



Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

International Approaches in Identification of Sectors

Risk based prioritization of sector

24 October 2023

Boudewijn Fokke
Soil Consultancy



Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Content

- Objectives presentation
- What is the problem with our soil?
- Soil function are at risk
- The steps to be taken
- Soil policy and policy priority
- Legal instruments
- Financing
- Professional community
- Strategy
- High risk/priority sectors
- Inventory of selected priority sector
- Selection of high risk sites of priority sector
- Remediation cost selected high risk sites of priority sector
- Set up financial instrument
- Make choices
- Examples (Dutch approach, Germany and Denmark)



Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Objectives presentation

1. Sketch process before the actual site management starts
 2. Summarize what is needed to manage contaminated site
- Legislation with realistic frameworks
 - Enforcement of the legislation and maintaining economic and social activities
 - Realistic budget estimate covering site assessment, remediation and monitoring and aftercare
 - Realistic financial instrument
 - Sectoral approach but make choices
 - Cooperation from the selected sector
 - An inventory of sectors with a high likelihood of having contaminated sites
 - Informed professional community to carry out the job



Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

What is the problem with our soil?

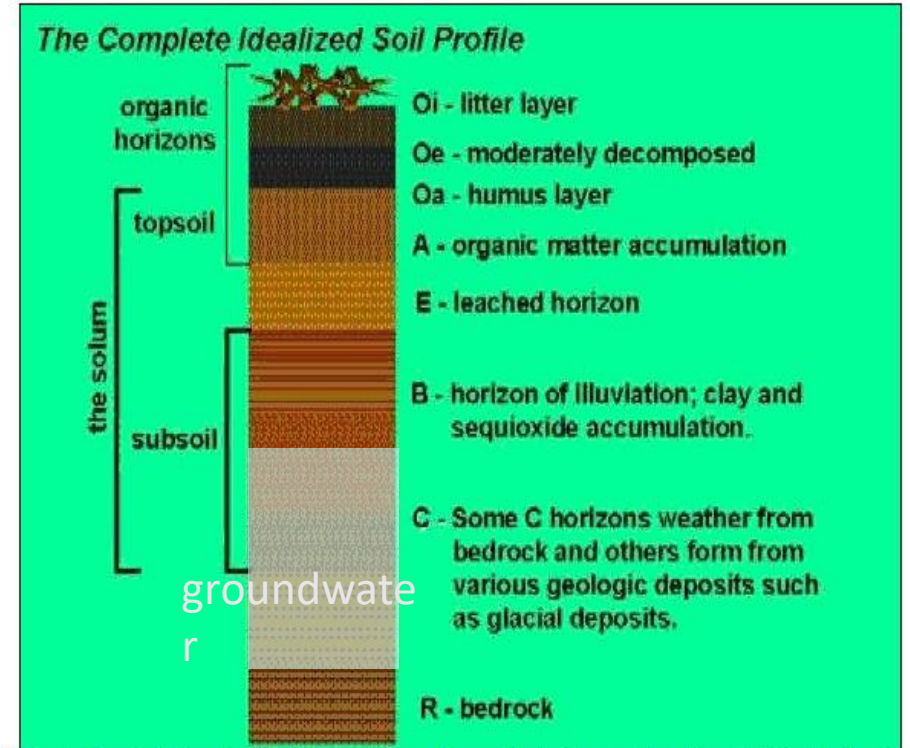




Bu proje Avrupa Birliği ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Soil functions are at risk

1. Production of safe food
2. Storing / filtering / transforming of
 - ✓Minerals
 - ✓Water
 - ✓Organic matter
 - ✓Energy (natural gas, coal, crude)
3. Providing
 - ✓Clean water
 - ✓Raw material
4. Platform for human activities
5. Biodiversity

