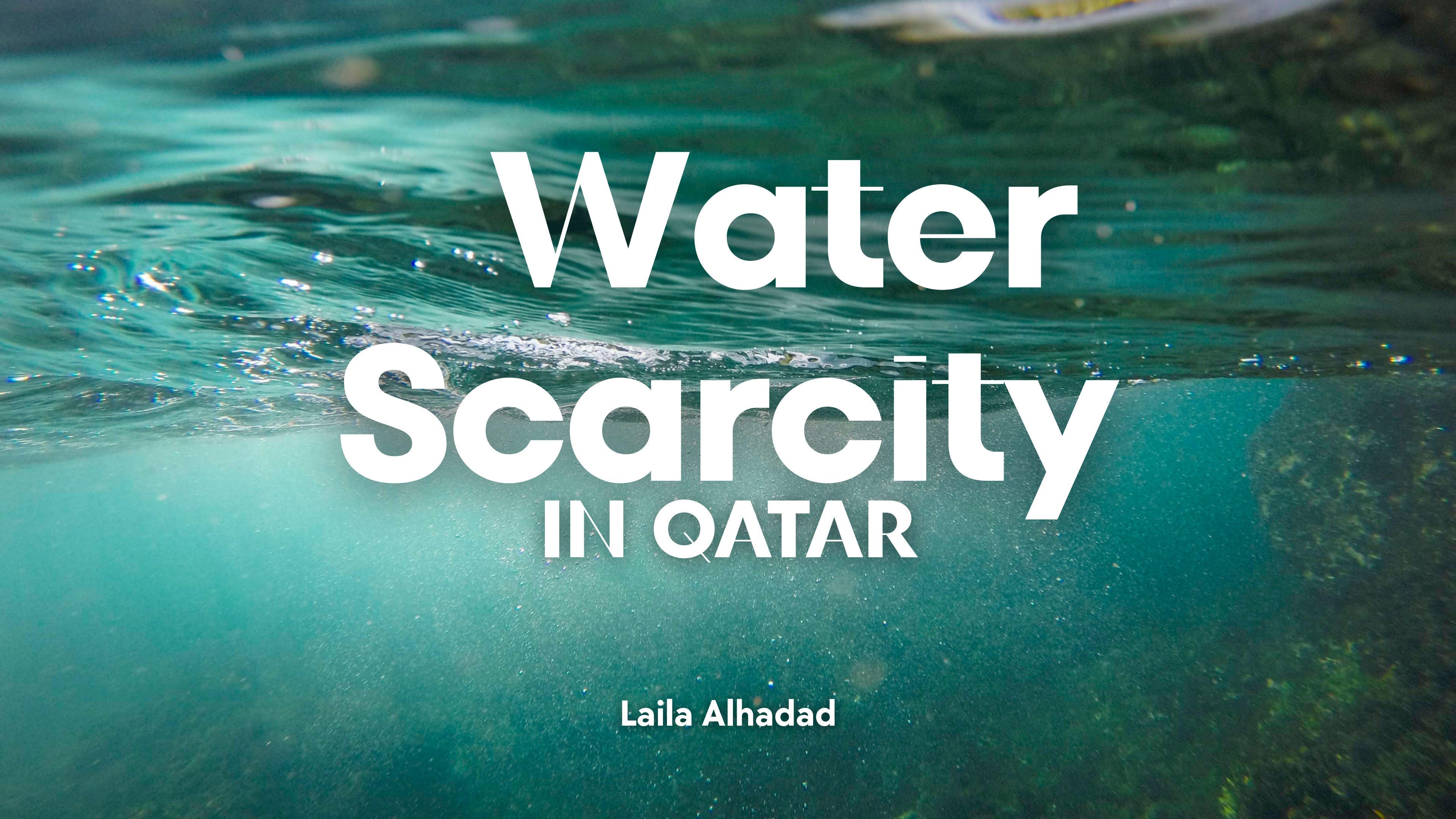




Water Scarcity IN QATAR

Laila Alhadad

What Is the Issue at Hand?

