

CONTESTED FLOWS: THE UNCERTAINTY AND SCARCITY OF WATER IN JORDAN



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FRED ABOUT HIS RESEARCH

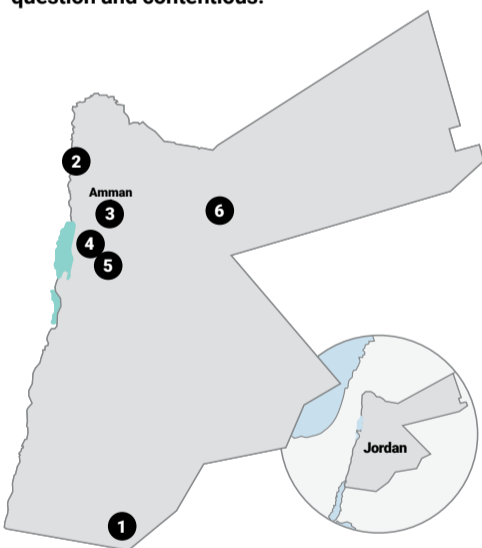
Jordan is increasingly defined by water scarcity: its status as one of the most water-poor nations on earth is repeated frequently in both the country's own economic and climate change strategy documents, and in the reports of international donors.

Yet this idea of absolute scarcity obscures the ways water flows are shaped by social practices and by power, making experiences of water scarcity extremely uneven.

Dr Fred Wojnarowski uses ethnographic research with water users, officials and people already experiencing water scarcity to challenge technical, apolitical understandings of the water system, and to show how any solutions must be social and political.

This display represents Jordan's water system not as a technical system for the movement and management of a natural resource, but as a social and economic metabolism, in which many people and places are brought into relationships with each other at different scales by the contested flows of water.

Water here speaks to wider flows of power, revealing issues of equity and distribution. Through a series of case studies the display looks at the water system, as it is generally understood, and asks some questions about what within this picture is unknown, open to question and contentious.



WHERE DOES THE WATER COME FROM?

1



Cost \$1.1bn

4 years to construct

Disi Conveyance Project wells, Mudawara, Southern Jordan

Jordan's largest megaproject, built with foreign investment, pumps groundwater up to the surface from a deep aquifer.

When will the water run out? This is fossil water – once it's gone, it's gone forever. Jordan's official water strategy estimates <30 years remain, but others suggest within a decade the water may be too saline to use.

Is the water safe? Containing radioactive radium isotopes, the water must be blended with equal quantities of water from other sources to be safe to drink.

2



King Abdullah Canal, Jordan Valley

Jordan's main surface water resource, where its most intensive agriculture is concentrated.

The water in this sub-tropical valley, 500m below sea level, is some of the most disputed on earth. Israel takes a fixed (rather than relative) amount under their peace treaty, disadvantaging Jordan. Plans for a 'blue-green' deal, to swap solar energy from Jordan's deserts for Israeli water, have been made politically impossible by the Israeli war on Gaza.

Of Jordan's share, most is pumped to the capital, leaving local farmers struggling to meet their needs.

Jordan is forced to purchase **10 million m³** of additional water each year from Israel

100 million cubic metres extracted annually



Through 55 wells



Amman 330km



Pumped to the capital, Amman



Half used for agriculture locally, through Water User Associations



Half (110 million m³) pumped to the highlands and used to dilute Disi water

HOW DO PEOPLE ACCESS WATER? WHAT ARE THE IMPACTS OF WATER SCARCITY?

4



Wala River, Dhiban

The Wala River used to feed wells, springs, crops and flocks in this rural district, an hour south of the capital, but it has slowly reduced to a trickle, finally dammed in 2006. Dam water is mainly used for domestic supply in Amman, with insufficient amounts for local farmers. Locals say it has become badly polluted by mismanagement, further damaging their crops.



Dhiban has experienced waves of protests in recent decades, with water a key issue. People see the way their water is appropriated and polluted as a concrete example of widespread corruption and the political and economic exclusion of their community.

How is the water becoming so polluted?

3



Amman – Miyahuna "Our Water" company

The water from these sources supplies the capital and central part of the country, distributed by a state-owned water company. Households who can afford a connection get a weekly timed slot of piped water, otherwise relying on storage tanks.

Cost to connect to water system

500JOD (£57)

More than the average monthly salary in Jordan



Richer households have large tanks and can buy in more water by tanker, enabling weekly car-washing, lavish lawns and swimming pools. For poorer households, the day the water comes is the day when (mostly) women try to do all the water-intensive housework.



Water mains system built in the 1980s



Piped water available: 6 hours per week



40–50% of the water goes missing



Water access ranges from 1–48 hours per week



43 distribution zones receive mains water

5



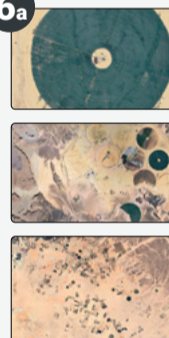
Jabal Bani Hamida

This deprived mountainous region, inhabited by former semi-nomadic Bedouin, is one of the most water-poor in Jordan. As ancient stone wells dry up and turn saline due to overexploitation elsewhere, locals face the agonising choice between losing their plants and animals or paying exorbitant fees to private water tanker companies.

Most youngsters move away for work and only the pensioners and very poorest remain. Those who stay rely on mains connections to Miyahuna, paying similar bills but receiving far less water than urban areas. One old woman summed up her situation as "next to the well, and you die of thirst".

Is there any sustainable future for small-scale highland agriculture?

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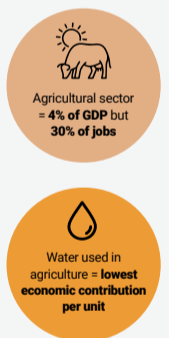


WHERE IS THE WATER GOING?

Azraq and the eastern desert

As Amman expands, agriculture and urban sprawl are pushed eastwards into the desert, requiring ever more groundwater wells. These wells often feed central pivot sprinklers to grow high-intensity crops, such as salad crops, bananas and citrus, in part driven by a requirement for empty land to be irrigated before it can be registered in Jordanian law.

While such irrigation is not an economically efficient use of a scarce resource, it provides jobs in areas with few other opportunities, and to restrict it could cause unrest.



Piped water available: 1.5 hours a week (often coming at midnight)



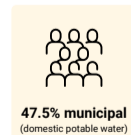
Connected to water grids (as well as electricity, roads and wider government services) in the 1990s



Water table sinking at 20m a year in places as a result of groundwater wells

SHARE OF WATER USE

(source: Jordanian Ministry of Water, National Water Strategy 2023-2040)



47.5% municipal (domestic potable water)



49% agriculture



3.3% industrial

WHAT IS WATER SCARCITY?

United Nations' definition
below 500 metres³ per person annually

Available water in Jordan today
61 metres³ per person annually

Available water in Jordan by 2040
expected to be 35 metres³ per person annually

6b

WHERE IS THE WATER GOING?

Despite government attempts to limit well-building, many landowners have sunk illegal wells, often shielded from prosecution by powerful political contacts. Digging these illegal wells is an expensive and serious undertaking, needing drill rigs and geological expertise. Satellite imagery shows much more irrigated land than can be accounted for by legal sources, and this overexploitation is causing the water table to sink.

Water from illegal wells is also sold by landowners to private tankers, where it enters a shadow water economy.

What is the extent and impact of this shadow economy of water?

Cost of well-sinking £57k per well