



EURODEMO

European Co-ordination Action for Demonstration of
Efficient Soil and Groundwater Remediation

*Management & Remediation of Contaminated
Soils & Groundwater*

**TOWARDS INNOVATION &
SUSTAINABILITY**

Dietmar MÜLLER

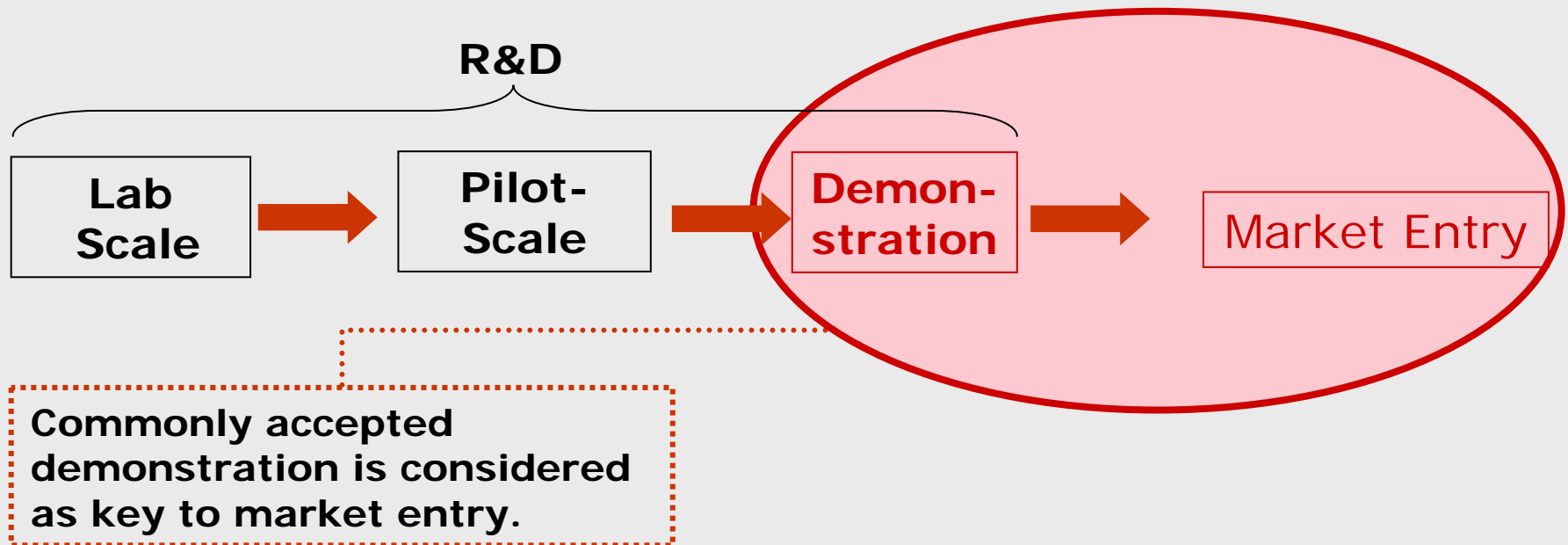
Federal Environment Agency, Austria

FRTR - General Meeting, Washington (D.C.), May 17, 2006

CONTAMINATED LAND – Effects of R&D-Efforts

What`s wrong with innovative remediation technologies?

- Scattered knowledge on successful implementations
- Low visibility on the market
- Lack of confidence in their performance



How to improve the situation?

Possible Responses

→ *Commonly accepted Demo Projects by*

- **an overview** of on-going and completed demonstrations
- **financial co-operation** between MS in demo programs
- **common criteria to show performance** of technologies
 - **Technical reliability**
 - **Environmental criteria**
 - **Economic criteria**
- common protocols for **reporting**

Parallels/Links to
Technology
Verification



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Framing conditions and starting points

Environmental Policy

- *EU Sustainable Development Strategy (2001)*
- *6th Environmental Action Plan (2001)*

Example - EAP Priority area: “Sustainable Use of Natural Resources and Management of Waste”

- to ensure the consumption of renewable and non-renewable resources does not exceed the carrying capacity of the environment;
- to achieve a de-coupling of resource use from economic growth through significantly improved resource efficiency, dematerialisation of the economy and waste prevention;
- to decouple the generation of waste from economic growth and achieve a significant overall reduction in the volumes of waste generated through improved waste prevention initiatives, better resource efficiency, and a shift to more sustainable consumption patterns.



