

Karst Aquifer Vulnerability Assessment (KAVA) Method on the example of two catchments in Croatia
Abstract n°1893

Biondic Ranko, Varazdin, Croatia

rbiondic@gfv.hr

Measki Hrvoje, University of Zagreb, Faculty of Geotechnical Engineering, Varazdin, Croatia

Biondic Bozidar, University of Zagreb, Faculty of Geotechnical Engineering, Varazdin, Croatia

KEYWORDS: karst aquifer, vulnerability assessment KAVA method, Croatia

During 2013-2016, within the GEF UNEP MAP and UNESCO-IHP's MedPartnership Project, a new method for assessing the intrinsic vulnerability of catchments and springs in karst terrains was developed. The Karst Aquifer Vulnerability Assessment (KAVA) method was developed based on the analysis of parameters and experience from the fieldwork and protection system of karst areas in Croatia. For assessing of the intrinsic vulnerability of karst aquifers are used four basic factors- Overlay, Precipitation, Infiltration and Aquifer conditions. The overall result of the analysis is presented with two indices of vulnerability- SV index (source vulnerability index) – for karst springs vulnerability, and RV index (resource vulnerability index) – for karst aquifers vulnerability. Within this paper will be presented results of using this method at two very complex karst sites in Croatia, one large and one small catchment. Both catchments belong to the Adriatic Sea catchment and have discharge at the northern coastal area of the Adriatic Sea. The first site is the Novljanska Žrnovnica catchment, which is one of the largest karst catchment in Croatia. Part of this springing zone is fed from the Gorski kotar sinking zone, part from the mountain area in the hinterland of the main spring, and part from the Lika sinking area. The main spring Novljanska Žrnovnica is captured for the public water-supply. The second site is the Bakar Bay catchment area that occupies area of about 156 km². This catchment area spreads from the discharge zone towards the mountain region of the Gorski kotar. However, in this discharge zone are captured even three springs for the public water supply. These four springs water quality and quantity are very important for the very wide coastal touristic area especially during the tourist season. Sanitary protection zones of these springs were defined, and the use of the intrinsic vulnerability mapping as the KAVA method can contribute to the groundwater protection as an additional data which should be used for updating of the protection zones.

