Biblical Waters: Can the Jordan River Be Saved?

With the swelling ranks of Syrian refugees in Jordan, an overstressed river is at risk of going dry.

By **Peter Schwartzstein**, [National Geographic](http://news.nationalgeographic.com/)

If Jesus were to plunge into the Jordan River today, he might well injure himself.

**The great biblical waterway is now little more than a shallow, unimposing trickle of sludge, a murky body of water that is in danger of withering into nothingness.**

"Is that it? Seriously, that's the Jordan? I could jump it," declared one mightily unimpressed American teenager, as we crossed the river from the Kingdom of Jordan to the Palestinian West Bank one blindingly bright afternoon back in October.

There's no real mystery as to how the river famous as the reputed site of Jesus' baptism has sunk so low.

"Everybody's been taking water from the Upper Jordan because everybody needs it," said Clive Lipchin, director of the Center for Transboundary Water Management at Israel's [Arava Institute](http://arava.org/), and one of a number of water experts alarmed by the decline of a river that was never particularly substantial in the first place.

What remains of the Jordan springs from its source high in the Lebanese mountains, before it passes near the Syrian border and along the Jordanian, Israeli, and Palestinian frontiers.

It's one of the most complicated and conflict-ridden regions on Earth, and that goes some way toward explaining the Jordan River's current predicament.

**Fighting Over Water**

Cooperation between Israel and its Arab neighbors is rare, which leaves the river and its problems hostage to 65 years of distrustful and often hostile coexistence.

"There's no water because Israel steals it all," said Mohammed, a Bedouin goat herder who tends his brother's flock in the parched Jordanian hills near Mount Nebo, where Moses is said to be buried.

"Jordan and the Palestinians are responsible because they waste everything," Yitzhak Adami, a Jerusalem taxi driver, told me, as we wove our way toward a hilltop Jewish settlement in the occupied West Bank.

But as fraught as relations between Israel and Jordan remain, despite the peace treaty they signed in 1994, it's Syria's struggles that preoccupy water policymakers' thoughts.

Indeed, the river might be described as the latest victim in a brutal Syrian civil war that is thought to have killed at least 130,000 people and displaced almost seven million so far. (Read "[Damascus: Will the Walls Fall?](http://ngm.nationalgeographic.com/2014/03/syrian-war/barnard-text)" in National Geographic magazine.)

Almost 2.5 million refugees have fled Syria to date (up from 550,000 in January last year), and 600,000 of them have settled in arid and water-impoverished Jordan, a country of slightly fewer than 6.5 million citizens. (Read "[Journey Without End](http://ngm.nationalgeographic.com/2014/03/syrian-war/butler-text)" in National Geographic magazine.)

Environmental issues have understandably been a very distant second to humanitarian concerns, but the ongoing chaos and fast-increasing mass of refugees needing water have stretched the Jordan River's already desperately meager flow to a trickle.

**Refugees Straining Capacity**

Some communities in the dusty, pancake-flat expanse of northern Jordan will tell you their cities' water resources long ago reached a desperate state. The new pressures could bring them to the breaking point.

An old farmer sleepily perched next to his fruit stand outside Mafraq sadly shook his head and just repeated "too many people, too many people," when asked about the influx of new arrivals.

At less than 10 miles (16 kilometers) from the Syrian frontier, and 20 miles (32 kilometers) from Deraa, where the opening salvo of the Syrian revolution was fired in March 2011, Mafraq was always going to be the first port of call for many refugees.

But no one could have guessed the enormity of the Syrian exodus.

Syrians now far outnumber longtime residents, and non-Syrian Arabic accents are a comparative rarity in the teeming coffeehouses around Mafraq's potholed main drags.

Over 80 percent of Syrians who are registered with the UN's refugee agency in Jordan arrived in 2013, and a third of them are in Mafraq Governorate.

Many of the established inhabitants of Jordan are originally refugees themselves.

Several waves of Palestinians arrived after the creation of Israel in 1948, and thousands of Iraqis settled there after the Gulf War in the early '90s and during the civil war that rocked their country a few years after the American invasion in 2003.

**Water Disputes Boiling Over**

But as the Syrian population mushrooms, the local residents' sympathy for their beleaguered neighbors has waned, and it's water that's at the root of their dissatisfaction.

Water efficiency in Mafraq is down by more than 50 percent since 2011, meaning more water is being wasted, and water quality has diminished significantly as a consequence of excessive water extraction to accommodate a provincial population that has more than doubled.

Some residents are particularly wary of the consequences of inadequate sewage treatment in areas overcrowded with refugees. They fear wastewater will eventually seep into the ground and poison the water table.

"The risk of contamination is minimal," according to Thomas Palo, the UN's in-house water expert in Jordan, but it's just one of many rumors to have taken root in the increasingly toxic atmosphere.

