

PROMOTE

“Verifying the performance of Environmental technologies – Monitoring and remediation of soil and groundwater “

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13-15 June 2007

Joint ET V meeting

VEGAS, Stuttgart University

www.promote-etv.org

Structure

Objectives

The verification approach

Stakeholder impact

Specific verification components

Verification procedure

Technologies and test sites

CEN workshop procedure

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Objectives

- ETV system development for monitoring and remediation technologies in soil-groundwater systems
- ETV system verification in reference site and field site scale
- Setting-up a “CEN Workshop” procedure to come to a common understanding of verification requirements
 - CEN Workshop Agreement
 - Access to independently developed environmental performance information (as requested by advisory board)

Advisory board

ETV System testing

ETV - Efficiency control and performance verification system

ETV System transfer and dissemination

WP4:
1st stage: Testing of ETV system at a technical reference site, and reference site specification

WP1:
Analysis of existing verification systems

advanced testing

advice

ETV transfer & testing

ETV testing
review

2nd stage: WP5:
Field testing: monitoring tools

WP2:
Development of ETV system

2nd stage: WP6:
Cross sectoral protocol transfer and testing: remediation technologies

external testing

assessment

improvement

improvement

3rd stage: WP9:
External field testing: monitoring tools

WP3:
Basic ETV system assessment and verification

WP7:
Technology and market prospects, dissemination and standardisation

acceptance & further implementation

support & controlling

support & controlling

WP8: Project management

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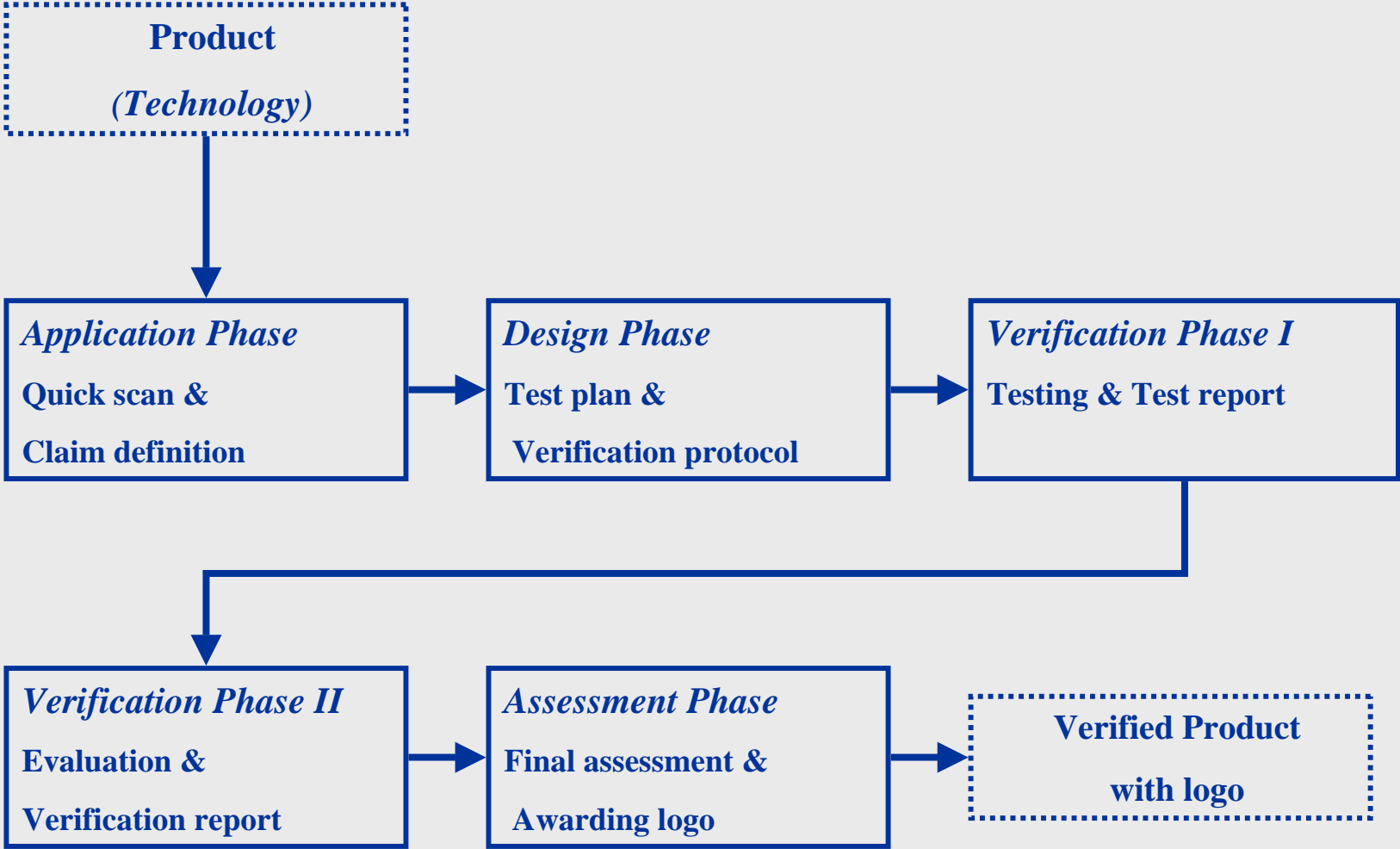
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ETV Concept



