MANAGEMENT OF EXCAVATED CONTAMINATED SOIL – SUMMARY OF THE QUESTIONNAIRE

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The Questionnaire

- **Management of excavated contaminated/treated soil**
  - **General situation**
  - **Policy issues**
  - **Technical issues**
- **Completed questionnaires from 14 countries**
- **Compliments for everyone who took the trouble to answer!**
- **This presentation icludes a summary of the results and some conclusions**

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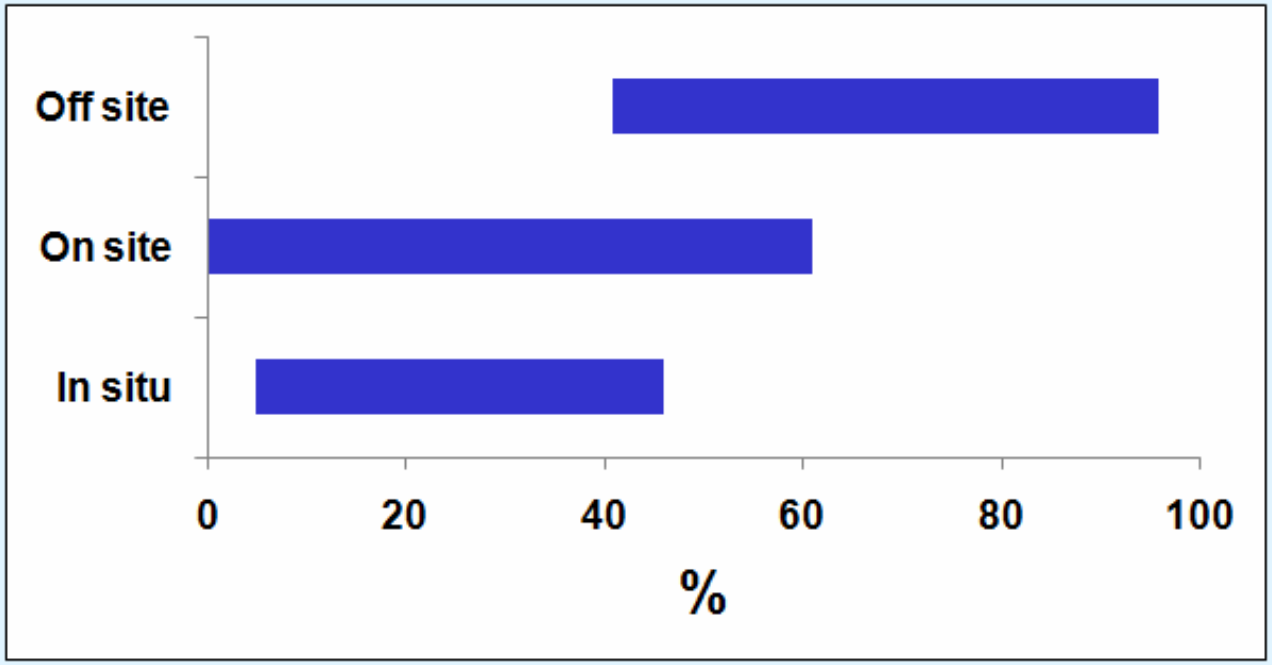
1. Proportions of in situ, on site and off site techniques?



- Combination of technologies also used

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2. Typical amount
3. Treatment methods

- Excavated soil up to 140 Mt/year
  - Contaminated soil from 0,4 Mt to 30 Mt?
  - Depends on the definition of contaminated soil
- Biological treatment most common method
- Depending on the contaminants also
  - Solidification/stabilization
  - Thermal treatment
  - Chemical/physical treatment
  - Soil washing
  - Disposal to landfill
  - No treatment for slightly contaminated soil
  - Note that different methods were not specified

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4. Typical reuse rate
5. Reuse applications

- **Soil reuse from 10% up to > 90%,**
- **Applications include**
  - **Landfill covers (in some countries almost all the excavated soil is used in landfills)**
  - **Backfilling on site**
  - **Road construction**
  - **Other construction projects**
  - **Noise barriers**
  - **Landscaping**
- **Is the remainder disposed of in landfills as waste?**

