

# THE USE OF AQUATOOL FOR IWRM IN EDUCATION

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## Aquatool training material

### 5. Ejemplo de elaboración y calibración de un modelo.

Para descargar un ejemplo completo con el enunciado y manual descriptivo pinche en [este enlace](#).

Download case study



### Courses on “Analysis and modeling of water resources systems management”

The Water Resources Engineering group imparts training courses on “Analysis and modeling of water resources systems management”. Apart from the basics on the use of the models described here, they also include theoretical concepts necessary for working on the analysis of river basin management.

Here you can download several guided tutorials designed for students learning both on Aquatool use and working methods for the analysis of river basin management. These examples and some others can be found as well in the book “Ejercicios de sistemas de recursos hídricos resueltos con Aquatool” (in Spanish) edited by the Publication Service from the Valencia University of Technology under the reference 2010.181

#### Links

**INTEGRAM**  
INTEGRACIÓN DE METODOLOGÍAS MULTIDISCIPLINARES  
EN LA PLANIFICACIÓN HIDROLÓGICA DENTRO  
DEL ÁMBITO DE LA DIRECTIVA MARCO  
EUROPEA EN POLÍTICA DE AGUAS

Portal de desarrollo  
**Aquatool**

# Aquatool training material: Case study

Here you can download several guided tutorials designed for students learning both on Aquatool use and working methods for the analysis of river basin management. These examples and some others can be found as well in the book "Ejercicios de sistemas de recursos hídricos resueltos con Aquatool" (in Spanish) edited by the Publication Service from the Valencia Univ. (reference 2010.1)

0-planteamiento.pdf      Datos.zip

0. Study Case's Description and used data. Download [document](#), [data](#)      Download case study

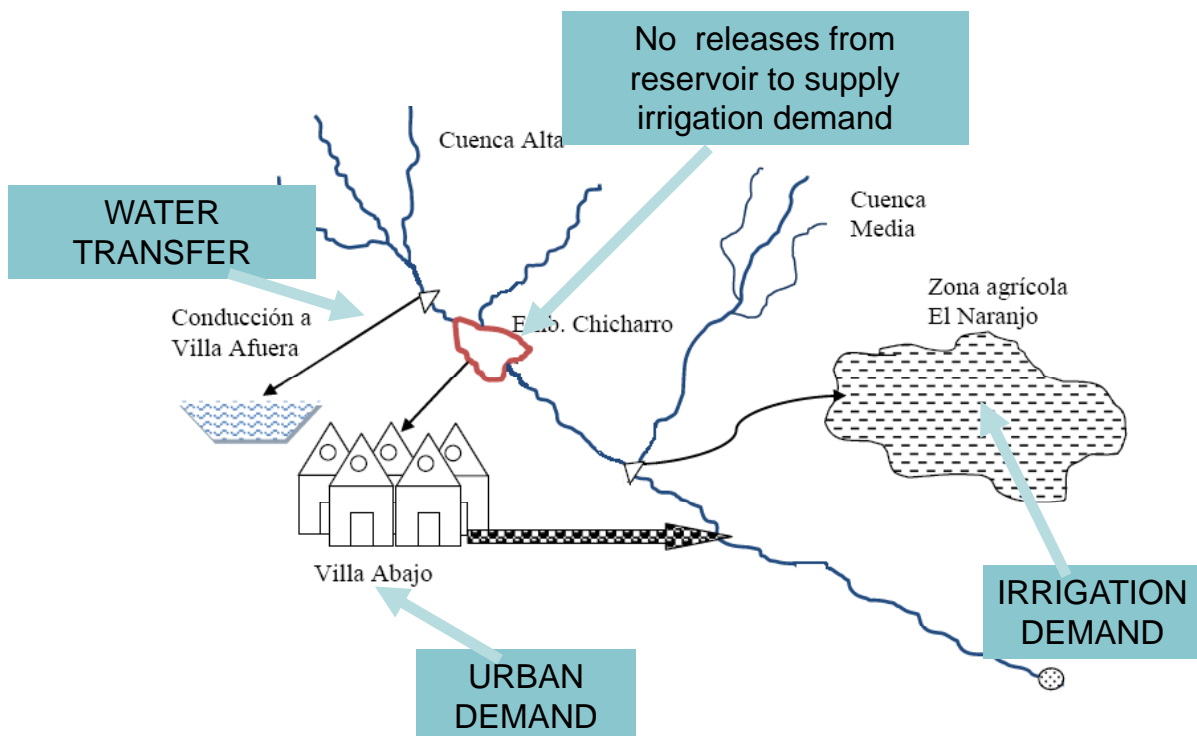
1. Development of a river basin management simulation model. This is an essential initiation exercise for the new users of Aquatool. It includes the use of the graphic interface for the development of models and basic working strategies for the analysis and calibration of hydrologic models. Downloads: [exercise document](#), [exercise solved](#).      Download solution

