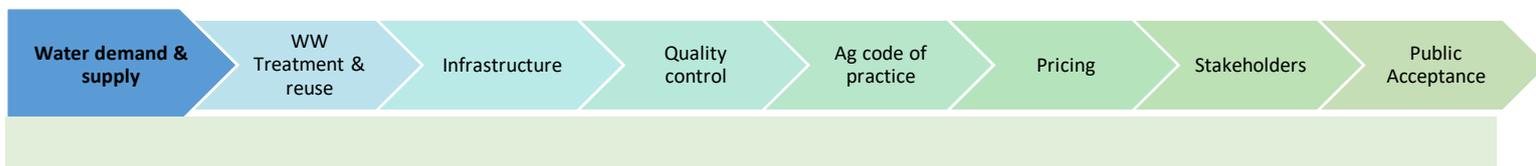




## The Success Story of Cyprus

### Fact Sheet 1 - Water demand and supply: facts and figures



#### KEYS FOR SUCCESS – Lessons learned from the success stories of Cyprus and Israel

SUWANU EUROPE is a H2020 project aiming to promote the effective exchange of knowledge, experience and skills among practitioners and relevant actors on the use of reclaimed water in agriculture. This factsheet is part of a total of 17 factsheets that describe the successful reclamation practices of Israel and Cyprus in order to learn and boost implementation of solutions adapted to the European context. Our ultimate goal is to enhance acceptance and awareness to an alternative source of an increasingly scarce resource, water.

Cyprus, an island country located in the eastern Mediterranean Sea, has a semi-arid climate that offers mild winters and hot dry summers because of the varying topographic characteristics arising from the island’s mountainous terrain. It has a total land area of 9254 km<sup>2</sup>. The annual temperature in the country ranges from 14 to 17 °C during the winter period and 30 to 37 °C during the summer. The wet season extends from November to March, with approximately 60% of the rainfall between December and February. The average annual precipitation is 480 mm, with the highest and lowest values being recorded in the higher altitudes of the Troodos Mountains (1100 mm) and in the eastern coast (300 mm), respectively (Figure 1).

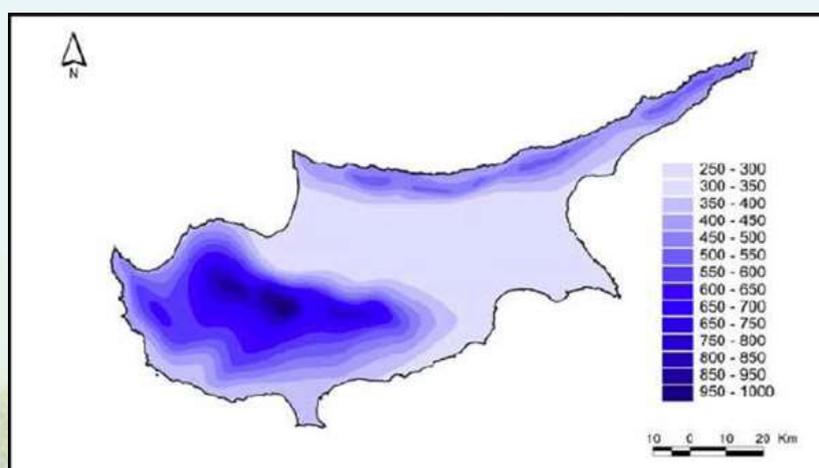


Figure 1 - Annual rainfall in Cyprus  
(Source: Cyprus Water Development Department, 2019)

Agriculture and domestic utilization are the main economic sectors of water demand in Cyprus. Agriculture is likely to encounter the most serious threats due to water scarcity, as it is the major consumer of water in Cyprus (Christou et al., 2017). Water demand for irrigation (agriculture and landscape) is around 160 million cubic meters (MCM) (59% of the overall water demands), while 29% of the overall water demand is for domestic use, 5% for tourism, 3.3% for livestock farming and 3% for industrial use.