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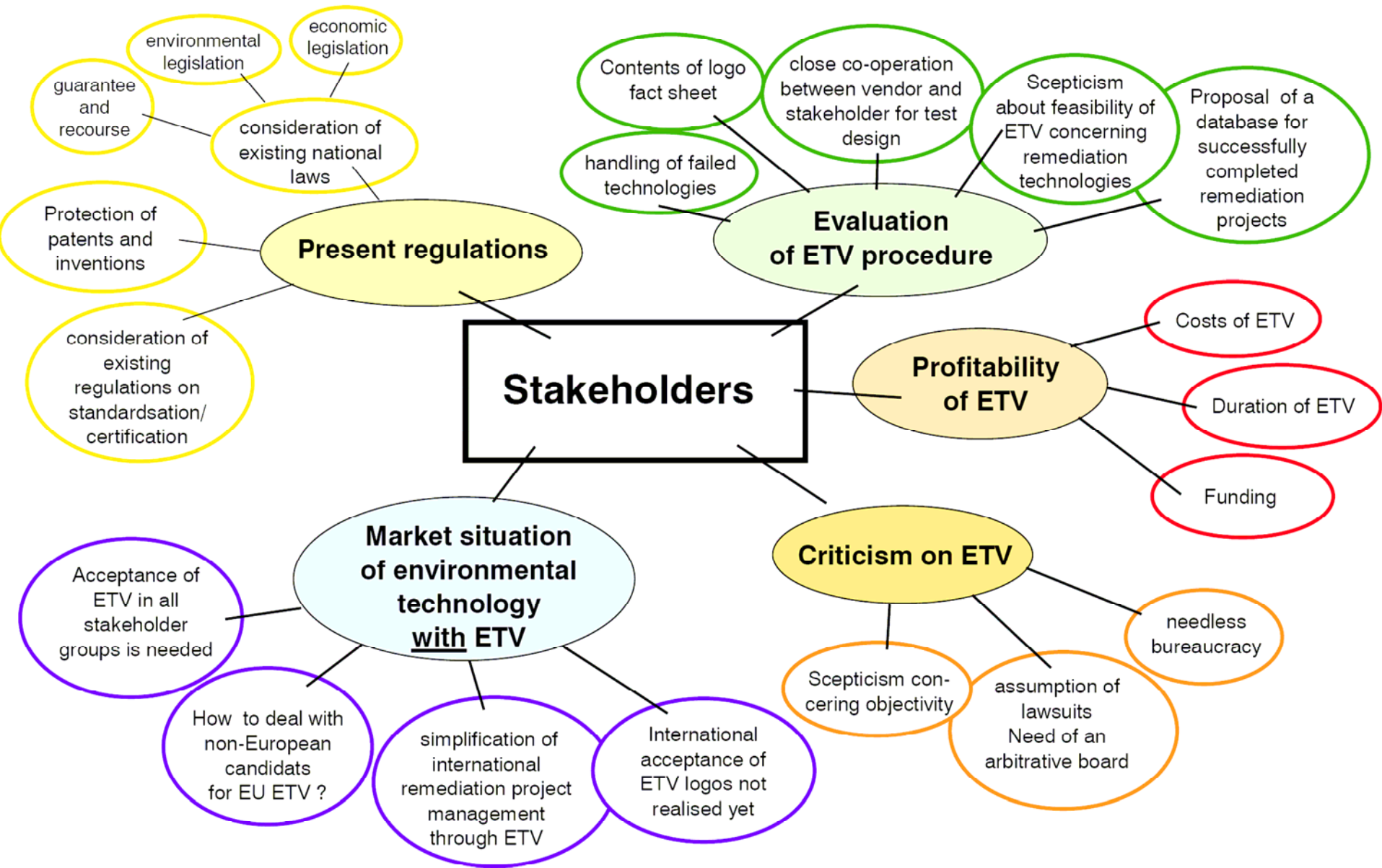
Stakeholder consultation

