Eco-Logic **Zafrir Rinat**

In praise of sewage

Israel is proud of the large amount of treated wastewater its farmers use, and it is among the world leaders in utilizing this resource. However, Israeli Arab farmers still do not buy into the advantages of irrigating with treated wastewater and do not use it. Lately there have been a number of initiatives to change this situation, enlisting the assistance of the Dutch government.

The Galilee Arab town of Sakhnin hosted a water conference last week in which Israeli, Jordanian and Palestinian Authority representatives participated. They debated ways of expanding the use of treated wastewater for irrigation as part of the Dutch Wetskills project, a series of events where Dutch students of water issues work with foreign groups on innovative solutions. Last month the Technion's Grand Institute in Haifa held a water seminar, and the solutions the students came up with were presented to Dutch Prime Minister Mark Rutte during his recent visit to Israel.

The students had two days to come up with solutions for various challenges, such as how to help Arab farmers in the Western Galilee work their fields again. The Shfaram water and sewage corporation came up with the challenge, as the high cost of quality water has led to the abandonment of many agricultural fields in the area. The farmers viewed the significantly treated wastewater as not pure enough, despite the high quality of the water being produced in the Acre and Carmiel purification plants, and so far have refused to use it. A similar situation dogs the Palestinian villages in the West Bank.

The Shfaram water and sewage corporation serves 160,000 people and is responsible for 50,000 dunams of agricultural land. "People have feared until today using treated wastewater and thought it could harm their crops," says Ahmad Hijazi, the corporation's director.

One of the results of abandoning agriculture is undercutting female employment. During the Technion seminar, students proposed focusing on raising awareness among farmers through a facility demonstrating the effect of using treated wastewater. They suggested building a "green lake" that would absorb the treated wastewater, in which various species of plants and goldfish would grow. The plants would serve as an additional filter while the goldfish would be an indicator of the water quality. Another proposal was to establish a committee of experts to advise farmers how to grow crops based on treated wastewater.

The corporation will try to promote the establishment of a sample section for growing crops with treated wastewater. Hijazi says cooperation with the Agriculture Ministry and the Water Authority on information and budgets is necessary to get the farmers to return to their fields.

Encouraging farmers across the Green Line to switch to treated wastewater is a complex challenge as well, which the Israel Water Association and the Arava Institute for Environmental Studies are both promoting. They rely on technology developed by Mapal Green Energy and partner with the PA.

The Palestinian village of Ouja, near Jericho, was chosen to be the first Palestinian community where they would promote using purified water or recycled household water. In the first stage, an experimental project was carried out in which home systems were installed that separated black water (from the toilet) and gray water (from bathing or kitchen use). The system treats the gray water and sends it for irrigation.

The partners in the initiative hope to build a water purification plant in the Palestinian village in the next stage. The technology Mapal developed is supposed to help develop a small, inexpensive facility that would be both energy efficient and cheap to maintain. Operating such facilities could be an efficient solution for the Palestinian population and provide it with readily available sources for irrigation.

Such availability for the region would be significant because a drop in the amount of spring water has dropped in recent years, increasing distress for local farmers. Less than a tenth of wastewater in the PA, which has only one purification plant, is currently recycled. The rest of the wastewater flows into the riverbeds, and much of it reaches Israel, creating significant damage.

Implementing the Ouja initiative will depend of course on budgets. Expanding use of treated wastewater will prevent profligacy with this resource, and in the case of the Western Galilee it will prevent the flow of wastewater into the sea. But there are experts who stress caution in using this source.

Technion Prof. Yoram Avnimelech recently suggested directing the treated wastewater to various areas in the periphery, where there is no land from which it can leak into the underground aquifers. He noted that even after purification, treated wastewater still contains various contaminants, and thus is liable to constitute an environmental hazard if it penetrates into the aquifers.