

# **The contaminated land policy in Flanders**

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# The contaminated land policy in Flanders

- **Introduction**
- **Legislation**
- **Transfer of land**
- **Soil remediation procedure**
- **Soil remediation technologies**

# Introduction



## Flanders

Area : 13.522 km<sup>2</sup>

Inhabitants : 6.016.024

Density : 444/km<sup>2</sup>

## Belgium

Area : 31.545 km<sup>2</sup>

Inhabitants : 10.4 million

Density : 338/km<sup>2</sup>

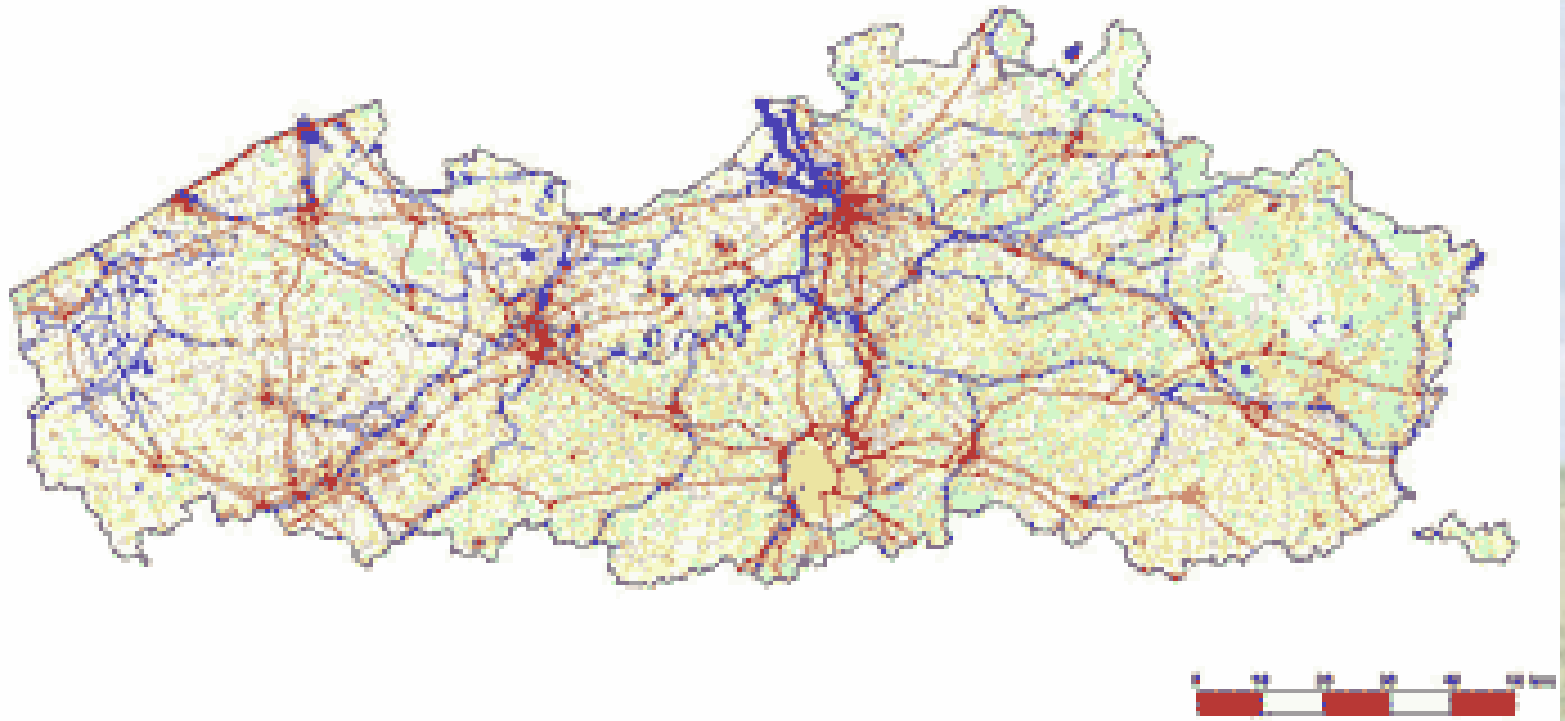
## Czech

Area : 78.866 km<sup>2</sup>

Inhabitants : 10.25 million

Density : 130/km<sup>2</sup>

# Introduction



- **Legislation in evolution**
  - **law on toxic waste (1974-1976)**
  - **Flemish Waste Decree (1981)**
  - **Soil remediation Decree (1995)**

# Definitions

- **Soil: the solid part of the Earth, including groundwater, substances, organisms**
- **Soil contamination: the presence of substances or organisms, on or in soil or buildings, caused by man, that may directly or indirectly have a negative impact on soil quality**

