



# 4 countries: differences, strengths & bottlenecks

Paris, November 16th 2010

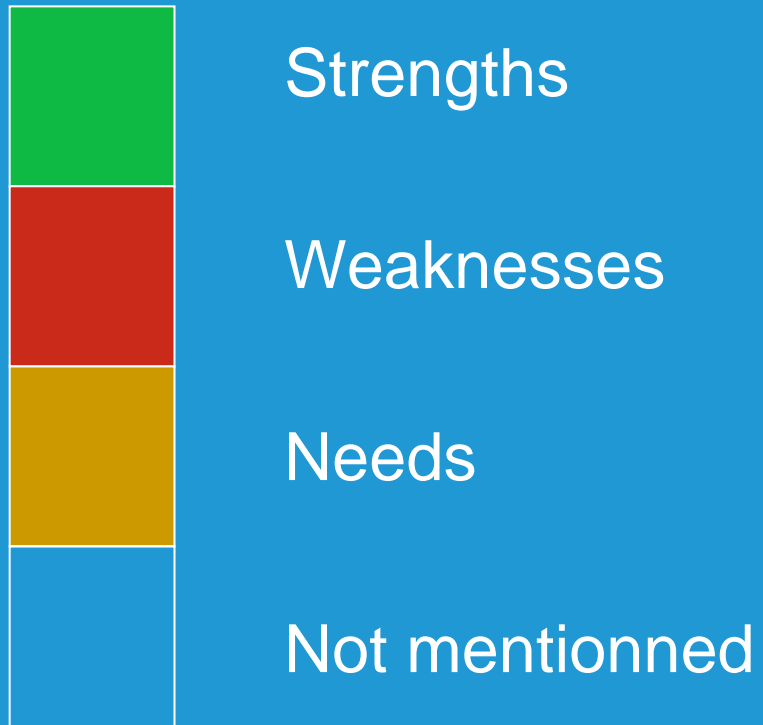




**Social & economical aspects  
(WP4)**

**Remediation  
(WP3)**

**Characterization  
(WP2)**





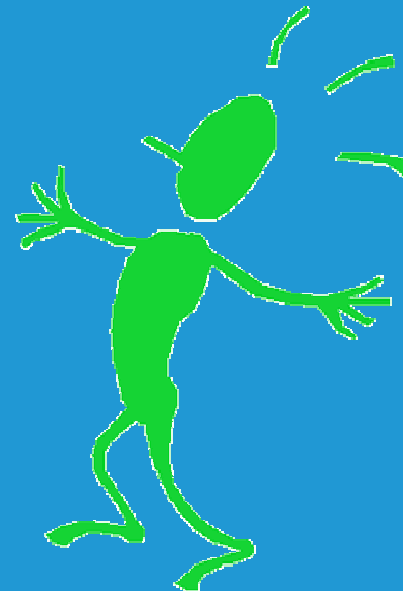
## Before starting:





Topics taken from testimonials, regional workshops  
→ question of sample representativeness?











### Our main aims:





- Show what are partner countries' main interests/points of view.
- Show there could be elements in one country which could answer to questions from another country.
- Bring you some matter/elements to feed discussions during the afternoon.







Topics				
Remediation Objectives		Remediation goal (for historic pollution) = risk removal	Remediation goals defined functions to the use of site (instead of values)	
Success of remediation ?				
Certification				





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Success of remediation ?		Focussed on values		Weak concentrations after treatment ?
Certification		Accreditation system for experts is crucial		





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Success of remediation ?		Focussed on values		Weak concentrations after treatment ?
Certification	Accreditation structure	Certification of experts, central evaluation of projects (by OVAM)	Certification of experts, central evaluation of projects	Under final progress





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Remediation Objectives		Remediation goal (for historic pollution) = risk removal	Levels / steps of a remediation with project objectives should be defined instead of values.	
Success of remediation ?		Focussed on values		Weak concentrations after treatment ?
Certification	<p style="text-align: center;"><b>Certification for remediation experts</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>			

Topics				
<p>R&amp;D projects &amp; Innovative techniques on field</p>				
<p>MNA</p>				
<p>Guidelines</p>				

