

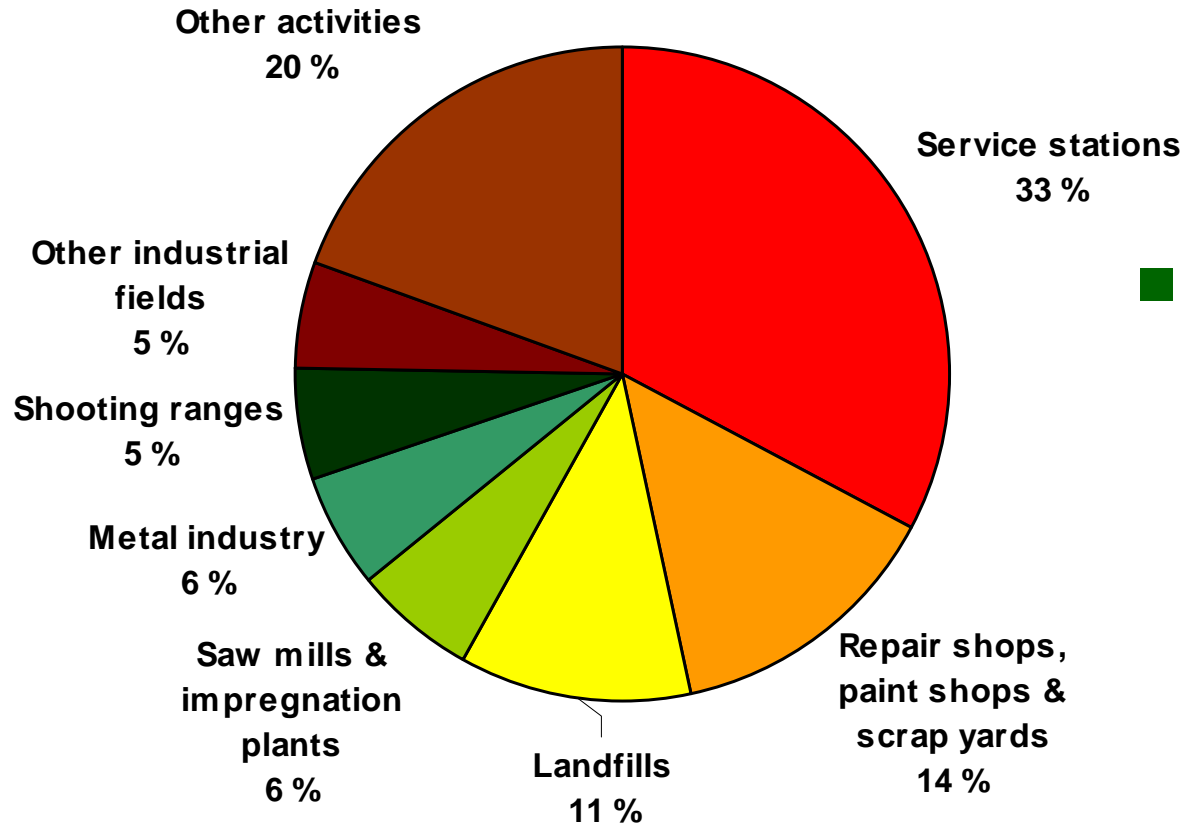


The Nordic Perspective

Jaana Sorvari

Finnish Environment Institute (SYKE)

