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Ouda, O.K.M.

Domestic water demand in Saudi Arabia: assessment of desalinated water as strategic supply source
(2015) *Desalination and Water Treatment*, 56 (11), pp. 2824-2834. Cited 6 times.

Abstract

Kingdom of Saudi Arabia (KSA) is the largest desalinated water producer in the world, and it currently produces about one-fifth of the world productions. KSA government considers seawater desalination as the strategic option to alleviate water scarcity problem, and to meet the country's ever-growing domestic water demand. This research reviews the KSA desalination industry performance since inception to date; forecasts desalination water demand up to year 2040 in the context of three scenarios optimistic, moderate, and pessimistic; discusses the future of desalination industry as a strategic domestic water supply source and highlights its challenges. Results show that KSA will need about 2.0, 3.2, and 4.5 billion m³/year of desalinated water in the year 2040 based on optimistic, moderate, and pessimistic scenarios, respectively. The review of Saudi initiatives shows that KSA government effectively considered seawater desalination as strategic option, and implemented a comprehensive set of initiatives to realize this option. Moreover, the on-going desalination industry initiatives, coupled with some improvements, will satisfy the desalinated water demand on short-term basis. However, the long-term ability of desalination industry to meet the ever-increasing domestic water demand remains a valid concern, especially, if the moderate or pessimistic scenario is realized. © 2014 Balaban Desalination Publications. All rights reserved.

2-s2.0-84946429820

Document Type: Article

Publication Stage: Final

Source: Scopus