

Assessment of groundwater quality to estimate its suitability for different uses in Siwa Oasis, Egypt

ISMAIL ESAM¹ AND FAID ABDALLA²

¹Department of Geology, Faculty of Science, Minia University, El-Minia, Egypt

²National Authority for Remote Sensing and Space Sciences (NARSS), Cairo, Egypt.

Email: essam.ismail@mu.edu.eg

Overpopulation of Egypt has put pressure on the government for horizontal expansion for food security. Therefore, horizontal expansion in the desert for agricultural purposes is one of the solutions; the groundwater is the main source of water for this. In this study we evaluate the groundwater for different uses. 39 groundwater samples were collected from the study area during 2013, and were subjected to analysis for chemical characteristics. These data has been used to preliminary evaluation of suitability of groundwater for drinking and irrigation purposes by comparing those parameters with world health organization (WHO) standards and Egyptian standards.

Majority of the collected water samples are unsuitable for drinking due to its high salinity and high concentration of iron and manganese. About 82% of the studied water samples which collected from the study area had total hardness ranged between hard and very hard which unsuitable for industry. According to salinity index, SAR, Na%, magnesium hazard and Kelley ratio most of the collected groundwater samples are unsuitable for irrigation purposes.