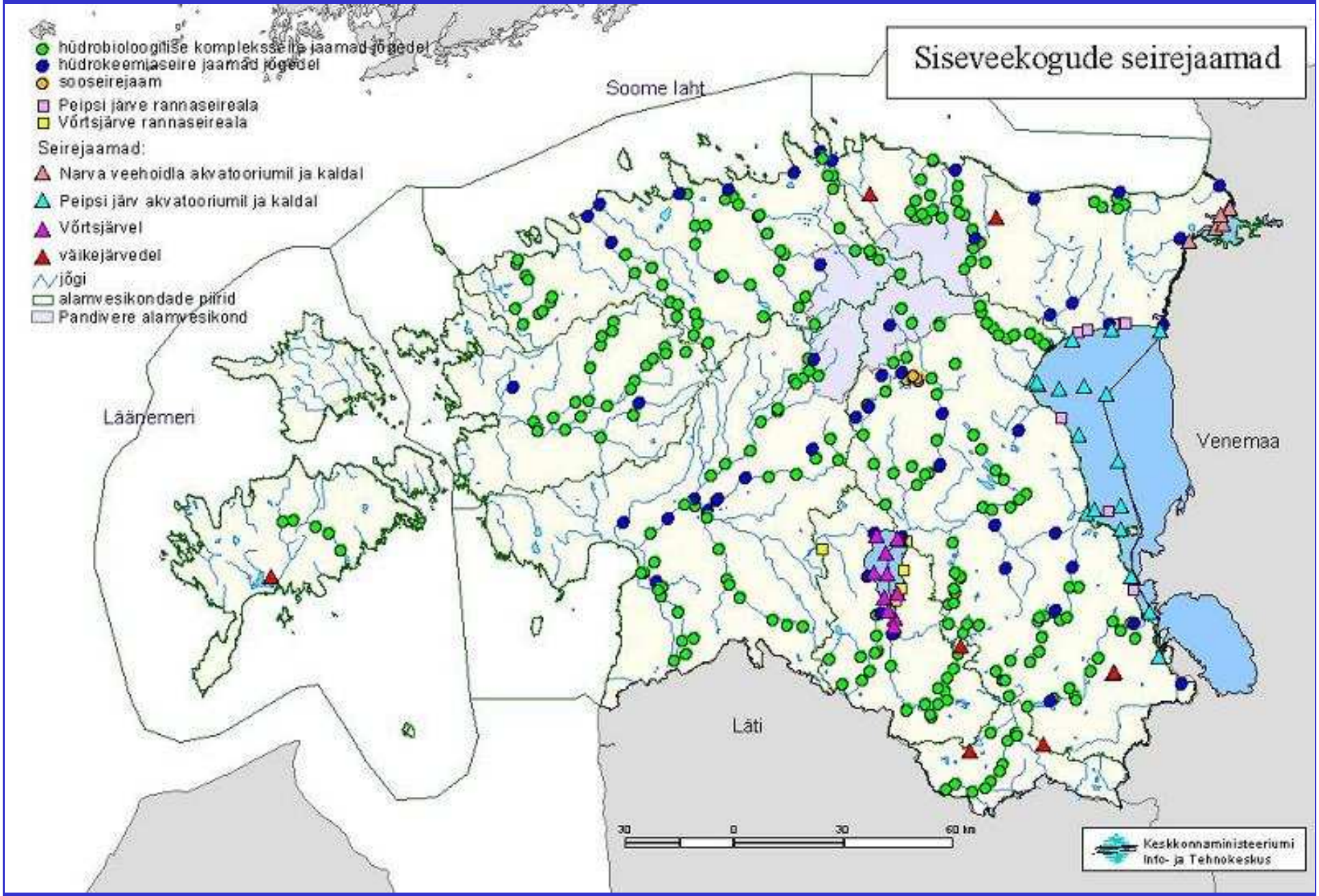
16-17 April 2009, Vilnius, Lithuania

