



## Impact

The programme Strengthening the Lebanese Water and Agriculture Sector was designed to bring advanced Dutch expertise to Lebanon to improve the resilience of the water and agriculture sector. The influx of large numbers of refugees resulted in a heavy burden on the country's resources, institutions and hosting communities.

The programme has demonstrated the practical application of advanced knowledge in water utility management, groundwater management, water productivity in agriculture, water monitoring and pollution abatement. To improve groundwater management a demonstration project on Managed Artificial Recharge was designed. To improve water productivity in agriculture, a demonstration project was designed on the use of soil moisture sensors to optimize irrigation practices.

Four greenhouses were constructed to demonstrate innovative agricultural and water efficiency practices. The Litani River Authority was supported with an online water quality monitoring station for the river Litani and water quality monitoring and algae control buoys for Lake Qaraoun. These buoys use an innovative ultrasound technology to reduce algae bloom.

The performance of the Bekaa Water Establishment and the Litani River Authority was improved through Water Operator Partnerships with Waternet. The Dutch Expert Facility provided practical advice on the design and installation of waste water treatment installations for a range of industries, showcased Dutch expertise and further introduced the Dutch water sector to Lebanon. →

consortium partners:	<b>World Waternet, Acacia Water, Wageningen University and Research</b>
operational partner(s):	<b>Ministry of Energy and Water, Bekaa Water Establishment, Litani River Authority, Green Plan, Lebanese Agricultural Research Institute, Ministry of Environment, Council for Development and Reconstruction</b>
region:	<b>Country level</b>
permanent population:	<b>6 million</b>
area:	<b>10,250 km<sup>2</sup></b>
key challenges:	<b>Water scarcity Climate change adaptation IWRM approach Water productivity Environmental pollution Weak institutions</b>





## Activities

- Water Operator Partnership between the Bekaa Water Establishment and Waternet
- Supply of an online water quality monitoring station and monitoring- and algae control stations to the Litani River Authority.
- Demonstration project on Managed Artificial Recharge of aquifers
- Demonstration project on the use of soil moisture sensors in irrigation
- Construction of adapted greenhouses.
- Solutions on industrial waste water treatment and introducing Dutch companies through the Dutch Expert Facility.
- Training and capacity building activities have taken place throughout the programme.
- Gender equality in the Lebanese water and agriculture sector has been promoted



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## Future challenges

Lebanon, previously known as a country with abundant water resources, is now facing serious challenges in meeting the water needs of its inhabitants. Poor water demand management, uncontrolled groundwater abstraction, overuse of water in agriculture and heavy pollution are taking their toll. Climate change is expected to deteriorate the situation even further.

Water scarcity is a key issue that needs to be dealt with, starting with institutional reform and improving the institutions – a precondition for further support by the international community.

The Netherlands has made a difference by providing its practical knowledge and expertise.



Let's work together