Investigating the Effects of Land Use Change on Quantitative and Qualitative Parameters of Groundwater (Case Study: Mehran Plain- Ilam)

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Abstract

Today inappropriate land use/cover changes due to the growing population of the world are one of the issues that have several consequences. The relative impacts of different types of land use/cover on the groundwater quality are not known yet which should be considered with more details. This study was mainly aimed to investigate the influence of land use /cover changes on the groundwater quality and quantity. The study area covers an area of 317 km² in Mehran plain southwest of Ilam province. Landsat satellite images of 2002 and 2015 were used for mapping the land use/cover layers. Different water parameters of EC, TDS and TH were analyzed to conduct the changes in groundwater quality during 2000-2015. The results of this study showed that the land uses/cover were changes, especially increasing residential land and irrigated agriculture in the northwest and the west of the region. Reducing groundwater quality and quantity could be because of overutilization of groundwater and also using fertilizer for agriculture. This condition will be required a comprehensive management program in the study area.

Keywords: Remote sensing, Satellite imagery, Groundwater quality and quantity, Land use/cover, Mehran plain.

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