

**APPLICATION OF GEOELECTRICAL METHODS IN GROUNDWATER POLLUTION FRONT
DELINEATION IN KARST, SERBIA CASE STUDY**

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ABSTRACT: The forests of the Republic of Serbia cover approximately 27% of its total area, i.e. about 2.4 million hectares. Such a rich natural resource has been exploited intensively in wood and timber industry. Rapid industrialisation of this branch of the economy in the Republic has accomplished big development potentials and opened new work places. However, to obtain a final product, a number of industrial procedures are required, which leave behind significant by-products, regularly harmful and with enormous and negative impact on the quality of the environment. The areas especially rich in forests and timber are situated in Dinaric karst in Western Serbia along the border with the Republic of Srpska (Bosnia and Hecegovina). Zlatar Mountain, being among the most beautiful mountains in Serbia, is a big karst natural resource as to forest and water resources. Groundwaters are formed in karst aquifer primarily in limestones of Triassic and Jurassic ages. Practically, whole Zlatar "lies" on qualitative groundwaters, which are currently being used for the water supply of the Nova Varos municipality.

It is known that fresh sawdust impact to the quality of environment directly occurs with time by decaying, wearing and degradation of incorrectly disposed sawdust. After certain time, sawdust, in contact with the soil and in anaerobic conditions, can result in forming of high content of phenol, methane, iron, manganese, and other elements.

During the year 2003, a serious chemical pollution with iron and manganese was recorded at the Bjelanac spring. This pollution resulted in the degradation of water quality on this spring, thus the waters from it have been used only for technical purposes since that time.

Geoelectrical sounding, geoelectrical mapping (scanning) as well as, the application of the „mise a la masse" method were conducted. The mentioned investigations were carried out because of the space delineation, namely the delineation of water bearing horizon, as well as, direct determination of the direction of groundwater movement through the karst aquifer in the area of north edge of Zlatar Mountain.