



DOROT DIGITAL SOLUTIONS

MIX SMART. SAVE BIG!



MIXING JUNCTION
CUSTOMER: SHILLER GROUP KIBBUTZ

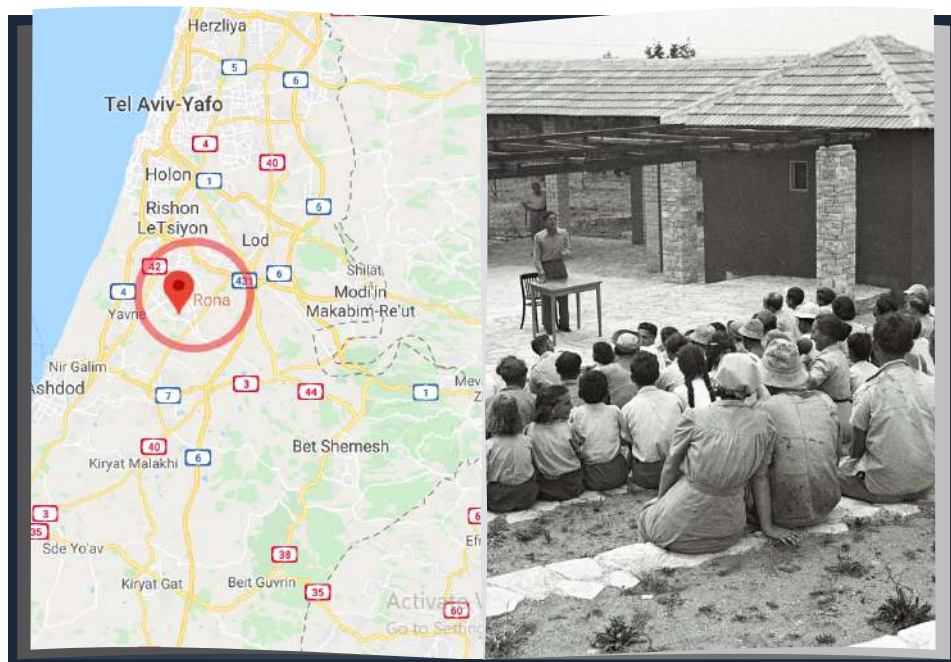
CASE STUDY

BACKGROUND

Two names. One community.

Kvutzat Shiller, also known as Gan Shlomo, is a kibbutz in central Israel with a population of 572 (2018). The kibbutz was founded as a group in October 1927 by 12 academics and their six children, from Lviv and Galicia. The new settlement was named after Shlomo Shiller, a Zionist activist in Lviv.

In the early 1930's the residents requested more land to expand the kibbutz. The authorities agreed but required the village adopt a Hebrew name. Although the name Gan Shlomo was approved by the authorities and is still used on official maps and documents, the residents still refer to it by its original name.



Source: Wikipedia



THE WATER QUEST

Since 2005, wastewater reclamation and seawater desalination have become key in assuring an adequate supply — 2.1 billion cubic meters annually — to Israeli households, industry and agriculture. Some 31 percent of irrigation water originates from wastewater treated at more than 150 plants. Treated brackish water (not as salty as seawater) is supplied from 45 plants for both agricultural and non-agricultural needs.***

Sixty to 80% of **Israel's municipal water**, adjusted according to season and real-time demand, flows from large coastal **desalination plants in Sorek, Ashkelon, Ashdod, Palmachim and Hadera.****

80%



Mekorot distributes the desalinated, quality-tested water (after essential minerals have been re-added) to 57 municipal water utilities throughout Israel.

From Sorek, it costs about 55 cents per cubic meter; somewhat more from the other four plants. By comparison, it costs 10 cents to get a cubic meter of freshwater from Israel's natural sources – whose supply is fast declining. In some other countries, desalinated water costs as much as \$3 per cubic meter.*

*Data from January 2019, extract from an interview with Yossi Yaacoby, chief of staff to the CEO of Mekorot, Israel's national water carrier.***

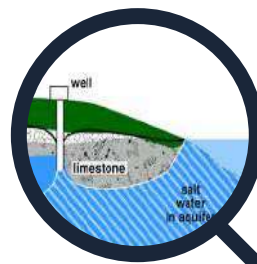
**<https://www.israel21c.org/how-israel-swims-against-tide-of-worldwide-water-crisis/> Extract frArticle by Abigail Klein Leichman January 2019



OUR CHALLENGE

Shillers Kibbutz, our customer, uses two different sources for its water supply:

1) A Kibbutz owned well that pumps water from the aquifer. This is a relatively inexpensive source but its salinity level varies by season and sometimes exceeds the Israeli water quality regulations for nitrates of 70mg/l.



2) Mekorot ("Sources" in Hebrew) is the national water company and the top agency for water management in Israel. Founded in 1937, it supplies Israel with 90% of its drinking water and operates a cross-country water supply network known as the National Water Carrier.



