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Managed aquifer recharge using quaternary-treated wastewater: an economic perspective

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Abstract

An excess of 31 million m^3/y of tertiary-treated wastewater is expected in Muscat, Oman, by 2015. This paper addresses the technical and cost estimation of managed aquifer recharge after reverse-osmosis treatment. The results indicate that the project is appealing from an economic perspective. The total cost varies between USD 0.353 and USD 0.550 per cubic metre, depending on the cost of electricity, the interest rate and the life span of the project. The project may face rejection from domestic users, who may be unwilling to accept mixing treated wastewater with the current water supply due to health risks. An alternative to indirect potable reuse is the installation of a separate network to service industrial users.

Keywords::

managed aquifer recharge | treated wastewater | capital cost | operating and maintenance cost | reverse osmosis | Oman

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