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Thirsty Plant Dries Out Yemen

By **[ROBERT F. WORTH](#)**

JAHILIYA, Yemen — More than half of this country's scarce water is used to feed an addiction.

Even as drought kills off [Yemen](#)'s crops, farmers in villages like this one are turning increasingly to a thirsty plant called qat, the leaves of which are chewed every day by most Yemeni men (and some women) for their mild narcotic effect. The farmers have little choice: qat is the only way to make a profit.

Meanwhile, the water wells are running dry, and deep, ominous cracks have begun opening in the parched earth, some of them hundreds of yards long.

"They tell us it's because the water table is sinking so fast," said Muhammad Hamoud Amer, a worn-looking farmer who has lost two-thirds of his peach trees to drought in the past two years. "Every year we have to drill deeper and deeper to get water."

Across Yemen, the underground water sources that sustain 24 million people are running out, and some areas could be depleted in just a few years. It is a crisis that threatens the very survival of this arid, overpopulated country, and one that could prove deadlier than the better known resurgence of [Al Qaeda](#) here.

Water scarcity afflicts much of the Middle East, but Yemen's poverty and lawlessness make the problem more serious and harder to address, experts say. The government now supplies water once every 45 days in some urban areas, and in much of the country there is no public water supply at all. Meanwhile, the market price of water has quadrupled in the past four years, pushing more and more people to drill illegally into rapidly receding aquifers.

"It is a collapse with social, economic and environmental aspects," said Abdul Rahman al-Eryani, Yemen's minister of water and environment. "We are reaching a point where we don't even know if the interventions we are proposing will save the situation."

Making matters far worse is the proliferation of qat trees, which have replaced other crops across much of the country, taking up a vast and growing share of water, according to studies by the [World Bank](#). The government has struggled to limit drilling by qat farmers, but to no effect. The state has little authority outside the capital, Sana.

Already, the lack of water is fueling tribal conflicts and insurgencies, Mr. Eryani said. Those conflicts, including a widening armed rebellion in the north and a violent separatist movement in the south, in turn make it more difficult to address the water crisis in an organized way. Many parts of the country are too

dangerous for government engineers or hydrologists to venture into.

[Climate change](#) is deepening the problem, making seasonal rains less reliable and driving up average temperatures in some areas, said Jochen Renger, a water resources specialist with the German government's technical assistance arm, who has been advising the water ministry for five years.

Unlike some other arid countries in the region, like Saudi Arabia and the United Arab Emirates, Yemen lacks the money to invest heavily in [desalination](#) plants. Even wastewater treatment has proved difficult in Yemen. The plants have been managed poorly, and some clerics have declared the reuse of wastewater to be a violation of Islamic principles.

At the root of the water crisis — as with so many of the ills affecting the Middle East — is rapid population growth, experts say. The number of Yemenis has quadrupled in the last half century, and is expected to triple again in the next 40 years, to about 60 million.

In rural areas, people can often be seen gathering drinking water from cloudy, stagnant cisterns where animals drink. Even in parts of Sana, the poor cluster to gather runoff from privately owned local wells as their wealthier neighbors pay the equivalent of \$10 for a 3,000 liter-truckload of water.

“At least 1,000 people depend on this well,” said Hassan Yahya al-Khayari, 38, as he stood watching water pour from a black rubber tube into a tanker truck near his home in Sana. “But the number of people is rising, and the water is growing less and less.”

For millenniums, Yemen preserved traditions of careful water use. Farmers depended mostly on rainwater collection and shallow wells. In some areas they built dams, including the great Marib dam in northern Yemen, which lasted for more than 1,000 years until it collapsed in the sixth century A.D.

But traditional agriculture began to fall apart in the 1960s after Yemen was flooded with cheap foreign grain, which put many farmers out of business. Qat began replacing food crops, and in the late 1960s, motorized drills began to proliferate, allowing farmers and villagers to pump water from underground aquifers much faster than it could be replaced through natural processes. The number of drills has only grown since they were outlawed in 2002.

Despite the destructive effects of qat, the Yemeni government supports it, through diesel subsidies, loans and customs exemptions, Mr. Eryani said. It is illegal to import qat, and powerful growers known here as the “qat mafia” have threatened to shoot down any planes bringing in cheaper qat from abroad.

Still, the water crisis could be eased substantially through a return to rainwater collection and better management, Mr. Renger said. Between 20 and 30 percent of Yemen's water is lost through waste, he said, compared with 7 to 9 percent in Europe.

In Jahiliya and other areas around the capital, the World Bank is leading a project to change wasteful irrigation patterns.

Mr. Amer, the farmer based here, proudly showed visitors his efforts to irrigate fruit and tomato fields using rubber tubes, instead of just funneling it through earthen ditches that allow most of the water to evaporate unused. Little hoses spray the crops with water instead of wastefully soaking them.

But he also pointed out two local wells where the water is dropping at the astonishing rate of almost 60 feet a year, causing the land to subside. Nearby, sinkholes in the arid soil of his property are growing longer and deeper every year.

“We have been suffering for years from this,” he said, gesturing at a cast-off drill rig that broke after going down too deep into the earth.

The Yemeni engineers working on the World Bank project concede they have had tremendous difficulty convincing other farmers — and even government agencies — to take their efforts seriously.

“There is no coordination with other parts of the government, even after we explain the dangers,” said Ali Hassan Awad. “Prosecutors don’t understand that drilling is a serious problem.”

Mr. Eryani, the water minister, takes the long view. Yemen has suffered ecological crises before and survived. The collapse of the Marib dam, for instance, led to a famine that pushed vast numbers of people to migrate abroad, and their descendants are now scattered across the Middle East.

“But that was before national borders were established,” Mr. Eryani added. “If we face a similar catastrophe now, who will allow us to move?”

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