a final results the participants underlined that it was demonstrated during the workshop that the implementation of tools like AQUATOOL and STRATEAU is an important and indispensable support for the water managers and of special value in the Mediterranean region that is very sensitive to water scarcity conditions and that needs to implement the **most effective water resources management possible.**

They can facilitate integrated water resources exploitation and integrated hydrological planning taking in mind water use accountability, the urban, ecological and socio-economic factors and developments.

Both tools could be used in a complementary way.