



IHT SPECIAL

Northern Cyprus Sees Hope in Water Pipeline

By ERICA GIES
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ISTANBUL — Even as the Cypriot government struggles to ward off financial disaster, the authorities in the northern part of the divided island are quietly pushing ahead with a project to link their territory, physically and economically, more closely with Turkey, their powerful neighbor and protector.

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Under the ambitious project, expected to cost at least 1 billion Turkish lire, or \$550 million, Turkey would sell water to the northern sector, which it calls the Turkish Republic of Northern Cyprus, using an experimental technology: a pipeline in the Mediterranean Sea.

The pipeline is under construction, scheduled to start delivering Anamur River water from Turkey's southern province of Mersin next March. But environmental experts question the sustainability of transferring water out of its natural basin, and outside engineers are watching to see how the government project works out in practice.

The project calls for Turkey to transfer 75 million cubic meters, or 19.8 billion gallons, of water a year to Northern Cyprus.

The transfer agreement between Turkey and Northern Cyprus "is valid for 30 years and can be renewed for an additional 5 years," said Ayhan Taskin, director of water supply at the Turkish State Hydraulic Works. The water will be collected at the new Alakopru Dam, transferred via the undersea pipeline, then deposited into a reservoir behind the Gecitkoy Dam, also new, near the coastal city of Girne.

Transfers of water from one basin to another and other engineering projects are favored by some governments as a quick-fix solution to meet growing demand in drier regions. Proposals for such projects are on the rise, but environmentalists say there are alternatives, including the ability to increase conservation and recycling before turning to these long-distance transfers. Water use worldwide in the 20th century grew at more than twice the rate of the global population, according to a U.N. report in 2011.

Denis Landenbergue, freshwater program manager for World Wildlife Fund International in Gland, Switzerland, said by telephone last month that the group applied a "precautionary approach to these kinds of projects."

Such projects have actually been shown to increase demand for water rather than satiate it. Consider the Tagus-Segura pipeline, running 286 kilometers, or 178 miles, that opened in Spain in 1978.

The water it delivered to the Segura region led to an expansion of irrigated land and urban

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development on the coast, according to a WWF report on water transfers. The pipeline “multiplied the initial ‘water deficit’ that it was supposed to solve,” the report asserted.

On both sides of Cyprus, climate change and population growth are increasing demand. Precipitation decreased by more than a quarter over the past 96 years, said Huseyin Gokcekus, vice rector at Near East University in the Turkish sector of Nicosia, and general coordinator for water in Northern Cyprus’s Ministry of Agriculture and Natural Resources. Water mismanagement further exacerbates the problem, he said. For decades, residents have pumped out more groundwater than nature could replace. That has allowed saltwater to enter aquifers along the island’s coast.

“Ninety-two percent of the country’s water is obtained from groundwater,” he said, adding that Northern Cyprus lacks both public education on conservation and infrastructure for water recycling.

On the southern side of the island, the Republic of Cyprus will receive no water from this project. It is turning instead to recycling and [desalination](#).

“We’re determined to use desalination and recycled water to augment our supply of water,” Kyriacos Kyrou, water director for the republic’s Water Development Department, said by telephone.

The country has five desalination plants that together can process 250,000 cubic meters of water a day, he said. Still, the country aims to reduce dependency upon fossil fuel-intensive desalination by ramping up water recycling, he said.

In Northern Cyprus, the fresh water bounty from the new pipeline could create a perverse incentive to increase farming, as occurred in Spain.

Half of the water transferred from Turkey “will be used in agriculture,” Mr. Gokcekus said. But farmable acreage will not be expanded in the first phase of the project, he said. Instead, the transferred water will replace the salty groundwater now used by farmers for irrigation.

To help ensure the best use of the new water supply, Mr. Gokcekus is working with the territory’s Parliament on a law to address water-wise crop choices, irrigation systems that conserve water, public education, rainwater harvesting and infrastructure to recycle domestic water.

Mr. Landenbergue of the WWF said, however, that such measures should be completed before moving forward with a water transfer project. He said he could not speak specifically about the Northern Cyprus pipeline because he had not studied it.

