

US EPA ARCHIVE DOCUMENT

# Soils Policy: Soil Contamination in Europe

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Soil contamination is in Europe as a widespread problem of varying intensity and significance. Cleaning up all historically-contaminated sites, commonly of industrial origin, to background concentrations or levels suitable to all uses often is not viewed as technically or economically feasible. As a result, clean-up strategies increasingly are designed to employ sustainable, long-term solutions, often using a risk-based approach to land management aimed at achieving "fitness for use" appropriate to the location. In the absence of specific EU legislation to address the clean up of contaminated soil, Member States apply the "polluter pays" principle to varying degrees in clean-up programs. Public monies also have been used in a number of Member States to finance remediation costs when necessary. This fact sheet briefly describes EU policy on the clean up of land contamination and related policy approaches in several countries, including the US. The fact sheet is not comprehensive; rather, it provides a starting point for readers interested in investigating the topic.

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## Soil Contamination in the EU

### Contamination sources and the universe of contaminated properties

The [European Environment Agency \(EEA\)](#) collects data on soil contamination and clean up. Although the distribution of soil pollution sources across economic sectors differs from country to country, industrial activities are responsible for over 60% of Europe's soil pollution (the oil sector accounts for 14% of this total). Among the most common harmful contaminants are heavy metals (37%) and mineral oils (33%). The EEA estimates that soil contamination requiring clean up is present at approximately 250,000 sites and that more than 80,000 sites have been cleaned up during the last 30 years in EU countries where data on remediation are available.

### Environmental liability and clean up funding

[EU Directive 2004/35/EC](#) establishes a comprehensive liability regime for damage to the environment. The directive applies a "polluter pays" principle, according to which the polluter is responsible when environmental damage occurs. The liable party is an "operator," who carries out certain dangerous activities listed in the Directive, and an operator engaged in risky or potentially risky activities identified in the Directive is strictly liable (without fault) for the environmental damage he has caused. Under the Directive, operators engaged in all professional activities are liable if negligent or at fault. The Directive leaves significant discretion for implementation to the Member States.

Potentially-polluting entities are not required by the EU to carry insurance or establish other financial security mechanisms to protect them against the cost of potential clean up. A considerable share of remediation expenditure, about 35% on average, comes from public budgets in EU countries when occurred when legally responsible polluters no longer exist, cannot be identified, or are insolvent. The rehabilitation of industrial sites receives funding through EU Structural Funds; the total budget for this purpose is 2.250 billion EUR for the 2005-2013.

### Initiatives in European for the remediation of contaminated soil

In addition to the EU Directive on Environmental Liability, several other EU directives support the prevention and clean up of soil contamination. They include:

- The [EU Waste Framework Directive](#) (2006/12/EC) addresses the prevention of pollution from waste and defines any contaminated materials, substances or products resulting from remedial action with respect to land as waste
- The [EU Water Framework Directive](#) (2000/60/EC) requires a program of measures, including measures to address land contamination that causes water pollution, by 2015

- The [EU Groundwater Directive](#) (2002/118/EC) aims to prevent or limit pollutants, including pollutants from historical contamination of land, into groundwater
- The [EU Directive on Nitrates from Agricultural Sources](#) (91/676/EEC) addresses the environmental impacts of excess nitrogen
- The [EU Integrated Pollution Prevention and Control Directive](#) (2008/1/EC) requires the permitting of new or existing industrial and agricultural activities with a high pollution potential

A number of other government and non-government resources exist in Europe to support work on the remediation of contaminated lands. They include:

- The European Commission's [Joint Research Centre /JRC Land Management and Natural Hazards Unit](#) undertakes initiatives to prevent and remediate soil contamination
- [EUGRIS](#) is the EU's web portal for information and services on topics related to soil and water
- The [Network for Industrially Contaminated Lands in Europe](#) (NICOLE) is a leading independent forum on contaminated land management in Europe, supporting the development and application of sustainable technologies
- The [European Coordination Action for Demonstration of Efficient Soil and Groundwater Remediation](#) (EURODEMO) promotes sustainable, cost-effective soil and groundwater remediation technologies

### Brownfields

Redevelopment or reuse of brownfield properties, where the presence or potential presence of a hazardous substance, pollutants, or contaminant may complicate economic development, poses an important public policy challenge. Investment in these properties may have benefits for economic development and employment and slow the loss of so-called undeveloped "greenfields."

Data on the redevelopment of brownfields in Europe are limited and inconsistent, reflecting the lack of a common definition of the problem across Europe. A number of initiatives are underway to promote brownfield clean up and redevelopment:

- The [Concerted Action on Brownfield and Economic Regeneration Network](#) (CABERNET) is a European expert network that fosters urban brownfield regeneration and sustainable development
- The [Brownfield European Regenerative Initiative](#) (BERI) is a European transnational network established to share experiences and collaborate on Brownfield development
- The [European Program for Urban Sustainable Development](#) (URBACT) emphasizes the importance of brownfield redevelopment in renewal strategies across Europe

### Country Examples

Although in 2006 all but four EU countries reported either national or regional inventories (e.g., contaminated land registers) of contaminated sites, progress in the management of these sites varies significantly across Europe - depending on different national management approaches and legal requirements. Approaches to clean up, including different remediation targets, also vary across EU countries, and countries differ in the degree and extent to which they finance clean up.