1. Brussels, 6.-7. November 2006
2. Frankfurt, 21. November 2006
at In-situ remediation Conference
3. Stuttgart, 27. April 2007 at REVIT Conference
together with EuroDemo (brownfield redevelopment
conference)

In preparation:

1. November 2007 Stakeholder consultation at European
Conference on NA and in-situ remediation
2. Spring 2008 Final stakeholder discussion & PROMOTE
presentation at ConSoil (to be confirmed)

Stakeholder consultation



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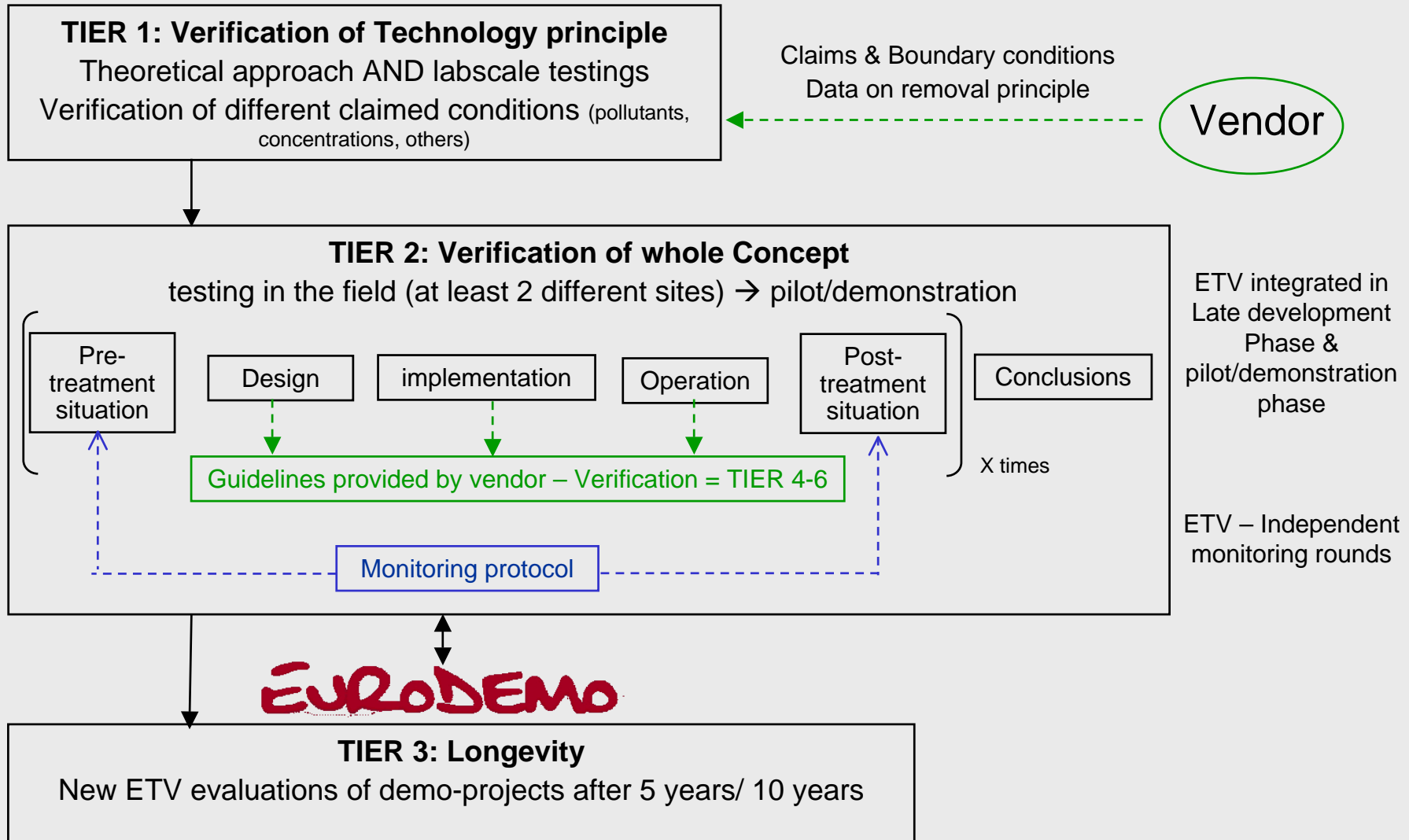
CEN workshop procedure