But even if Northern Cyprus can avoid the classic pitfalls of water transfer projects, Mersin Province in Turkey could fall prey to donor-basin problems. Reduced water flows have environmental, social and economic impacts, according to the WWF. Altering natural flow systems can lower water tables, increase saltwater intrusion to coastal areas, and harm fish migration and spawning, it said. But Mr. Taskin of Turkey’s water agency said by e-mail that his country would be transferring just one-tenth of the annual flow capacity of the river. “Turkey will not encounter any water shortage due to this project,” he said.

The few hundred people who have been displaced by the Alakopru Dam in Turkey have been resettled, Mr. Gokcekus said. They will also benefit from the chance to farm some of the 4,000 hectares, or 9,880 acres, of new irrigated area in Mersin Province and to use some of the estimated 26 megawatts of electricity generated annually by the dam, he said.

Water transfers also risk conveying invasive species from the donor basin to the destination. “It’s often underestimated, and there are lots of cases where invasive species are causing huge trouble for the ecosystem, biodiversity and the economy,” Mr. Landenbergue said.

Still, the environmental concerns could end up being moot. The pipeline, promoted as the first of its kind in the world, is experimental. Some observers wonder what kind of difficulties its builders will encounter, or if it will even be built.



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The underwater section of the pipeline will be approximately 80 kilometers long, Mr. Taskin said. It will be made of high-density polyethylene, a material commonly used to transport water. It will cross a channel as deep as 1,430 meters, or 4,700 feet, but the pipeline will be suspended 250 meters below the surface, according to the Turkish State Hydraulic Works.

Each 500-meter section of pipe will be tethered to the sea floor far below. Planning engineers also considered potential hazards like earthquakes and the high level of submarine traffic in the area.

The unconventional design was created by the Turkish firm Alsim Alarko, based in Gebze, with engineering support from other Turkish and foreign companies. Turkey's water department has awarded the construction contract to a joint venture of Malaysian and Turkish companies. Executives from the joint venture declined to speak about the project.

Engineers outside the project are intrigued by it. H.P. van Rossen, manager of installation analysis at Saipem France, a construction firm that works in subsea [oil](#) and gas but is not involved in the water project, said the pipeline was "a novel concept."

"This project has little in common with the undersea pipelines used to transmit oil and gas," he said, in that most conventional offshore pipelines are made of steel and can be placed at depths up to 3,000 meters. They usually rest on the sea floor, thanks to water pressure, the weight of the pipe and the density of the contents.

Mr. van Rossen said the fluid dynamics of the water pipeline would be different. Because seawater is denser than fresh water, the fresh water effectively floats in the salt. Also, the pipeline material "has a density close to the water, so the line will be quite neutrally buoyant," he said.

But the long tethers required for the project could be problematic, he said. Earthquakes could destroy anchoring points, or a tsunami could break the floating line. Nevertheless, if the pipeline broke, it would not create the same ecological damage as, say, an [oil spill](#), he added.

Contractors began building the Alakopru dam in Turkey in 2011 and the Cyprus dam in March of last year. "Construction work on both dams is continuing," Mr. Taskin said. Alakopru was 75 percent complete in late March, and Gecitkoy was 40 percent complete, said Mr. Gokcekus, who has visited the work sites and attended meetings with the construction firm. With work under way on each end of the line, the construction team planned to lay the pipes for the sea crossing later this year, he said.

Both the Turkish State Hydraulic Works representative and Northern Cyprus water coordinator say the project is on schedule to be completed by March 2014.

Emphasizing caution, the WWF report said a project like this "usually reflects ignorance of the social and environmental costs and a failure to adequately consider better, local alternatives, such as improved management of local demand."

But Mr. Gokcekus disagreed, citing climate change and population growth as inexorable strains on water supplies. "Water transfers between countries have become inevitable," he said.

Otherwise, he cautioned, territorial disputes over water could surpass current disagreements over rights to deposits of oil and natural gas.

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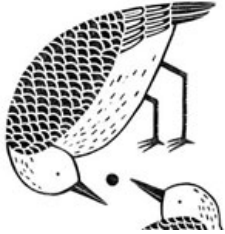
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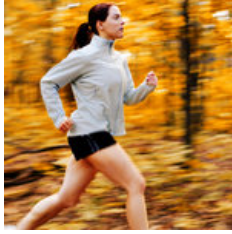
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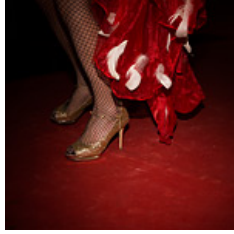
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