

Parallel session by Baltic Urban Lab project:

Finding ways to implement sustainable remediation through procurement

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LAITINEN, Jarno

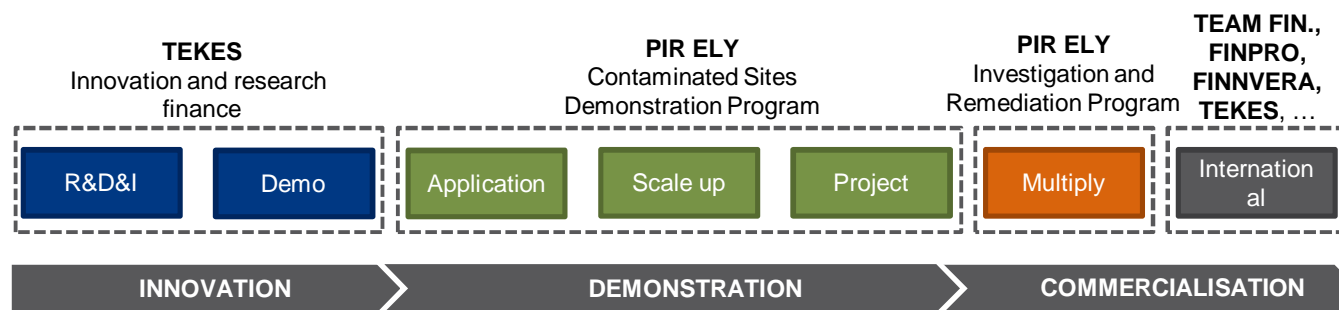
M.Sc., Project Manager

Contaminated Sites Demonstration Program

Centre for Economic Development, Transport and the Environment

Contaminated Sites Demonstration Program

- § Contaminated Sites Demonstration Program forms a part of the National Risk Management Strategy for Contaminated Land and is implemented as part of the government strategic reform projects in “Circular Economy and Clean Solutions”.
- § Objective of the Contaminated Sites Demonstration Program is to advocate sustainable contaminated land risk management and remediation practices and processes, advance cleantech entrepreneurship and international co-operation.
- § The program is coordinated by the Ministry of the Environment and executed by the Centre for Economic Development, Transport and the Environment



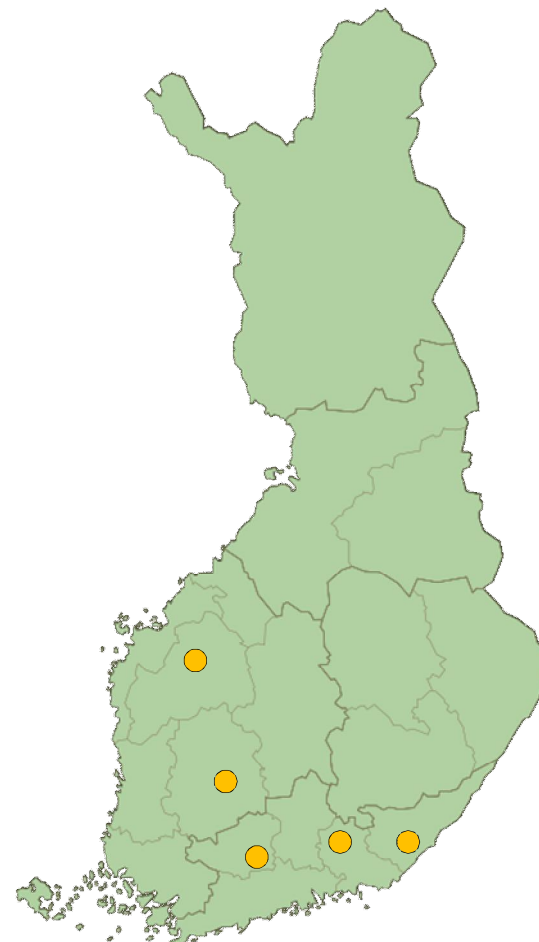
Contaminated Sites Demonstration Program

