



## Briefing note

June 2020

The Food and Agriculture Organization of the United Nations (FAO) is leading international efforts in the fight against hunger. Serving both developed and developing countries, FAO acts as a neutral forum where all nations meet as equals to negotiate agreements and debate policy. FAO is also a source of knowledge and information. It helps developing countries and countries in transition to modernize and improve agriculture, forestry and fisheries practices to achieve good nutrition for all. FAO Lebanon Programme is aligned with FAO's global Strategic Objectives. Lebanon was among the first countries to benefit from an FAO Country Office to strengthen the Organization's programmes on the ground. Established in 1977, the Office has sought to promote harmonious and sustainable development of the agricultural sector along with the national agricultural policy and in consultation with relevant ministerial departments.

## Sustainable water management

### Challenges of the water sector in Lebanon



Despite the favorable average annual rainfall precipitation in Lebanon, numerous constraints continue to hinder the development of the water sector. These include the degradation of the water infrastructure during 15 years of civil war, insufficient maintenance and investment in new infrastructure, and a sudden surge in population following massive displacement due to conflicts in the region. Agriculture is by far the largest consumer of freshwater resources, with 61 percent of total water consumption, followed by 30 percent for municipal use and 9 percent for industrial use.<sup>1</sup> With the deteriorating quality of surface water and the lack of adequate water networks, farmers are increasingly relying on groundwater sources. In addition to legal wells, it is estimated that up to 59 000 illegal/unlicensed wells are exploited in Lebanon, causing excessive groundwater depletion in addition to saltwater intrusion into coastal aquifers.<sup>2,3</sup>

According to the agriculture census data, the total irrigated agricultural area in 2010 was 113 000 ha, which represents half of the total utilized agricultural area (UAA). About one-half of irrigated area water is supplied from underground water and the other half from surface water. In addition, half of the UAA adopts traditional flooding techniques and the other half uses modern irrigation technology split equally between drip and sprinkler.

According to the 2017-2020 Lebanon Crisis Response Plan (LCRP), the demand for safe water access and wastewater management services has risen by 30 percent and contamination has reached two-thirds of the country's water resources.<sup>4</sup> In parallel, water networks remain unreliable with one in five households still lacking basic water connections and only 8 percent of municipal sewage effectively treated. The majority of collected wastewater is directly discharged into waterbodies or valleys without prior treatment. Industrial effluents, improper solid waste disposal and agricultural runoff further worsen the situation and contribute to the contamination and deterioration of water quality across the country. Poor water quality exacerbates environmental concerns and limits water availability in many regions. Lebanon's National Water Sector Strategy (2012), developed by the Ministry of Energy and Water (MoEW) as part of better water management, highlighted the importance of improving wastewater treatment and effluent quality through a number of planned initiatives such as the revision/update of wastewater treatment and effluent standards, the revision and adoption of draft standards for wastewater reuse in agriculture and sludge reuse, and the implementation of wastewater effluent monitoring systems. In parallel, and as part of its 2015-2019 strategy, the Ministry of Agriculture (MoA) is planning to modernize the irrigation system in Lebanon and promote the use of alternative water sources such as treated wastewater in agriculture for the efficient use of irrigation water.

1- National Strategy for the Water Sector- Ministry of Energy and Water (2010)

2- ELARD & NLWE, Hydrogeological Study of Akkar Caza and Assessment of Well Siting – Phase I, 2016

3- UNDP, Assessment of Groundwater Resources of Lebanon, 2014

4- Lebanon Crisis Response Plan 2017-2020



One of FAO's strategic objectives focuses on promoting the sustainable management of land, forest and water resources, particularly in the context of climate change. With respect to sustainable water resources, FAO has committed to increase its efforts to improve integrated water management practices and modernize irrigation infrastructure in collaboration with the Ministry of Energy and Water, the Ministry of Agriculture, the Ministry of Environment and Non-Governmental Organizations operating in the sector. FAO Lebanon is currently implementing a project entitled "Improved Water Resources Monitoring System/Integrated Water Resources Management at regional level in Lebanon". Funded by the Swiss Embassy, this project focuses on the implementation of a new monitoring system, which collects more reliable and timely water data about Naher El-Bared Watershed in Menieh and Akkar, thereby enabling Lebanon's water management institutions to improve their performance at the regional level and helping the sector address the challenges to the sustainable use of water resources.



Moreover, FAO is implementing a project entitled "Rehabilitation and waste management of El-Bared Canal Irrigation System to reduce source-to-sea pollution and improve livelihoods in the Akkar region of Lebanon". Funded by the Norwegian Embassy, this project aims to minimize the discharge of waste from El-Bared irrigation canal system to the Mediterranean Sea. This will be done through the local community enabling them to improve their livelihoods and through better management of solid waste disposal and rehabilitation and cleanup of the irrigation canal system. Both projects aim to directly support MoEW and the North Lebanon Water Establishment (NLWE).

FAO is also implementing a regional project on "Implementing the 2030 Agenda for water efficiency/productivity and water sustainability in Near East and North Africa (NENA) countries". In Lebanon, the project is implemented in close collaboration with the Ministry of Energy and Water and the Ministry of Agriculture, funded by the Swedish International Development Cooperation Agency (SIDA). It focuses on (i) adopting international standards and scientifically sound "water accounting systems" based on remote sensing (RS) and (ii) increasing water irrigation efficiency and productivity to be in line with the SDG 6.4.

Under the water accounting component, a rapid water accounting assessment (RWA) has been implemented taking the Naher El-Kalb River Basin as a pilot study. This basin is known for its representativeness of the western watersheds, the multiple uses of water, the presence of stakeholders and the combination of urban and peri-urban areas including in higher altitudes agricultural activities. An advanced water accounting exercise for the same pilot area will complement this RWA, while a roadmap with the stakeholders' participation is being prepared.

Under the water productivity component, two farmer field schools (FFS) have been established in the Akkar Governorate in northern Lebanon to support farmers cultivating tomatoes under greenhouses to adopt good agricultural practices (GAP) and integrated pest management (IPM), and to increase water use efficiency and water productivity. This activity is implemented in partnership with CONCERN Worldwide, an international non-governmental organization. Fifty farmers are enrolled in these FFSs, and twelve experimental plots have been established. Farmers have regularly attended awareness and practical sessions provided by skilled, FAO-trained facilitators. A practical manual/guide to vegetable production under greenhouse will be prepared and translated into Arabic.

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### For more information

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