

Water on the Edge: Lebanon's Drought Crisis Demands Immediate International Support (2025)

Lebanon is experiencing its worst drought on record, with rainfall levels dropping by over 50% across many regions and reduced snow accumulation and earlier melt impacting water resources¹. This prolonged water shortage is compounding the already fragile state of the country's water infrastructure. Groundwater sources are depleting, and critical reservoirs have reached alarmingly low levels, leaving millions at risk. The crisis has now become a nationwide water emergency², posing a threat to public health, food security, electricity access, and social cohesion. All sectors are feeling the strain—from agriculture and healthcare to schools and local governance. Failure to act swiftly risks serious consequences for Lebanon's most vulnerable populations and could further destabilize already fragile systems.

“We’ve been waiting for nine long days to get water from the public supply, and in all this time, we’ve had nothing but to rely on buying water from trucks. It’s been really hard” says Mariam, a mother of four in southern Lebanon.

Impact on People

The drought's impact is already devastating:

- **1.85 million** people live in areas highly vulnerable to drought.
- **More than 44%** of the population depends on expensive and often unsafe water trucking services, with this percentage expected to increase.
- **Water prices** in the private market are starting to increase, mainly due to rising demand for private trucking
- **Water insufficiency** remains a significant concern for many households across all population groups.
- **Public water systems are failing** due to depleted aquifers, damaged infrastructure, and power cuts.

Health risks are rising, especially in overcrowded settlements with poor sanitation and hygiene. This situation makes it difficult to maintain safe practices, and may force people to resort to unsafe water sources, threatening a new outbreak of waterborne diseases. Drought is also driving a surge in malnutrition, with recent LIMA 2023–2024 findings showing sharp increases in stunting, wasting, and micronutrient deficiencies, particularly among children in displacement settings. The drought is also causing sharp declines in agricultural output, resorting to early irrigation and depleting scarce water supplies. This threatens food security³ and increases reliance on costly imports.

¹ UNDP, & Ministry of Environment. (2025, January 6). [Lebanon's first biennial transparency report on climate change](#). United Nations Development Programme.

² Joe Saddi [@joe_saddi]. (2025, April 27). [Tweet about severe water shortage]. X. https://x.com/joe_saddi/status/1946134172772319310

³ LebanonFiles. (2025, July). الجفاف يُهدد لبنان هذا الصيف: الزراعة أولى الضحايا [Drought threatens Lebanon this summer: Agriculture is the first victim]. LebanonFiles.

Wildfire risk is intensifying due to prolonged dry conditions, while essential services such as schools, health centres, and public facilities are facing disruption. As water becomes a contested resource, tensions are escalating⁴, increasing the risk of local instability.

Geographical Vulnerability and Key Hotspots

Lebanon’s water emergency is widespread, but several regions are at particularly high risk:

- Bekaa Valley: 25% of wells have dried up. Irrigation canals are being converted temporarily to supply drinking water for 30,000 residents.
- Zahle: Rainfall has fallen by 60%, which might cause critical depletion of groundwater reserves.
- Tripoli and North Lebanon: A 37% decline in rainfall has led to harsh water rationing and highlighted deep infrastructure gaps.
- South Lebanon and Nabatieh: Severe well depletion is compounded by damage to networks from recent conflict

Reservoir and Spring Decline: Selected Examples (2024–2025)

Name of Site	2024 (m³)	2025 (m³)
Jeita Spring	90,000x	40,000x
Al Asal Spring	25,000x	10,000x
Barouk Spring	20,000x	5,000x
Kaismani Dam	1,000,000	150,000
Baklei Lake	408,000	225,000