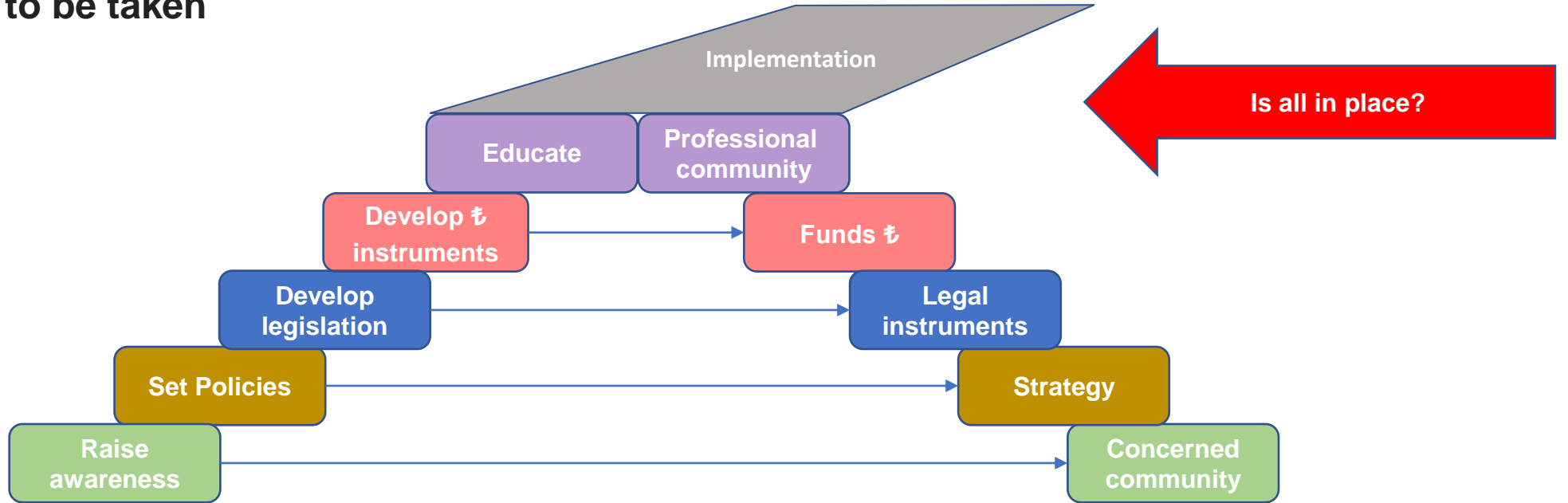


A brief explanation of soil horization. Not all layers are necessarily present in all soil types and the relative depth of each horizon will vary among soil types.



Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

The steps to be taken





Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Soil policy

Trigger to develop soil policy

1. Environmental concerns

- ✓ Human health threat
- ✓ Ecological damage
- ✓ Nature preservation
- ✓ Public awareness

2. Economical concerns

- ✓ Enable spatial developments
- ✓ Groundwater protection
- ✓ Agricultural land protection
 - Guarantee food safety
 - Maintain area of cultivable land

Setting goals and monitoring process

Balance between soil protection, land management and site remediation



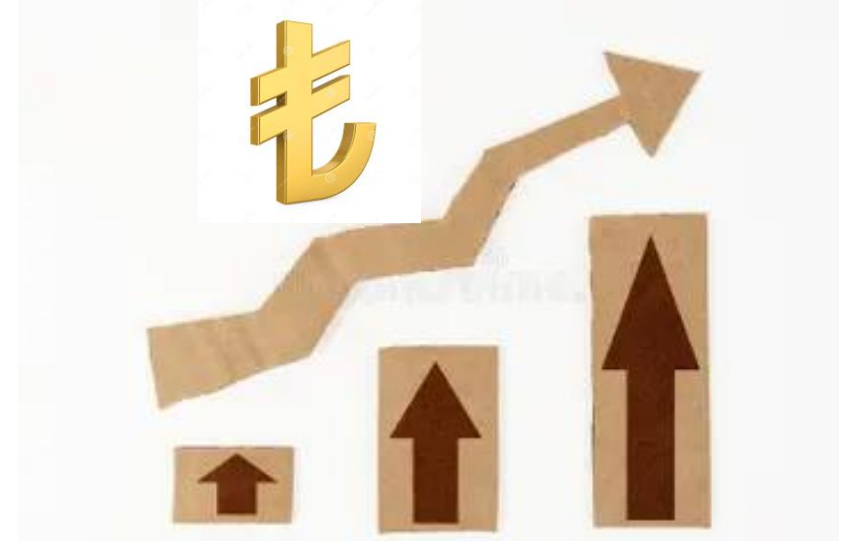
Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Policy priorities

Cost to sustainably manage soil*

1. Soil protection and prevention "1"
2. Risk-based land management "10"
3. Site remediation "100"

*Soil, groundwater and sediments





Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Legal instruments

- Liabilities and accountabilities
- Responsibilities and tasks public & private sector
- Land registration
- Technical support
- Quality Assurance and Control
- Enforcement



