Assessment of Groundwater Quality at Selected Location of three Wells and Al-Warrar Canal, Ramadi City, Iraq.

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Abstract

To classification groundwater quality in the study area, three wells were drilled at a depth of 10m and selected two locations across Al Warrar Canal to represent their water quality. Water samples were collected from these wells and the Warrar Canal to examine water quality. Then results were compared against the World Health Organization (WHO) limits to study the Index of Water Quality (WQI). WQI was calculated according to the Canadian Council of Ministers of the Environment (CCME), and the quality of water was evaluated for domestic and irrigation uses. The samples were tested for electrical conductivity, pH, temperature, total dissolved solids, chloride, total hardness, nitrate, and alkalinity according to the standard methods. The results of laboratory analysis showed significant differences among the wells and Warrar Canal water quality in the measured parameters according to WHO limits. Due to many human activities like urbanization, agrarian overflow, drainage of untreated sewage, and industrialization, high values of trace elements and heavy metals were recorded in wells three. For agriculture purposes, the results show that the water in the three wells is very high salinity, where the Warrar Canal is high salinity, and Canal water causes saline and alkali damages. It was recommended that the WQI in three wells was poor water quality whereas, marginal water quality was pointed in AL Warrar Canal.