

# Urmia's Last Drop: Reviving Hope for a Dying Lake

written by Parvin Aghayeva Pərvin Ağayeva

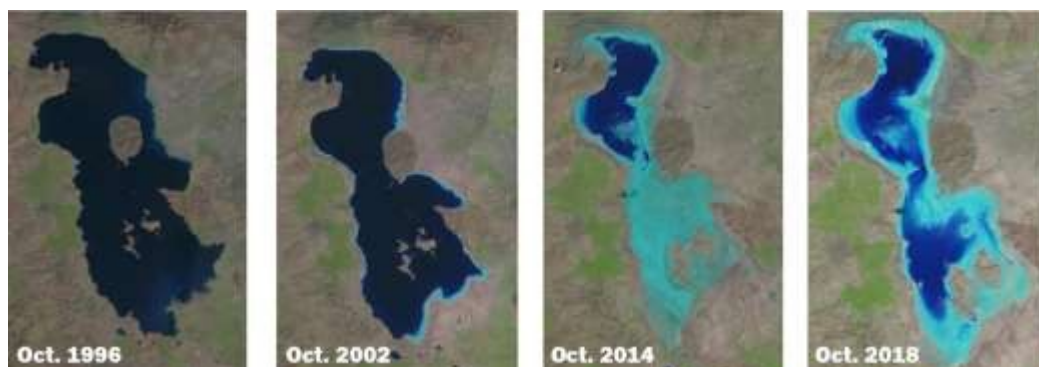
Urmia Lake is the largest wetland in Iran, but it is rapidly shrinking. As the water level dropped from 1277 meter in 1995 to 1270 meter in 2014, the salinity of the lake increased dramatically from 240 to 450 g/l during these years. Elevating the water levels up to at least 1274 meters above sea level leads to a reduction in salinity levels and revitalized the surrounding ecosystem (Bakhshianlamouki et al. 2020). With the hope of restoring Urmia Lake, the Iranian government launched the Urmia Lake Restoration Program (ULRP) and established a National Committee to oversee its implementation, dividing it into three phases:

1. From 2014 to 2016, the committee focused on immediate measures to stabilize and rejuvenate the lake's condition.
2. From 2017 to 2022, the committee aimed to implement further comprehensive strategies for sustainable water management and environmental restoration.
3. From 2023 to 2024, the committee will continue efforts to consolidate progress and finalize the restoration process.

The first phase aimed to stabilize the level of Urmia Lake by implementing mitigation projects in the lake basin. One of the significant threats to the degradation is agricultural exploitation by the local community (Shadkam et al. 2020). There are approximately 80.000 wells in the river basin, and half of them are illegally used. Therefore, the National Committee attempted to take firm measurements to control groundwater abstraction and irrigation channels. To achieve this target, throughout the first phase of ULRP, the national committee implemented 88 projects to address the efficiency of

water irrigation, which would prevent illegal irrigation, declining water in the agricultural sector, and transpiring water from other rivers. As a result, water use in the agriculture of the surrounding area has decreased by 40%, which equals, because of Urmia's large volume, the conservation of 45 percent of Iran's renewable water resources. This achievement provided proof of the sustainability of revitalizing the Urmia Lake basin during the first phase of the program (Abadi, 2019)

The second phase is called the *restoration period*, and its aim is the implementation of all possible solutions for Urmia Lake's water supply and the increase of its water level to 1271 meters between 2017 and 2022 (Salimi et al. 2019). During the restoration period, the program focuses mostly on reducing the impact of climate change. In fact, climate change has a central role in the degradation process, so ULRP aimed to control specific impacts of climate change, such as dust in 2017. In fact, dust due to climate change dramatically increased the desertification of the lake because of strong winds around the lake basin. To prevent proliferation and spread of dust, the committee oversaw the planting of halophytes, such as *Salicornia*, in semi-saline areas, and it implemented grazing control and animal protections. Consequently, by 2019, there was a marginal increase in water levels, recorded at 1271 meters (FAO 2017). This upward trajectory in water levels underscored the program's positive impact in its endeavor to revive the Urmia Lake ecosystem.



Satellite photos of Urmia Lake from 1996 to 2018 (Schmidt et

al. 2021, 3).

Undeniably, the ULRP program brought certain benefits to the Iranian government, local municipalities, and the livelihoods of local people such as the increased water level of the lake and the control of illegal irrigation canals through the first phase and half of the second phrase (Danesh-Yazdi, and Ataie-Ashtiani 2019).

