

THE EFFECTS OF CHANGE IN GROUNDWATER QUANTITY ON GROUNDWATER QUALITY

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EXPERTISE THESIS ABSTRACT

Groundwater can be seen as a common pool that different users have to share it and whose refreshing process takes long times. This groundwater resource is not only related with groundwater quantity issues, but also groundwater quality. Thus, groundwater should be assessed in view of quantity and quality together.

In this context, it is a must that some criterion and decisions for a sustainable management of groundwater in the scale of regional or local should be established to cope with the problems faced with the supplying of requested quality and quantity of groundwater sources in a requested time and space. The contribution of groundwater to the use of water sources in agriculture, human consumption/use, industry and energy is quite high. The problems faced with the water sources make the governments to develop policies on common strategies about these problems. At this point, Water Framework Directive (WFD 2000/60/EC) should be seen the most important document which has been come to the agenda of our country by the accession of Turkey to the European Union processes. WFD requires that all inland and coastal waters within defined river basin districts must reach at least good status and defines how this should be achieved through the establishment of environmental objectives and ecological targets for waters. By-law on Protection of Groundwater Against Pollution and Deterioration including the provisions of Groundwater Directive as well as related provisions of Water Framework Directive it a keystone for groundwater management issues in Turkey. The By-law established criteria to assess the chemical status of groundwater bodies that are object to natural and anthropogenic pollution. In this scope, the initial implementations of the By-Law, which are on determination of groundwater bodies, usage of groundwater, quantitative pressures, anthropogenic pressures and determination of pollution trends in view of natural background levels (NBL) will be approached in a complementary way.

The main purpose of the thesis are as follows: to make the detailed definitions of formations types and characters that contain groundwater, to present the factors that affect the quantity of groundwater, to reveal the effects of the quantitative variations on groundwater

quality and to make some suggestions. In this point, in the thesis, firstly hydrogeological parameters are touched on, then the risks that arise from the behaviors of main factors that affect the quantity of groundwater and main parameters that affect the quality of groundwater are examined. Finally some problems and suggestions related to the subject are mention.

Key Words: Groundwater, Groundwater Management, Water Framework Directive, Groundwater Directive, Natural Background Level