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R&D projects  &  Innovative techniques on field	<p>Several R&amp;D projects on innovative techniques</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>			
MNA				
Guidelines				

Topics				
R&D projects & Innovative techniques on field	ATES	In recent years a number of innovative projects initiated  Nano-iron injection	KORA, RUBIN, SAFIRA, and other BMBF fundet projects	ATTENA, Kinetics of Biodegradation
MNA				
Guidelines				

Topics				
<p>R&amp;D projects &amp; Innovative techniques on field</p>	<p>Several R&amp;D projects on innovative techniques</p> <div style="background-color: red; color: white; padding: 10px; text-align: center;"> <p>Sector using VOH is small and little cost-intensive</p> <p>Financial consequences in case of bank guarantee</p> </div>			
MNA				
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R&D projects & Innovative techniques on field	<p style="text-align: center;">Several R&amp;D projects on innovative techniques</p> <div style="text-align: center; background-color: red; color: white; padding: 10px; width: fit-content; margin: 0 auto;"> <p>Experts have to 'Play it safe'</p> </div>			
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R&D projects & Innovative techniques on field	<p style="text-align: center;">Several R&amp;D projects on innovative techniques</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="background-color: #92d050; padding: 10px; border: 1px solid white; text-align: center;"> <p>Remediation fund Vlabotex can act as puller</p> </div> <div style="background-color: #4CAF50; padding: 10px; border: 1px solid white; text-align: center;"> <p>Several techniques on the market, in Demo projects and in remedies</p> </div> </div>			
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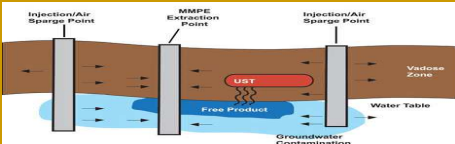
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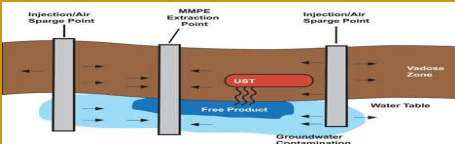
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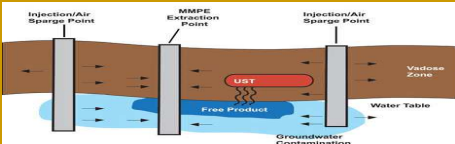

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<p><b>MNA</b></p>		<p>Already accepted as technique, code of good practice exists</p>	<p>Some MNA Cases in different Bundes-LÄNDER are implemented</p>	<p>Have a bad reputation: « wait and let go with »</p>
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<b>Guidelines</b>	Several guides and information available	Codes of good practices for common techniques: large reference basis	Several technical guides available, Continuing education and information workshops	Several technical guides





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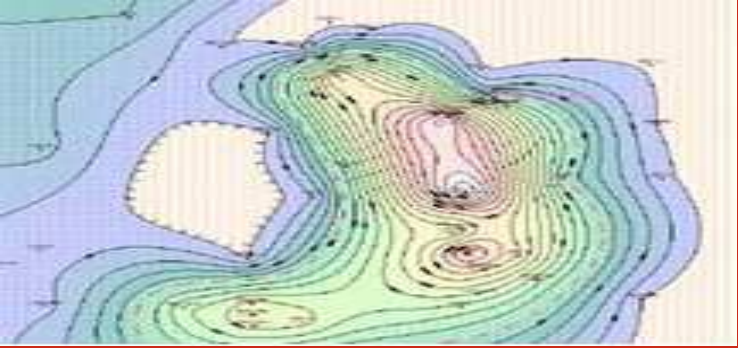
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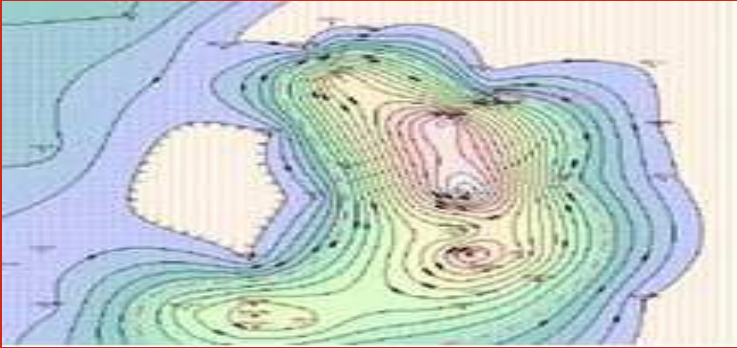
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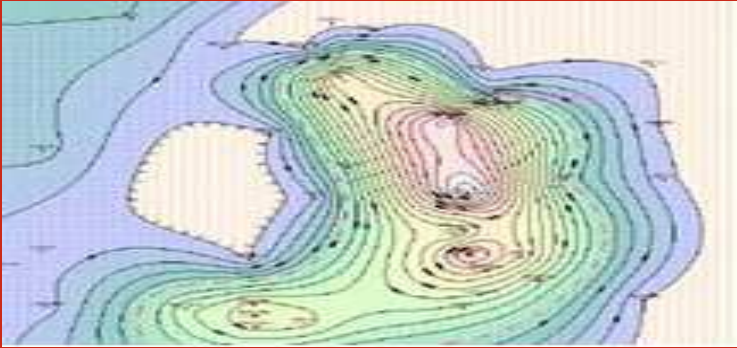
Topics				
Source remediation				
Plume remediation				





