timbre

Tailored Improvement of Brownfield Regeneration in Europe

timbre – Tailored Improvement of Brownfield Regeneration in Europe

TIMBRE acknowledges the co-financing from the European Commission – Framework Programme 7
Grant number 265364

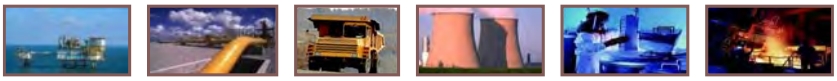
timbre

1. Revitalisation of Megasites
2. timbre project
3. Work Packages
4. timbre test sites

1. Revitalization of Megasites A challenging legacy

timbre

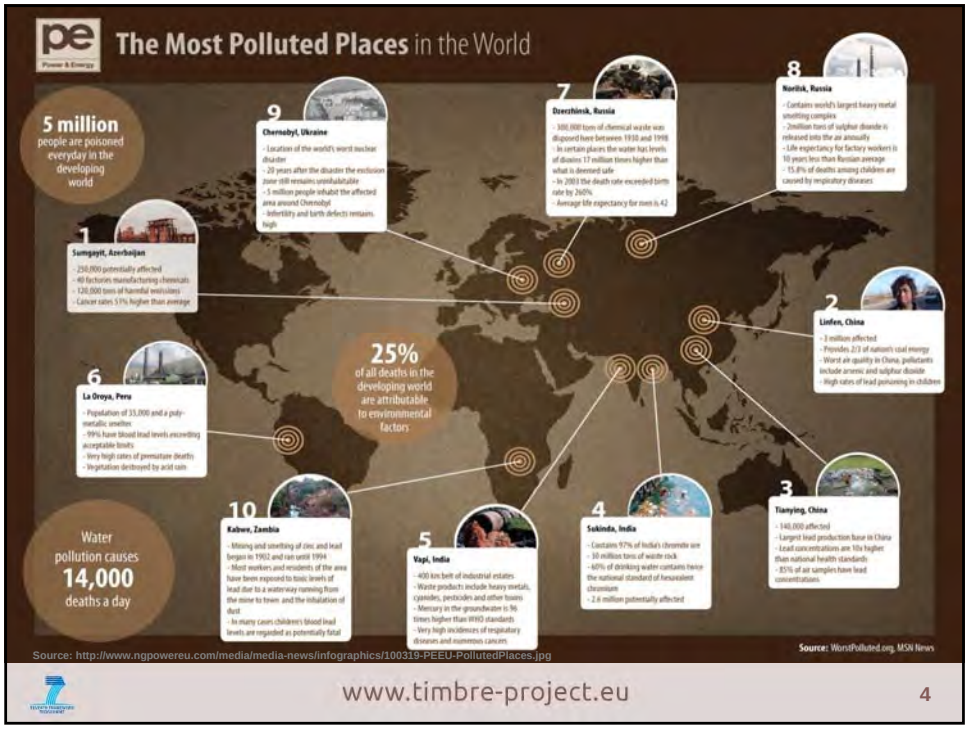
- **Contamination**: The occurrence of a certain substances in the environment due to anthropogenic activities, such as industrial production, waste disposal, mining, military or agriculture. Contamination can be diffuse distributed or appear locally.



Oil | Gas | Mining | Power | Chemical | Steel

- The public has to take over **liabilities** in case the polluter can no longer be held responsible or even be identified.

