Responsible water supply to Jordan's urban areas and agriculture

The Jordan Valley Authority (JVA) is a government agency that manages and protects water and land resources and their supporting infrastructure in the Jordan Valley. A modern Water Management Information System (WMIS) and a Dynamic Regulation and SCADA system help JVA to manage its water resources efficiently and sustainably.

During the last 30 years, JVA has completed numerous infrastructure projects including electricity, communications, roads, schools, health centers, government and residential buildings, in addition to its core activities in land and water resources development. Water resources have been developed through the construction of dams, King Abdullah Canal and pressurized irrigation networks. The King Abdullah Canal is the largest irrigation canal system in Jordan and runs parallel to the east bank of the Jordan River.

The population of the valley has grown considerably from 70,000 in the early 1970s to 300,000 by now. The land is divided into irrigated farm units, each of the approximately 10,000 farm units has an area of 30–40 dunums. Successive droughts and the increased need for fresh water for domestic use have required efficient management of water resources.

In the Jordan Valley, marginal water (Brackish and Reclaimed) is being increasingly used in irrigation to compensate for the shortage in fresh water. Guidelines are being prepared for its use in agriculture in an environmentally safe and economically viable manner.

Farmers are encouraged to improve the efficiency of their on-farm water use through pilot projects. They are encouraged to participate in the water distribution activities through water user associations, which resulted in the reduction of illegal water use and unaccounted for water. A modern Water Management Information System (WMIS) and a Dynamic Regulation and SCADA system help JVA to manage its water resources including King Abdullah Canal (KAC) efficiently.

SATEL XPRS radio modems are used for the WMIS

Water Management Information System automates the tasks of monitoring and operating the King Abdullah Canal. The telemetry system gathers crucial information such as water inflows, upstream and downstream level, water salinity and water flow release at the main reservoirs.

The measured data is transferred to JVA Control Center where it is displayed by a SCADA software. From the Dirar Center, the operator can assess the global status of the King Abdullah Canal. In addition, the operator can remotely control the KAC tunnel entrance gate (Yarmouk River), and the 28 measured cross-check gates. The system is connected to a Dynamic Regulation software, which automatically sets the remote controlled KAC cross-check gates.

Dynamic Regulation relies on the program of outflow (provided by the WMIS) and on the measured KAC water levels and inflows. Based on this data, target volumes and flows are computed in each canal reach. The results are updated frequently. The gates are set accordingly, and their position is corrected every 15 minutes through a PID controller.

SATEL Network Design Center (NDC) provides remarkable savings

Previous WIMS data communication was operated through wired connections between stations, which led to constant downtime due to regular copper wiring thefts. Due to the length of the canal, 80 km, the required distance was considerable, and the use of a wired network was impossible due to thefts. At the time of implementation of the wireless network, only a few critical stations had an operational connection.

The Jordan Valley Authority installed 61 SATEL XPRS radio modems in the Jordan Valley area for the Water Management Information System. The SATEL solution has proven to be much safer and more immune to vandalism compared to the previously used copper cable lines. SATEL radio communication is used for remote control and monitoring, such as reading water level sensor data to SCADA, remote control of water distribution canal gates and remote connection to substation RTUs.

According to the Jordan Valley Authority, SATEL XPRS radio modems provide excellent added value to support the utility application and provide high quality communication solutions. The SATEL radio network has operated stably and reliably, and the SATEL NDC is a great asset that has produced excellent results and significant savings. In addition to this, SATEL offers excellent, professional pre- and post-sales support.

We are happy and proud to help Jordan Valley Authority in their important mission.

SATEL
Mission-Critical Connectivity