



“Gheorghe Asachi” Technical University of Iasi, Romania



ENVIRONMENTAL RISKS DUE TO HEAVY METAL POLLUTION OF WATER RESULTED FROM MINING WASTES IN NW ROMANIA

Oana-Cristina Modoi, Carmen Roba, Zoltán Török*, Alexandru Ozunu

Babes-Bolyai University, Faculty of Environmental Science and Engineering, Research Center for Disaster Management, 30 Fântânele St., Room E.1.2, Cluj-Napoca RO-492297, Romania

Abstract

The mining waste facilities in the Baia Mare region, Romania, resulted from the extraction of poly-metallic ores (including Au, Ag). Metal sulphide minerals from the mining waste facilities have a potential to produce acid rock drainage (ARD) and to generate risk for the environment, including for the water resources. Some of the mining waste deposits from the region are located near the town of Baia Mare, close to the residential areas, the agricultural lands and the surface water. The short migration path between the sources and the sensitive receptors is causing an increased environmental risk. The main contaminants found in the area are heavy metals and metalloids, such as: Pb, Zn, Cd, Cu, Ni and As. Their concentrations measured in the water samples from the area exceeded the pollution thresholds. Moreover, there were measured high concentrations of heavy metals in the groundwater from the wells in the villages located downstream of the mining waste facilities. This water is used partly as drinking water for humans and domestic animals and for other agricultural activities (ex: irrigation). The aim of the paper is to identify and to analyse the most polluted water supply sources in the area and to draw conclusions about the environmental risk due to the mining waste facilities. The results show high concentrations of heavy metals downstream the waste facilities, leading to an increased environmental risk.

Keywords: environmental risks, heavy metals, mining waste facilities, water pollution

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* # Author to whom all correspondence should be addressed: e-mail: zoltan.torok@ubblcluj.ro, Phone: +40264583378, Fax: +40264583378