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Editorial Board
Croatian Geological Survey,
P.O. Box 268
HR-10000 Zagreb, CROATIA
Phone: +385(1)8190-811, -775, -786
Fax: +385(1)8144-715
editorial.office@geologia-croatica.hr

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Correspondence: Croatian Geological Survey, Sachsova 2, P.O. Box 268, HR-10000 Zagreb, Croatia

Phone: (+385) 1 6160 888

e-mail: editorial.office@geologia-croatica.hr

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Karstic sources of water supply for large consumers in Southeastern Europe – sustainability, disputes and advantages



Zoran Stevanović¹ and Romeo Eftimi²

¹Department of Hydrogeology/Centre for Karst Hydrogeology, Faculty of Mining & Geology, University of Belgrade, Djušina 7, Belgrade, Serbia; (zstev@cunet.rs)

²ITA Consult, Tirana, Albania; (eftimi@sanx.net)

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ABSTRACT

Southeastern Europe is known worldwide as classic karst terrain. In the Alpine orogenic belt the karstified carbonate rocks are either dominant, as in the Dinarides, or widely distributed, as in the Carpathian-Balkans, Hellenides or Pindes. Concerning karstic groundwater resources, this region is by far the richest in all of Europe. Some areas, such as southern Montenegro, are characterized by an intensive and high precipitation affecting the water balance. In several countries in the region, water supply from karstic aquifers prevails. There are very large cities with populations of over a half million that depend on a water supply from karst aquifers. Among them are five capitals.

Tapping large springs is the traditional method of water supply in the region but the main concern is their unstable discharge regime. This is why many aquifer control projects have been prepared or proposed in the region, particularly in the Mediterranean coastal area. Unfortunately, few have been executed and completed. Even some springs have been abandoned and water supply reoriented towards surface waters or alluvial aquifers. In contrast, with the tapping of the large sublacustrine spring Bolje sestre in Montenegro, the largest of the projects concerning regional water supply in karst is currently being implemented. Some 1.5 m³/s of the water from the Skadar basin will supply the coastal zone. It is expected that this project, essential for the national economy, will be completed in 2011. Some other proposed large projects such as overseas karstic spring water transportation from Albania to Italy are still under evaluation. However, large and rich karstic reservoirs in this part of Europe should remain a reliable source for water supply in the future despite some possible negative impacts of climatic variation. There is, in fact, the prospect of and interest in exporting and supplying water to both neighbouring and remote areas.

Keywords: karst, aquifer, water supply, groundwater control, SE Europe

1. INTRODUCTION

When one talks about southeastern Europe (SEE), the first thing that comes to mind may be its beautiful sea, mountains and karst. The Dinaric Kras in the central part of the SEE is a typical area for dissolution landforms and aquifers; the regional names kras, crasso, Germanicised as “karst”, are now

applied to modern and palaeo-dissolution phenomena worldwide, thanks mostly to Jovan Cvijić and his numerous followers (FORD, 2005).

Exploration and utilization of karstic waters is an ancient art in the area. For example, 11 long aqueducts delivered more than 13 m³/s of water to ancient Rome from distances

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