Integrated Contaminated Sites Management in Austria

From Visions towards Policy/Science Integration and Practical Implementation

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AUSTRIA

Total area: 84,000 km$^2$
60% mountains
8,4 mio. inhabitants
100 persons per km$^2$
Vienna: 1,7 mio. inhabitants
End of the 80’s …

• public awareness: „Fischer Deponie“

• approx. 800.000 m³ mixed waste

• Threatens one of Europe’s largest aquifer and Vienna’s future DW resource

• Cleanup costs → 140 Mio. €

• How to finance remediation?

• Political response → Cleanup Act 1989
The Austrian Approach (ALSAG 1989)

Levy on waste treatment

INCOME 1990-2010

1.050 mio €

Annual average

67 mio. €/year

ANNUAL INCOME
How are the funds used?

15% used for inventory, risk assessment and prioritisation of CS.

85% used to fund cleanup operations at high-risk sites.

ensures country-wide uniform procedure.
Tiered approach:

- Identification
- Preliminary assessment
- Risk Assessment
- Prioritization
- Remediation
What have we achieved so far?

- 58,000 suspected sites identified through systematic identification (surveys)
- 500 investigations & risk assessments performed
- 255 priority sites identified
  \(\text{(main reason: threat to groundwater/drinking water!)}\)
- 200 sites remediated or in progress of remediation
255 Contaminated Sites identified

Quelle: http://www.umweltbundesamt.at/umweltschutz/altlasten/

(Datenbasis 1.1.2010)
Effects on the Environment

- 46 Mio. m³ groundwater quality improved  
  (corresponds to annual water consumption of 1 mio. inhabitants)
- 246 t of solvents removed from groundwater
- 10 Mio. t of contaminated soil treated
- 145 ha of remediated properties returned into economic cycle
- Reduction of greenhouses gases from 3,4 Mio. t CO₂-equivalents (1990) to 0,7 Mio. t CO₂-equivalents (2005)

(Datenbasis 1990-2006)
What is still to do?

- Identification of PPS: Σ ca. 80,000 (ca. 72% identified)

- Contaminated Sites: Σ ca. 2,500 (12% identified, 9% remediated)

- additional funds needed: ca. 5-6 billion € (→ RBLM strategy)
  
  (10 billion € → precaution principle)

(Datenbasis 2010)
Experiences

- only few ‘high risk’ sites, but many +/- contam. sites predicted
  → speed up the process!

- total clean-ups are neither technically nor economically feasible
  → move from precautionary to risk-based remediation goals!

- available budget to stimulate clean-up operations decreases
  → ensure sufficient income!

- legal uncertainties hinder redevelopment of contam. sites
  → encourage reuse!

→ revision of our system is needed
TOWARDS AN INTEGRATED CONTAMINATED SITES MANAGEMENT

Reference: EU-CLARINET Conceptual Model

Reference: Austrian Mission Statement 2009
Mission Statement

Principle 1

The inventory of historically contaminated sites shall be completed within one generation (2025)

Principle 2

Measures (decontamination, containment, monitoring, use restrictions) at seriously contaminated sites shall be completed within two generations (2050)
Mission Statement

Principle 3
Risk Assessments have to be based on site specific and land use related conditions.

Principle 4
Measures should take site specific and land use related conditions into account. Risks for human health or the environment must be adequately managed.
Mission Statement

Principle 5
Remediation measures (decontamination, containment) need to be sustainable with lasting effects to enhance the environmental status of a site.

Principle 6
Framing conditions for reusing and integrating contaminated sites back into economic cycle shall be improved.
Policy/Science Integration

Project: „Contaminated Sites Management 2010“

New approaches to assess and manage contaminated sites

OBJECTIVES:

• enhancing integration of risk assessment and remediation towards a management process

• increasing efficiency of remediation considering financial and ecological aspects

Duration: 3 years (started 2008)
Project Structure

**Work Package 1**
CORPORATE VISION

**Work Package 2**
HUMAN HEALTH RISK ASSESSMENT

**Work Package 3**
PRINCIPLES ECOLOGICAL RISK ASSESSMENT

**Work Package 4**
SCREENING VALUES

**Work Package 5**
CHARACTERISATION OF THE UNSATURATED ZONE

**Work Package 6**
GROUNDWATER RISK ASSESSMENT

**Work Package 7**
ENVIRONMENTAL ECONOMY

**Work Package 8**
INNOVATIVE TECHNOLOGIES

Discussion forum SOIL
Discussion forum groundwater

ÖNORM WG 157e02
ÖVA
Towards Practical Implementation

- Technical Guidelines for Human Health Risk Assessment
- Risk-based Screening Values for Soil
- Report on Ecological Risk Assessment
- Guidelines for Characterisation of the Unsaturated Zone
- Guidelines for Groundwater Risk Assessment
- Report on Environmental Economics of Remediation Projects
- Platform on Sustainable Remediation Technologies
  *(Workshops, Bulletins, RTD Recommendations)*
Revision of Austrian’s CLM System

Focus of ALSAG 2011 and related ordinances:

• implement a new financial model
• towards risk-based site management:
  - rest contamination/rest risks can be accepted
  - risk-based guideline values have to be developed
  - site specific and landuse related criteria have to be defined
• stimulate application of innovative insitu remediation
• stimulate reuse and redevelopment of contam. land
MERCI
DE VOTRE ATTENTION

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