National Pilot Projects for sustainable CLRM

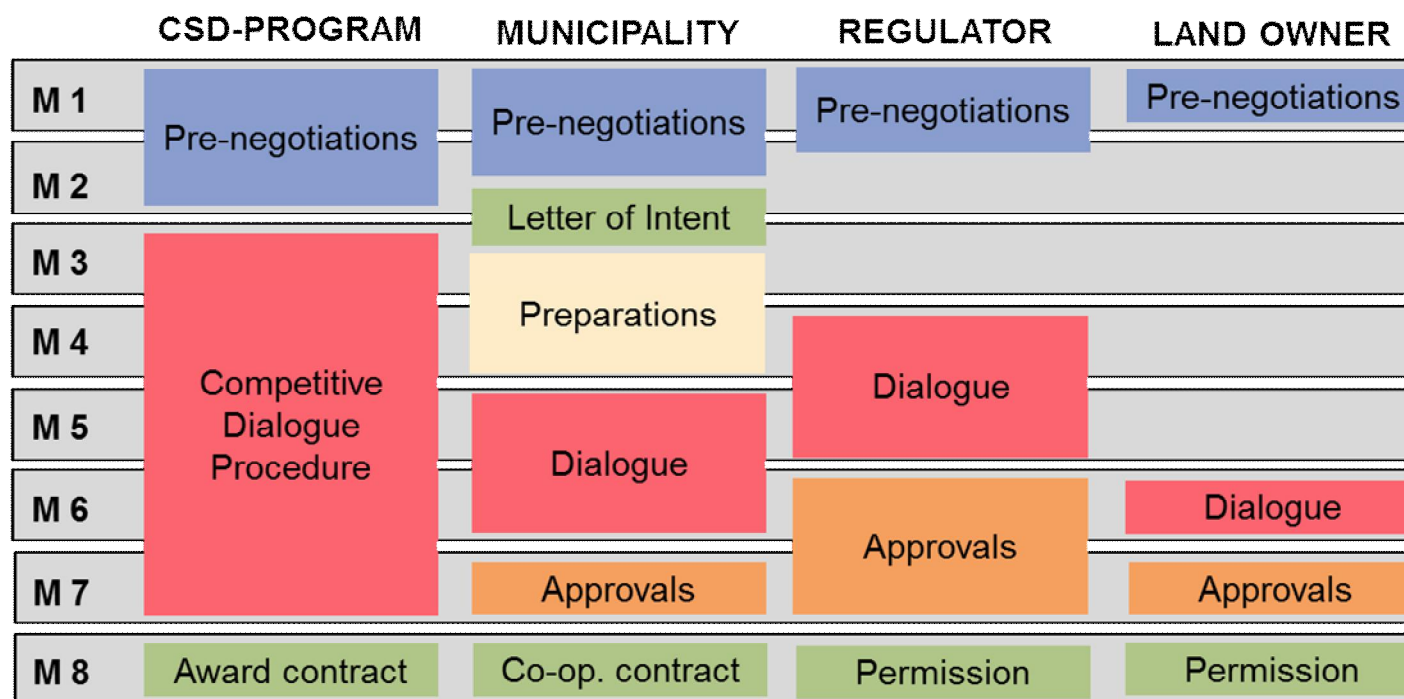
- § National pilot projects are executed by the CSDP.
- § Focus of the pilot projects is on increasing sustainable RM and remediation
- § Pilot projects are implemented on “orphan” brownfield sites
- § Need to remediate has been risk-based evaluated.
- § The primary goal of the projects is to:
 - reduce environmental and health risks from cont. soil and GW
- § The secondary goals of the projects are to:
 - develop and disperse know how on managing complex brownfield/ind. sites
 - Integrate sustainable remediation practices to state funded projects
 - showcase opportunities and benefits of state-of-the-art in situ remediation
 - enhance the national remediation market dynamics for futures benefit.

