

Documents

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Long-term desalinated water demand and investment requirements: A case study of riyadh
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Abstract

The Kingdom of Saudi Arabia (KSA) is situated in an arid region and faces a chronic challenge to meet its increasing water demand. Riyadh is the capital of KSA and home to about six million people. The water demand is mostly met by groundwater resources (up to 48%), while the desalination plants cover the rest of the water supply requirements. There is a potential risk of a significant gap in water demand–supply due to the retirement of old desalination plants. This study, therefore, developed a probabilistic model to forecast desalinated water demand in Riyadh for domestic purposes up to the year 2040 based on three scenarios: low growth, the most likely (mean), and high growth scenario. The results showed that an investment of about US\$6.24, 11.59, and 16.04 billion is required to meet the future domestic water demand of the city for the next 25 years based on low, mean, and high growth scenarios, respectively. Moreover, a strong commitment to public–private partnership is required to remove the fiscal budget burden related to the desalination along with public awareness campaigns to reduce per capita water consumption, upgrading the water tariff system and using renewable energy to run desalination plants. © 2018, IWA Publishing. All rights reserved.

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