Transboundary groundwater resources of Serbia - present status and future needs for sustainable management

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Republic of Serbia is located at the crossroads of Southeast and Central Europe and belongs to the Central Balkans. With its 88,360 km2, Serbia is one of the larger countries of the Balkan Peninsula. It borders 8 countries and has at least one transboundary aquifer (TBA) with each of them. According to evaluation conducted for UNECE in 2008, Serbia has a total of 17 TBAs, out of which 15 are shared with one neighboring country, while two aquifers are shared with two or three neighboring countries. Concerning hydrogeological settings, Serbia has 5 karst TBAs, 5 intergranular TBAs, 4 fissure TBAs and 3 TBAs defined as a hydrogeological complex. The knowledge of hydrogeological characteristics of TBAs is diverse, especially when it comes to common hydrogeological research under cross-border cooperation and research. However, only two TBAs were studied in detail within the framework of joint research of specialists from neighboring countries. These are the intergranular TBA in the north of the country, which Serbia shares with Hungary, and the karst TBA in the southeast of the country, which Serbia shares with Bulgaria. Some studies have been conducted for the purpose of defining deep transboundary hydro geothermal systems within the Pannonian Basin shared by several countries of central and south Europe. The knowledge on current status of TBAs in Serbia is not at a satisfactory level. First and foremost, there is inaccurate delineation of TBAs, groundwater data are not harmonized with neighboring countries, common approach regarding sustainable groundwater exploitation has not been established yet, and there is absence of systematic groundwater monitoring. Although in recent years there has been achieved progress in the process of development of the groundwater monitoring network in Serbia, it is necessary to establish a joint water management body with the neighboring country(ies), which will sustainably manage transboundary groundwater resources. Support from the international commissions for protection of river Danube (ICPDR) and Sava (ISRBC) should help in creation of such body. Similarly, results from announced DIKTAS 2 projects would help to create a better platform for managing karst aquifers in the western part of country bordering with Montenegro and Bosnia & Herzegovina. As a prior step, is needed to: precisely delineate TBAs, establish proportional continuous groundwater monitoring along the borders, determine groundwater reserves in terms of sustainable exploitation, define water demands of local population and harmonize hydrogeological data of the countries that share groundwater.

Key words: transboundary aquifers, Serbia, groundwater monitoring, groundwater management

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