

Harshly treated soil



Explanation of the diagram
"The magic of soil" sheet

In most cases, local soil pollution is a legacy of past practices, dating back to days when scarce consideration was given to the environmental and health consequences of human activities. Some former industrial sites, disused chemical or hydrocarbon storage areas and old landfills are currently "no-go areas", due to the presence, suspected or confirmed, of dangerous substances in the soil.

Over the last few years, managing and cleaning up these polluted sites has become a priority in Wallonia. There is a lot at stake: we need to protect human health, water quality and biodiversity, as well as encouraging local

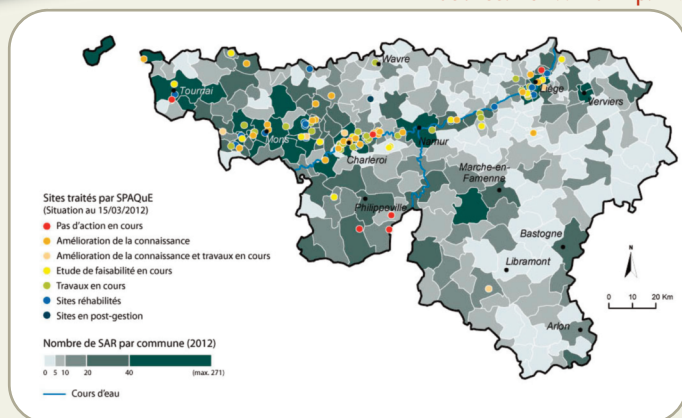
redeployment by restoring land's value and attractiveness for economic activities, housing, tourism or leisure.

The introduction of the "**Soil Decree**" has given Wallonia a tool to compile a precise overview of the situation and implement targeted action to reduce local pollution. There is still some way to go, but the situation is improving.



In Wallonia

List of (potentially) polluted sites and sites for redevelopment
Source: ICEW 2012 p.127



What is local pollution?

Local pollution or "contamination" of soil is caused by the introduction of dangerous substances from an identifiable point source, in many cases actually identified (industry, landfill, storage tank, etc.).

In comparison with diffuse pollution, it causes a far more spectacular surge in natural concentrations or levels prescribed by health and environmental standards.

In most cases, soil pollution is invisible. To determine the nature, extent and degree of contamination, we need to examine a site's history and analyse samples of soil.



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(Potentially) **polluted** sites in Wallonia

Disused industrial sites

- Coal-dependent industries (coke plants, gas works, electric power stations, etc.)
- Steel industry (blast furnaces, steel works, etc.)
- Synthetic chemical plants (plastic, rubber, paints, pesticide, etc.)
- Tanneries, paper mills, lime kilns, etc.
- Abattoirs, woodworking plants, etc.

Dumping grounds

- Old landfill sites
- Unlawful dumping of household, industrial or inert waste.

Polluting activities on a small or large scale

- Drilling sites, petrol stations, dry cleaning operations, paper mills, printing plants, etc.

Most commonly found pollutants in Walloon soil

★ **Trace metal elements (TME)*:** arsenic, cadmium, mercury, lead, zinc, copper, etc (formerly called “heavy metals”).


★ **Petroleum hydrocarbons**

★ **Volatile organic compounds (VOC):** detergents, degreasing agents, bleaching agents, solvents, etc.

★ **Polychlorinated biphenyls (PCB):** oils for transformers, coolants, lubricants, paints, varnishes, etc.

★ **Cyanides**

★ **Polycyclic aromatic hydrocarbons (PAH)** resulting from hydrocarbon combustion (engines, heating systems, coking, etc.)...


“Magic of soil”
and Sheet 6 “Diffuse
pollution”



* Soil may contain often low concentrations of natural-origin trace metal elements (TME) resulting from the degradation of base geological material (“bedrock”). If concentrations are too high, they become toxic. These TMEs have the distinctive feature of accumulating in soil without degrading.