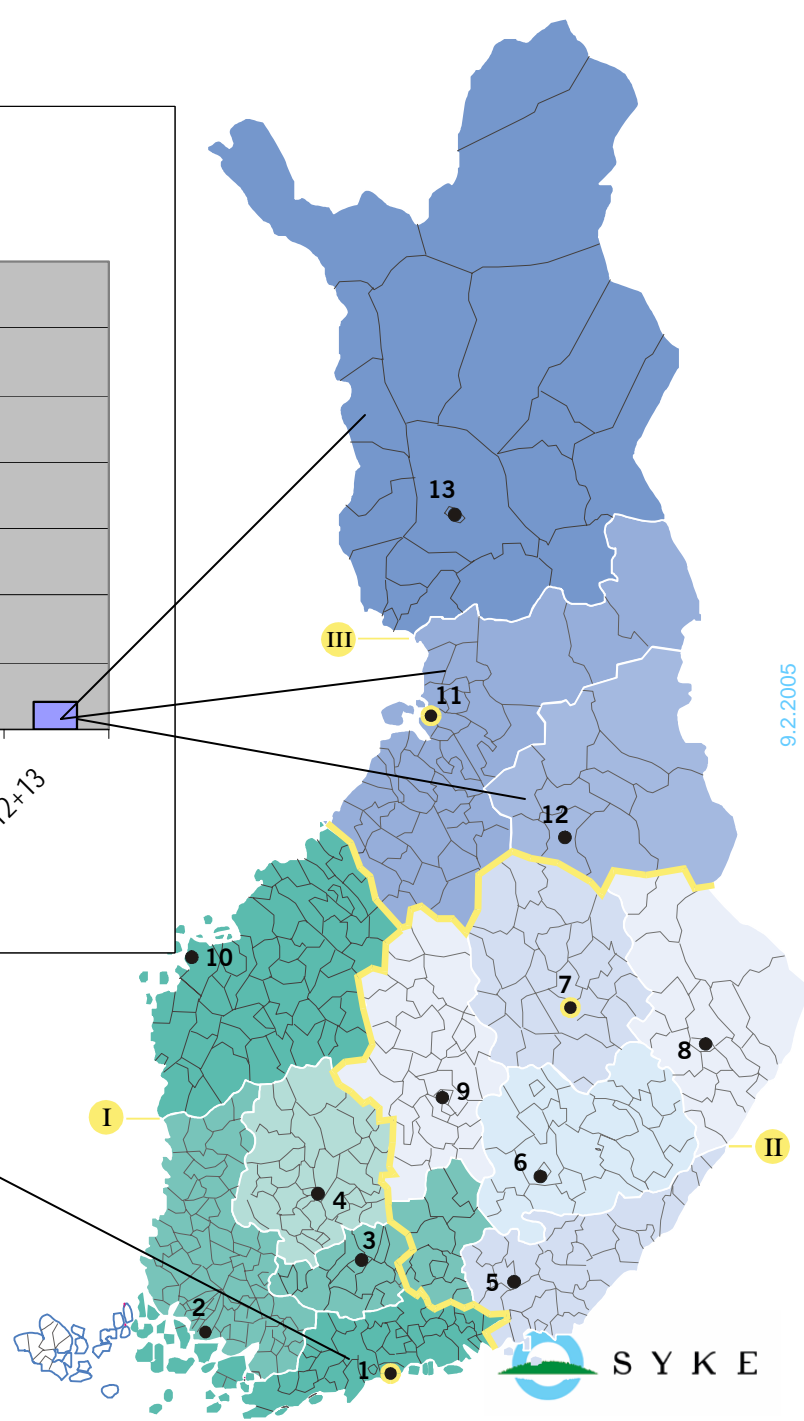
