

The increasing use of desalination in the Balearic Islands: 25 years of up and down

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Abstract

The increase on population pressure (local and visitors) and several drought periods during the 80's and 90's of the past century led to an expansion of desalinated water production in the Balearic Islands. This non-conventional resource has been used as the key resource to face drought management. The Balearic Islands has eight desalination plants (three in Mallorca and in Ibiza, one in Formentera and one in Menorca) with a potential production of 55 million of m³/year. During dry periods the production increased substantially (i.e.: 2000-01, 2004-08 and 2016-17) and decreased during wet periods (i.e.: 2009-15 and 2018). This up and down in the water production was mainly due to the more expensive water cost in comparison with the groundwater. In fact, groundwater is the main source for domestic water consumption in the archipelago (77% of a mean water consumption of 102 million of m³). Only two islands have shifted from groundwater to desalinated water. Formentera is totally supplied with desalinated water; and in Ibiza consumption of desalinated water surpassed groundwater in 2019 being now 63% to 37%, respectively.

The use of the desalination in the Balearic Islands as a hard innovation has positive and negative benefits. It has enabled the water administration to better manage the droughts although the supply network connected to the desalination plants does not reach the whole territory, especially in the islands of Mallorca and Menorca. The production of desalinated water has economic and environmental impacts and it needs to keep a higher production rate even during wet periods in order to protect overexploited aquifers. The high cost of this water has caused a reduction in water losses in the municipalities of Ibiza.

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