

How to determine the acceptability and eco-efficiency of Contaminated Land Management (CLM) practices ?
- Outcomes from PIRRE-project



Jaana Sorvari
Finnish Environment Institute




PIRRE project


PIRRE* = "Eco-efficient risk management of contaminated soil and groundwater"

Goals

- To identify the barriers to eco-efficiency in CLM
- To develop methods and to present means to **promote realization of eco-efficiency**




*www.environment.fi/syke/pirre

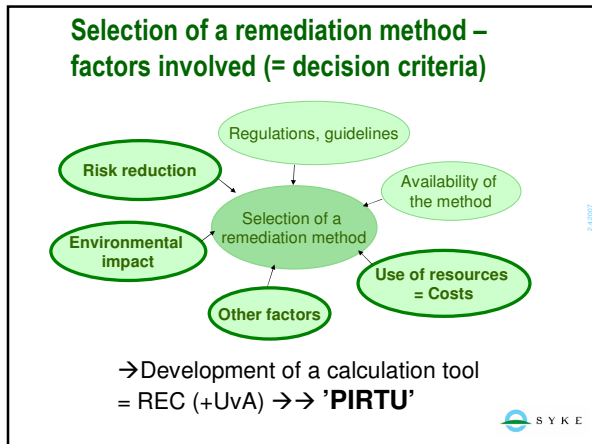


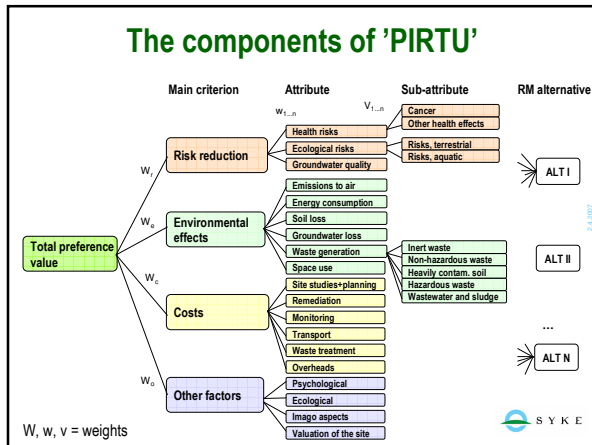
1st stakeholder seminar: What is eco-efficiency in the context of CLM ?

Eco-efficiency = "more with less"

- Cost-efficiency
- Use of *in situ* methods
- Consideration of long term environmental effects
- Risk-based remediation actions, prioritization
- Recycling of contaminated soil






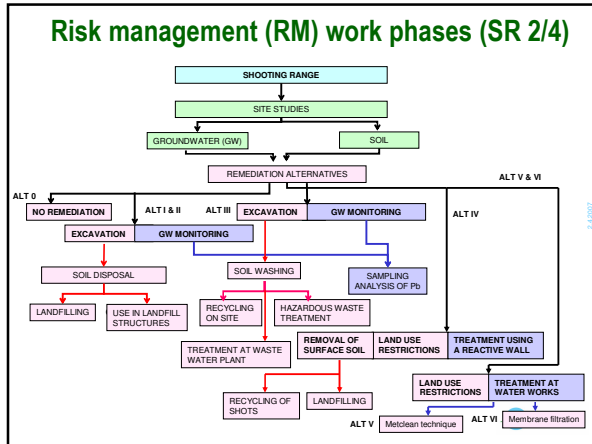


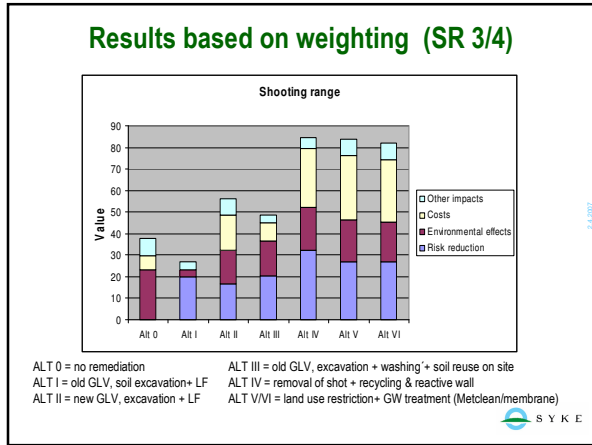
Example calculations: a shotgun shooting range (SR 1/4)