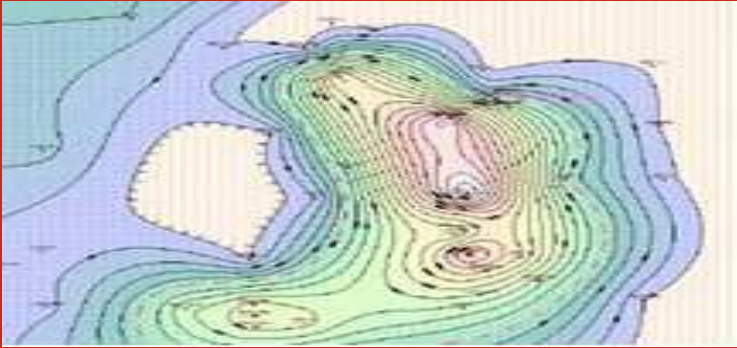
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Source remediation			in situ technologies, thermal treatment, ISCO, air sparging	
		initiation of separate approach source (active approach, in-situ) - plume (passive approach of control)		Venting also used
Plume remediation				






Topics				
Source remediation		focus too much on overall contour instead of sources (changing)	in situ technologies, thermal treatment, ISCO, air sparging	No fixed definition of a "source zone"
		initiation of separate approach source (active approach, in-situ) - plume (passive approach of control)		Excavation mainly used
				Venting also used
Plume remediation				Weak concentrations reached after treatment = "source zone"?





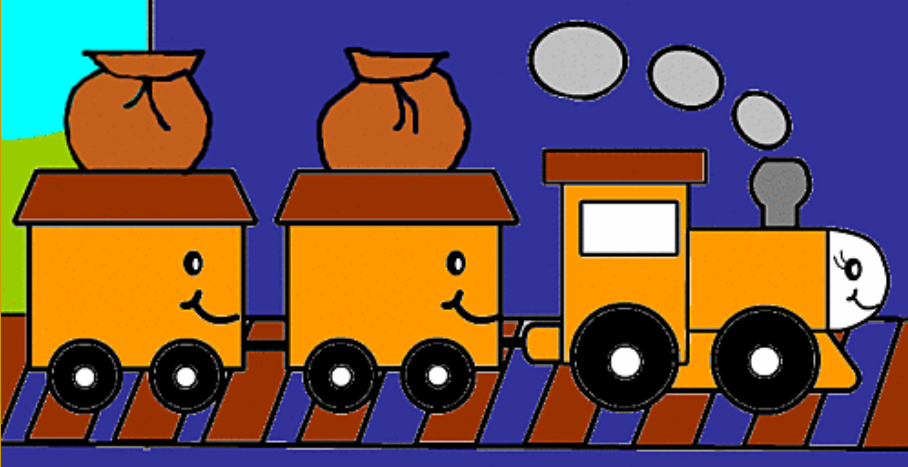
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Source remediation	<p><b>1 common point: Diffuse sources and large spread pollution: very difficult to treat (economically)</b></p> 			
Plume remediation			PRB, several microbiological technologies, ENA	Hydraulic barriers are regularly installed to control plume migration