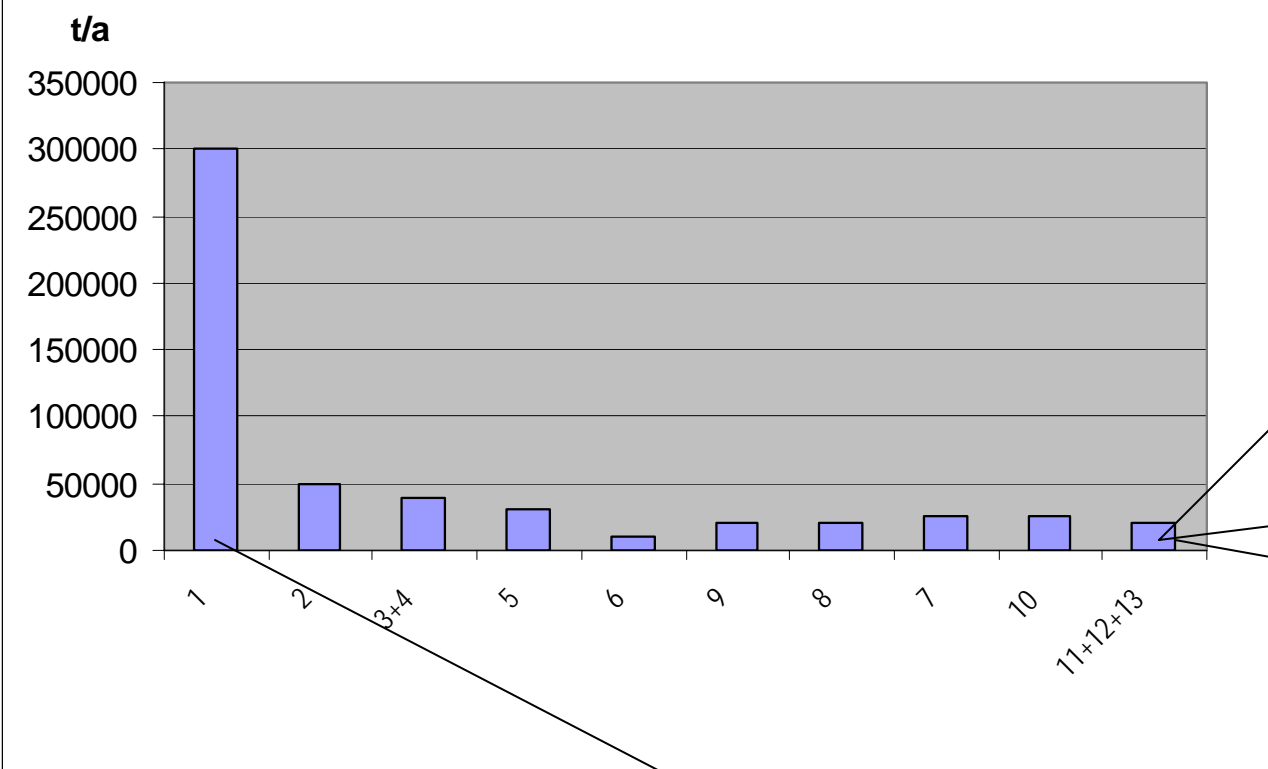
Soil contamination in Finland