Risks at every stage

1 Human health

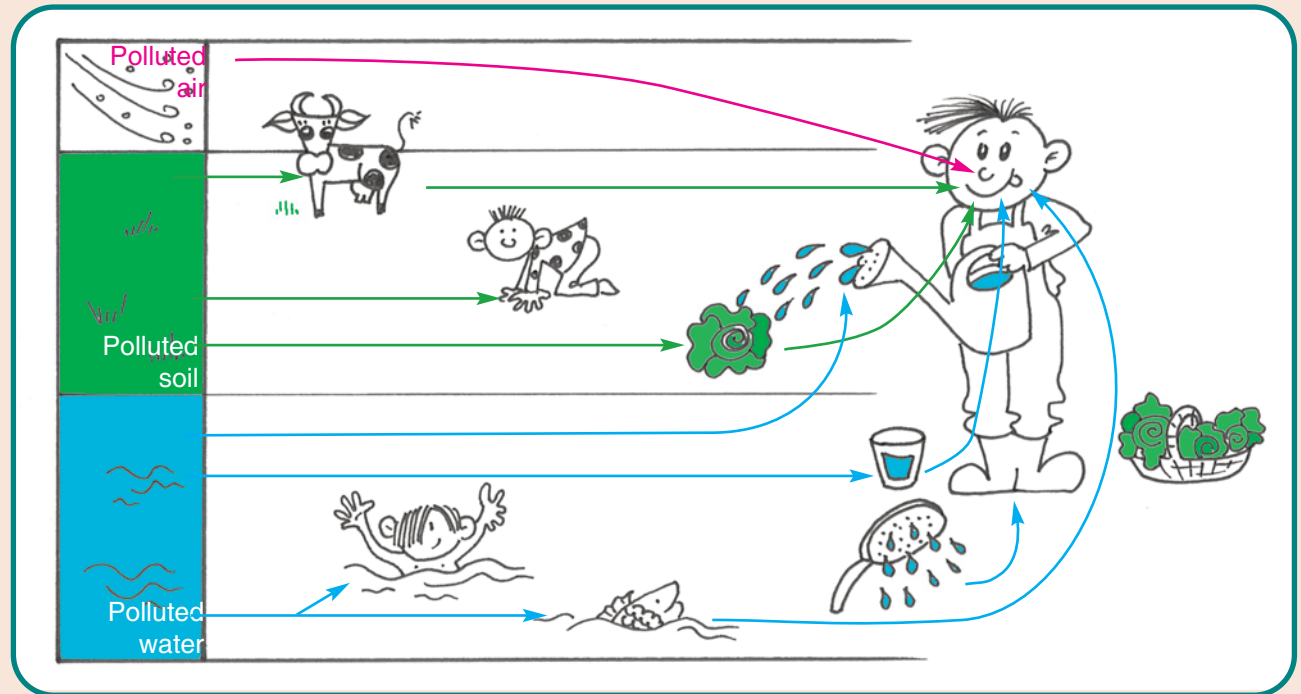
Many soil pollutants are **toxic** for human beings. Their effects on human health vary depending on the type of substance, the intensity, duration and the frequency of exposure to the pollutant. Contamination can be direct (through contact with polluted soil) or indirect (through air, food, water supplies, etc.).

2 Soil organisms

Pollutants represent a risk for **the organisms and micro-organisms that live in soil**. However, these organisms and micro-organisms provide vital services: decomposing organic matter, stabilising soil structure, purifying water, etc.



Sheet 4
"Biodiversity"



Avenues of contamination for human beings

3 Food chain

Pollutants contaminate the upper levels of the **food chain**. In other words, amphibians, birds and mammals which eat plants or soil invertebrates.

4 Groundwater

Pollutants **accumulate in soil** throughout the entire operational life of an industrial site, storage area or other facility. In some cases, this can be a very long period. They are difficult to degrade and can remain in soil decades after the discontinuation of industrial operations and contaminate **groundwater bodies**, a significant part of which provides our supplies of drinking water.

Management of polluted sites in Wallonia

Authorities

Minister

Management of local soil pollution comes under the authority of the **Minister for the Environment**

Public Administration

The **Département du Sol et des Déchets (Department of Soil and Waste)** (Office Wallon des Déchets (Wallonia Waste Office)) examines and approves or rejects applications submitted by research offices on behalf of individuals or companies

SPAQuE

(Société Publique Anonyme pour la Qualité de l'Environnement (Public Company for Environmental Quality)) is responsible for compulsory rehabilitation of landfills and industrial sites. It performs feasibility studies and draws up specifications for clean-up and rehabilitation work.

Legislation

The "Soil Decree"

Management of polluted or potentially polluted sites in Wallonia is now governed by the "**Soil Decree**" (5/12/2008).

As well as aiming to prevent soil pollution before it actually occurs, this Decree focuses on identifying sources of pollution to allow studies to be initiated and clean-up procedures determined.

Published on 1 January 2013, the Code Wallon de Bonnes Pratiques (CWBP) (Walloon Code of Good Practices) sets out relevant procedures and methodologies.

A complete list of polluted and potentially polluted sites in Wallonia (Banque de Données de l'Etat des Sols - BDES (Soil Condition Database), available online) is currently being compiled.

Steps in a clean-up operation

1st step

The owner, operator or manager of an area of land **suspects pollution and notifies** the Walloon administration, as required since the implementation of the Soil Decree. The Walloon administration can also initiate its own procedure if it has good cause to suspect pollution. A study is systematically performed following the discontinuation of activities known to be polluting: former coal mines, metallurgy or synthetic chemical plants, petrol stations, etc.

2nd step

The Walloon administration examines **findings** (waste sites, exceeding of pollution standards, etc.) and decides whether or not additional studies need to be performed. These studies are at the owner's cost and carried out by expert agencies.