Today desalinated water accounts for over 80% of domestic water consumption in Israel, however it is an expensive source.

Our objective is to provide a solution that will **reduce costs and ensure water quality.**



THE PROJECT

MIXING JUNCTION - BEFORE

Before installing the **Smart It Up** system provided by **Dorot Digital Solutions**, the kibbutz was manually mixing the two water sources: local well and MEKOROT.

The goal was to minimize the drinking water cost by maximizing aquifer-sourced water while strictly complying with regulations concerning nitrate levels.



The mixing ratio was managed manually, relying on a local technician's years of experience in opening and closing a gate valve.



The cost of water supplied by MEKOROT is relatively high priced, much higher than the cost of the locally pumped aquifer water.



The technician sampled the water once a week. If nitrate levels exceeded regulations, the drinking water in the KIBBUTZ was substandard for several days. If nitrate levels dropped below permitted levels, the KIBBUTZ could have paid less for their water.



The process required investing time, relied on the availability of qualified personnel and couldn't optimize the water price which translated into high OPEX.



OUR SOLUTION

CHANGING THE STATUS QUO

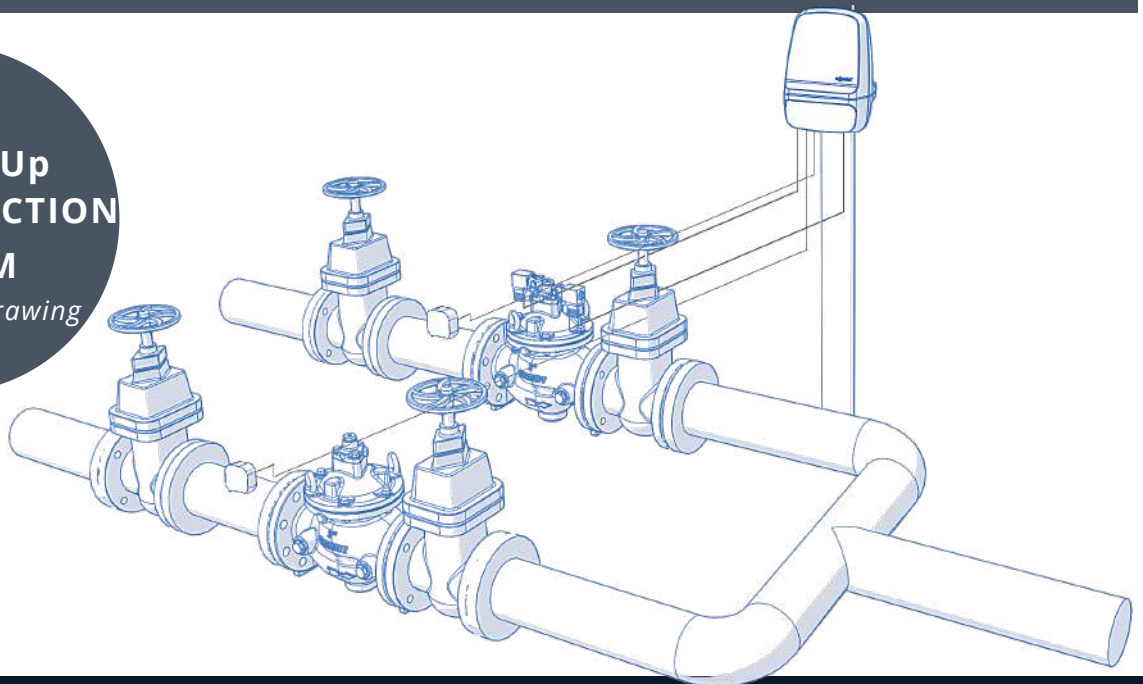
The initial phase involved replacing the existing gate valve with a **Dorot hydraulic 300 series EC valve**.

- ➔ **ConDor controller** with cellular communication was installed to control the valve and **Dorot Digital Solution's SKYplatform*** was utilized to permit **remotely changing the mixing ratio**.
- ➔ The existing nitrate level is read at the water reservoir's output and the mixing ratio is adjusted by the technician from his office.

**Dorot's SKYplatform is a mini SCADA system developed to control the ConDor using a smartphone application or via the SKYplatform website.*

This holistic solution succeeded in allowing Kibbutz Shiller to finally realize its goal!