Legislation & enforcement



Technical guidelines



Quality Assurance and Control



Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Financing

Principles applied

- Polluter pays principle
- Risk based implementation
- Maintaining economic and social activities

Co-financing

- Oil industry in - NL
- Dry cleaners - Belgium
- Private - Germany



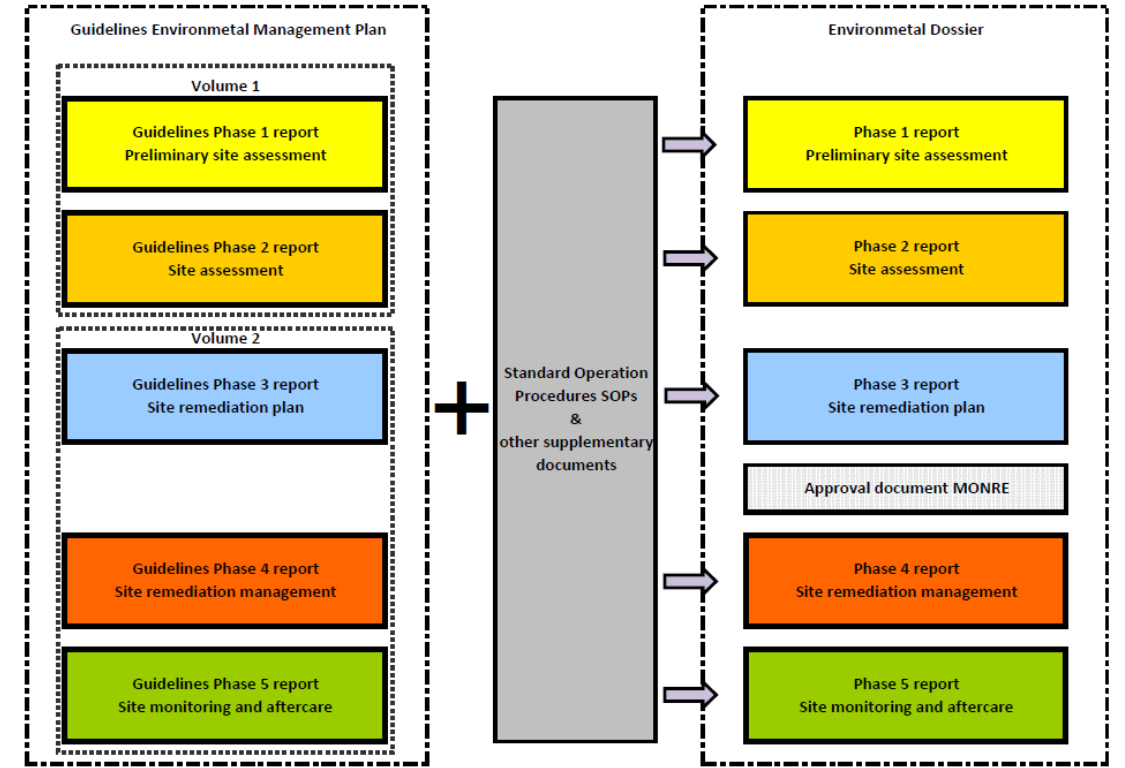
Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Professional community

Education training and communication

Technical aspects

- ✓ Site inventory
- ✓ Landuse planning
- ✓ Quality standards and risk assessment instruments
- ✓ Guidelines site investigation and remediation
- ✓ Quality assurance and control