3rd step

A **preliminary study** is carried out to investigate the presence of soil pollution. A **characterisation study** provides a precise description and locates the pollution.

4th step

A **clean-up project** is proposed and then **implemented**.

Both the studies and the clean-up work are carried out by experts and approved laboratories.

Final step

At the end of the procedure, a **soil inspection certificate** is issued by the Walloon administration, certifying that the site has been cleaned up and can be used for the intended purpose.

Individual actions against local soil pollution



Maintaining soil in good quality is vital!

Individuals can cause local soil pollution as a result of accidental or intentional spillages of polluting products (detergents, solvents, pesticides, etc.), leaks from fuel-oil tanks, and similar.



Never pour polluting products onto the earth and avoid using these products wherever possible. Systems are in place in container parks to process these products.



Monitor storage of any polluting products and dispose of packaging and out-of-date products in a container park.



Have the water-tightness of your fuel-oil tank checked by an engineer or an expert approved by the Service Public de Wallonie (Public Administration of Wallonia).



Avoid unlawful dumping of non-biodegradable waste: tyres, scrap metal, household electrical appliances, etc.



Does this affect me?



If pollution is identified or even suspected in your garden, avoid growing any edible vegetables or fruit. This would put you at risk of ingesting traces of pollutants. If in doubt, **have your soil analysed**.

Alternatively, you could **use** elevated trays to grow plants above ground.

General publications by the SPW – online information

Les Indicateurs Clés de l'Environnement Wallon 2012 (ICEW 2012), Direction de l'Etat Environnemental, SPW Éditions - DGARNE - DEMNA - DEE, 2013 (available for download in French, English and German)
<http://etat.environnement.wallonie.be>

Tableau de bord de l'environnement wallon 2010, SPW Éditions - DGARNE – DEMNA - DEE, 2010 (available for download in French, English and German)
<http://etat.environnement.wallonie.be>

Rapport analytique sur l'état de l'environnement wallon 2006-2007, MRW – DGRNE, Namur, 2007 (available for download in French, English and German) “La contamination locale des sols”, pp. 500 ssq. - Scientific report (available for download)
<http://etat.environnement.wallonie.be>

SOIL Decree and the Code Wallon de Bonnes Pratiques (CWBP - Walloon Code of Good Practices)

<http://environnement.wallonie.be>
<http://dps.environnement.wallonie.be>

Les réservoirs à mazout en Wallonie.

Ensemble évitons les catastrophes. Le stockage de mazout en Wallonie, réglementation en vigueur, SPW Éditions, Bonnes pratiques, nov. 2013
Brochure pdf (available for download)
<http://environnement.wallonie.be/citernes-mazout/>

Comité régional PHYTO
www.crphyto.be

Physico-chemical soil analysis laboratories

Laboratories approved under the Soil Decree:

<http://environnement.wallonie.be/sols>

Other soil analysis laboratories

Province of Liège

Station Provinciale d'Analyses Agricoles
Rue de Dinant, 110 (Quatre-Bras), 4557 Tinlot (Scry)
Tel.: 085 243 800 | Fax: 085 243 801
Email: spaa@provincedeliege.be
www.provincedeliege.be/agriculture/node/204

Province of Hainaut

CARAH asbl
Rue P. Pasteur, n° 11 - 7800 Ath
Tel.: 068 26 46 73 | Email: labo@carah.be
www.carah.be

Province of Walloon Brabant

Centre Provincial de l'Agriculture et de la Ruralité Rue Saint - Nicolas, n° 17 - 1310 La Hulpe
Tel.: 02 656 09 70 | Fax: 02 652 03 06
Email: agriculture.brabantwallon@skynet.be
www.brabantwallon.be

Province of Luxembourg

Le Centre de Michamps
Horritine I — 6600 Bastogne
Tel.: 061 210 820 | Fax: 061 210 840
Email: centredemichamps@uclouvain.be
www.uclouvain.be/80364.html

Province of Namur

Office Provincial Agricole
Domaine de Saint-Quentin - 5590 Ciney
Tel: 081 77 68 16 | Fax: 083 21 76 03
Email: office.agricole@province.namur.be
www.opaciney.be/

Agricultural and agro-food sector
REQUASUD asbl laboratory network (REseau-QUALité-SUD)
www.requasud.be

Teachers

- *Le sol - Qu'est-ce que le sol? Comment se forme un sol? Quelles fonctions remplit le sol? Quelles sont les menaces qui pèsent sur les sols?*, educational report, Prosensols, s.d. (available for download)

- *Les menaces qui pèsent sur les sols*, educational presentation, partenariat Prosensols, s.d.

- Educational folder and sheets on soil (from age 12)
www.prosensols.eu

Creusons le sol, Symbioses, le magazine de l'Education relative à l'Environnement, N°98, second half of the year 2013
www.reseau-idee.be (available for download)

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