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Plume remediation			PRB, several microbiological technologies, ENA	Hydraulic barriers are regularly installed to control plume migration
			Pump and treat mainly used	

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Source remediation	<p><b>1 common point: Diffuse sources and large spread pollution: very difficult to treat (economically)</b></p> 			
Plume remediation			Investigations on NA potential and plume stationarity	Hydraulic barriers are regularly installed to control plume migration

Topics				
Source remediation	<p><b>Inefficient P&amp;T measures or invasive excavation solution can be improved or replaced through the use of in-situ remediation methods</b></p> 			
Plume remediation				





Topics				
Source remediation	<p><b>Combining decontamination techniques more efficient</b></p> <p><b>According to the "Treatment Train" philosophy, different remediation techniques should be applied successively.</b></p>			
Plume remediation				





Topics				
Remediation in urban environment				
Treatment monitoring / evaluation				
Feedback				





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Remediation in urban environment				Remediation consequences on geotechnical behavior of soils?
				Metabolites behaviour in case of incomplete chemical degradation?
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Treatment monitoring / evaluation	New monitoring strategies & techniques		Acceptance of values as function of site use (Risk based approach) → Monitoring concepts	
Feedback	Experts improve knowledge & combi remediation with ATEs	How can exchanges of knowledge and experience be enhanced?	Experts have to improve their knowledge improvements and perform these by routine	



Any question ?







**Social & economical aspects  
(WP4)**





**Remediation  
(WP3)**





**Characterization  
(WP2)**







[within bracket] : feedback coming from other sources than the regional workshops

Topics				
Certification	[Accreditation structure]	Accreditation system for experts		[Under final progress]
Availability of codes of best practice and standard procedures	[Exist but are outdated ]	Barrier for innovation	Large reference basis	Available
		<u>But</u> large reference basis		<u>But</u> single reference needed
Invest in diagnosis		More intensive surveys = more efficient remediation projects		
Source characterization and conceptual site model		Pay more attention to source characterization		No definition of a "source zone"

Topics				
Innovative techniques	[Available but need for more cost-effective on larger scale]	Little driving force for innovation (all parties prefer to 'play it safe')	Available	New portable characterisation tools needed
			Knowledge transfer from R&D to practice needed: get out of the pilot !	
Area oriented approach	[Need for legislation]	[Legislation already includes an onset (site approach), elaboration needed]	Investigation strategy to determine fluxes being adopted increasingly	
Standards for risk assessment			[Threshold values available and applied (soils), recommendations for indoor air]	Soils : none Gw, air : incomplete !

Topics				
Transfer models (except groundwater)	[Available but need for validation with experiments, too conservative]		[Available but needed or applied ? Empirical rules]	Insist on uncertainties (over- but also under estimation)
Indoor air measurement in relation with soil pollution	[Need for a protocol]	[Protocol (will be updated)]	[Need for a protocol]	[Protocol just written]
Control in indoor air after construction				Not done : - Who would bare the consequences? - Dissuasion effect?
Representativeness of soil gas sampling				Time and scale ?

Topics				
<b>VOHC measurement in soil</b>	[Not considered as a problem: standard used]	[Soil analysis questions : « neglected »]	[Not considered as a problem: standard used]	[Differences 1 protocol but...]
<b>Soil surveys</b>		Techniques for detection and characterization		
<b>Urban background pollution</b>	[soils : values and prescriptions available]			How to take it into account ?
<b>Monitoring GW</b>	Innovative tools are tested and used	Tools and techniques for long-term, large scale monitoring	[Guidelines existing, but innovative technologies not applied]	How and when to stop ? How to optimize ?
<b>Groundwater surveys</b>	Large scale survey need new cost-effective methods	Focus too much on delineation of contours	3D image	

Thank you for your attention

Questions