Source: Minstry of Energy and Water (MoEW) Awareness Campaign

X Daily production

Case Highlight: Lake Qaraoun

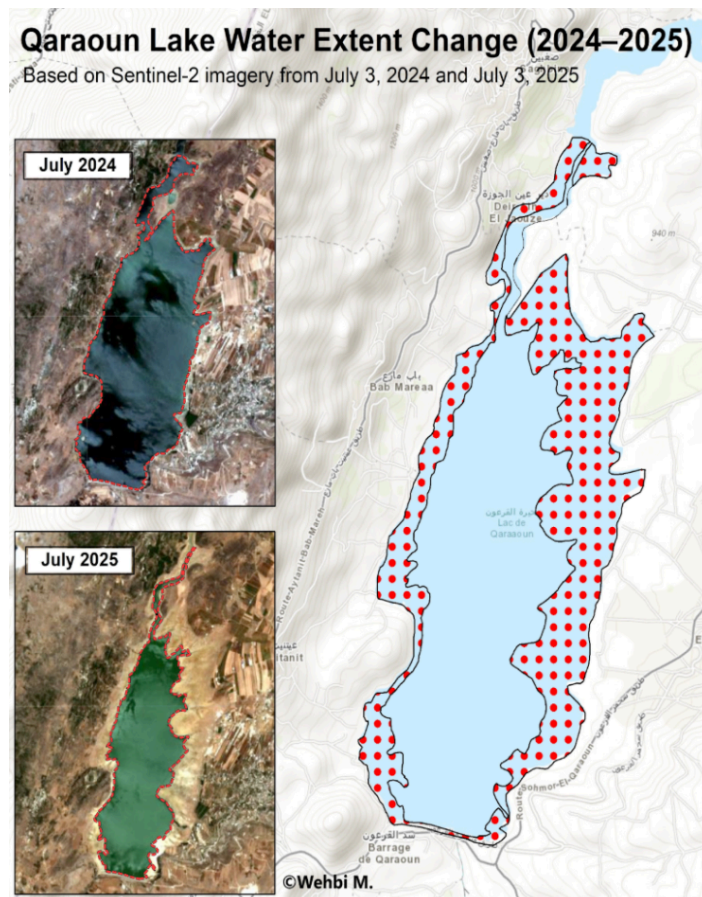
Lake Qaraoun, the largest reservoir in Lebanon and the primary source for the Litani River Basin, has recorded its lowest inflow in over 60 years. In the 2025 season, according to the Litani River National Authority, the lake received only **45 million** cubic meters of water, compared to an annual average of **350 million** cubic meters. Sami Alawieh, head of the Litani River National Authority, described 2025 as the driest in at least four decades:

“There were dry years in 1989, 1990 and 1991, but this year is the driest.”

⁴ Manashyr, A. (2025, May 12). [A bloody armed clash broke out following a dispute over filling water tanks from an artesian well.](#)

This dramatic decline has crippled Lake Qaraoun’s ability to provide water for agriculture, hydropower generation, and domestic supply, highlighting the urgent need for sustained, climate-resilient WaSH interventions.

The figure on the right presents a satellite image comparison from two different years, visually capturing the alarming decline. Remote sensing imagery shows a stark reduction in surface water coverage between July 2024 and July 2025. In 2024, the lake maintained a broad and continuous water footprint, while by 2025, large portions of the basin appeared dry or drastically contracted. This visual evidence reinforces the scale and urgency of the crisis, making the impact of climate change and poor water governance tangible to stakeholders and decision-makers.