- remediation methods: excavation + disposal / treatment (>> 90 %)

9.2.2005

contaminated soils



An aerial photograph of a large lake with several islands. The water is a deep blue. One prominent island in the center-right has a large, cleared, light-colored area, likely a construction site or a cleared forest area, contrasting with the surrounding dense green forest. Other smaller islands are scattered throughout the lake. The foreground shows a dense forest with some buildings visible.

DRIVERS: change in land use

DRIVERS: appearance of adverse effects

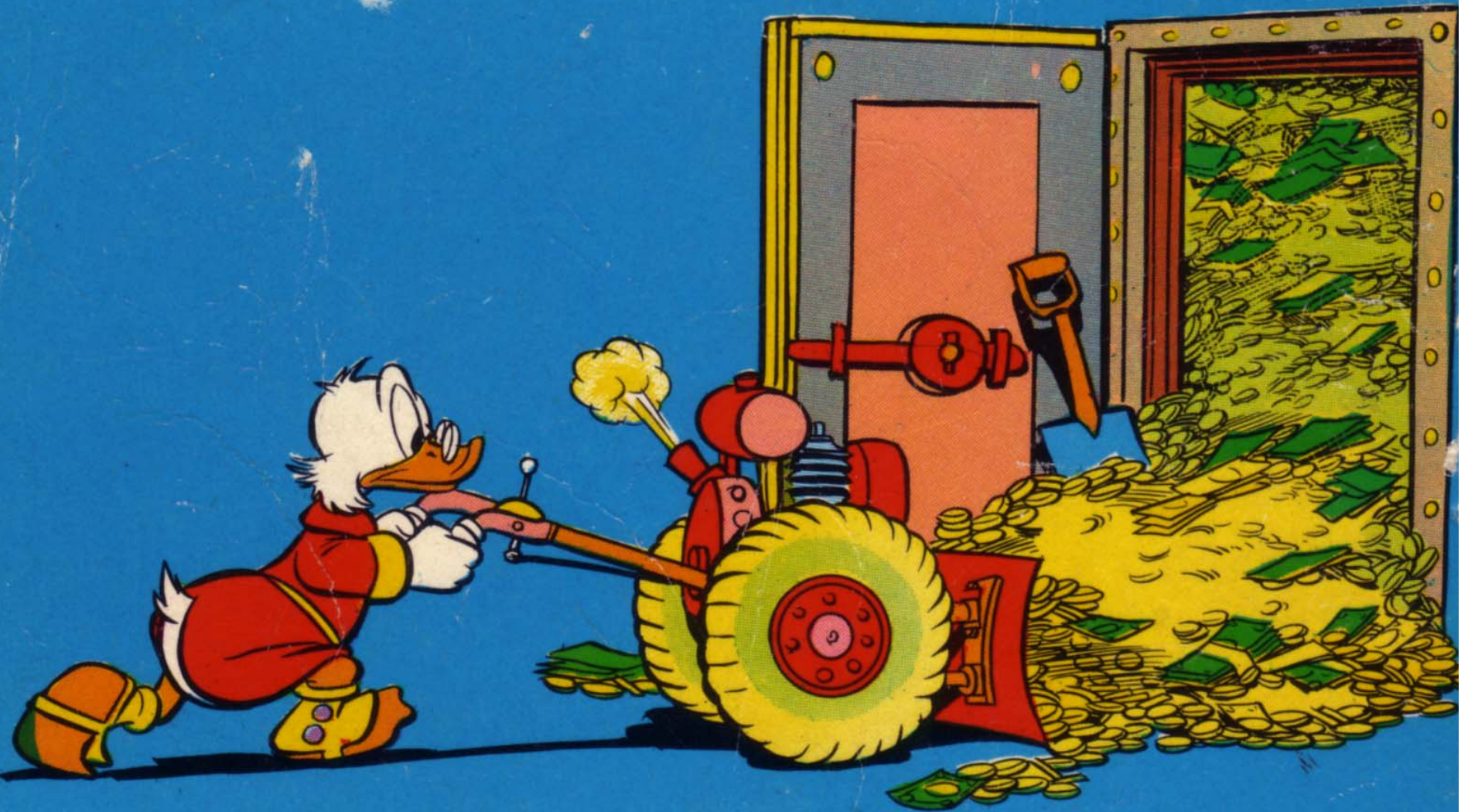


BARRIER Nr. 1

A white yak is lying down in a snowy field. It is wearing a traditional harness with colorful stripes (red, yellow, blue, green) and a red collar. The yak's head is resting on the snow, and a blue rope is visible near its mouth. The background is a vast, snow-covered landscape.

"HARAKA, HARAKA,
HAINA BARAKA"

BARRIER Nr 2



BARRIER Nr 3 (1/2)



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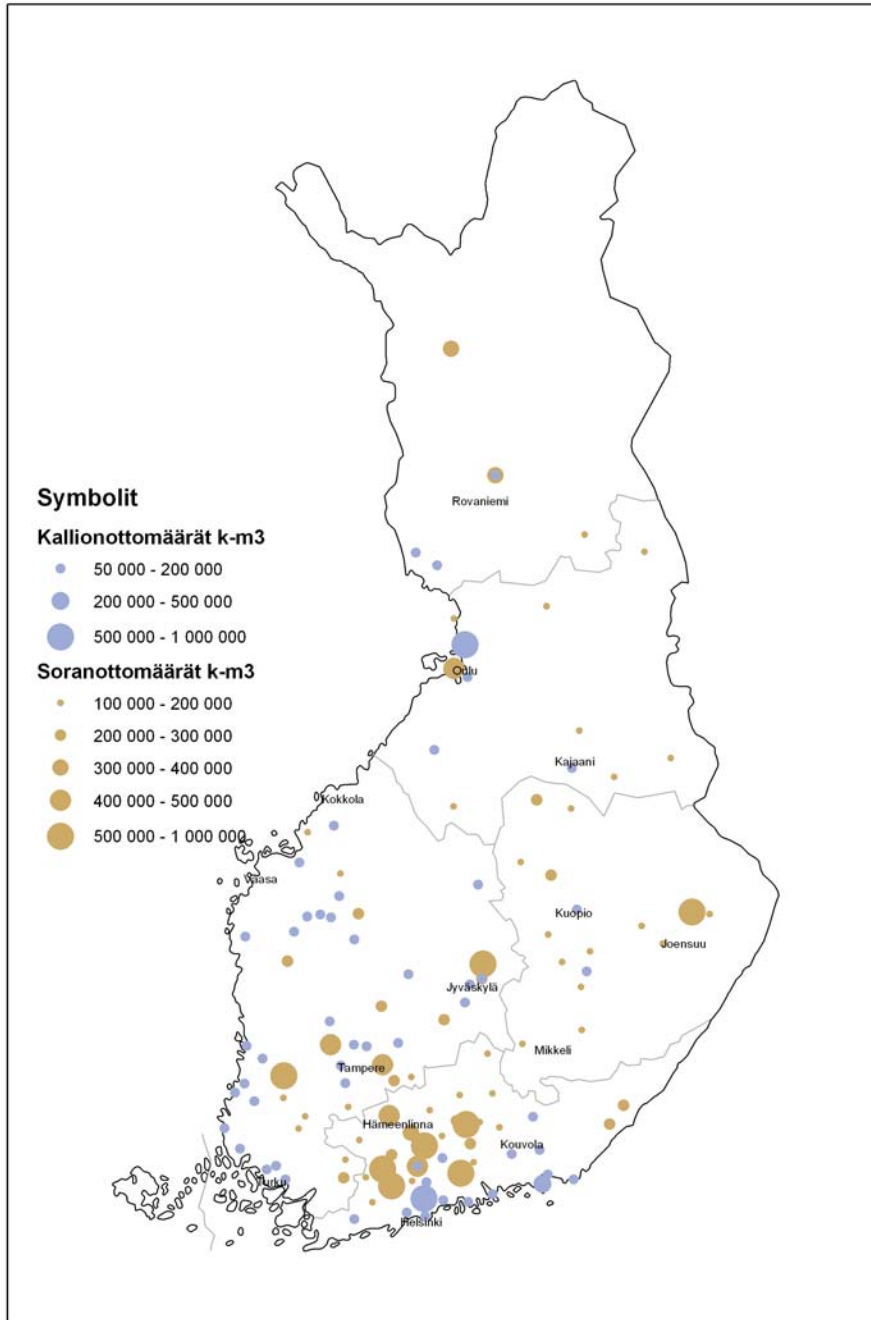
BARRIER Nr 3 (2/2)

