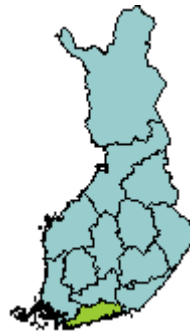


Information Exchange and
Awareness Raising Event on
landfill of Waste on
15 -16 September 2008

Experiences with implementation
of the Landfill Directive from
Uusimaa region

Experiences with implementation of the Landfill Directive from Uusimaa region

- Introduction
 - about 1,5 million inhabitants
 - early about 0,7 million tons of municipal waste
 - about 60 % to the landfills



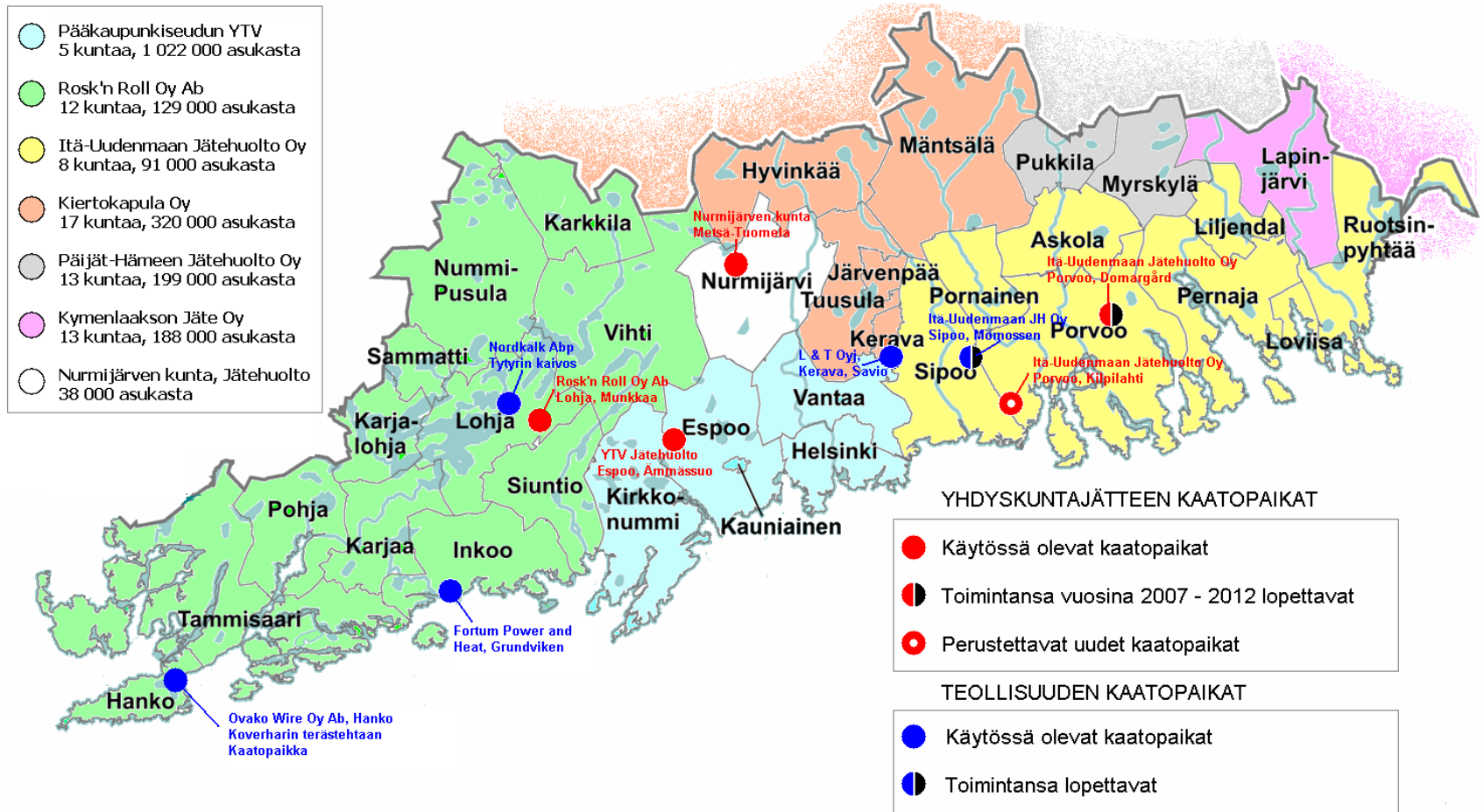
Experiences with implementation of the Landfill Directive from Uusimaa region