Drought Vulnerability Mapping

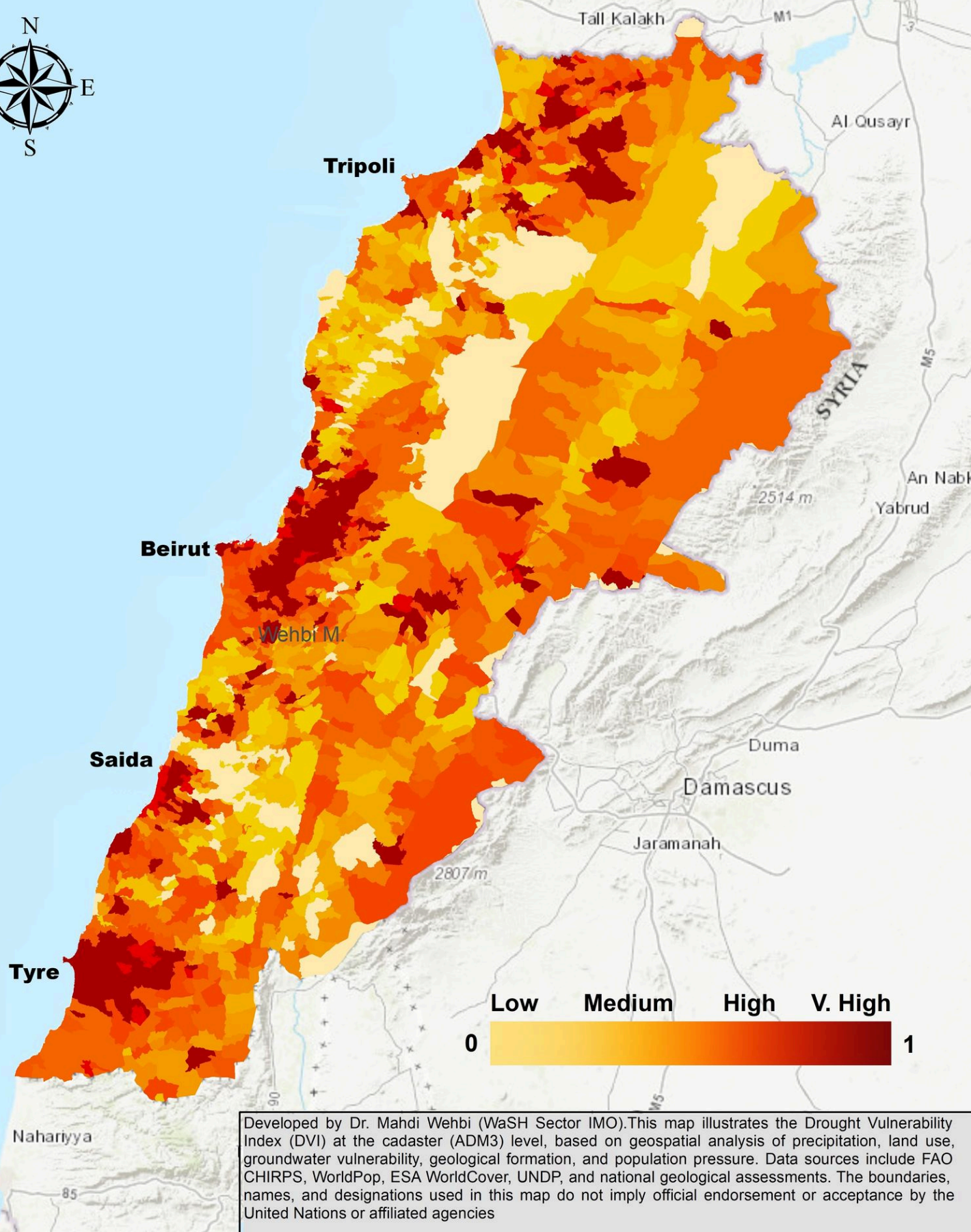
Lebanon’s drought vulnerability map⁵ was developed through geospatial analysis using a Composite Drought Vulnerability Index (DVI) and a Spatial Multi-Criteria Analysis framework. The index incorporates indicators such as groundwater quality vulnerability (using the DRASTIC model and coastal saline intrusion), hydrogeological resilience (proxy reflecting aquifer storage potential), land use land cover and population pressure (as proxies for water demand and surface stress), and climatic water stress (derived from long-term rainfall trends and drought indices like SPI and SPEI). These layers were integrated using GIS and remote sensing tools to assess exposure, sensitivity, and adaptive capacity across the country.

While the map identifies 274 cadasters as highly or very highly vulnerable, this does not imply that other areas are safe. Given the interconnected nature of Lebanon’s water systems, combined with risks such as infrastructure damage, service disruptions, and increasing demand, drought-related impacts could still spread to areas currently considered lower risk.

