

## **Methodology and Experience of Regional Groundwater Resources Assessment**

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At present, groundwater is one of the main water sources in many European countries: in Austria, Belgium, Hungary, Germany, Denmark, Romania, Switzerland, and the former Yugoslavia groundwater accounts for more than 70% of the total public water supply, and in Bulgaria, Italy, the Netherlands, Portugal, France, the Czech Republic, and Slovakia groundwater contribution ranges from 50 to 70%. In the USA, groundwater is the source for 75% of municipal water supply systems that provide the drinking water for more than a half of the country's population. Groundwater plays a great role in the water supply of China, Yemen, Saudi Arabia, Tunisia, Libya, and some other countries of Asia and Africa.

Experience of regional assessment and mapping of groundwater resources, including results of IHP UNESCO's projects, are considered in the paper. On the basis of these main tasks for future groundwater quality investigations are formulated. There are:

- to improve the available and to elaborate the new methods for quantitative assessment and mapping of groundwater natural resources and groundwater vulnerability to pollution considering migration properties of the vadose zone;
- to develop and put into practice natural protection criteria which determine the acceptable impact of groundwater withdrawal on other components of the environment, and also the acceptable effect of anthropogenic activities on groundwater resources availability and quality;
- to perfect the available and to develop new methods for predicting changes in groundwater resources and quality under intensive anthropogenic activities and possible climate changes;
- to perfect methods of artificial groundwater recharge and to use them more widely in active well fields;
- to develop scientifically proven recommendations for international groundwater resources assessment and use.