

**PROJECT**

Model for Simulating and Optimizing the Alqueva subsystem

**LOCATION & COUNTRY**

Alentejo, Portugal

**CLIENT**

EDIA  
Rua Zeca Afonso, 2  
7800 – 522 Beja  
Portugal

**PARTNER**

Aqualogus

**DATES**

December 2011 - October 2013

**ACTION MODULERS' MAIN TASKS**

Model development and implementation.  
Integration with EDIA's GIS and database.  
Support and training

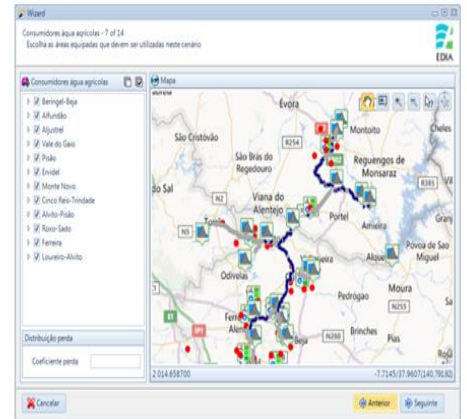
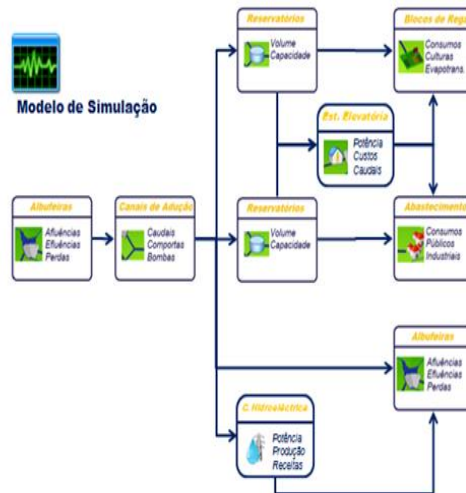
**SOFTWARE & SUPPORT**

Action Modulers offers a wide range of customizable software products. We also provide professional support to implement your projects.

**CONTACTS**

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# Alqueva Water and Energy Simulator Model ALWAYS



EDIA ([www.edia.pt](http://www.edia.pt)) is responsible for constructing and exploration of several irrigation systems in Southern Portugal. EDIA's infrastructures are composed by multiple reservoirs, 382km of primary network, 1620km of secondary network, pumping stations, and hydroelectric power plants. This infrastructure supplies water for agriculture, domestic and industrial consumers. The infrastructure is composed by three subsystems, with a total of 120.000ha of irrigated area.

Main objectives of the project were to develop a numerical model, with optimization capacities, in order to:

- Analyze the capacity of water supply installed in the system, for different hydrological scenarios and energy costs associated with each scenario;
- Optimize, the point of view of energy

costs, the timescale of the volumes to be transferred;

- Define the optimum periods of pumping and turbocharging, throughout the year, depending on the water needs of many existing hydro-agricultural perimeters, taking into account different scenarios and consumption of natural inflows to the reservoirs;
- Analyze the available capacity in the system, so as to act as a decision support tool.

In the context of the project a generic numerical model has been developed which fulfills the above mentioned objectives. This model has been implemented successfully for the Alqueva subsystem.

The model is integrated into MOHID Studio through a specific plugin.