Evaluating risks from contaminated soil: a standardised approach

Soil plays an important role, as a habitat capable of recycling water, carbon and nutrients and a provider of food and raw materials. Research investigating the risk assessment procedures adopted in different EU member states, suggests that there needs to be greater standardisation in the methods of assessing risks from contaminated soils.

In 2005, the European Commission Joint Research Centre (JRC) initiated a long-term research network to promote the development of common risk assessment tools for contaminated land in Europe. Under the HERACLES1 (Human and Ecological Risk Assessment for Contaminated Land in European Member States) framework, researchers investigated the methods, used by Member States, to determine possible dangers from contaminated soils, to human health and the environment.

Research focused on three areas, or pillars, of risk assessment:
- Relative Risk Assessment – methods used to identify contaminated sites at a regional level
- Screening Risk Assessment – methods for setting screening or threshold values of contaminants in soil
- Site-specific Risk Assessment – site level assessment of contamination risks to human health and the environment

The study found that only three countries, Germany, Finland and The Netherlands, had approved guidelines on assessing ecological risks of contaminated land. However, many Member States have or are developing ecologically based threshold soil concentrations, although these have yet to be fully integrated into soil quality standards.

Wide variations in the procedures for ecological risk assessments were found across European countries. The researchers attributed these differences primarily to political and scientific factors, with regulatory, social, cultural and geographical influences also contributing to non-standardised approaches. Political decisions influence the importance given to assessing ecological risks: for example, which species are considered to be at risk from contaminated soils in a particular area.

However, possibilities exist for harmonising the scientific and technical elements of risk assessments, creating standard tools for soil risk assessment across the EU.

One major difficulty is determining ecological damage at individual sites. Other studies have shown that a TRIAD concept, based on combining evidence from risk assessments of soil contamination in three areas: chemical, toxicological and ecological, could be implemented as part of the harmonisation process. The researchers suggest development of the TRIAD approach could play an important role in standardising site-specific risk assessment tools.


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