

Water resources management to satisfy high water demand in the arid Sharm El Sheikh, the Red Sea, Egypt

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Received 1 October 2007; accepted revised 27 July 2008

ABSTRACT

Sharm El Sheikh (Sharm) in South Sinai, Egypt, is situated in an area of extreme aridity (annual rainfall between 20–50 mm/y). It has been undergoing rapid development and attracts about one million tourists annually which results in an ever-increasing demand for water. The main source of water is desalinated seawater produced by two government-owned reverse osmosis (RO) plants, two centralised privately-owned RO plants and by about 50 decentralised small RO plants in hotels. The government-owned RO plants sell water to the local residents at a very low subsidized price while the two centralised private RO plants (owned by two different companies) charge commercial rates and raise prices considerably in the summer periods of high water demand. For all the plants, there are concerns over high energy consumption and the impact of brine discharge on the environment. Other sources of water in Sharm include tankers and pipes delivering groundwater from Al Tor (100 km distance) and treated domestic wastewater for landscape irrigation. The Egyptian Environmental Affairs Agency (EEAA) is not regulating and monitoring water management sufficiently. Increasing water shortages and price rises as well as environmental degradation would impact the tourism industry. This paper describes the current water resources management practices in Sharm, and outlines simple strategies which could be undertaken to improve the situation.

Keywords: Desalination; Wastewater reuse; Integrated water resources management; Tourism; Water demand; Reverse osmosis

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