Explanation of solution

01\_02\_ModeloSimges.zip

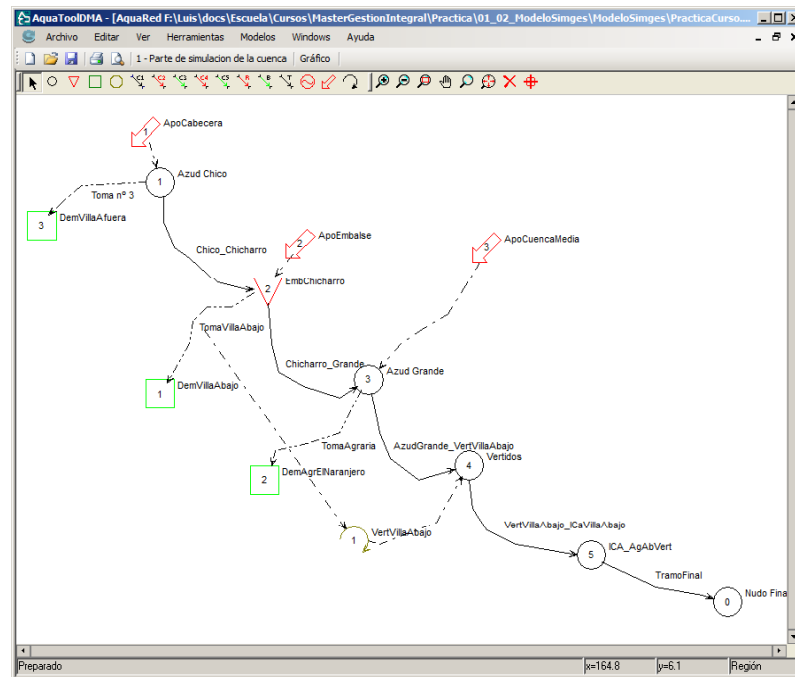
01\_01\_ExplicacionParteSimges.pdf

## Case study



# Aquatool model

## 01\_02\_ModeloSimges.zip



## “Intended” analysis of case study

- Build the model
  - Streamflow data
  - Model topology
  - Initial component data: reservoirs and demands
- Model calibration
  - Demand priority
  - Cost associated to river reach downstream of reservoir
  - Reservoir target volume

## Role playing: tasks to do

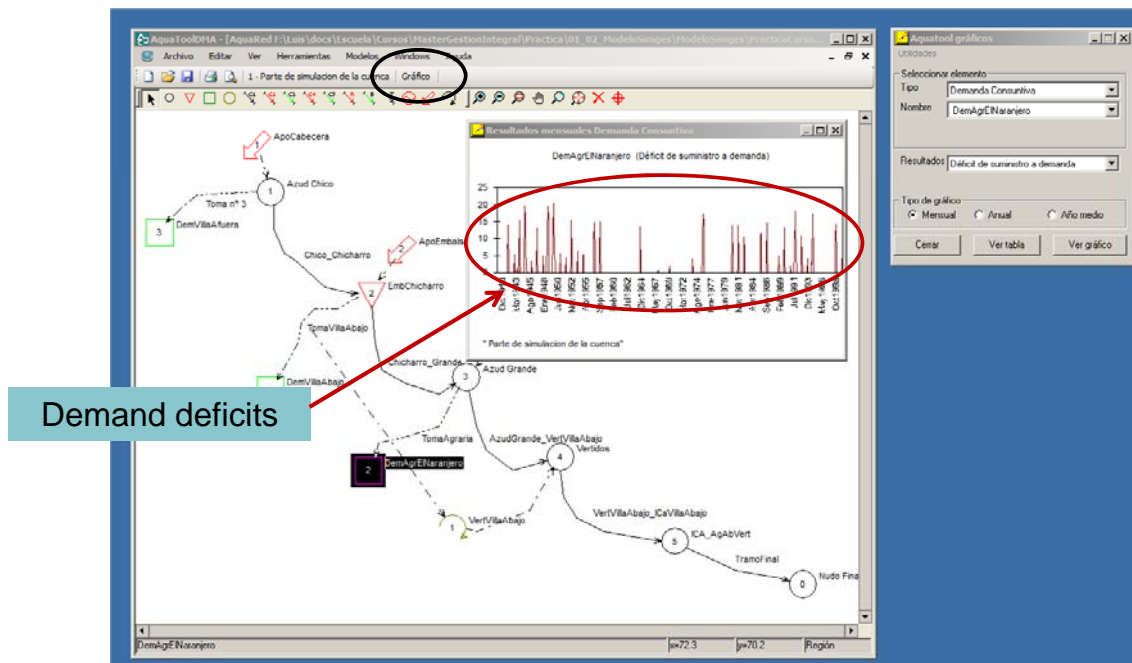
- To understand the problem and check the proposed solution
  - Urban demand in Villa Abajo
  - Irrigation demand in El Naranjo
  - Water transfer to Villa Afuera
- Discuss the effect of water transfer:
  - Check the reliability of urban demand in Villa Abajo if there is no water transfer
  - Study the effect of limiting the maximum water transfer amount on urban and irrigation demands
  - Agree on a maximum water transfer amount through role playing

## Analysis of water transfer allocation

Maximum in winter months

Mea	Hm³/mes
Octubre	0
Noviembre	0
Diciembre	0
Enero	10
Febrero	10
Marzo	10
Abril	10
Mayo	2
Junio	2
Julio	2
Agosto	0
Septiembre	0

# Analysis of demand failures



## Results

- **Result of the analysis**
  - Urban and irrigation demands are not affected by water transfer
  - There was plenty of winter streamflow to fill the reservoir every year, regardless of water transfer diversion
  - Model configuration took care of protecting the urban demand (no releases from reservoir to irrigation demand)
  - Irrigation demand was supplied by streamflow downstream of reservoir (and of water transfer)
- **Main outcome**
  - Students realized that in many occasions a shallow analysis is not enough

- **Challenges...**
  - IRWM is a very complex concept
  - Students may not be mature enough to grasp the complexity of water management
- **... and opportunities**
  - Models allow for a wide range of classroom activities
  - Their results are accessible even to non-technical students