

## **SOME EXPERIENCE OF UTILIZING ADVANCED HYDROGEOLOGICAL TECHNIQUES FOR A MODERN GROUNDWATER MONITORING SYSTEM**

<sup>1</sup>RASULA G.M., <sup>2</sup>RASULA M.D., <sup>1</sup>Jaroslav Cerni Institute, Belgrade, Yugoslavia; e-mail: [rasula@beotel.yu](mailto:rasula@beotel.yu) <sup>2</sup>CIP Institute of Transportation, Belgrade, Yugoslavia; e-mail: [rasula@mail.com](mailto:rasula@mail.com)

The basic principle of groundwater protection against pollution implies constant control and preventive protection measures, namely prevention of incidental and other pollution. The fact that expenses necessary for preventive measures are 10 to 20 times lower than funds needed to clean up and revitalize polluted aquifers, and the fact that the area occupied by the future infrastructure facilities will aggravate and become a burden to protection, both call for an urgent introduction of modern methods of monitoring and preserving all existing and potential groundwater resources.

The experience gained through activities undertaken so far: the realization of the modern "pilot model" of groundwater quality monitoring gauge in the zone of Makis marshalling yard in Belgrade, the investigations and monitoring of critical sites polluted with xylene (CIP, 1994/95), and the basic elements obtained while working on the Study of methodology of hydrogeological investigations needed for groundwater quality monitoring system (1998), stress a necessity for obligatory designing and constructing of operating systems for groundwater quality monitoring, particularly in the zones of infrastructure facilities (roads, railway, gas pipelines, oil pipelines), which can be considered as a large potential linear pollutants.

In the light of that, the paper contributes to the idea of developing specific and rational methodology of hydrogeological investigations, using modern equipment for 'in situ' controlling and monitoring groundwater quality in a road and railway belts, as well as of its legal and practical inclusion in the engineering documents of each project. Beside that an emphasis is put on multidisciplinary approach to system implementation, for the purpose of its full automation, rational

management, and designing of effective and optimal measures for groundwater protection.