- High baseline water stress as renewable supply doesn't meet demand
- About 99% of domestic water use is from desalination
- Growth in the population and consumption leads to constant demand.
- Excessive per capita use and over-abstraction of legacy groundwater
- Limitations imposed by nature: Less than 100 mm of rain on average per year plus no rivers or lakes

Main Water sources

Desalination – 61%

- used heavily for industrial and municipal purposes
- it meets about 99% of the municipal's water needs.
- Creating desalinated water additionally produces a brine solution, which is harmful for the environment.
- partly relies on oil and gas for energy

Groundwater – 24%

2 main groundwater resources :

- 1) The Rus
- 2) Umm er Rhaduma

- around 92% of the total withdrawal is used for agricultural purposes

Reuse of Treated Sewage Effluent (TSE) – 15%

- Qatar has used this non-conventional water resource since 2004.
- utilised in agriculture, landscaping, and parks, for deep injection into aquifers or discharge into the lagoon.

Ras Abu Fintas



Umm AlHoul



Environmental Externalities of Desalination

**Brine
Production**

Intake Risks

**Chemical
Usage**

**High Energy
levels**

Systemic Risk

- Heavy reliance on desalination plants on the coast, which is problematic because if there is an accident or a security concern, there might be a shock to water supplies.
- Maintaining is expensive.
- Desalination facilities mostly operate on natural gas. That gas is also required for power and exports, which is the main contributor to Qatar's economy, so water production competes with energy demands.
- Increases gas emissions, which opposes Qatar's objective of reducing emissions to satisfy environmental goals.

How is the Issue being addressed?

- As part of its 2030 vision, Qatar established targets and programs to guarantee long-term water security and sustainability.
- Kahramaa is launching projects like Tarsheed to address leaks, improve storage, and reduce water waste.
- Using innovative technologies like reverse osmosis (RO) instead of older approaches like thermal desalination saves gas and energy.
- Increase TSE and groundwater extraction for farming, landscaping, and cooling systems

Gaps and recommendations

- Demand is high, thus raising awareness about lowering water consumption will be beneficial.
- Reused water share could be raised further.
- Brine management and marine monitoring need ongoing development, such as improving disposal techniques and reusing brine.
- Expand solar-powered energy infrastructure for water desalination.

Sources

- Convention on Biological Diversity. (n.d.). Country profile: Qatar. <https://www.cbd.int/countries/profile?country=qa>
- Fanack Water. (2021, August 9). Water challenges in Qatar. <https://water.fanack.com/qatar/water-challenges-in-qatar/>
- Khan, S. (2024, June 3). Water scarcity in Qatar: Causes, effects and solutions. Planet Pulse. <https://planetpulse.blog/2024/06/03/water-scarcity-in-qatar-causes-effects-and-solutions/>
- Middle East Council on Global Affairs. (2025, March 20). A pathway to cutting carbon emissions from desalination in Qatar. https://mecouncil.org/publication_chapters/a-pathway-to-cutting-carbon-emissions-from-desalination-in-qatar/?utm_source
- ProTenders. (n.d.). Ras Abu Fontas A2 Seawater Desalination Plant – Qatar Electricity & Water Company (QEWCo). ProTenders. <https://www.protenders.com/companies/qatar-electricity-water-company/projects/ras-abu-fontas-a2-seawater-desalination-plant>
- Qatar General Electricity & Water Corporation. (2025, August 11). KAHRAMAA launches Tarsheed Summer Camp 2025 to promote environmental awareness among youth. <https://www.km.qa/MediaCenter/Pages/NewsDetails.aspx?ItemID=487>
- Sanaullah Ataullah. (2025, July 28). Qatar strengthens water security through strategic planning, global partnerships. The Peninsula Qatar. <https://thepeninsulaqatar.com/article/28/07/2025/qatar-strengthens-water-security-through-strategic-planning-global-partnerships#:~:text=Looking%20ahead%2C%20Qatar%20aims%20to>
- Umm Al Houl Power. (n.d.). About Us. <https://ummalhoul.net/>
- World Resources Institute. (n.d.). Highest water-stressed countries. <https://www.wri.org/insights/highest-water-stressed-countries>
- Express Web Desk. (2025, June 22). Watch | Qatar PM warns Gulf could run out of water in 3 days if Iran nuclear plant is hit. The Indian Express. <https://indianexpress.com/article/world/qatar-pm-gulf-water-shortage-3-days-iran-nuclear-plant-is-hit-10082068/>