Smart It Up
MIXING JUNCTION
SYSTEM
engineering drawing

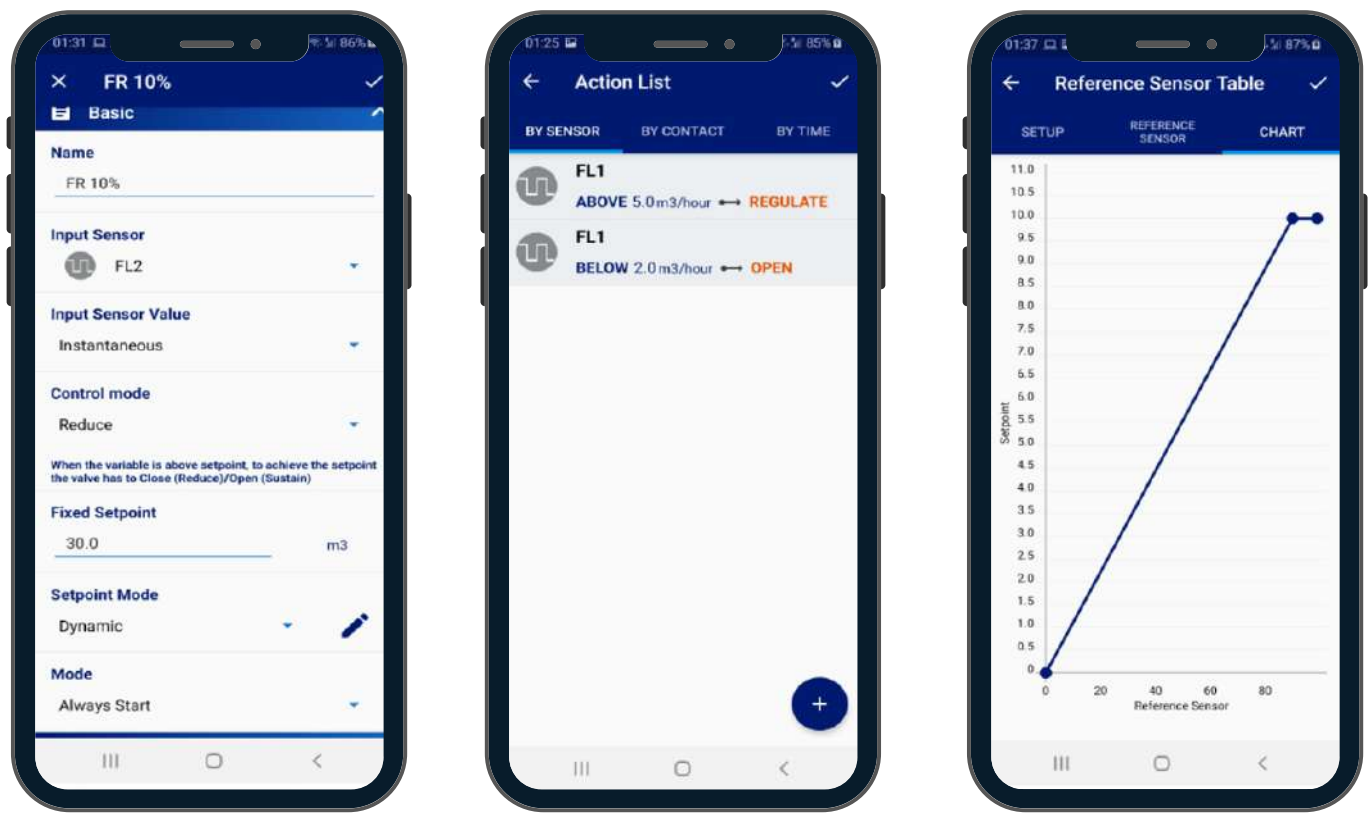


DOROT DIGITAL SOLUTIONS

RESULT

PHASE 1

First stage: Dynamic control of the water supplied from MEKOROT, according to the water quality pumped from the well.



PHASE 2

The next stage for 2020: regulate the Kibbutz water source autonomously, automatically and continuously.



PEACE OF MIND

"First and foremost, with our new ConDor, I gained peace of mind! If we have any type of problem in our mixing junction, I receive an immediate alert on my phone.

I can access the ConDor from any location, look at the data, attempt to resolve issues from my phone or send out a team to fix a problem.

I can also ask for Dorot's support and you can assist remotely. This is worth a lot of money to me! It offers real value!

Previously, I would have a 24-48 hour delay until I discovered there was a mixing failure. The result was that we had either elevate nitrate levels because we were pumping too much water from our well, or that we would waste money because we filled the reservoir with water from an expensive source.

If this goes unchecked for too long, the high nitrate levels could cause harm to the people and the ministry of health would shut down our well!

Both of these, results could be very bad. Since we fill our 250 m³ reservoir 4 times a day, we can lose over \$2000 every 24 hours – and before installing the ConDor, this happened 7 times only last year – we lost \$14,000!

With our new ConDor, we expect to reduce these events to zero, especially after using it for a while and understanding the additional capabilities it can provide us with."

TESTIMONIAL FROM OUR CLIENT, AMIR GAN,
WATER INFRASTRUCTURE MANAGER, SHILLER GROUP KIBBUTZ