6th Environmental Action Plan & Follow Up Initiatives

Environmental Technology Action Plan (2004)

- Technologies to be verified in European System
- Eco-efficient, evaluated against 'indicators'
- Globally competitive
- Supported financially (risk funding) by the EU and MS

'Thematic Strategy on the Sustainable Use of Natural Resources' (2005)

- Decoupling use of resources from economic growth
- Life cycle thinking integrated to sector policies



Type of project	Co-ordination Action
Duration	3 years / Jan 05 - Dec. 07
Partners	25 partners representing administration, technology developers, service providers, research organisations from 13 EU Member States
Budget	1 million € (funded by the EC, DG Research)
Information	http://www.eurodemo.info
Co-ordination	Federal Environment Agency - Austria dietmar.mueller@umweltbundesamt.at



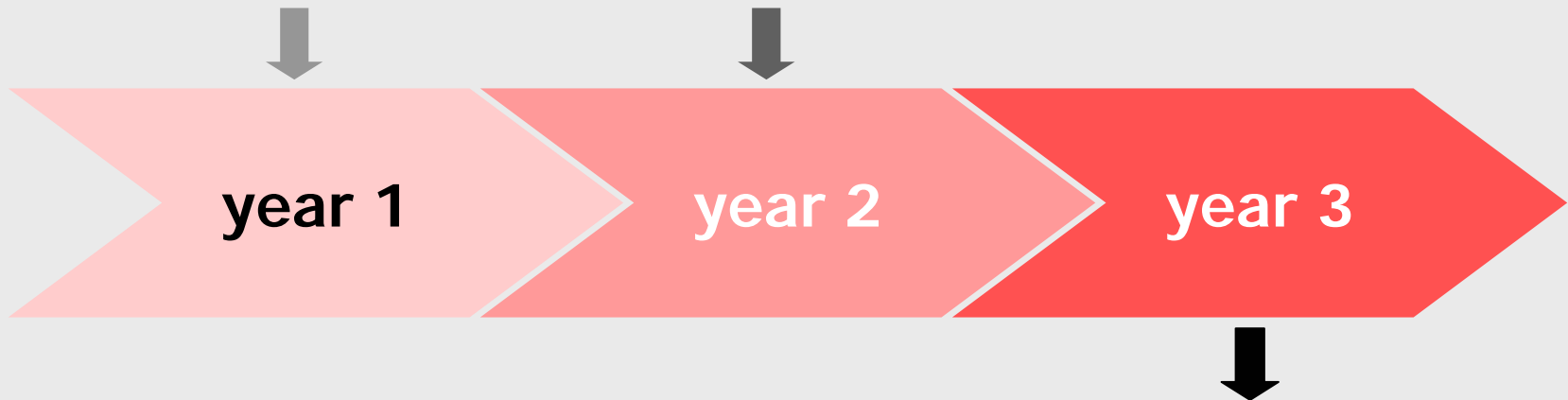
- To accelerate **acceptance** of and
 - To accelerate **market confidence** in
- land remediation technologies
- through **comprehensive information** on demonstration projects in Europe.



Adopted Strategy

EURODEMO absorbs and processes individual information

- on European demonstration projects
- on European demonstration funding opportunities
- on specific end user needs and recommendations