Sources: JRC (2005) and Haemers (2008)



1. Revitalization of Megasites
Megasites in Europe

timbre

- Conservative **Estimates**:
  - 20.000 Megasites in Europe
  - in 100 years this problem will still exist
  - Remediation costs: > 100 Billion €

www.timbre-project.eu 5

1. Revitalization of Megasites The need for re-development

timbre

- Improvement of a community's long-term **quality of life**
- Protection of ecosystem functions and human health
- Soil is increasingly seen as a scarce, non-renewable resource. EC 2011 Roadmap: reduce **land consumption** to zero by 2050
- **Investing in Megasites** increases local tax bases, facilitates job growth, utilizes existing infrastructure, takes development pressures off of undeveloped, open land
- But: There is **no general solution** to be applied – revitalization of Megasites needs an integrated approach

www.timbre-project.eu 7

timbre

Tailored Improvement of Brownfield Regeneration in Europe

GESA

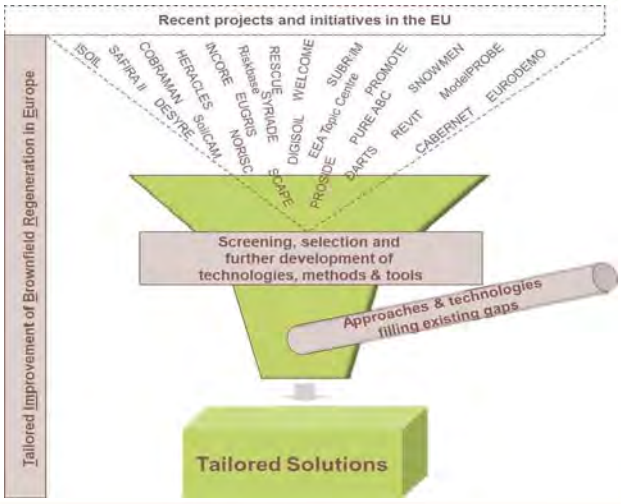
Institute of Geonics AS CR, v. v. i.

SolGeo

HELMHOLTZ ZENTRUM FÜR UMWELTFORSCHUNG UFZ

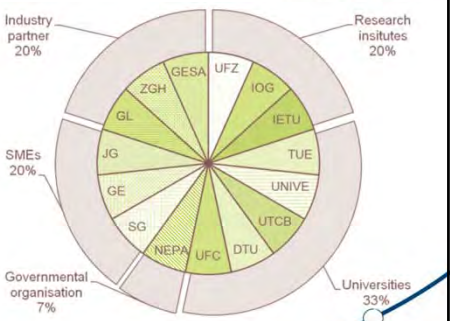
www.timbre-project.eu 8

2. timbre project Vision



2. timbre project Key facts

SEVENTH FRAMEWORK PROGRAMME



- FP7 Collaborative Project
- Duration: 01/2011 – 06/2014
- 15 Partners & International Advisory Board
- Budget: 4.7 Mio €, EC-Funding: 3.4 Mio €