Background of the pilot sites

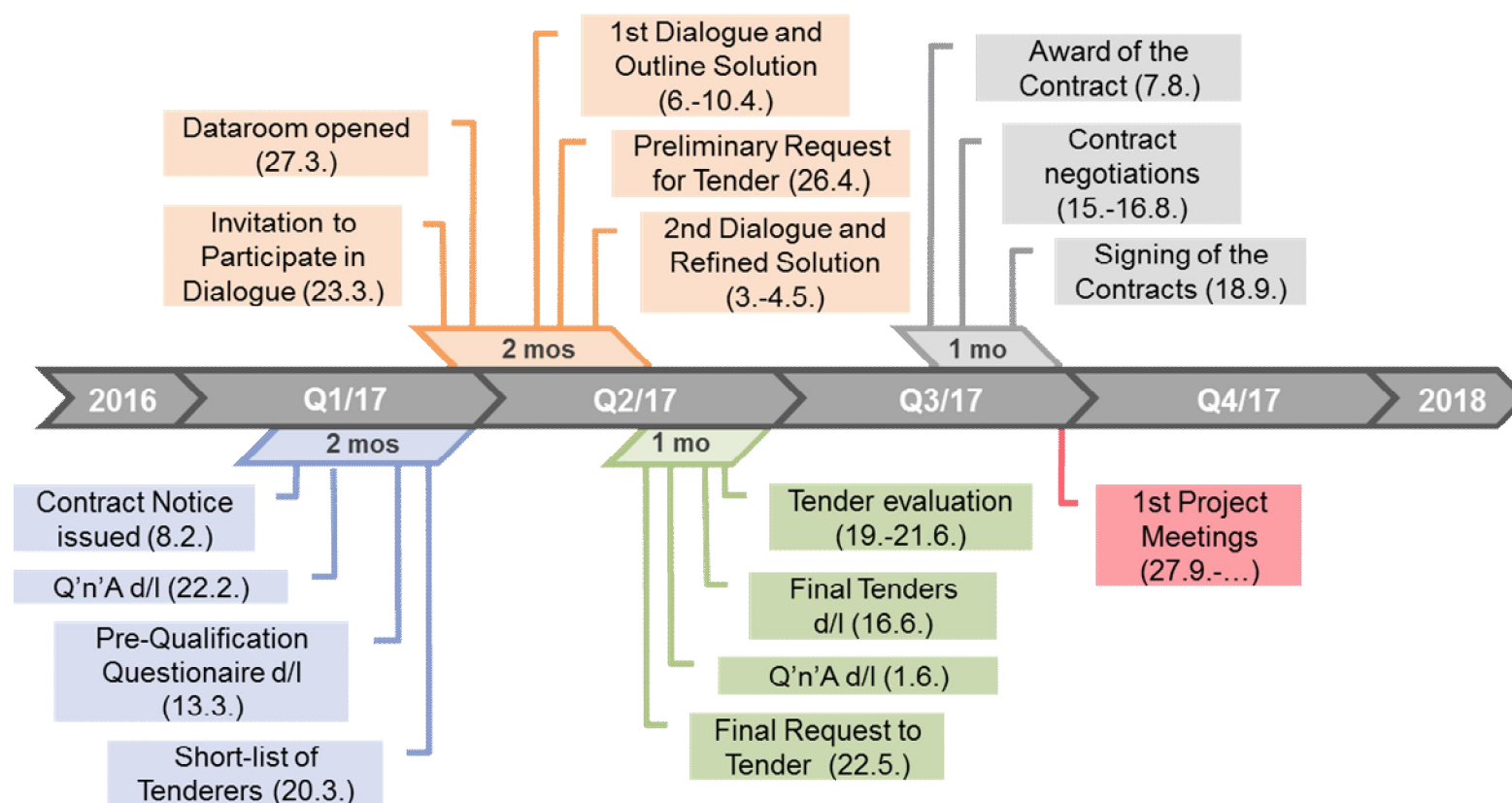
- § Five industrial/brownfield sites, located at five different municipalities across Finland
- § Contamination has, or is currently threatening to, cause closure of the municipal groundwater (GW) extraction for drinking water (DW) use.
- § Many of the sites have been investigated for over a decade and some have prior remediation history.
- § Overview of contamination at the sites
 - Industrial history between 1920 - 1980
 - Main contaminants TCE and PCE (some VC)
 - Est. contaminant mass is 100 – 20 000 kg
 - Contamination mainly in saturated zone
 - Source concentration > mg/L,
 - GW/DW extraction POC > 10 ug/L (threshold)
 - Contamination lengths 0,5 – 2,0 km
 - Contamination depths 10 – 35 m bgl.
 - Heterogenic soils, bedrock depths 15 – 60 m bgl.



