UFZ Planetary solutions
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Profile

Ways to Ensure a Secure Water Supply



The challenge

Worldwide, around 2.2 billion people do not have reliable and regular access to clean drinking water. In Jordan, one of the world's most water-scarce countries, households receive water from the public water supply for an average of just one and a half days per week. Scarce water resources are also being used inefficiently, and groundwater reserves are being depleted. Climate change, ageing pipes, and growing demand are exacerbating the crisis.

Using Jordan as a case study, our model demonstrates how water crises arise, what exacerbates them, who is particularly affected, and what solutions can secure the water supply in the long run.

Our planetary solution

Together with our partners, we have analysed the Jordanian water supply system as a whole and found that water, technology, and society are closely intertwined. Our model therefore depicts not only water reserves, inflows, and outflows but also how households, water suppliers, and policymakers respond to water shortages. This reveals previously underestimated risks such as the existence of illegal markets for water deliveries, which have high social costs and additional pressure on groundwater resources. The model can also be used to identify measures to secure the water supply in the coming decades despite sharply declining water resources. This equips ministries, consultancy firms, and international organisations with a sound basis for planning and financing major investments in water infrastructure in line with actual needs. This UFZ research provided the basis for a key element in the financing of a USD 6 billion water desalination and conveyance project designed to secure much of the water supply in Jordan for the benefit of the people who live there. The approaches developed are now applied to benefit other regions facing water scarcity, including Europe and Germany.

Our partners

Solving water crises requires strong networks and long-term cooperation. Our partners include the Jordanian Ministry of Water and Irrigation, international research institutions such as Stanford University, NGOs such as the Jordanian organisation MIRRA and the Austrian Research Foundation for International Development, consultancy firms such as ICF, and development organisations such as USAID and GIZ.

Relevant knowledge and technologies

Our **integrated hydro-economic model** shows how water resources, inflows and outflows, distribution networks, demand from households, agriculture, industry, and commerce, as well as water policy and management decisions interact. This provides a robust basis for assessing measures and strategies to ensure a secure water supply.

Capacity Building: We train specialists in ministries and public administration to enable them to apply our models independently and integrate them into their decision-making, e.g. for the national water strategy.


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Additional links:
Press release: New model for the drinking water market in Jordan
Article: Climate fund backs $6 billion Jordan water project with its largest deal

UFZ HELMHOLTZ Centre for Environmental Research
Member of the Helmholtz Research Field Earth and Environment
11/2026