2. timbre project Partner

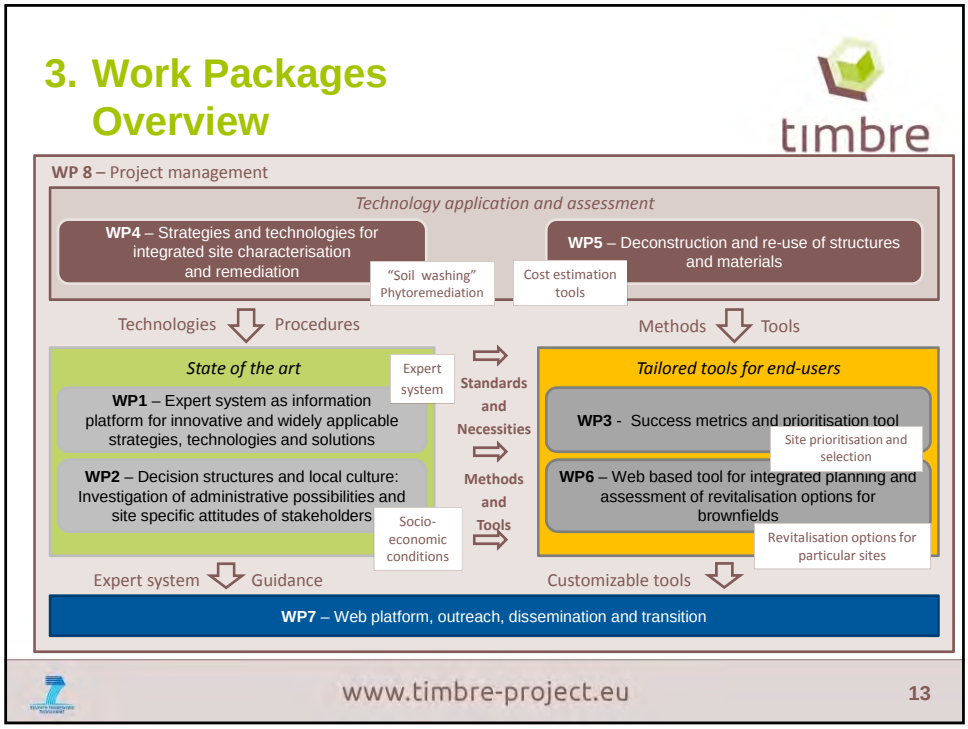
- Helmholtz-Zentrum für Umweltforschung GmbH – UFZ - Germany
- Eberhard Karls Universität Tübingen - Germany
- Ústav geoniky AV ČR, v.v.i. - Czech Republic
- Universita ca' Foscari Venezia - Italy
- Universitatea Tehnica de Constructii Bucuresti - Romania
- Danmarks Tekniske Universitet - Denmark
- Agentia Nationala Pentru Protectia Mediului - Romania
- Instytut Ekologii Terenow Uprzemyslowionych - Poland
- SOLGEO AG - Switzerland
- Fugro Consult GmbH - Germany
- GeoExperts Dr. Kühne & Partner - Germany
- Zabar Group Holding Sarl - Germany
- Universite de Franche-Comte - France
- Jena-Geos® Ingenieurbüro GmbH - Germany
- GESA Gesellschaft zur Entwicklung und Sanierung von Altstandorten mbH - Germany