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# Legislation

- Register of polluted soils
- Accredited experts and labs
- Historical - new soil pollution
- Investigation risk-activities
  - transfer
  - stop
  - periodically

# New pollution

- taken place > 29 Oct 1995
- clean-up if Soil Remediation Criteria are exceeded

# Soil remediation criteria

- level of contamination above which serious damage to man or environment can occur
- dependent on soil type
- dependent on soil use:
  - environment
  - agriculture
  - living area
  - recreation
  - industry

# New pollution

- taken place > 29 Oct 1995
- clean-up if SRC are exceeded
- immediate clean-up
- obligation remediation: guardian of land
- exoneration: cont. from other site or
  - ✓ has not caused
  - ✓ should not have had any knowledge cont.
  - ✓ no risk activity since 1993

# Historical pollution

- taken place < 29 Oct 1995
- clean-up if serious risk
- obligation remediation: guardian of land
- exonerated
  - ✓ has not caused
  - ✓ should not have had any knowledge of pollution
  - or acquired < 1993 and no professional use

# Legislation

- Register of polluted soils
- Accredited experts and labs
- Historical - new pollution
- Obligation of investigation : ‘risk-activities’
  - transfer
  - stop
  - periodically

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# Transfer of land

## Optimal protection of new owner

**The register of polluted land is open to the public and can function as an instrument to protect potential purchasers.**

# Transfer of land

- transfer of any land : soil certificate

Ever since October 1, 1996, a soil certificate is needed when transferring a piece of land.

If the land is registered as polluted, this is marked on the certificate.

If not, the soil certificate is called 'blank'.

## transfer of land with present or past 'risk-activity'

- exploratory investigation
- descriptive examination
- soil remediation plan
- soil remediation operations

# The contaminated land policy in Flanders

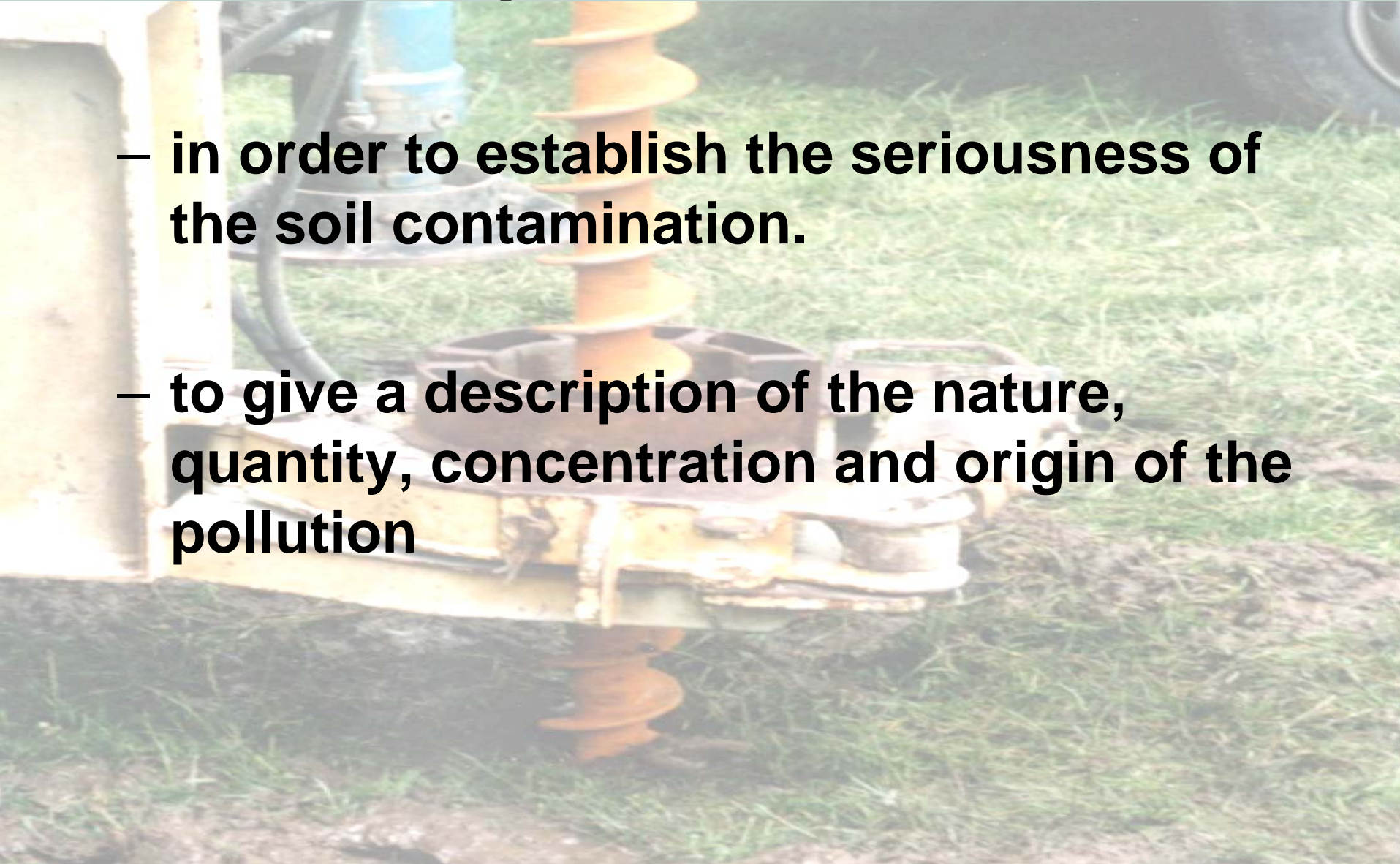
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# Exploratory investigation

