In Finland, Government Decree on the Assessment of Soil Contamination and Remediation Needs 214/2007 (Ministry of the Environment, 2007) obligates to take into account geochemical baselines in the assessment of soil contamination and remediation needs. According to the Decree, the amount of contamination and a remediation plan have to be estimated if one or more harmful elements show higher values than the threshold values given in the Decree (Ministry of the Environment, 2007). However, if the local baseline concentration of a contaminant is higher than the threshold value given in the regulation, the baseline is used as a trigger value. Information on soil geochemical baselines is available from the national geochemical database, Tapir (www.geo.fi/tapir). The database is hosted by the Geological Survey of Finland (GTK) and is described in the article "TAPIR – Finnish national geochemical baseline database" (Jarva et al. 2010).

Soil geochemical baselines include both natural geological background concentrations and the diffuse anthropogenic input of substances. In northern Finland, the soil geochemical baselines were defined in three sites between 2012 and 2014. The sampling sites were located in the municipalities of Kittilä and Savukoski and in the urban Rovaniemi city area.

References:


Statistical parameters of some elements in till (< 2 mm size fraction, aqua regia) are given in the Savukoski area compared to threshold values defined in the Government Decree. The results show that the upper limit of baseline variation (ULBL) of these elements is much lower than the threshold value given in the Decree 214/2007. In this case, the threshold values should be taken into account when assessing soil contamination in the Savukoski study area. Concentrations are in mg/kg. N = number of samples.

Till samples were collected outside densely populated areas in Savukoski to assess natural geological background of the area. The samples were taken from leached and enrichment horizons down to a depth of 25 cm. The top soil samples in the Rovaniemi urban area were collected from 10 cm deep pits which were located in areas of different urban land use, for example on yards of schools and kindergartens and beaches.