**Belgium (Flanders).** [OVAM](#), the public waste agency of Flanders, is responsible for soil protection under the October 2006 Decree on Soil Restoration and Soil Protection, and earlier legislation. Transfer of land in Flanders requires a soil certificate – nearly 200,000 soil certificates were produced in 2007. Owners and operators engaged in identified risky activities perform periodic soil investigations, and a soil investigation (preliminary and/or descriptive) is required for the transfer of property involving activity deemed to create a risk of soil contamination or upon the termination of such activity. If signs of soil or groundwater pollution exist, OVAM can order actions necessary to achieve clean up and require a financial guarantee to ensure completion of the work. Government-funded clean up may result if the party responsible for the cleanup is declared in default. Since 1995, over 27,000 parcels of land have been evaluated for soil pollution in Flanders, and the information is made publicly available. Flanders does not have a central registry of potentially contaminated sites. In 2007, clean up was initiated at over 360 locations.

**United Kingdom.** The [UK Department of Environment, Food, and Rural Affairs](#) (DEFRA) is developed the First Soil Action Plan for England in 2004 and establishes policy for the clean up of contaminated land. Primary responsibility for the management of contaminated lands lies with local authorities, and voluntary solutions to contamination problems are sought when possible. The Environmental Protection Act 1990 establishes who should pay for remediation and requires that local authorities identify contaminated land. The UK's [2006 Contaminated Land Regulations](#) include rules for public registers of contaminated properties and for remediation notices. DEFRA manages the Contaminated Land Capital Projects Programme to assist local authorities in investigating and remediating contaminated land. The UK Department for Communities and Local Government oversees land contamination issues in planning under [Planning Policy Statement 23](#), and the Office of the Prime Minister is responsible for [policy on brownfields in the UK](#).

A number of quasi-governmental and non-governmental organizations in the UK support work to remediate contaminated properties and address economic development challenges associated with brownfields. [Contaminated Land: Applications in Real Environments](#) (CLAIRE) is an independent, not-for-profit organization established to stimulate the regeneration of contaminated land in the UK. The [British Land Reclamation Society](#) is an interdisciplinary nonprofit organization concerned with the reclamation, regeneration, and restoration of land. The [British Urban Regeneration Association](#) identifies and promotes best practice in regeneration, and the [Contaminated Land Assessment & Remediation Research Centre](#) develops technology for sustainable, cost-effective assessment and remediation of contaminated environments.

**Finland.** Relative to more historically industrial nations like England, Finland faces relatively few contaminated property problems. In 2004, Finland's environmental administration was aware of more than 20,000 sites where the soil could be contaminated. The [1998 Environmental Damage Insurance Decree](#) requires that private corporations subject to permitting requirements take out environmental damage insurance. Finland's [Environmental Protection Act of 2000](#) prohibits the pollution of the soil or ground water, obliges polluters to notify the environmental authorities of any soil contamination, and requires them to take responsibility for cleaning up such contamination. The Act stipulates that, whenever land is sold, the seller or occupier must provide the new owner or tenant with information about any soil contamination or if wastes or other substances present in the soil may lead to contamination in the future. Under Finland's [Land Use and Building Act](#), planners must be aware of any contamination wherever land use changes are planned. In 2007 the new [Government Decree on the Assessment of Soil Contamination and Remediation Needs](#) (214/2007) established stringent soil screening levels.

## Some U.S. Activities and Additional Resources

The United States is a world leader in establishing and implementing programs to clean up land with contaminated soils. Below are links to selected US Federal government and national programs or initiatives related to contaminated soil clean up:

### US government

- [EPA Clean Up](#) is the Environmental Protection Agency's web portal for clean up information, including the Superfund, Federal Facilities, Brownfields, RCRA, and UST programs
- [US Army Environmental Center - Clean Up](#) is a web portal for information on federal facility clean up
- The [Federal Remediation Technologies Roundtable](#) (FRTR) works to build a collaborative atmosphere among federal agencies involved in hazardous waste site clean up
- The [Agency for Toxic Substances and Disease Registry](#) (ATSDR) addresses harmful exposures and diseases related to toxic substances
- The [Brownfields Economic Development Initiative](#) (BEDI) is a competitive grant program administered by the US Department of Housing and Urban Development to promote economic and community development
- The US Department of Commerce, through its [Economic Development Administration](#), directs grant investments to encourage brownfield redevelopment

- The [Occupational Health and Safety Administration](#) addresses workplace safety issues at Brownfield sites

Non-government

- The [National Brownfields Association](#) (NBA) is a non-profit organization dedicated to promoting sustainable development and encouraging green building on brownfield sites
- The [TRIAD Resources Centre](#) provides innovative decision-making information to hazardous waste site managers and clean-up practitioners
- The [Brownfield's and Land Revitalization Technology Support Center](#) provides technical support to Federal, State, local, and tribal officials on the use of innovative technologies and strategies for site assessment and clean up