- Introduction
 - six regional waste management companies and
 - town Nurmijärvi with its own waste management activities
 - nine landfills for the non hazardous waste

Experiences with implementation of the Landfill Directive from Uusimaa region

- Introduction
 - waste of Middle Uusimaa partly to the waste power plant to Riihimäki
 - near future waste of Eastern Uusimaa partly to the waste power plant to Kotka
 - Metropolitan Area has a project concerning of the waste power plant

The landfills of Uusimaa Region



Experiences with implementation of the Landfill Directive from Uusimaa region

Due to implementation of Landfill Directive

- By 31.10.2007 was closed
 - nine landfills for the non hazardous waste
 - six municipal waste landfills
 - two industrial waste landfills
 - one landfill for the waste of a power plant

Experiences with implementation of the Landfill Directive from Uusimaa region

Due to implementation of Landfill Directive

- Five new landfills for non hazardous waste was constructed
 - all the new landfills are situated beside the old closed landfill
 - three of them are for the municipal waste
 - one of them is for the industrial waste
 - one of them is for the waste of power plant

Experiences with implementation of the Landfill Directive from Uusimaa region

- The existing landfills
 - nine landfills for the non hazardous waste
 - four landfills for the solid municipal waste
 - four landfills for the industrial waste
 - one landfill for the waste of a power plant

Experiences with implementation of the Landfill Directive from Uusimaa region

The existing landfills

- Construction
 - one permit for minor exception of the bottom sealing requirements has been granted
 - otherwise the leachate collection and the bottom sealings of the landfills meets the requirements

Experiences with implementation of the Landfill Directive from Uusimaa region

The existing landfills

- Management of leachate
 - two landfills has their own waste water treatment plant
 - one biological treatment
 - one reverse osmosis
 - otherwise leachate are conducted to the municipal sewage treatment plant

Experiences with implementation of the Landfill Directive from Uusimaa region

The existing landfills

- Treatment on landfill gas
 - all the municipal waste landfills has arranged the collecting and the utilisation of landfill gas
 - In one case landfill gas is utilised for electricity production and energy recovery on the landfill site
 - In another case landfill gas is disposed by combustion in a flare
 - Otherwise landfill gas is used as a fuel of the power plant outside of the landfill site

Experiences with implementation of the Landfill Directive from Uusimaa region

The existing landfills

- Monitoring procedures
 - main concern of protection of groundwater
 - typically five to ten points for the monitoring of groundwater quality
 - challenge to minimise odour nuisances
 - Landfill gas
 - Composting of bio-waste

Experiences with implementation of the Landfill Directive from Uusimaa region

- The facilities of the waste management centres
 - composting of bio-waste
 - compostings plants
 - composting of sewage sludge
 - open field composting sites
 - compostings plants
 - collection points for the recyclable waste and for the hazardous waste
 - crushing of concrete and waste-wood

Experiences with implementation of the Landfill Directive from Uusimaa region

- Within ten years
 - at least one landfill and one waste management centre will be constructed
 - two to four landfills will be closed
 - greater amount of waste will be used as a fuel of the power plants and the landfilling of waste might decrease
 - obviously new landfills for residues from combustion and gas cleaning systems will be needed

Experiences with implementation of the Landfill Directive from Uusimaa region

- Closed landfills
 - a long term monitoring program of surface and groundwater, leachate and landfill gas will be needed
 - special concern regarding collecting and treating landfill gas efficiently
 - the requirements of the surface sealings, especially for impermeable mineral layer and drainage layer, should be more flexible
 - most important is that surface sealings prevent all the hazards to the environment
 - thus the thickness of the sealings is not the main point