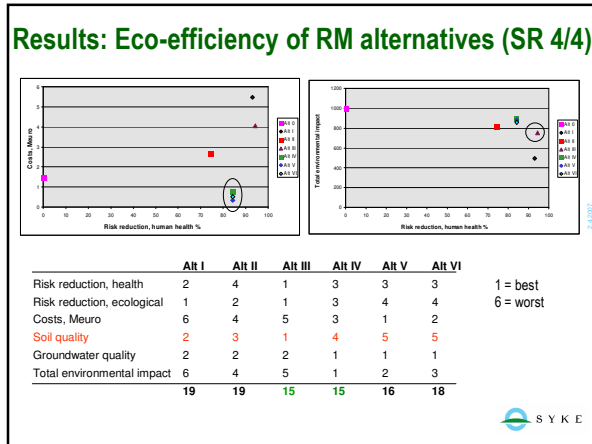
- Area: 16 ha
- Contamination
 - SOIL
 - $Pb_{mean} = 2100 \text{ mg/kg}$ (GLV = 60, LV = 300)
 - $Sb_{mean} = 150 \text{ mg/kg}$ (GLV = 5, LV = 40)
 - $As_{mean} = 25 \text{ mg/kg}$ (GLV = 10, LV = 50)
 - GROUNDWATER
 - $Pb = 15 \text{ } \mu\text{g/l}$
- No surface water
- Land use scenario: recreation



GLV = soil guideline value
LV = soil limit value







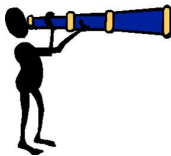
Important issues to consider

- Include only factors truly relevant in decision making
- Need of expertise particularly in
 - Risk assessment
 - Technology evaluation (costs, suitability, time scale, environmental effects)
 - Assessment of socio-cultural effects
- Proper explanation of weighting process a must !
- The weights have to be defined site-by-site !

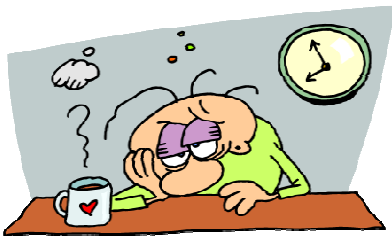


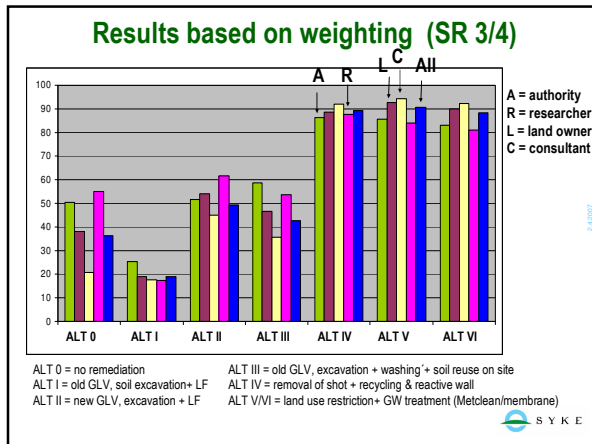
Future activities (→4/2009)

- Testing of PIRTU with true sites including
 - Sensitivity analysis
 - Uncertainty analysis
- Development of PIRTU
- Eco-efficiency evaluations on regional scale, including e.g.
 - Determination of the characteristics of contaminated sites and soil mass flows
 - Determination of present remediation and soil treatment alternatives and capacity
 - Consideration of different residual concentrations
 - Consideration of future changes in remediation options owing to e.g. legislation
 - Determination of regional indicators of eco-efficiency



TACK !





WHY TO BOTHER ?!

1/2

Firstly,

- To identify major factors of decision making (different stakeholders)
- To identify critical data gaps
 - ➔ focusing resources
 - ➔ savings

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WHY TO BOTHER ?!

2/2

And above all,

...the 95th percentile risk estimate...
...jargon jargon...

...to facilitate **communication** !

SYKE