⁵ The map is based on the best data available with equal weighting for transparency. Newer and localized data would be incorporated as they become available.
Link to the interactive map: <https://experience.arcgis.com/experience/51ab1e7ebe63482b9dfb42c274c6fae2>

Drought Vulnerability Map of Lebanon

Cadasters by their drought risk score (July 2025)



Key Response Activities

Under the direction of the Minister of Energy and Water, the Regional Water Establishments have developed a coordinated response to Lebanon's 2025 drought crisis. However, limited operational capacity, outdated infrastructure, fuel dependency, and funding shortfalls are hindering full implementation. The response includes both life-saving emergency measures and long-term development priorities, as outlined below.

Humanitarian Emergency Response:

Urgent, life-saving interventions focused on stabilizing access to water and protecting public health in highly affected areas:

- Emergency water trucking (Public Water Point) to underserved communities facing acute shortages
- Installation of public drinking water points in critical hotspots to ensure minimum access
- Installation of Float Valves at Household level.
- Rehabilitation of non-operational wells to quickly restore water availability
- Installation of solar-powered pumping systems mainly in non-operational wells to maintain basic water services and reduce reliance on costly, unreliable diesel fuel
- Provision of diesel and backup generators to sustain operations at key pumping stations
- Rapid leak repairs.
- Awareness campaigns on water conservation, hygiene, and safe water use, particularly in vulnerable areas.
- Removal of illegal connections in high-priority networks
- Grievance and complaint mechanism, activate call centers to get direct feedback on leakages or infractions from local populations.

These emergency actions are designed to prevent disease outbreaks, reduce dependency on water trucking, and ensure communities have access to clean water—but they require immediate international support to be operationalized.

Development and Resilience Building:

Medium and long-term investments to strengthen Lebanon's water sector, reduce vulnerability to climate shocks, and improve institutional performance:

- Investments in the countrywide measurement systems of rainfall, snow cover and aquifer behaviour to inform decision-making.
- Implementation of real-time monitoring (SCADA), leak detection, and system control
- Upgrading of aging pumping stations and expansion of pumping capacity
- Expansion of smart metering to reduce losses, optimize distribution, and improve billing through high-consumption site monitoring and wider subscriber coverage
- Development of local water management plans, focused on equitable distribution, demand reduction, and performance monitoring
- Institutional strengthening and governance improvements, including enforcement of water regulations and coordination across the four Regional Water Establishments
- Increase wastewater reuse to promote water conservation and sustainable agriculture.

Despite having clear operational plans, implementation remains limited due to shortages in staffing, fuel costs, outdated infrastructure, and a lack of immediate funding. Urgent external support is needed to move these plans from paper to action and prevent further deterioration of services.

Financing the Response: Urgent and Long-Term Requirements

The four Water Establishments have launched a unified emergency response. However, scaling these efforts requires urgent financial support. The revised funding requirement is USD 42.2 million, structured as follows:



Urgent Needs: Immediate support to maintain water access in the most affected areas.

Long-Term Recovery and Resilience: Build a sustainable and climate-resilient water supply system.

Why Now?

With 1.85 million people in very high-risk areas, summer 2025 may push Lebanon's WaSH sector beyond recovery. Delayed action will cost lives — and lead to far greater long-term recovery expenses. Investing in prevention is not only lifesaving but also cost-effective: It is estimated that for every \$1 spent on WaSH mitigation, up to \$4 can be saved in health outbreak response costs⁶. The earlier we act, the more we reduce the risk of widespread disease, economic disruption, and institutional collapse.

Conclusion and Call to Action

Lebanon's 2025 drought crisis is a stark reminder of the country's interconnected environmental, institutional, and humanitarian challenges. While the Ministry of Energy and Water and the four Regional Water Establishments have outlined clear response plans, their efforts are constrained by limited resources and capacity.

We urgently call on international donors, humanitarian agencies, and development partners to mobilize the financial and technical support needed to put these plans into action. Timely investment will save lives, support communities, and reinforce Lebanon's water infrastructure to withstand future climate shocks.

Every day of delay allows the crisis to worsen and compounds the long-term cost of recovery. The time to act is now.

⁶ World Health Organization. (2012). Global costs and benefits of drinking-water supply and sanitation interventions to reach the MDG target and universal coverage (WHO/HSE/WSH/12.01). World Health Organization.

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