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Application of ERT Survey for Addressing the Issues of Urban Rain Storm Water Logging in the Qassim Province of Saudi Arabia

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ABSTRACT

The Qassim province is one of the most arid regions of Saudi Arabia, however heavy rainfall events have led to water logging problems in the populated centers like Buraidah mainly as a consequence of construction in low lying areas and valleys. Urban rain storm water logging problem were reported at 4 localities in the Buraidah Municipal area after heavy rainfall in November 2008 and March 2009. The logged water from these sites were directed to 4 manmade lakes however the stagnant water in these lakes posed a serious environmental threat mainly in the form of water borne disease. Keeping this problem in mind, a detailed geophysical investigation in the form of Electrical Resistivity Tomography was carried out using the SYSCAL Pro Unit at these 4 locations with a dipole-dipole configuration. The survey was helpful in delineating the wet zones from the dry ones and based on the interpretations the optimum depth and sites of 4 injections bore-wells were determined at each locality. These injection bore-well would serve the dual propose of getting rid of the stagnant water in these lakes and also recharging the underlying aquifers.

KEYWORDS

Qassim; Arid Regions; Water Logging; ERT Survey; Aquifer Recharge

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