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6. Policy instruments 1/2

- ***Regulations (6a)* within waste regulations e.g. on**
  - Defining hazardous and non-haz. wastes (different requirements for treatment)
  - Landfilling
  - Using waste for construction purposes
- **Also specific soil regulations e.g. on**
  - Remediation and risk assessment (direct or indirect)
  - Quality and reuse of excavated soil (Flanders, Netherlands)
  - Transport and storage of soil (Quebec, Canada)
- **Several policy and technical *guidelines (6b)***
  - Interpretation of the regulations (often not legally binding)
- ***BAT/BATNEEC criteria (6c)* often ”generic principles”**
  - Based on site-specific evaluation
  - BAT guidelines at least in Austria and Italy, also in preparation in other countries
  - BATNEEC criteria to evaluate, if cont. soil is treatable (Flanders)

6. Policy instruments 2/2

- ***Registers/databases (6d)*** **on technologies, policies, treatment facilities etc. on websites**
  - **Information on reuse sites not available to public?**
- ***Logistic instruments (6e) and systems*** **(private), e.g.**
  - **Treatment centers**
  - **Storing sites**
  - **Soil banks (mainly in the Netherlands)**
- ***Economic and other instruments (6f and 6g)*** **e.g.**
  - **Taxation; e.g. no tax for landfill disposal (many countries), in Flanders this is only the case if soil can not be treated and reused**
  - **Economic incentives for redevelopment of contaminated sites; higher grant given when soil is treated (Quebec, Canada), in the USA incentives considered site-specifically**

7. Contaminated/treated vs. natural soil/wastes

8. Do you foresee any changes in the practices of soil reuse due to the new Waste Directive (2008/98/EC)?

- **Non-contaminated soil not concidered as waste and can be used without further testing**
- **Contaminated soil and the other wastes typically managed/regulated the same way**
  - **Except on site reuse of non-contaminated soil**
- **Differences exist in countries that have specific excavated soil regulations (see 6a/b)**
- ***Question 8*: Yes or no; depending on the existing regulations and practicies**

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9a. Guidelines and environmental suitability criteria
9b. Are those mandatory?

- **Guidelines are either existing or in preparation (see 6a/b) and the criteria are based on**
  - Remediation criteria or other soil quality criteria
  - Concentration and leaching values derived specifically for the reuse of soil and/or other wastes
  - Criteria either for free use or reuse in defined applications
- **Some criteria are mandatory, but also site-specific criteria can be developed based on risk assessment**
  - Criteria for free use may be exceeded under certain conditions
  - Mandatory criteria may be exceeded if soil is reused on site

10. Specific procedures for quality control

- **Most countries have some quality control procedures or they are in preparation e.g. on**
  - **Sampling and analysis**
  - **Investigation protocols and methods**
  - **Reporting and interpretation of the results**
  - **Operation of the treatment/storage facilities**
- **Quality control measures are established e.g. by remedial action plans, technical reports, certification and supervision/approval by the authorities**

11. Requirements for structures, monitoring or site conditions related to reuse applications?

- **Usually set site-specifically depending on site conditions and the soil quality**
  - **Structures undergo normal technical/engineering evaluation**
- **Specific requirements that were mentioned concider**
  - **Construction techniques and the level of contamination with respect to structure's permeability for rain water**
  - **Financial security for constructions that need maintenance in the future**
  - **The contact of contamination and the underlying soil in noise barrier constructions**
  - **Vicinity of sensitive sites/receptors**
- **Requirements in regulations/guidelines (e.g. Flanders, Netherlands)?**

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Conclusions

- **A lot of similarities, but also major differences in the management practices of different countries**
  - **The reasons for differencies can depend on several issues (cultural, political, social, geological etc.) and they cannot be evaluated based on this questionnaire**
- **In many countries instruments for managing excavated soils still under development**
  - **In addition, updating the existing instruments concern all the countries**
- **International co-operation and exchange of information will benefit everyone**

THANK YOU!

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