



THE POLLUTION OF WATER RESOURCES IN THE ESKISEHIR REGION WITHIN THE PORSUK RIVER BASIN, TURKEY

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Abstract

Study area is about 500 km² including Eskisehir city center. Recently, industry in the region has been developing accelerated rate. Quality problems in surface and groundwater in the Eskisehir plain are investigated regarding organic elements. Irrigation and usage water (after treatment plant) are supplied by Porsuk River, which flows throughout Eskisehir. Drinking water is supplied from some springs, which are situated in rural. However, especially in the summertime, groundwater has been exploited to supply irrigation and drinking demands which less than first. Porsuk River flows towards Porsuk dam's reservoir at 25 km far away from Eskisehir has been polluting by industrial activities such as Nitrogen Fertilizer Factory, Sugar-beet Factory, and Magnesite Factory in Kutahya, which have no, or insufficient treatment plants. This high-contaminated water forms eutrophic environment by means of natural subsidence, which causes high phosphorus and nitrogen in downstream flow. The quality of Porsuk River has been deteriorating by agricultural and industrial activities in the downtown as it flows relatively clean between Porsuk dam's outlet and Eskisehir entrance except phosphorus and nitrogen. Porsuk River, which flows throughout the alluvium aquifer in the Eskisehir plain, is only one of the sources that pollute the groundwater system. Other contamination sources of groundwater are heavy agricultural and industrial activities, additionally, the unsanitary waste disposal area at south of the city. The main objective of this study is to understand the degree of the influence of contaminant sources and to determine the changes in groundwater quality after the sewage system being runned. For this purpose, 28 water samples, chosen by taking into account to represent for the locations of the pollution sources, were analyzed with respect to organic materials in wet and dry period of 2001. According to obtained results, it has been determined extremely high quantity of phosphorus, nitrogen and sulfide compounds. Groundwater in the study area is not suitable for drinking according to standards of Turkish, European Union (EU), and World Health Organization (WHO).

Keywords: groundwater, contamination, nitrogen, drinking water, Porsuk River

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