EURODEMO provides reliable/credible information at European scale

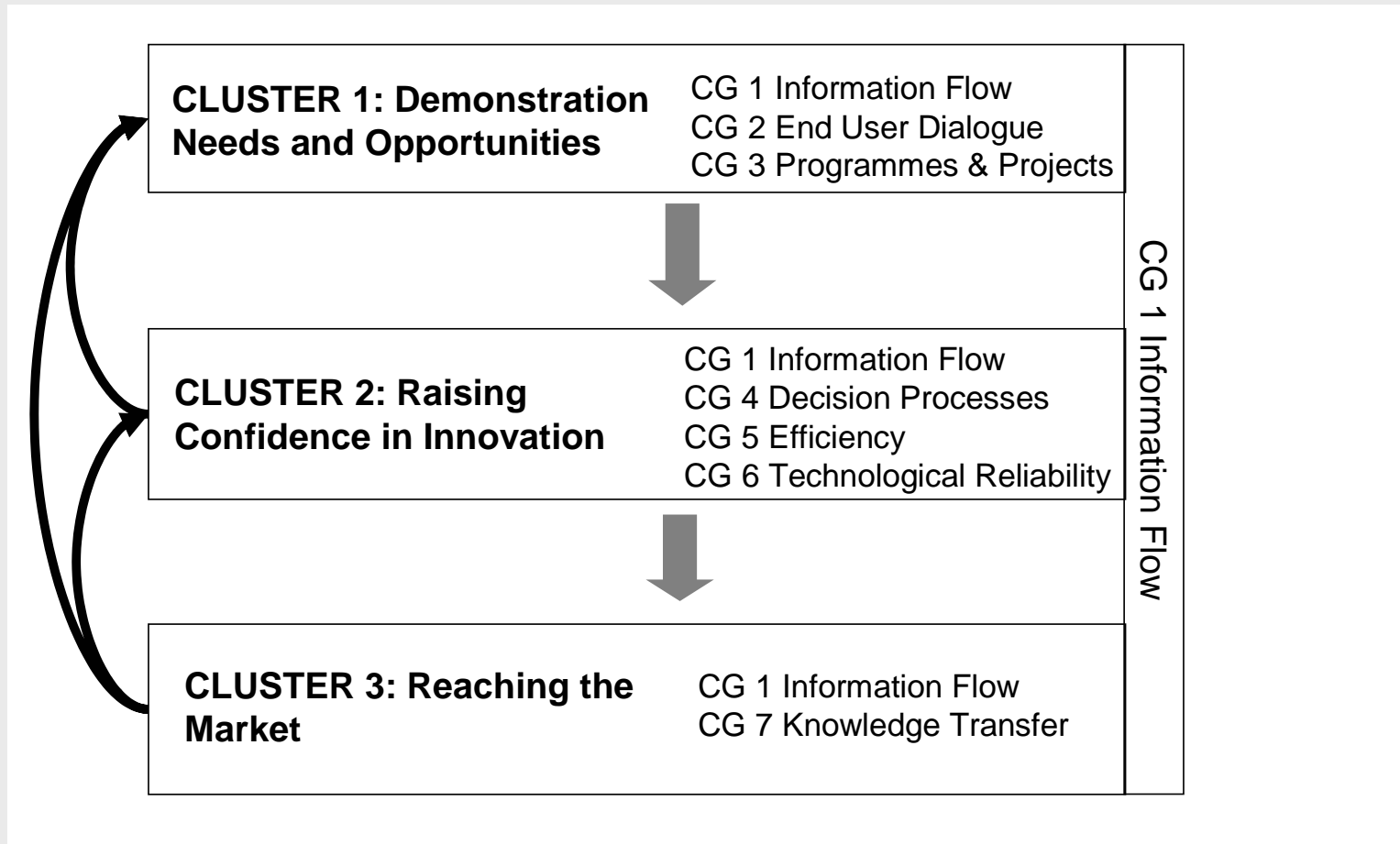
- To create an overview on the European innovation potential
- To increase confidence of technology users in technology applications



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Clusters & Co-ordination Groups



“Demonstration Needs and Opportunities”

Key Activities:

- Analysis and response to “End-User” opinions
- Guidance for planning and documenting demos
- **Prioritisation plan for future Demonstration**
- Demonstration project database (Web Application)
- Catalogue of Funding Opportunities (Web Appl.)

Pave the way for co-operation among existing Demonstration (Funding) Programmes



DEMO PROJECTS DATABASE

The screenshot displays two windows from the EURODEMO Project Survey web application. The top window shows the main survey interface with a navigation menu and a 'Sample Projects' section. The bottom window shows a detailed 'Site Setting, Application & Monitoring' form with a table for 'Contaminants Targeted for Remediation'.

Select Contaminant Species by Contaminant Group or by A to Z Rating	Contaminant Species ()	Media (Soil/Gas etc)	Underground that	Start Max Conc. () mg/kg, mg/L % (dwt)	Start Min Conc. () mg/kg, mg/L % (dwt)	End Max Conc. () mg/kg, mg/L % (dwt)
1. Contaminant Group T	Tetrachloroethane Tetrachlorophenol, 2,3,4,6 Tetraethyl lead Other: (Select Contaminant Group)	Pure Phase Contaminant Layer	Sand and Gravel Other please specify:	54000	18000	800
2. Contaminant Group D	Dichloroethane, 1,2- Dichloroethane, cis-1,2- Other: (Select Contaminant Group)	Ground-water	Alluvium Other please specify:	800	94	0.028
3. HM Heavy metals A to Z	Aluminium Antimony Arsenic Other: (Select Contaminant Group)	Soil	Alluvium Other please specify:	1025	482	50
4. Contaminant Group V	Vanadium pentoxide Vinyl acetate Vinyl Chloride Other: (Select Contaminant Group)	Ground-water	Alluvium Other please specify:	0.026	0.009	0.182