■ demand

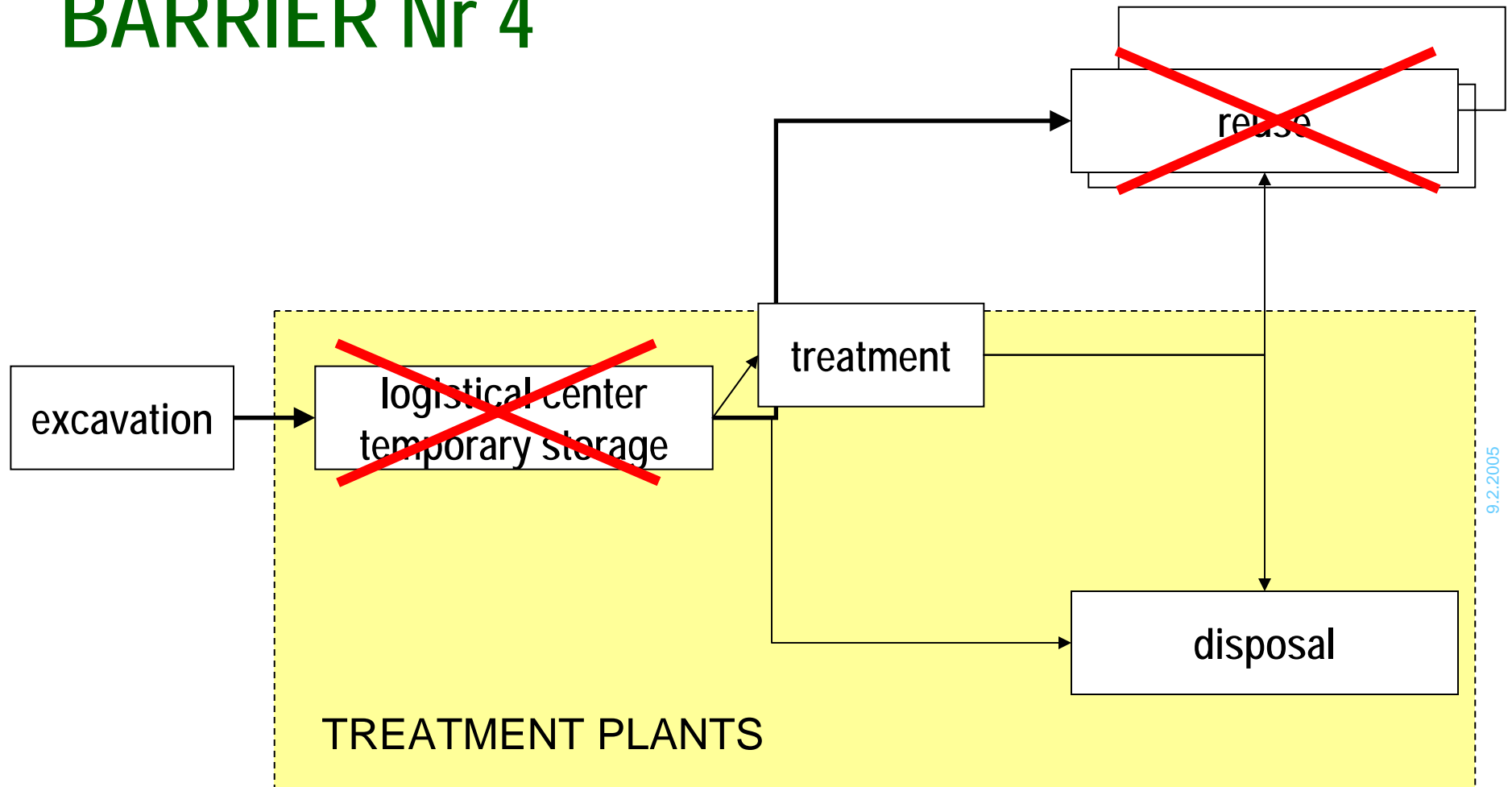
- ca. 90 Mtn/year

■ supply

- excavated contaminated soil ca. 500 000 t/year
- excess soil from construction works: 33,5 Mtn/year

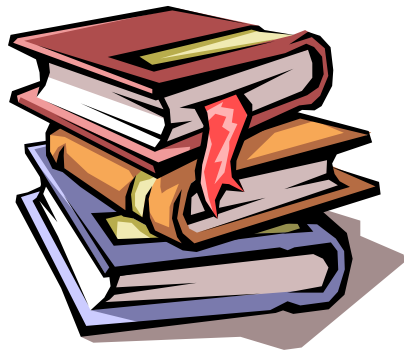


BARRIER Nr 4



Järvinen, 2004

BARRIER Nr 5



lack of

■ policy instruments

- land use-specific soil guideline values
- environmental guidelines for recycling of soil

