

## Current applications in using geochemical baselines

JAANA JARVA\* AND TIMO TARVAINEN

*Geological Survey of Finland, P.O.Box 96, 02151 ESPOO, Finland, jaana.jarva@gtk.fi*

In Finland, geochemical surveys have been carried out since the 1930s. Today, geochemical background information is available from national and regional geochemical mapping surveys, as well as from targeted geochemical baseline surveys, from which geochemical baseline mapping of urbanized areas has had a special focus on environmental applications and land use planning. The urban geochemical baseline studies provide information on baseline concentrations for remediation projects, land extraction, land use planning and other urban functions. They also provide information for studies on the baseline status of the environment, as well as for environment impact assessment and for multidisciplinary studies such as the protection of human health.

At present, information on geochemical baselines is mostly used in soil contamination studies. Reliable data on the geochemical baselines is of special importance in regions where the geochemical baselines may exceed the threshold values given in the Government Decree on the Assessment of Soil Contamination and Remediation Needs (214/2007). Reliable information also enables case-specific guidelines for soil contamination assessment to be determined. If regional geochemical baseline values are available, the guideline values based on ecological risks can be modified accordingly. The recalculations of regional guideline values give tools to better assess the remediation needs as well as to choose the best available remediation technique for the area in question.

Geochemical baseline data can also be utilised for identifying and delineating areas with naturally occurring elevated concentrations of potentially harmful substances. New guidelines on the exploitation of excavated land (Ministry of the Environment, 3.7.2015) designate the classification of excavated land as a waste or exploitative material. In principle, aggregates with elevated background concentrations, i.e. where the concentration is higher than the threshold value given in the Government Decree (214/2007), are not considered contaminated if there is plan for future use of the material. They can be exploited or placed in areas with similar or higher regional geochemical baseline concentrations.