FORM SECTIONS

Introductory Information

Site Setting, Application & Monitoring

Project Participants

Finance

Technology & Decision Processes

Secondary Impacts and Lessons Learned

Project Outputs



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Key Activities:

- To produce **guidance documents** for the evaluation and implementation of remediation technologies for contaminated soil and groundwater, in particular on
 - *Technical reliability*
 - *Environmental efficiency*
 - *Decision Making*
- To pave the way for a **Remediation Technology Promotion Programme**
 - in accordance with ETAP
 - in co-operation with thematically related projects

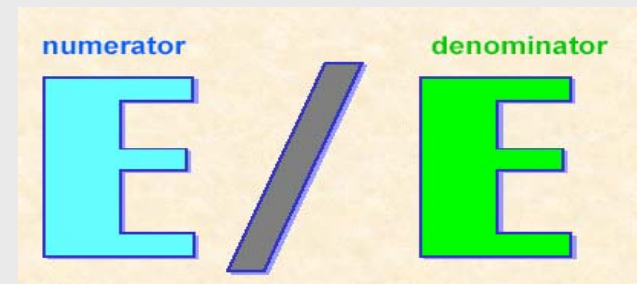


EURODEMO CG5 “Environmental Efficiency” FRAMEWORK **ECO-EFFICIENCY**

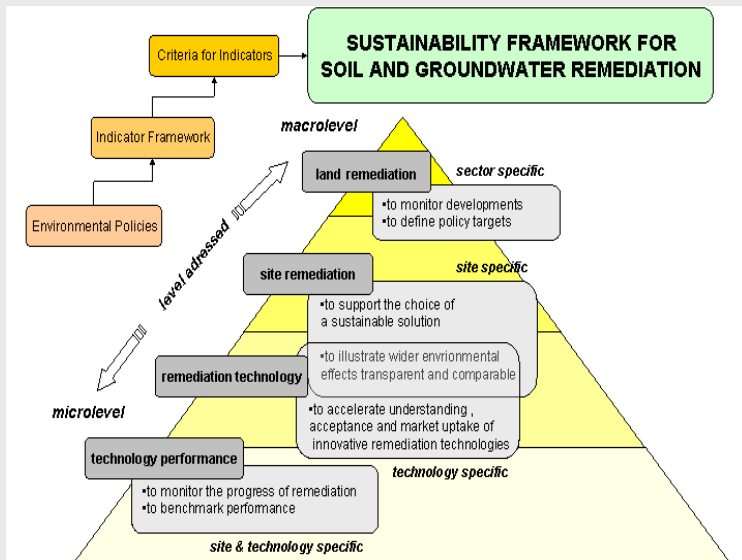
DESIGNED TO

illustrate E/E by variable ratios between value (financial, cost, price, wealth, or social welfare) and environmental impacts

- control easy and effective
- be applied across different levels
- use easily available data
- communicate to involved stakeholders



How to build a Framework for Sustainability? Use of Indicators for Environmental Effects?



Benefits (general)

Rehabilitated area (m²)

Mass of treated contaminants (t)

Mass of treated soil (t)

Wider Impacts (calc. by LCA)

- Energy consumption (kWh)
- Waste generation (t)
- CO₂-emissions (t)
- Traffic (t km)

PURE ABC-tool: – 3 assessment modules

- Technical feasibility
- Benefits
- Costs



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Achieved Results

- **Two Databases** (public & regular update)
 - (1) **demo projects (recent & ongoing)**
 - (2) **funding opportunities**
 - *An Ambassador Network !*
- **Three Status reports**
 - end-user needs,
 - decision making processes and criteria,
 - reliability of remediation technologies (PRB, ISCO, Thermal Treatment, ...)
- **Draft 'Framework for Environmental Efficiency'**



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CG4 – Decision Processes

- Draft Concept for a **Remediation Technology Promotion Program**
- Protocols & Guidance for **Best Practice In Decision Making**

CG5 – Environmental Efficiency Criteria

- Report on **Case Studies**
- Final ‘**Framework for Sustainable Land Remediation and Management**’
- Model protocols and Guidance for **Analytical Assessment Tools**

CG6 – Technical Reliability

- **Lessons learned Report**
- **Guideline and model protocols for checking technical reliability**

