

ENVIRONMENTAL GEOLOGICAL MAPPING OF HEAVY METAL CONCENTRATIONS IN SOILS AND SEDIMENTS OF TURBIO, GUANAJUATO AND OTATES SUBBASINS, LERMA - CHAPALA SYSTEM, MEXICO

1HERNÁNDEZ SILVA, G. - 2SCHAREK, P. - 3KISS, G. Instituto de Geología de la Universidad Nacional Autónoma de México (UNAM), Mexico City, Mexico; National Geological Institute of Hungary, Budapest, Hungary; Department of Hydrogeology and Engineering Geology of the University of Miskolc, Miskolc, Hungary

The professional collaboration between the Institute of Geology of the National Autonomous University of Mexico (UNAM) and the Geological Institute of Hungary (MÁFI) began in the mid-80's. In 1995 we initiated our first common project which still keeps in progress. Its topic is an environmental geological exploration and scientific research on soils on the territory of Guanajuato State, Mexico. During the project works other researchers have been also incorporated from the Department of Hydrogeology and Engineering Geology of the University of Miskolc, Hungary. On the basis of the common field observations which began in 1996, we have known the geological characteristics and the main problems of the area. The Southern part of Guanajuato State is the principal agricultural zone of Central Mexico. On the margins of the basin exist some mines of gold and silver ores and in the region of the city of León there is a considerable leather industry. In consequence of the mining and industrial activity, the wastewaters flowing away without control have a high content of heavy metals and they threaten directly the aquifers of drinking water. The key of the solution is the structural-lithological knowledge and the exploration of the geologically suitable areas and formations to house wastewater and solid wastes, taking into account the protection of the drinking water aquifers.