One Jordanian civil servant told me that Syrian government sympathizers had been caught trying to poison local water supplies, but a UN refugee worker asked about the reports answered, "That's just part of the rumor mill," noting that he'd also heard allegations of spies starting fires with laser pointers.

Zarqa, Jordan's second largest city, lies just to the north of the capital, Amman, and is home to a sizeable refugee community. A water dispute erupted into a neighborhood brawl there last summer, after a Jordanian of Palestinian extraction accused a Syrian of tapping into his water supply.

**Refugee Camps Guzzling Water**

Most of the refugee population lives in underdeveloped pockets of Jordan's cities, but 6 miles (10 kilometers) east of Mafraq, 150,000 or so Syrians have made their home in Za'atari, the second largest refugee camp in the world and now the fourth largest settlement in Jordan. (Related: "[First Person: Five Things I Learned in Syrian Refugee Camps.](http://news.nationalgeographic.com/news/2013/09/130920-syria-refugees-camps-war-children/)")

It frequently appears on the news as a devastating illustration of the human toll of the Syrian conflict, but it's also a compelling reminder of the additional strain levied on the region's water resources.

Four million liters (more than one million gallons) of water a day is brought into the camp by 255 tankers, which works out to about 40 liters (10.5 gallons) per person; an emergency daily standard is 18-20 liters.

It's an excessive amount, UN officials admit, but camp occupants have made a habit of taking matters into their own hands, and additional supply is needed to ensure there's enough to iron out the imbalances.

"There's been a lot of privatization of water resources," Palo said, putting a euphemistic spin on the semi-criminal activity that has included some strong community leaders assuming ownership of public wells.

Some 71 percent of Za'atari residents have installed their own toilets, 8 percent have their own water tanks, and many families have hooked up personal hosepipes.

There are even 1,500 private washing machines, all of which tap into the camp water supply.

And it's not just water that's reappropriated: Many washrooms and other communal sanitation facilities, which are needed to reduce the risk of disease, are often dismantled soon after they're built, with their parts plundered for private use.

"People do pretty much what they want," said Kilian Kleinschmidt, the German UN official who administers Za'atari. "They've connected themselves to electricity and water, whether we would have done it that way or not," he said.

Syrians are frequently accused by local Jordanians of having a cavalier attitude to water use, and it's not an entirely groundless charge. Many refugees come from parts of Syria where there's an abundance of water, and most haven't yet accustomed themselves to Jordan's more straitened environmental circumstances.

"They're not water conscious," said Kleinschmidt, who's trying to phase in a system of water meters, which he hopes will assuage the complaints of locals resentful of the Syrians' access to free water.

**A Dry Oasis**

The ever-increasing number of displaced Syrians has forced farms and factories to look elsewhere for water.

"Because the refugees take from the aquifers, that water has to be compensated for by the water from the river," said Munqeth Meyhar of [Friends of the Earth Middle East](http://www.foeme.org/www/?module=home) (FOEME) when we met at his office in an unassuming industrial district of Amman.

Some Jordanians will have you believe Syrians are to blame for their severe water shortage, Meyhar said.

"The water situation was okay before all this," said Maher Elias, who works in a clothes shop in Amman.

But long before the Syrian war exploded, Jordan had greatly overstretched its water resources.

The oasis at Azraq, in the desert to the east of the capital, dried out in 1990, with the water table dropping from 4 meters above the surface to 20 meters below it today. Groundwater is now being pumped into the oasis, once known as a bird-watching hot spot, to keep it alive as a tourist attraction.

Both of Jordan's principal aquifers have been overpumped by 300 percent, which means a fall of about a meter a year—far quicker than they can be replenished.

Such excessive extraction is also having a grave effect on water quality.

"When you're overpumping aquifers like this, you're mobilizing a lot of salt water, so it's not drinkable," the UN's Palo said.

The water from the first borehole in the recently built refugee camp at Azraq was unusable, and engineers are now digging a second, deeper well a few miles outside the camp—though Azraq will open only if 600 refugees a day arrive in Jordan, instead of the current 300.

**Population Spiking**

A newly tapped aquifer near the Saudi border should help lighten the load on the river and the northern aquifers, but there's no contending with the region's breakneck population growth.

Amman's towering skyscrapers, glitzy new suburbs, and slumlike neighborhoods on the outskirts tell the tale of a population that grew by 86 percent between 1990 and 2008, according to the World Bank.

A UN study suggests Jordan's population will peak at 11.5 million by 2050, but that doesn't include refugees, "and the experience of Jordan is that refugees never leave," said Munqeth Mehyar.

It's a similar story across the river, where Israel's population increased by 56 percent and that of the Palestinian territories grew by 106 percent within a similar timeframe.

Such sizeable spikes in population have, of course, necessitated significant increases in food production.