Promote specific components for verification

Potential Components of Monitoring and Remediation Technologies

	device for site investigation	Monitoring technology	Remediation technology
1. Technology principle, basic scientific principle			tier 1
2. Manual, instruction sheet			
3. Personnel qualification			
4. Design, strategy, engineering, management			tier 4,5,6
5. Technical device, design and operation			
6. Remediation process, installation, operation, maintenance			tier 2
7. Longevity			tier 3

Promote specific components for verification



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Test design

1. Input: Product description and product claim given by vendor
Verification requirements and expectations of all involved parties
2. Preparation of a technology specific **list of claim**
incl. field of application and objectives of the technology
3. Evaluation of available tests whether they contain results that state accuracy of claim and reduce verification tests
4. Selection of a test lab together with vendor (preset in this case)
5. Design of test procedures to verify each of the objectives
Definition of: kind, number and duration of tests;
sampling procedures; reference method; test site

Test implementation and documentation

1. Input: Technology manual/instruction sheet, information on basic principle (optional) technical device, requirement on user qualification, design/strategy for technology implementation, Design protocol of test procedure prepared by VB
2. Preparation and detailed description of test site
3. Installation and adjustment of device, considering manual/instruction sheet, personal qualification, design/strategy and detailed documentation of installation and adjustment
4. Performance of test, incl. documentation of operation, test conditions, problems
5. Documentation of test results

Evaluation of tests

1. Input: Data from test design and implementation phase
2. Evaluation of test implementation
3. Evaluation of the quality of test results
4. Evaluation of the test results, compared to results of reference method/procedure, if available
5. Evaluation of the test results, compared to the claim being defined in design phase

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Technologies and test sites

On-site and in-situ monitoring and sampling devices for site characterisation:

- A sensor array for volatile organic compounds in the unsaturated zone (in direct push cone)
- A fibre optic photometer for dissolved PAH & BTEX in groundwater (in direct push cone)
- A photometer for dissolved Phenols, DOC, and Electron acceptors
- Active and passive multilevel groundwater sampling systems

Remediation technologies:

- Bio augmentation
- In-situ chemical oxidation
- Co-solvent and surfactant flushing
- Permeable reactive barriers

Technologies and test sites



Site Location Map



Reference Site



1st Field site



Further field sites will be selected during the project

Reference site verification

Technologies:

- VOC sensor for unsaturated zone
- Fibre optic photometer for dissolved PAH & BTEX
- Photometer for dissolved Phenols, DOC, and Electron acceptors
- Passive multilevel groundwater sampling systems

- Quick scan input protocols completed
- Technology descriptions completed
- Elaboration and improvement of detailed protocols
- Actually: technology testing

Field site testing

Schedule:

- Mid March 2007 Report on new field site
- Mar.-Jun.2007 Field test planning
- 30.06.2007 Final decision on need of new monitoring wells
- 06.07.2007 Application for wells that need permission
- 07/08 2007 Site preparation for ceramic dosimeter
- 15.08.2007 Installation of wells (optional)
- 07.09.2007 Wells available (optinal)
- Mid Sept. 2007 Twice pumping of new monitoring wells
- 30.09.2007 Representative sampling campaign all wells
- 01.-05.10.2007 Field site testing
- Early 2008 Implementing results into ETV system

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CEN Workshop in PROMOTE

PROMOTE

CEN Workshop 32:
Environmental Technology Verification for
Soil/Groundwater Remediation and Monitoring Systems
(ETV-SGS)

Kick off: April 25, 2007; Stuttgart, Germany

Final approval: August 15, 2008