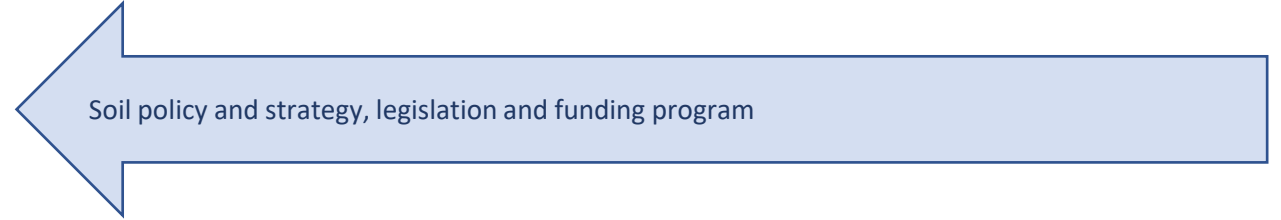


Strategy

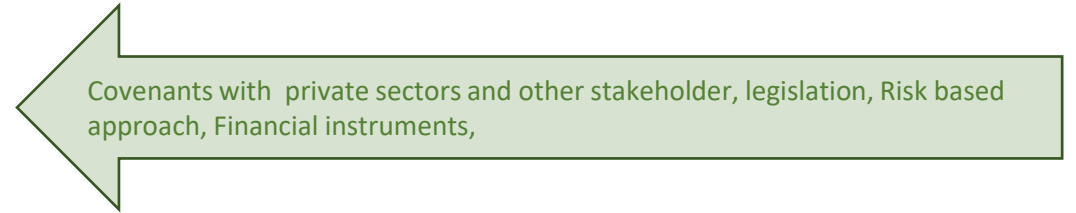


Bu proje Avrupa Birliği ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Country Level
Initiate, Motivate &
Facilitate



Region Level
Agree, Enable, Prioritize, Co-fund,
Legalise, Enforce & Monitor



Site & City Level
Investigate, Prioritize, Invest, Contract, Remediate,
Sustain, Monitor & Aftercare





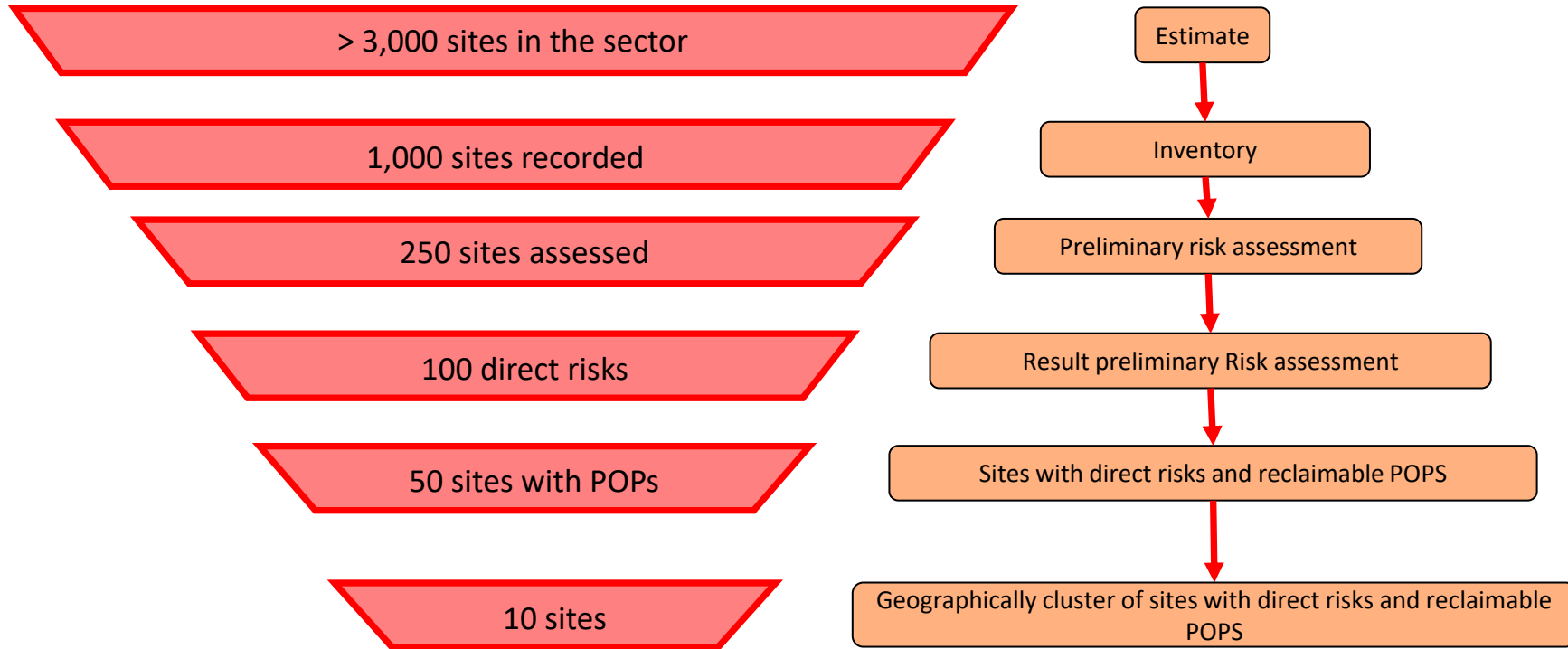
Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

What are high risk/priority sectors



Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Inventory of selected priority sector





Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Remediation cost selected high risk sites of priority sector



Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Set up financial instrument



Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Make choices

Examples (Dutch approach, Germany and Denmark)



Bu proje Avrupa Birliđi ve Trkiye Cumhuriyeti tarafından finanse edilmektedir.