■ economic instruments

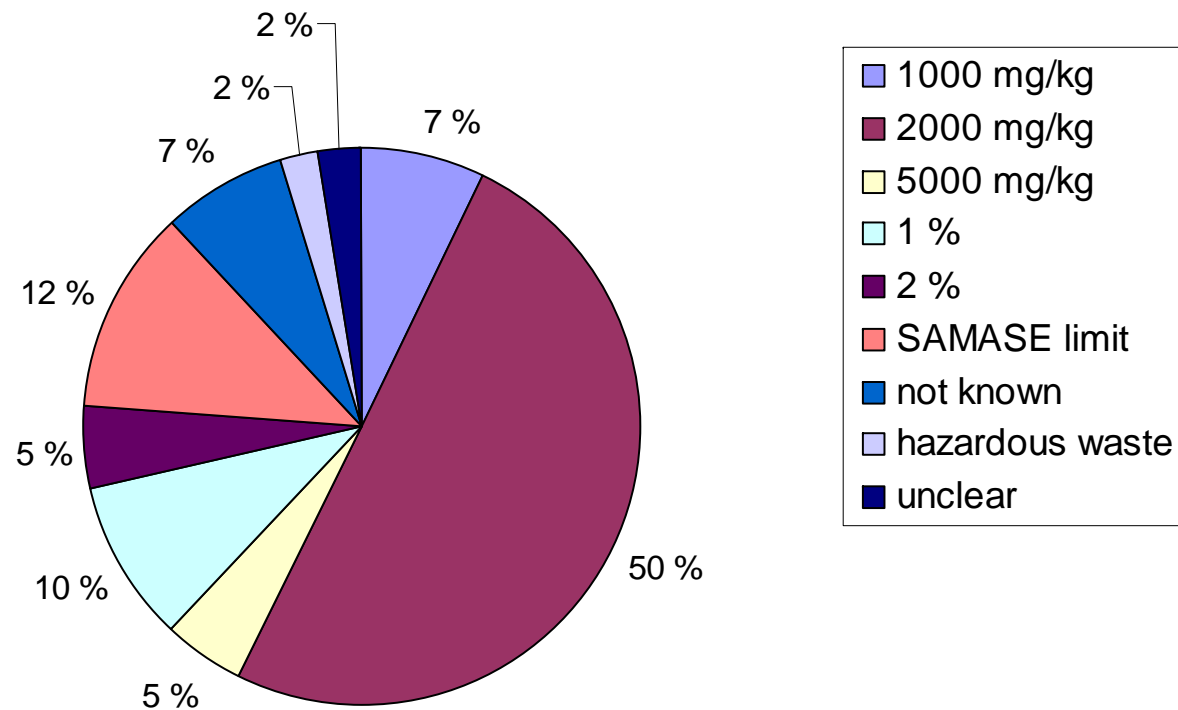
- e.g. taxes
- incentives
- funds

BARRIER Nr 6: policies & practices (1/3)

- mistrust on site-specific risk assessments
- poor adoption of in situ methods
 - lack of data
 - some unsuccessful experimental projects
 - long-term liability questions
- CLM and land use planning do not meet
- acceptable risk level not defined
- ➔ poor adoption of RBCLM practices

BARRIER Nr 6: policies & practices (2/3)

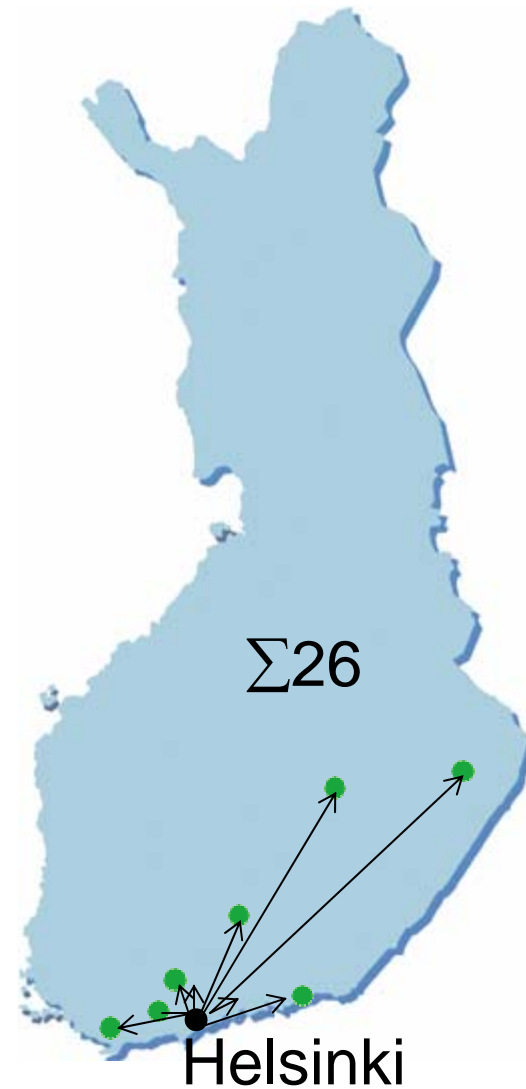
Oil contaminated soil, criteria for landfill disposal



Hämäläinen, 2004

BARRIER Nr 3 (3/3)

- logistics
 - Helsinki example



BARRIER Nr 7



- excessive research needs ?
 - leaching tests, other
- time constrains, costs, storing problems

BARRIER Nr 8

- climate
- (hydro)geology



REMEDIES (1)

- "market place" for contaminated soil
- building link between spatial planning and contaminated soil management
 - ➔ recycling on site
 - ➔ locations of future activities

REMEDIES (2)



- Existing treatment plants, Salvor Oy
- Future treatment plants, Salvor Oy

Salvor Oy, 2004

REMEDIES (3)

policy instruments

- for remediation
 - risk based soil guideline values
 - promoting of site-specific risk assessment
- for recycling and disposal of soil
 - guidelines
 - exemption from permit obligation when certain criteria fulfilled ? (discussed)
 - EU landfill directives = pretreatment demands \Rightarrow no disposal on landfills ?

REMEDIES (4)

- research on in situ methods
 - MNA
 - reactive walls
 - stabilization
 - electro-kinetic methods
- identification of eco-efficient RM solutions (PIRRE project)



THANK YOU !