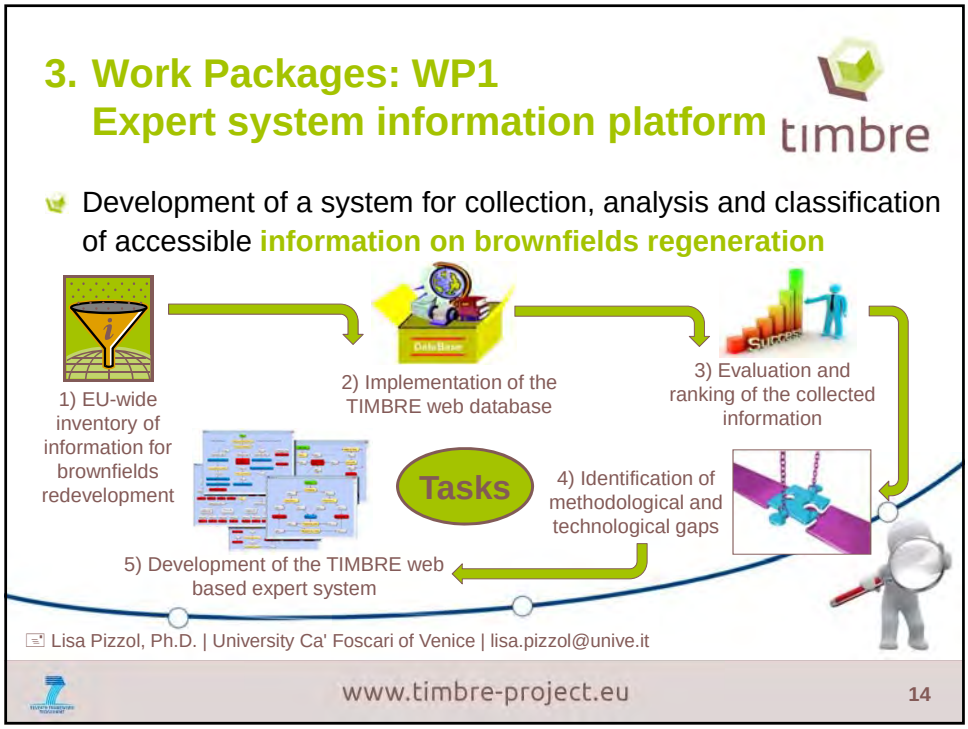
www.timbre-project.eu 11

2. timbre project Objectives

- Collect, evaluate, classify relevant **information**, programmes, projects and accessible data related to Megasite regeneration
- Consolidate **technologies** for brownfield regeneration
- Identify impacts due **decision structures** and local culture
- Develop tools for **prioritisation** and classification of brownfields
- Develop tools for evaluating and **planning** remediation solutions
- **Improve** "in-situ" or "on-site" methods and technologies
- Developing **web-based information platform** for Megasite regeneration

www.timbre-project.eu 12


3. Work Packages Overview
timbre
WP 8 – Project management
Technology application and assessment
WP4 – Strategies and technologies for integrated site characterisation and remediation
"Soil washing" Phytoremediation
Cost estimation tools
WP5 – Deconstruction and re-use of structures and materials
Technologies
Procedures
Methods
Tools
State of the art
Expert system
WP1 – Expert system as information platform for innovative and widely applicable strategies, technologies and solutions
WP2 – Decision structures and local culture: Investigation of administrative possibilities and site specific attitudes of stakeholders
Socio-economic conditions
Standards and Necessities
Methods and Tools
Tailored tools for end-users
WP3 - Success metrics and prioritisation tool
Site prioritisation and selection
WP6 – Web based tool for integrated planning and assessment of revitalisation options for brownfields
Revitalisation options for particular sites
Expert system
Guidance
Customizable tools
WP7 – Web platform, outreach, dissemination and transition
www.timbre-project.eu
13


3. Work Packages: WP1 Expert system information platform
timbre
Development of a system for collection, analysis and classification of accessible information on brownfields regeneration
1) EU-wide inventory of information for brownfields redevelopment
2) Implementation of the TIMBRE web database
3) Evaluation and ranking of the collected information
Tasks
4) Identification of methodological and technological gaps
5) Development of the TIMBRE web based expert system
Lisa Pizzol, Ph.D. | University Ca' Foscari of Venice | lisa.pizzol@unive.it
www.timbre-project.eu
14

3. Work Packages: WP2 Cultural and decision structures

timbre

- **Understanding** local specificities, possible barriers and unused potential in fostering tailored brownfield revitalization
- **Gathering** the points of view of different stakeholders with variable interests in brownfield regeneration

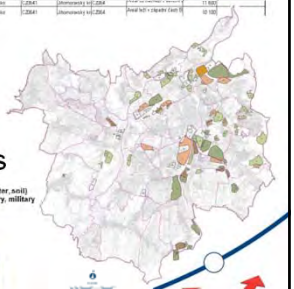
- **Encouraging** continuous stakeholder dialogue to understand changing needs, priorities and interests

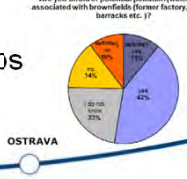
Filip Alexandrescu, Ph.D. | Helmholtz-Zentrum für Umweltforschung - UFZ | filip.alexandrescu@ufz.de

3. Work Packages: WP3 Success metrics and prioritisation

timbre

- Analytical: **Success metrics**
  - collecting databases questionnaire surveys, stakeholders per-spective, successful project trajectories
  - framework of indicators, spatial analysis and classification, determinants of success
- Application: **Prioritization tool**
  - web based databases & maps
  - interactive modules
  - best practice strategies





Petr Klusáček, Ph.D. | Ústav geoniky AV ČR | klusacek@geonika.cz

3. Work Packages: WP4 Characterisation and remediation

timbre

- Testing the feasibility and potential of **phytoremediation**
- Feasibility testing: specific **soil washing with recycled foams**
- Novel strategies for effective site characterisation & monitoring of subsurface contamination & remediation:



a) **tree core sampling**
b) **direct push/shallow soil probing**
applied adaptively, assisted by numerical modelling;
with aims to **test feasibility, limitations, effectiveness**

- Which measures may be **successful and appropriate** at a site?