- The purpose of establishing whether or not there are serious grounds for assuming that soil contamination has taken place
- End 2004 : 25.500 exploratory investigations

# Descriptive examination

- in order to establish the seriousness of the soil contamination.
- to give a description of the nature, quantity, concentration and origin of the pollution



# Soil remediation plan

- to determine the correct manner to decontaminate the soil
- clean-up criteria
  - multifunctionality if possible
  - **BATNEEC** :  
environment - economy

# Soil remediation plan

## Remediation up to "fit for use"

If it is not BATNEEC to remove the pollution completely, one can start thinking about useful alternatives which are not too expensive. You can think to reduce your remediation to such a level that the contamination is fit for use, that the contamination implies no risks for the envisaged use of the ground. One had to keep in mind that when the use is changed in the future, the contamination may still imply a risk, thus possibly hindering a fast implementation of the new use or of a transfer of the land.

# Soil remediation operations



# Soil remediation operations

Between 1997 and 2004

2103 soil decontamination plans were submitted

273 sanitations were already finished

Total cost : 759.420.124 euro



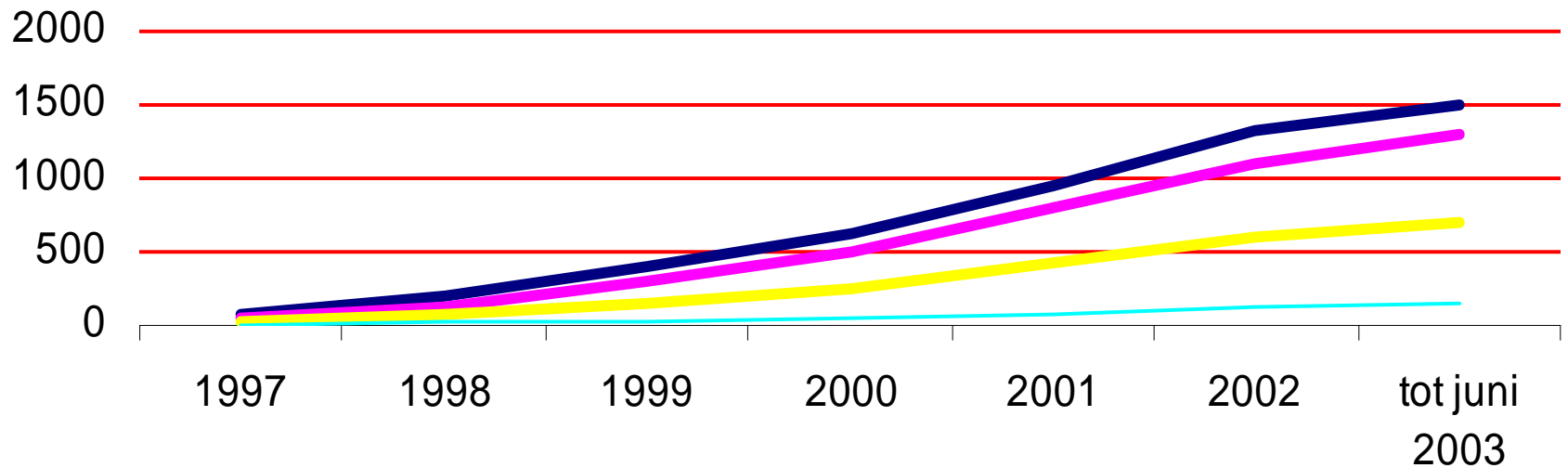
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# Soil remediation technologies

- **Isolation** (HDPE-foil, reactive barriers)
- **Removal**
  - **Excavation**
    - **Landfill**
    - **Cleaning** (on-site, off-site)
  - **In-situ sanitation**
    - pump and treat
    - soil vapour extraction
    - air sparging
    - (stimulated) natural attenuation
    - chemical oxidations

# Evolution in Flanders



- Ingediende bodemsaneringsprojecten
- Conformiteitsattesten
- Opgestarte bodemsaneringswerken
- Eindverklaringen

# Questions ?