Examples

- Dutch approach,
- Germany
- Denmark



Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Conclusions

To successfully implement sustainable management of contaminated sites you need

- Legislation with realistic frameworks in timing, and goals
- Enforcement of the legislation but maintaining economic and social activities
- Realistic budget estimates covering site assessment, remediation and monitoring and aftercare
- Realistic financial instrument
- Sectoral approach but make choices
- Cooperation from the selected sector
- An inventory contaminated site of the selected sector
- Informed professional community to carry out the job



Bu proje Avrupa Birliđi ve Türkiye Cumhuriyeti tarafından finanse edilmektedir.

Thank you very much for your attention

Any questions?

SOIL PROTECTION

- 1. TECHNICAL GUIDELINES AVAILABLE**
- 2. EMBEDDED IN NATIONAL PERMITTING PROCEDURES
(FOR COMPANIES)**
- 3. OR EU LEGISLATION (e.g. AGRICULTURE AND
LANDFILLING)**
- 4. SOME EXAMPLES**

EPILOGUE

1. DIFFERENT TYPES OF SITES REQUIRE DIFFERENT APPROACHES

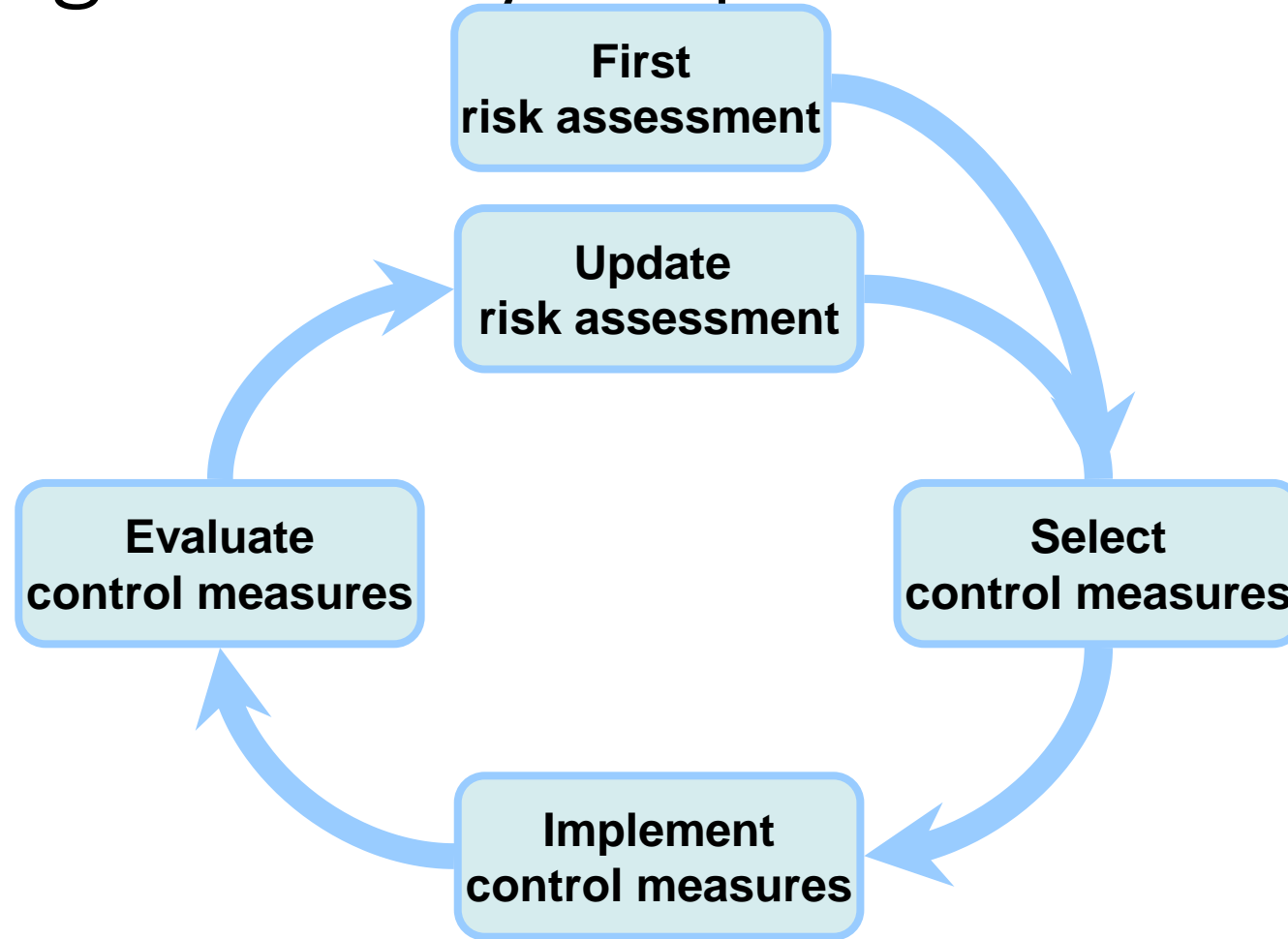
- **AREAS: RISK-BASED LAND MANAGEMENT**
- **SITES : REMEDIATION**
- **COMBINATION OF BOTH**