Overview of the project development process



Timeline of the competitive dialogue procurement





Pre-qualification criteria for tenderers

- § Purpose of pre-qualification was to i) decrease the amount, and ii) select the most appropriate, tenderers for the procurement process.
- § Pre-qualification was designed to give highest weighting to groups or networks of companies, having competencies in investigation, design and remediation.
- § Criteria included:
 - 1) Financial capabilities (turnover, credit rating)
 - 2) Operational capabilities (personnel)
 - 3) Technical capabilities (references from last three (3) years with CHS, max. 3/cat.)
 - *Investigation and design*
 - *Biological remediation*
 - *Chemical remediation*
 - *Excavation and off-site*
 - *Other rem. methods*
- § **Outcome:** short-list of three (3) best qualified tenderers invited to participate

1st round of procurement dialogue

§ 1st dialogue round was organised as 1-to-1 meetings, to:

- 1) Evaluate tenderers outline solution and technical feasibility
 - *Conceptual site model and the proposed outline solution (remediation strategy)*
 - *Principles of the remediation methods and related processes*
 - *Verification of the remediation results*
- 2) Tenderers reduction targets for risks and contamination
- 3) Work breakdown structure and estimated timeline
- 4) Preliminary, non-binding cost estimate
- 5) Additional data requirements for preparing the tender

§ **Outcome:** technical feasibility and commercial availability of solutions

2nd round of procurement dialogue

§ 2nd dialogue round was arranged as a workshop and as 1-to-1 meetings, to:

- 1) Discuss and define environmental criteria for the works
 - *Remediation targets*
 - *Monitoring and reporting*
 - *QHSE control and preparedness planning*
- 2) Discuss and define operational and technical criteria for the works
 - *Refined solution and technical design*
 - *Refined WBS and timeline*
 - *Site dependent social criteria*
- 3) Discuss and define final request for tenders and contracts
 - *Outline for Final RfT*
 - *Partnership and pricing model*
 - *Contract award criteria and life-cycle costing*

§ **Outcome:** environmental and social feasibility, final RfT and contract terms

Sustainability appraisal during the dialogues

§ Step-wise, semi-quantitative approach was used for sustainability evaluation.

- 1) Pairwise (matrix) comparison of technical and economic feasibility (ie.):
 - *Remediation strategy provides sufficient risk management*
 - *Remediation technology is suitable for CHS and for the site environment*
 - *Remediation strategy and technology are adaptable, if need be*
 - *There are sufficient references for the technology*
 - *Direct and indirect costs of implementation (CAPEX)*
 - *Life-cycle cost of operation and monitoring (OPEX, 5 years)*
- 2) Comparing BATNEEC for social and environmental sustainability in a stakeholder dialogue (ie.):
 - *Remediation strategy and technology are safe for the environment and use*
 - *Distraction for neighborhood and habitants is minimal*
 - *Contamination is managed preferably in situ or on-site (minimal transport)*
 - *There are no additional risks for GW*
 - *Energy, waste and material consumption are minimal*

§ **Outcome:** Selection of sustainable remediation strategy and technologies

Final request for tenders

§ Final tenders were evaluated on the basis of:

A. Operations management and organisational quality **(10 %)**

- *Governance and key personnel*
- *Sub-contracting and partnerships*
- *QHSE control*
- *Reporting and communication*

B. Project plan and design quality **(40 %)**

- *Investigation and design*
- *Remediation*
- *Monitoring and reporting*
- *QHSE risk management*

C. Life-cycle costs **(50 %)**

- *Investigation and design*
- *Remediation and risk management*
- *Monitoring and reporting*
- *Extra works estimates*

§ **Outcome:** economically most advantageous solution based on price/quality

Regulatory side of things: notifications and approvals

- § Parallel to the procurement, an informal collaborative regulatory group was formed to facilitate the notification process for the pilot projects.
- § Purpose of the regulatory group was to share information and views on:
 - Regulators role in an iterative “design-build” remediation process
 - Consistent notification and approval process (independent regional authorities).
 - Risk based remediation targets
 - Remediation strategies and technologies
 - Monitoring and verification of results
 - Health and environment impacts, and GW protection preparedness
- § Notifications for contaminated land remediation were prepared based on the dialogue in the regulatory group.
- § **Outcome:** Time and resource efficiency, quality of notifications and approvals

Lessons learned...

- § Timeline was too short (critical pathway left room for no errors)
- § People change opinions. During different stages there was always a need to back trace and redefine (time was too little to assimilate)
- § Theoretically tendering five sites once, is like tendering one, but in practice...
- § Competitive dialogue procurement is very good for engaging the market.
- § The dialogue workshop was very fruitful for building stakeholder commitment, but also very difficult to manage, because of the amount of participants (40+) with different backgrounds and interests.
- § Defining technical, economic, environmental and social expectations of the different stakeholders for the remediation projects was surprisingly easy.
- § Conducting a step wise, semi-quantitative sustainability appraisal was well suited in terms of the procurement process (exaggeration for a single site?).



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