



Case Study

Smart mixing junction delivers \$20,000 worth of savings in a year. Kvutzat Shiller Kibbutz, Central Israel

Background Mixing two sources for drinking water

Kvutzat Shiller, a kibbutz in central Israel, uses two different sources for its drinking water supply. The first is a kibbutz-owned well that pumps water from the aquifer. Although relatively inexpensive, the salinity level of this water varies from season to season, sometimes exceeding the nitrate level of 70mg/l permitted by Israeli water quality regulations. The second source is 'Mekorot', the national water company and top agency for water management in Israel, which supplies the country's drinking water. This water is more expensive than water drawn from the kibbutz aquifer. To minimize the cost of drinking water by maximizing aquifer-sourced water, while remaining in strict compliance with regulations concerning nitrate levels, the kibbutz would manually mix the two water sources.

Challenge Manual operation resulting in financial loss

The manual management of the water-mixing ratio relied on the experience of the local technician in opening and closing a gate valve and sampling the water once a week. If nitrate levels exceeded regulations, the drinking water in the kibbutz was substandard for several days – left unchecked, this could harm residents and even result in the Ministry of Health closing down the kibbutz well.

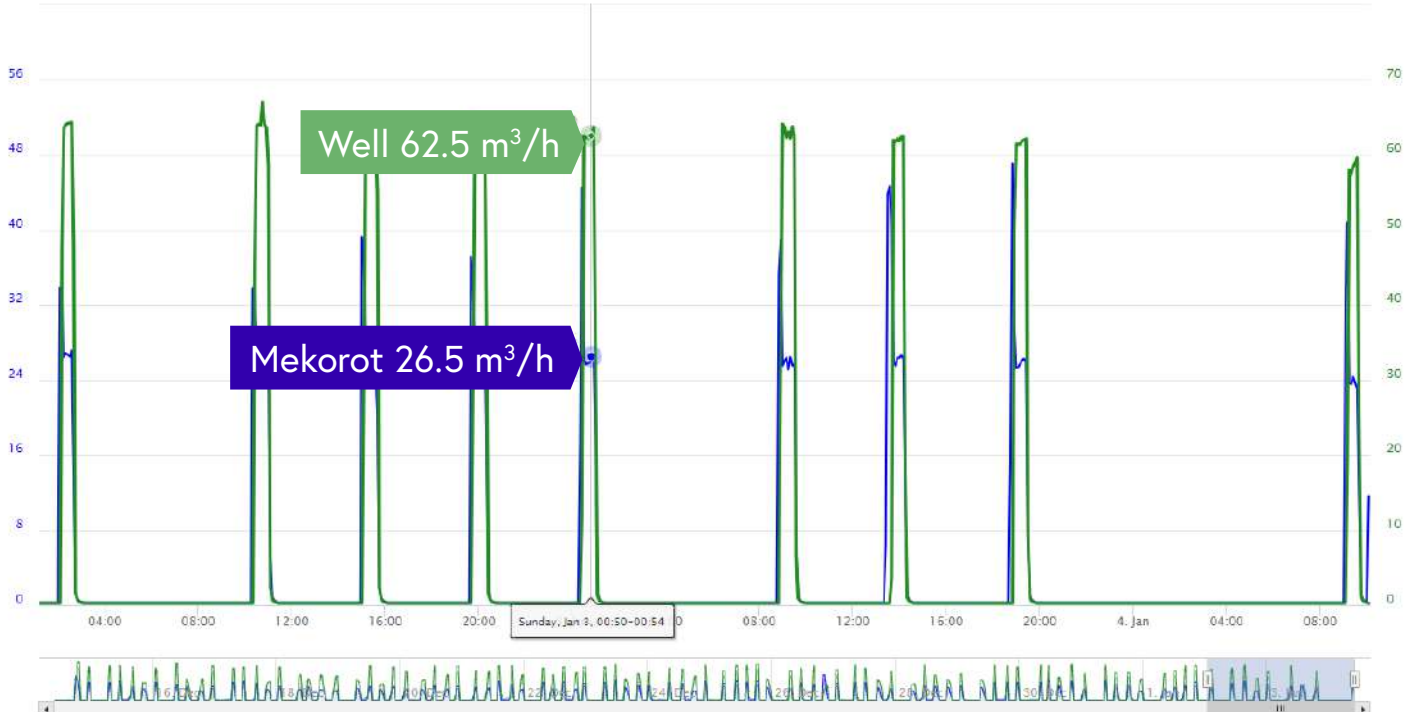
If nitrate levels dropped below permitted levels, the kibbutz missed out on the opportunity to pay less for its water by including a greater proportion from the aquifer into the mix. Since the 250 m³ reservoir is filled four times a day, this could translate into a loss of over \$2000 every 24 hours. In one year, this happened several times, costing the kibbutz \$20,000. What's more, in the event of a problem at the mixing junction outside of the weekly sampling event, there may be a 24–48-hour delay before the technician found out. The kibbutz approached Aquestia for a more efficient and reliable solution.

Solution Precise, remote-controlled mixing

The existing gate valve was replaced with a DOROT S300 hydraulic EC valve, for effective and precise electrical hydraulic control.

To enable ongoing monitoring of the water condition, a ConDor controller with cellular communication was installed to control the valve, and Dorot's SKYplatform - a real-time, cloud-based web platform designed for overseeing, monitoring, and controlling the ConDor using a smartphone application or via the SKYplatform website - enables remote changing of the mixing ratio.

The ConDor controller monitors the input of the flow of each line and regulates the drinking water flow to be at 30% of the well flow. In the event that nitrate levels become too high, the configuration is changed remotely to a higher ratio of drinking water.



Results Significant financial savings - and peace of mind

The new solution enables dynamic control of the water supplied from Mekorot, according to the water quality pumped from the well. The existing nitrate level is read at the water reservoir's output and the mixing ratio is adjusted by the technician from his office. If there is any type of problem at the mixing junction, an immediate alert is sent to the technician's phone, and he can access the ConDor, check the data, and resolve issues remotely or, if necessary, send out a team.

