“Each remote control system for irrigation management is a new example of optimization and improvement. The technology helps make efficient use of Spanish natural resources”

Félix Díaz de Rada, Director, Department of Irrigation Modernisation, Tragsa.

Balearics Optimises the Water Resources of its Water Users Irrigation Using remotely Wonderware Technology

by Wonderware Spain

**Goals:**
- To reuse and optimize water resources;
- Create a system that is self sustaining;
- Simplify integration and make it available to future irrigation communities.

**Challenges:**
- Include various elements differentiated from each other: waste-water treatment plant, a intermediate water storage reservoirs systems, its associated hydraulic system and remote control system;
- Control the water from crops.

**Wonderware Solution:**
- InTouch HMI;
- Wonderware System Platform.

**Results:**
- With the integration of the Wonderware System Platform, the irrigation communities have a simple tool that stores water user administrative data;
- The solution optimises water consumption and distributes water fairly based on farmers’ requests;
- The system helps make consumption forecasts based on demands.
**Balearics, Spain** - The Ministry of Environment and Rural and Maritime Affairs (MARM) committed itself in 2008 to modernise various irrigation systems on the Balearic Islands in order to create a productive, sustainable and high quality agriculture system.

The main goal of this Project is to reuse waste water for irrigation by modernising and optimizing various irrigation communities.

### A Project Aimed at Sustainability

Reusing wastewater is important part of sustainability. This is especially true in Balearics where demand increases considerably in the summer when droves of tourists arrive at the island at the same time that the crops need for water is at its greatest. This is why the optimisation of water resources has become one of the main goals.

The project includes various elements that include a wastewater treatment plant, an intermediate water storage reservoirs system, its associated hydraulic system and a remote control system. The different irrigation systems have their own local control centers with a general control centre located in Palma de Mallorca.

MARM, through Tragsa, is responsible for carrying out this project. It is managed by Adasa, an Engineering company specializing in technological solutions relating to the management of the integral water cycle and the environment and Wonderware ArchestrA-certified system integrator.

### Choosing Wonderware

Wonderware System Platform was chosen after a thorough evaluation. The solution, based on ArchestrA technology, includes Wonderware Application Server, Wonderware InTouch HMI (Human Machine Interface) and Wonderware Historian for data control, visualisation and storage, respectively. The complete solution has been installed in the seven local control centres and in the central control room. The Wonderware System Platform provided huge improvements in productivity and scalability for the distributed automation applications.

The data acquisition, alarm and event, data handling and development makes it a great solutions for simplifying, maintaining and managing any distributed application.

The solution provides the necessary flexibility for possible extensions with new equipment and requirements. This is possible in the future when the integration of ultraviolet treatment systems, meteorological stations, desalination plants and other systems needs to be implemented.

“One of the matters that concerned us was the difficulty of individually controlling the quantity of water supply. The remote control system helps to control the water consumption from each of the different communities, making it possible to regulate consumption,” Félix Díaz de Rada, Director of the Department of Irrigation Modernisation, Tragsa.

### Efficiency, Effectiveness, Easy Implementation and Use

Ensuring water supply quality for all users and facilitating decision-making for system managers improves irrigation system efficiency.

The implemented Wonderware solution places vital importance on the four main points that make up the control system:

1. **Communication architecture:** Grouped in two blocks:
   - *Local control centres:* Thanks to Wonderware System Platform software, the equipment can be supervised locally;
   - *Central control centre:* The Wonderware System Platform application provides important information to 10 concurrent users at the same time (via mobile, PDA, ADSL or 3G, for example);
   - Website application: Helps to monitor and manage the system’s irrigation terminals. Users can access information from anywhere in the world via a computer or mobile device.
Moreover, they can follow any changes in consumption and export the displayed data to an excel spreadsheet for greater comfort and ease of use;

2. **Watering control units**: The remote unit used is the aquaReg system, manufactured and supplied by Adasa. It is responsible for closing and opening the electrovalve and the reading and transmission of counter’s pulses;

3. **Control automation**: it manages pump operation and communication using the local control centre;

4. **Control centre**: The SCADA system in the local control centre is responsible for supervising and operating all local equipment. Information from all the pumping and irrigation is also transmitted to the control center.

“The remote system not only helps having control over the water resources, but it also makes operation very easy for users who are not accustomed to this type of technologies”, points out Enrique Santarrufina, Works and Projects’ Coordinator at Balearics, MARM.

**Better Control, Less Costs**

“Although it is too early to provide specific data, it did not take long for us to evaluate a return on investment for the project, as the result of more efficient water management and connection with the invoicing systems of the irrigation communities”, affirms Gloria Cabot Batlle, Project Manager, Adasa.

The benefits of the irrigation automation are quickly seen once the system was implemented.

With the integration of the Wonderware system, the irrigation communities have a simple tool that stores water user administrative data. It optimises water consumption and distributes water fairly based on farmers’ requests. It also helps make consumption forecasts based on demands.

---

This document was realized thanks to the support of: Félix Díaz de Rada, Director of the Department of Irrigation Modernisation, Tragsa, Enrique Santarrufina, Works and Projects’ Coordinator, Balearics, MARM, and Glòria Cabot, Project Manager, Adasa, ArchestrA-certified system integrator.