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Groundwater monitoring

title: **Integrated monitoring of sources pollution — point sources pollution in Slovakia**

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Problems of point sources pollution in groundwater gained ground following requirements of Water Framework Directive 2000/60/EC in Slovakia. One of the main aim of the Water Framework Directive (WFD) is an achievement of good groundwater/surface water status to the year 2015.

Integrated monitoring of pollution sources is one of the main tools for groundwater chemical status evaluation within the point pollution sources. The main component of this tool is database with the same name. Integrated monitoring of sources pollution database is created and operated by Water Research Institute, Bratislava, Slovakia (www.vuvh.sk) in cooperation with JTS s.r.o. Bratislava, Slovakia.

An achievement of good groundwater/surface water status to the year 2015 is a need for a greater integration of qualitative and quantitative aspects of both surface and groundwaters, taking into account the natural flow conditions of water within the hydrogeological cycle. Point sources pollution are one of the biggest risk for groundwaters because of its area density, variety of chemical contaminants which can deteriorate groundwater status and also its incorrect and inaccurate localization.

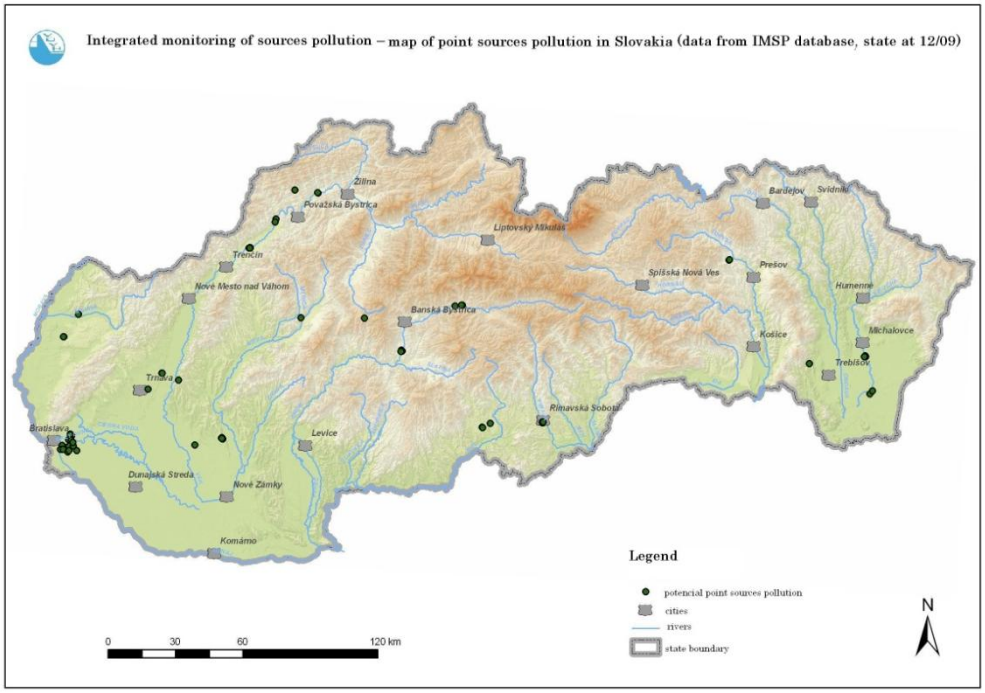

Figure1. Integrated monitoring of sources pollution.

Very good method to obtain data from different groundwater monitoring of industrial areas, wasting sites, is creation of own database, where these data can concentrate. Development of the Integrated monitoring of sources pollution database have started in 2006 as a simple MS Access database. Data was imported manually via native MS Access background. Further development consisted in testing activity via web application (www.vuvh.sk) which enable to input data directly from potential polluters from whole Slovakia.

On the ground of higher performance, comfort, safety and Multilanguage support we had to change over to more professional environment of relational database – OpenSource Community environment with Linux operating system, Ingres database environment with Apache web server and Glassfish/Sun Java Application Server.

Quality data from Integrated monitoring of sources pollution database are basement for evaluation of groundwater chemical status in Slovakia. First step is classification of the locality to the groundwater body and definition of chemicals substances which are dangerous for this groundwater body.

We will evaluate with statistical method, comparing with threshold values of chemical substances in specific groundwater body, comparing with legislative values and environment in specific area. Another step is risk analyses and proposal for remedial measures which will provide a good groundwater status in specific locality to 2015.

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