

Evaluation of Groundwater Suitability for Irrigation Purposes: A Case Study for an Arid Region

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Abstract : The objective of this study was to assess the suitability of Madinah city groundwater for irrigation purposes. Of the twenty three wells that were drilled in different locations in the city for the purposes of this study, twenty wells were sampled for water quality analyses. The United States Department of Agriculture (USDA) classification of irrigation water that is based on Sodium hazard (SAR) and salinity hazard was used for suitability assessment. In addition, the residual sodium carbonate (RSC) was calculated for all samples and also used for irrigation suitability assessment. Results showed that all groundwater samples are in the acceptable quality range for irrigation based on RSC values. When SAR and salinity hazard were assessed, results showed that while all groundwater samples (except one) fell in the acceptable range of SAR, they were either in the high or very high salinity zone which indicates that care should be taken regarding the type of soil and crops in the study area.

Keywords : irrigation suitability, TDS, salinity, SAR

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