Dams and desalination provide 85-90% of the total drinking water, while up to 40% of irrigation water is provided by dams and water recycling (Figure 2). Groundwater serves 10-15% of the total drinking water and up to 60% of the total irrigation water. However, it should be noted that groundwater aquifers which used to be the most obvious and easily accessible water source in the country, are highly overexploited and deteriorated.

Moreover, piezometric levels decrease rapidly, resulting in seawater intrusion with water quality effects such as increase of salinity of ground water along coastal areas.

Thus, the increasing water demand for both irrigation and human consumption has led to the development of large infrastructure projects, such as:

- the construction of over 100 dams with total storage capacity of 332 MCM of water;
- urban wastewater treatment plants/water reclamation plants (UWTPs);
- water reallocation projects (e.g. large-scale water distribution networks and drilled boreholes for domestic and irrigation purposes) to store, process and transfer water throughout the island and specifically to supply adequate irrigation water to agricultural areas.



Picture 1 – Image of an irrigated field area with reclaimed water in Nicosia, Cyprus

Furthermore, several agronomic and policy measures have been adopted towards the alleviation of the irrigation water demand, with the most important being the reuse of reclaimed water for irrigation (Picture 1), the extended use of advanced irrigation systems and the adoption of the recycling nutrient solution in greenhouses.

Another set of action measure taken by the Cyprus government to help alleviate the increasing problem of water scarcity and to eliminate the dependency of the domestic water supply on annual rainfall was:

- To proceed with the construction of seawater desalination plants. Consequently, at present, these contribute up to 72 MCM per year. However, the desalinated water production varies according to the domestic water abstracted from dams per year (Figure 2).
- To replace freshwater used in agriculture by tertiary-treated urban wastewater effluents. Reclaimed water is used to satisfy part of the existing irrigation needs. Today, 15% of the irrigation needs are covered by reclaimed water, and in 2025 it is expected to cover 25% of the irrigation needs.

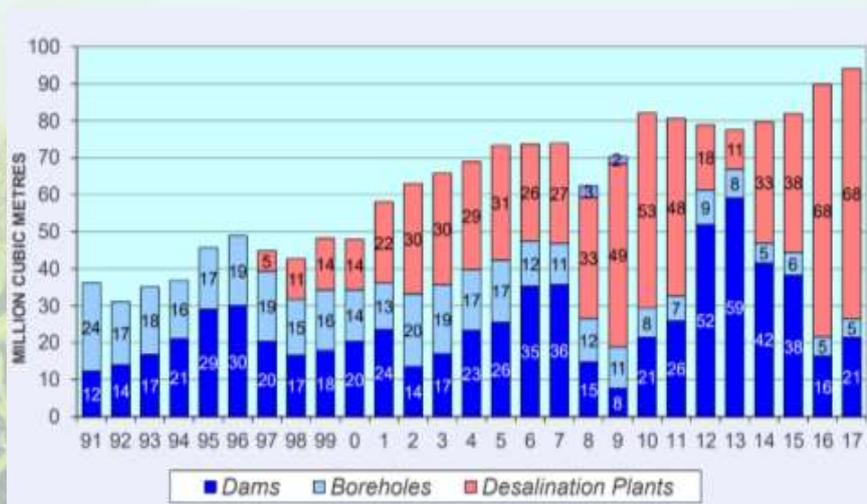


Figure 2 - Drinking water supply from Governmental Water Works (1991-2017)  
(Source: Water Development Department, 2019)

## CLOSING REMARKS

The water demand in Cyprus exceeds the overall water supply, and as a result various important centralized agronomic, infrastructure and policy measures have been adopted towards the alleviation of the overall water demand. The most important measures concern the creation of dams, the utilization of existing and creation of new boreholes and reservoirs, desalination plants, the reuse of reclaimed water for irrigation and the extended use of advanced irrigation systems and recycling of nutrients in greenhouses.

An organized, centrally-governed framework that combines all of the above water stress-mitigation measures, achieves the successful management of the water supply in a manner that serves the needs of urban and agricultural areas, even under conditions of high water stress.

## REFERENCES:

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