



Sustainable management of brine effluent from desalination plants: the SOL-BRINE system

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ABSTRACT

Desalination comprises a non-conventional water resource practice that is currently gaining importance internationally for filling the gap in the water balance. Even though it is a well proven technique, it is associated with certain economic considerations (high energy consumption) and environmental concerns regarding brine management: around 2 L of wastewater are generated for every liter of freshwater produced. The high concentration of salts in this wastewater can create serious disposal problems. The SOL-BRINE project sought to eliminate water pollution and environmental damage associated with brine release, by introducing a new technique capable of achieving zero liquid discharge from desalination plants. The demonstration plant that is presented in this paper was installed at Agios Fokas area, Tinos Island in Greece in October 2012 and has been operated regularly since January 2013. The plant has the capacity to treat over 200 tons of brine per year.

Keywords: Brine treatment; Desalination; Zero liquid discharge (ZLD); Solar energy; Mediterranean Sea; Tinos Island

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