Dr. Arno Rein | Danmarks Tekniske Universitet | arnr@env.dtu.dk

3. Work Packages: WP5 Deconstruction and re-use

timbre

- **EU-wide evaluation** of practices and regulations
- Environmental and economic **impact assessment**:

re-use



deconstruction

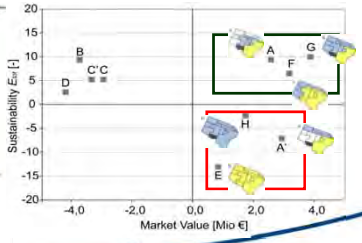
- Approaches for **sampling** and **planning** of deconstruction
- Economic and environmental friendly **recycling** of rubble
- Improvement of **working safety** and **emission** protection

Peter Hagemann | GeoExperts Dr. Kühne & Partner | hagemann@geoexperts.de

3. Work Packages: WP6 Assessment of re-use options

timbre

- Supporting contaminated brownfields revitalisation in the screening stage through integrated assessment
- Estimation of risks, costs and benefits of future site use options
- **Software tool** to help & inform decision makers and stakeholders



Dr. Michael Finkel | Eberhard Karls Universität Tübingen | michael.finkel@uni-tuebingen.de

3. Work Packages: WP7 Dissemination & Web platform

timbre

- Mission: A **targeted dissemination** of timbre outcomes with appropriate publication formats tailored to the demands of Megasite owners, developers, regulators and other stakeholders
- Set-up and maintain an end-user friendly **web-based information platform** on brownfield regeneration
- Organisation of specific training opportunities and **events** for stakeholders and experts involved in Megasite redevelopment
- Continuous **publication of timbre materials** (books, articles, presentations, guidelines)

Stephan Bartke | Helmholtz-Zentrum für Umweltforschung - UFZ | stephan.bartke@ufz.de

3. Work Packages: Key-Results

WP1 – Expert system as information platform	August 2013	TIMBRE web-based expert system
WP2 – Decision structures and local culture	August 2012	Report on regional decision structures
WP3 – Success metrics and prioritisation	August 2013	Prioritisation tool, software and manual
WP4 – Characterisation and remediation	December 2013	Feasibility of phytoremediation and of specific soil washing
WP5 – Deconstruction and re-use	March 2013	Report efficient strategies to recycle building rubble
WP6 – Assessment of re-use options	September 2013	Web-based tool
WP7 – Dissemination & web platform	October 2013	Web-based tool suite including data-bases

www.timbre-project.eu 21

4. TIMBRE test sites

www.timbre-project.eu 22

4. TIMBRE test sites: Brno, Czech Republic

Former machinery plant and metal foundry
2 ha

4. TIMBRE test sites: Hunedoara, Romania

Former coke production, ironworks, steel plant
138 ha

4. TIMBRE test sites: Ostrava, Czech Republic

Former factory for re-generation of used oils
7 ha

4. TIMBRE test sites: Potsdam-Krampnitz, Germany

Former military base by Soviet Army
120 ha

4. TIMBRE test sites: Solec Kujawski, Poland

Former wood impregnation plant
80 ha

www.timbre-project.eu 27

4. TIMBRE test sites: Szprotawa, Poland

Former military airbase with fuel storages
200 ha

www.timbre-project.eu 28


timbre
Tailored Improvement of Brownfield Regeneration in Europe
Thank you for your attention!
www.timbre-project.eu
Contact: timbre-info@ufz.de
TIMBRE acknowledges the co-financing from the European Commission – Framework Programme 7
Grant number 265364