Belice Irrigation Project: Quality Without Compromise

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Challenge

Sicily, an island located off the tip of the Italian boot, has a typical Mediterranean climate. Its farmers rely on irrigation to water their crops. The Belice consortium area encompasses approximately 1000 square kilometers of farmland run by several thousand farmers.

For years these farmers relied on an antiquated system of open canals for their irrigation needs. Each farmer would divert or pump water from these canals to water his fields. The local water consortium was unable to allocate the available water fairly so not every farmer got what he needed. In addition, the consortium had no way of controlling and billing each farmer for the amount of water he used.

Solution

To resolve these problems, the Belice water consortium decided to purchase an Irrigation Control System from Motorola. In March 1994, the system was fully installed and began operation. The entire installation procedure was carried out smoothly with Motorola complying with all the terms and conditions of the purchase contract.

Motorola's Belice system controls approximately 14,000 irrigation valves throughout an area of 20 by 50 kilometers. This makes it *the largest computerized irrigation system in the world.* Only four personal computers, operated by three trained personnel in the consortium's central office are required to control the entire system. The sophisticated software in Italian, was especially prepared by Motorola, according to customer requirements.

Approximately 300 unique type MIR5000 Single Cable (SC) controllers, were strategically located throughout the area, in two stages. Up to four controllers can be packaged together. The MULTI MIR packages holds four controllers. Each controller controls fifty valves by means of an underground twin wire cable that can be extended over a distance of 10 kilometers. The valves are remotely monitored by about 500 water meters, each connected to 10-50 valves. Data is transferred from the controllers to the four central computers by line communication and UHF radio, which has a range of over 20 kilometers.

The system now ensures efficient and equitable distribution of available water to the farmers and allows each one to indicate how much and when he wishes irrigation. It also can supply the following additional information:

- water consumption reading and billing for each farmer with reading for each of his valves
- water flow reading through each line and each valve
- immediate indication of water leaks with accompanying alarm
- graphic and parameters display and operation of each unit and component in the system
- historic data of occurrences and events and graph of water accumulation data and flow
- designs for future irrigation programs and saving them in library

Results

The system is working to the fullest satisfaction of the consortium and its customers. Motorola is now working on improving the system through newer technology. Motorola's new products will give the consortium an advanced modular concept for its controllers supported by sophisticated software.

Motorola's Belice project proves the Motorola motto, “Quality without Compromise”.

Kudos to the Motorola people who made the project a success:

- Z. Segal, Irrigation Export Sales Manager, directed the project through all stages and was involved in the engineering and coordination of the program.
- C. Schneider, Irrigation Department, who managed the installation and initial operation in Belice
- B. Stern and staff, Irrigation Department, for developing the software and making it user-friendly to Italian requirements
- All the other creative and hard working engineers in the Irrigation Department
- S. Dvir and staff, SP Department, for system mechanical and package design
- Quality Assurance and Manufacturing Departments

This computerized motorola irrigation system is a very significant project and serves as an example for other similar programs.