2. AVAILABLE:

- **POLICIES AND LEGISLATION**
- **MANAGERIAL EXPERIENCES**
- **OPERATIONAL TECHNOLOGIES**

The Guidelines

Risk Management Cyclic process



Remediation scheme

step	Mobile contamination	Immobile contamination
1	Remove all contaminated soil and groundwater, unless ...	Don't remove any polluted soil, but level-up with soil cover and/or make pavement, unless ...
2	Remove as much as possible, so no further spreading occurs, unless ..	Remove as much of the polluted as necessary for making a soil cover or pavement, unless ...
3	Remove so much pollution, as no further spreading <30 years, unless ...	Remove more polluted soil for the construction of building pits, etc., unless ...
4	Install lining or geohydrological barrier tot avoid spreading of the pollution by groundwater	Remove all polluted soil for the construction of building pits or because it is cost-effective
	Goal: maximal removal; minimal aftercare	Goal: minimal removal; sufficiant reduction of risk

Cause for remediation

- Transfer of ownership



- Actual risks (current use)



- Future use / change of



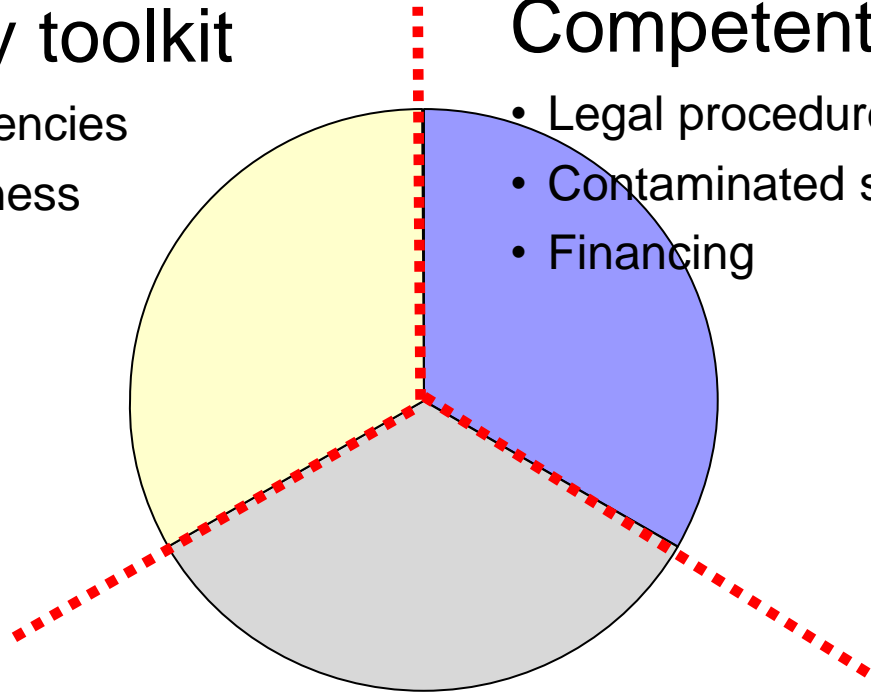
Aspects of soil environmental management

Technology toolkit

- Removal efficiencies
- Cost effectiveness
- Best practices

Competent authorities

- Legal procedures
- Contaminated site inventory
- Financing



Consultant / contractors

- Site Conceptual Model (CSM)
 - Technology selection
 - Process management

Focus on protecting the people