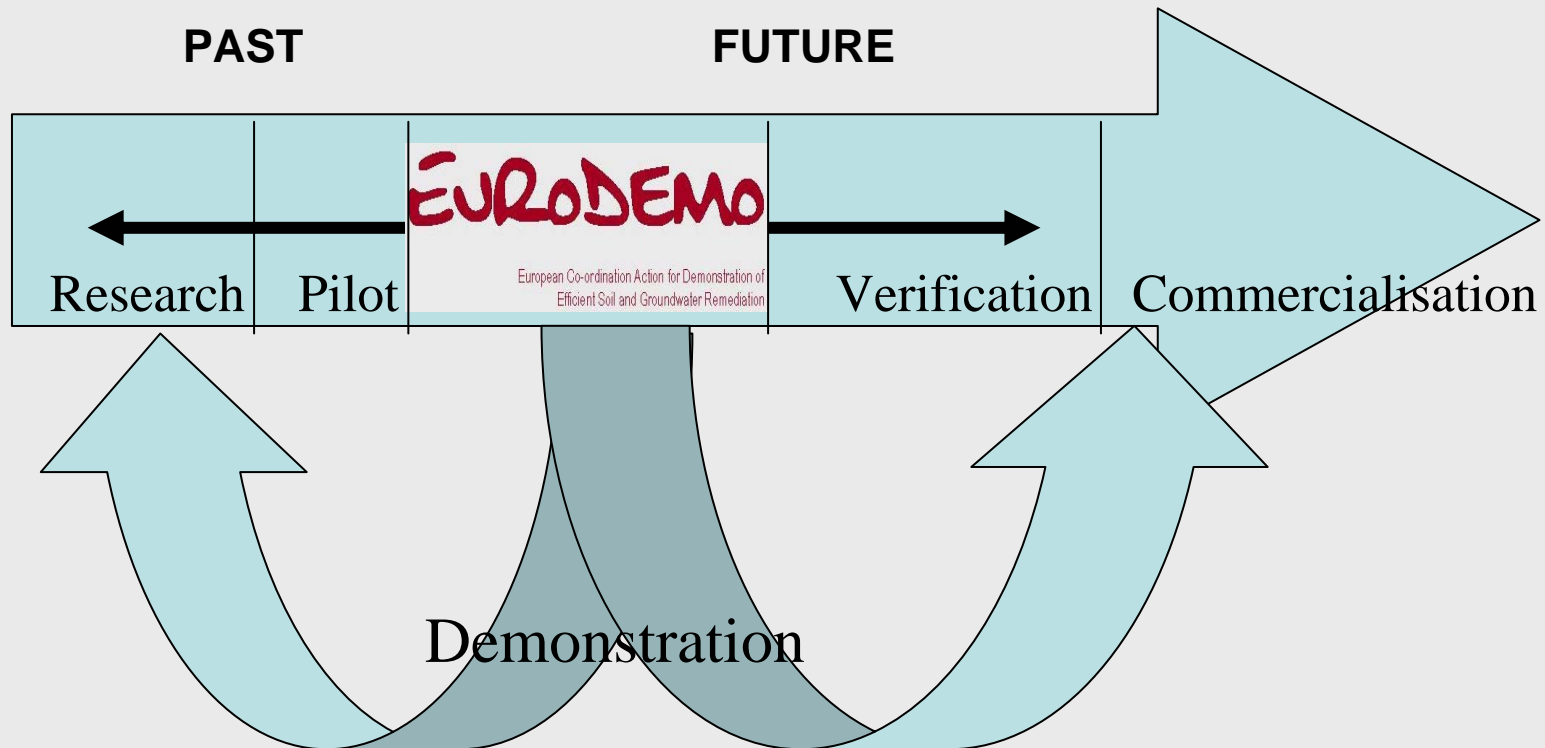


European Verification Program Pilot Phase

- Round table brainstorming with EPA-ETV and ETV- Canada
- JRC/IPTS: study on overall concept (May 2005) & feasibility study (March 2006)
- DG ENV + DG RTD: preparation of a discussion document (summer 2005)
- FP6/RTD pilot projects:
 - PROMOTE (soil and groundwater)
 - TESTNET (clean products, water)
 - further projects on air & waste
- LIFE/ENV – Preparatory action (autumn 2006)



Relation to Technology Verification



Development of an EETV system - *EURODEMO's* role:

- Discuss and support the general process development
- Specific assistance for practical aspects of testing procedures for soil and groundwater remediation technologies

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Key Activities:

- Organisation of **4 “tailor-made” workshops for specific end-user groups**, to collect information and feedback.
- Development of a **EURODEMO business plan**

Discussion: “EURODEMO II”

→ Need for a sustained long-term initiative

→ EUROPEAN DEMONSTRATION PLATFORM



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