However, there is still much work ahead. A significant problem to be addressed is the apparent miscoordination between crucial ministries, specifically the Iranian Ministry of Agriculture and the Ministry of Energy. This miscoordination led to a blame game over the delays in achieving program outcomes. A notable instance was the Ministry of Energy's failure to fulfil its commitment to demolish more than 40.000 illegal wells. At the same time, the Ministry of Agriculture did not take measures to halt the expansion of dams. Regrettably, this inter-ministerial discord escalated tensions and resulted in inconsistencies during the execution of plans throughout the first and second phases. Because of the lack of coordination, agricultural land expanded from 480.000 hectares in 2012 to 530.000 hectares by 2017, a development that unmistakably contradicted the primary objective of the *Urmia Lake Restoration Program* (Sarabi, 2018).

The third phase aims to make *sustainable management* of the lake's current condition by reaching a water level of 1274 meters by 2024. The main issue that prevents the proper implementation of ULRP is financial deficiency. This prompted President Rouhani to seek financial assistance from international firms, a move that was fraught with challenges. Notably, Japan stepped in as a foreign contributor, committing a substantial \$3 billion to expedite the Urmia Lake restoration efforts.

Unfortunately, this partnership was cut short due to the sanctions reimposed on the Iranian government (IRNA 2018). In

response to this situation, approximately 100 Iranian parliamentary members took swift action by sending a letter to the highest authority in Iran, the Supreme Leader, Ayatollah Khamenei. The purpose of the letter was to seek permission to utilize Iran's National Development Fund to support the Urmia Lake Restoration Program. However, the speaker of the Iranian Islamic Consultative Assembly, Ali Larijani, in what some characterize as an unlawful move, refused to acknowledge the petition submitted by the MPs (Bakhshianlamouki et al. 2020). Nevertheless, the Rouhani administration persisted in issuing optimistic statements and commitments, in an effort to appease residents around the lake. But the administration never implemented practical though potentially difficult measures, such as restricting the flow of water from the Jaghatu Chay river to Tabriz, allocating the lake's water share for agricultural needs, or even altering cultivation methods in the region (Salimi et al. 2019).

The ULRP has brought environmental and social benefits, but there remain objectives to achieve to restore the lake fully. Hence, the successful execution of collaborative efforts, supported by a foundation of political stability, is of paramount significance in the preservation of the Urmia Lake and the preservation of livelihoods of local residents. The local population will unavoidably have to alter its lifestyle in terms of water consumption because Urmia Lake is not only for agriculture; it is the heart of the local ecosystem, a natural habitation of a range of migratory birds, precious fish types and endangered animals. This collective commitment not only addresses the needs and aspirations of the current generation but also considers the well-being and prosperity of generations yet to come.

## **Bibliography:**

Abadi, B. (2019). *How agriculture contributes to reviving the*

*endangered ecosystem of Lake Urmia? The case of agricultural systems in northwestern Iran. Journal of environmental management, 236, 54-67.*

Bakhshianlamouki, M., Saki, H., and Morid, S. (2020). *Lake Urmia Restoration and Sustainable Management: A Hydro-Political Analysis*. Journal of Hydrology, 590, 342-346.

Danesh-Yazdi, M., & Ataie-Ashtiani, B. (2019). *The Urmia Lake in Iran: How Long Can We Ignore the Environmental Disaster?* Land Degradation & Development, 30(3), 259-265.

Food and Agriculture Organization (FAO). (2017). *The Urmia Lake Basin: A Case Study in the FAO GIEWS "Short-Term Outlook on Dryland Crops and Food Supply Situation"*. Retrieved from <http://www.fao.org/giews/english/shortt.htm>

Islamic Republic News Agency (IRNA). (2018). *Lake Urmia Water Level Increases by 65 cm*. Retrieved from <https://www.irna.ir/en/News/82882956/Lake-Urmia-water-level-increases-by-65-cm>

Salimi, F., Karimi, P., & Golshan, M. (2019). *Evaluating Climate Change Impact on Hydrological Processes in a Semi-Arid Basin, Urmia Lake Basin, Iran*. Theoretical and Applied Climatology, 136(3-4), 1409-1424.

Sarabi, S. E. (2018). *Impacts of institutional arrangements on the adaptive capacity of the Urmia Lake basin (Doctoral dissertation, Master thesis, Institute for Housing and Urban Development Studies, Erasmus Univ. Rotterdam, 27-35.*

Schmidt, M., Gonda, R. and Transiskus, S., 2021. *Environmental degradation at Lake Urmia (Iran): exploring the causes and their impacts on rural livelihoods*. GeoJournal, 86, 2149-2163.

Shadkam, S., Ludwig, F., van Vliet, M. T. H., Pastor, A., and Kabat, P. (2020). *A Global Hydro-Economic Assessment of the Benefits of Climate Change Mitigation for Water Supply*. Nature

Communications, 11(1), 1-10.