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In Abou El Goulood, Egypt, Bedouin community members attend a site-handover ceremony for a new water desalination plant, which will help improve water security on the North Sinai Peninsula.

Photo credit: Chemonics Egypt

Bringing Water Where There Is None

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The remote residents of Egypt's North Sinai Peninsula are members of several ancient Bedouin tribes, which for centuries moved across the desert searching for water. Now, thanks to a \$50 million partnership between USAID and the Government of Egypt, the water will instead be coming to them.

Over the years, the North Sinai's shallow wells, as scattered as the Bedouin communities themselves, have been running dry. The Bedouins suffer from health problems related to low hydration, and the lack of water for cleaning food is linked to high incidences of diarrheal disease. Drinking untreated water has also led to a prevalence of kidney disorders. Bedouin households, which receive limited amounts of water from private trucks, must supplement their water supply by bringing in more over great distances at an extravagant expense.

"They are suffering," says Mamdouh Ahmed Ismail Raslan (Mamdouh), chairman of

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the Government of Egypt's (GOE) Holding Company for Water and Wastewater, which is responsible for the water and wastewater sector in all but one Egyptian governorate. "They suffer from not being able to get water every day."

While the region has experienced decades of drought, it also suffers from a burgeoning population due in part to the Bedouins' increasingly sedentary lifestyle. From the late 1940s to the mid-1980s, the Bedouins stopped wandering, settled in communities, built houses, and acquired pick-up trucks. In the 1970s, when tourism was good, many moved to the cities that dotted the Mediterranean coast. But with no recent economic development, the region has been, and remains, restive. Home to decades of smuggling and lawlessness, the North Sinai is now the scene of ongoing religious violence and a stagnant tourist trade.

Bringing Water to the North Sinai Desert

Prioritizing water supply and access to potable water resources, the USAID/GOE North Sinai Initiative has broken ground on 16 life-changing water projects in the region. By 2019, the initiative will bring water to 300,000 of the estimated 450,000 people living in this 27,000-square-kilometer (10,000-square-mile) swath of desert.

The project's flagship seawater desalination plant on the Mediterranean will have a transmission system to transport water from the plant to the North Sinai Governorate's ancient capital city of Al Areesh, nearby. The plant will provide 100 liters of potable water per person/per day to serve 126,000 people living in the city and the surrounding Bedouin communities. As the water transmission system reaches the capital, it will supplant leaking pipes in the city's old potable water lines, replace illegal house connections, minimize service outages, and provide improved water service to city residents.

"In the old days in Egypt there was a tendency to transport water for long distances from the Nile [some 344 kilometers (214 miles) southwest], all the way to the North Sinai," says Ahmed Gaber, senior environmental management and sustainable development specialist and Middle East/North Africa expert for Chemonics, which oversees the initiative's construction projects.

"Nowadays, we rely on desalination technology, which has been tremendous in just the last five years. We are optimistic that brackish water desalination technology will be even more efficient in the coming years. So rather than spend all that money to move water for very long distances to remote areas, we use desalination."

Five smaller desalination plants are under construction across the governorate in El Reed, Okraya, El Kosayema, Abu Algulood, and Sadr El Heetan and will produce a total of 25,000 cubic meters a day of treated water to serve 37,000 people. According to Mamdouh, the government has chosen all project locations judiciously, based on need. An assessment is under way to determine the feasibility of increasing the number of small desalination plants the initiative will build. In addition to the plants, five deep wells and four concrete water reservoirs are under construction, which will serve some 40,000 people.

These infrastructure projects alone, however, will not meet the needs of the North Sinai. To reach far-flung Bedouin communities, the initiative has also procured and

delivered 50 new tanker trucks to distribute potable water across the region, serving 131,000 residents. Finally, 10 wastewater vacuum trucks were also procured, delivered and are currently serving 52,000 people.

This access to water will change lives in North Sinai, and it is hoped it will seed economic growth as well. “The Government has a very ambitious plan for economic development in the area,” says Mamdouh, who was trained as an engineer. “Water will be one of the main drivers of this development.” Industry and fisheries are planned, he says.

Viability Versus Sustainability

While harnessing the power of water in the Sinai remains complex, Gaber is now as focused on the future of the initiative’s desalination plants as he is on their day-to-day progress.

Water plant sustainability requires a three-pronged approach, according to Gaber. “Once a plant comes online, the project management phase of the initiative begins,” he explains. This is the day-to-day running of the plant. There is also utility management — fixing things when they stop working. This may seem like the most important part of plant sustainability, but Gaber maintains otherwise.

“Asset management is by far the most critical to sustainability. One must monitor the quality of the asset over its lifetime,” he says. “Asset management is not only fixing something when it deteriorates, it is also preventing deterioration, to constantly be returning the machinery to its fullest state of repair. Asset management,” says Dr. Gaber, “is preemptive in nature.”

“This is an area that sometimes people in the water, wastewater, and energy sectors ignore,” he says. “I think this is the major achievement of this project — to look at the sustainability, rather than to just finish the execution phase and go.”

A Never-Ending Deficit

Mamdouh is both excited and proud of the North Sinai Initiative. Like the Bedouins, he is looking forward to the coming of water in this desert. “Many of our projects are still under construction, but they [the Bedouin] know some projects are under way and they are eager for us to complete them. They have seen the [construction] trucks and in this way, they know they will have water. I think they start to feel it, the water coming.”

Pleased though he is, the engineer is under no illusion about the initiative slaking North Sinai’s thirst. He sees completion of the North Sinai Initiative as a beginning and not an end.

“The North Sinai will need more water,” predicts Mamdouh. “This is just the start. Everyone wants more water,” he says.

By Leslie Rose



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