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Domestic water demand challenges in Qatar
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Abstract
Qatar is an arid country with limited water resources due to the low amount of rainfall it receives. With no surface water and an average annual rainfall of 80 mm per year, Qatar relies upon desalination to meet the increasing domestic water demand. The average annual rainfall recharge is around 60 million m3, whereas the total groundwater abstraction is 250 million m3 per year. As a result, groundwater level drops dramatically, thereby inducing brackish water upconing and saline water intrusion. Desalination provides 99% of domestic water demand, which increases continuously as a result of the influx of migrants into the country. The current capacity of desalination plants in Qatar is around 540 million m3 per year. Around 30% of this volume is being lost as a result of leakage in the water system network, and the rest is used for domestic purposes. This paper discusses three different scenarios of water demand until the year 2040. The results of these scenarios show water demand will vary between 516 and 2718 million m3 in the year 2040, depending upon the various trends in population growth, and assuming the current per capita of 500 l/day. The results of this study highlight the need for water rationing and conservation and may help the planners of future water demand. © 2017, Saudi Society for Geosciences.

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