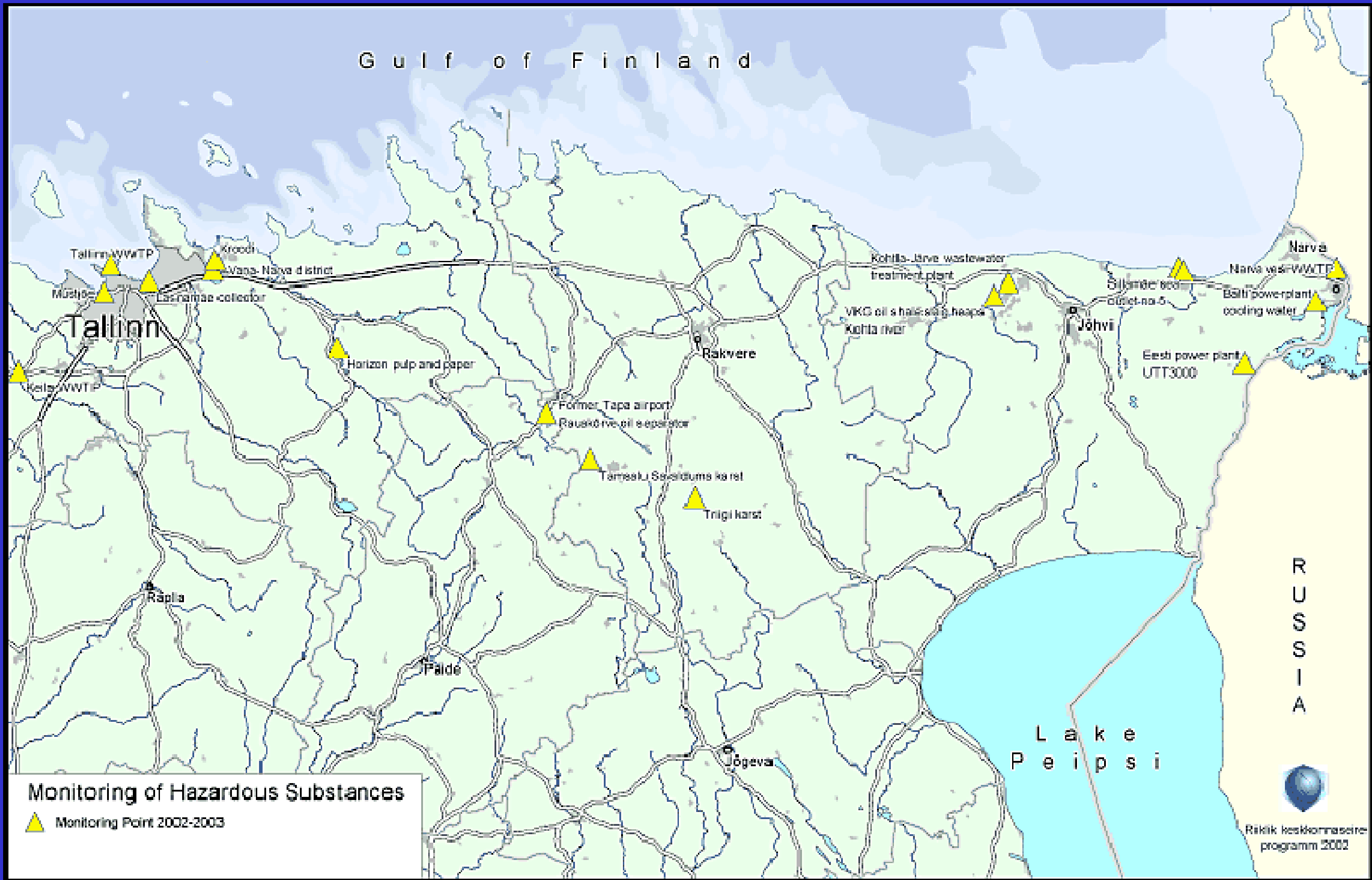
Meeting/training on Hazardous Substances Screening in practice

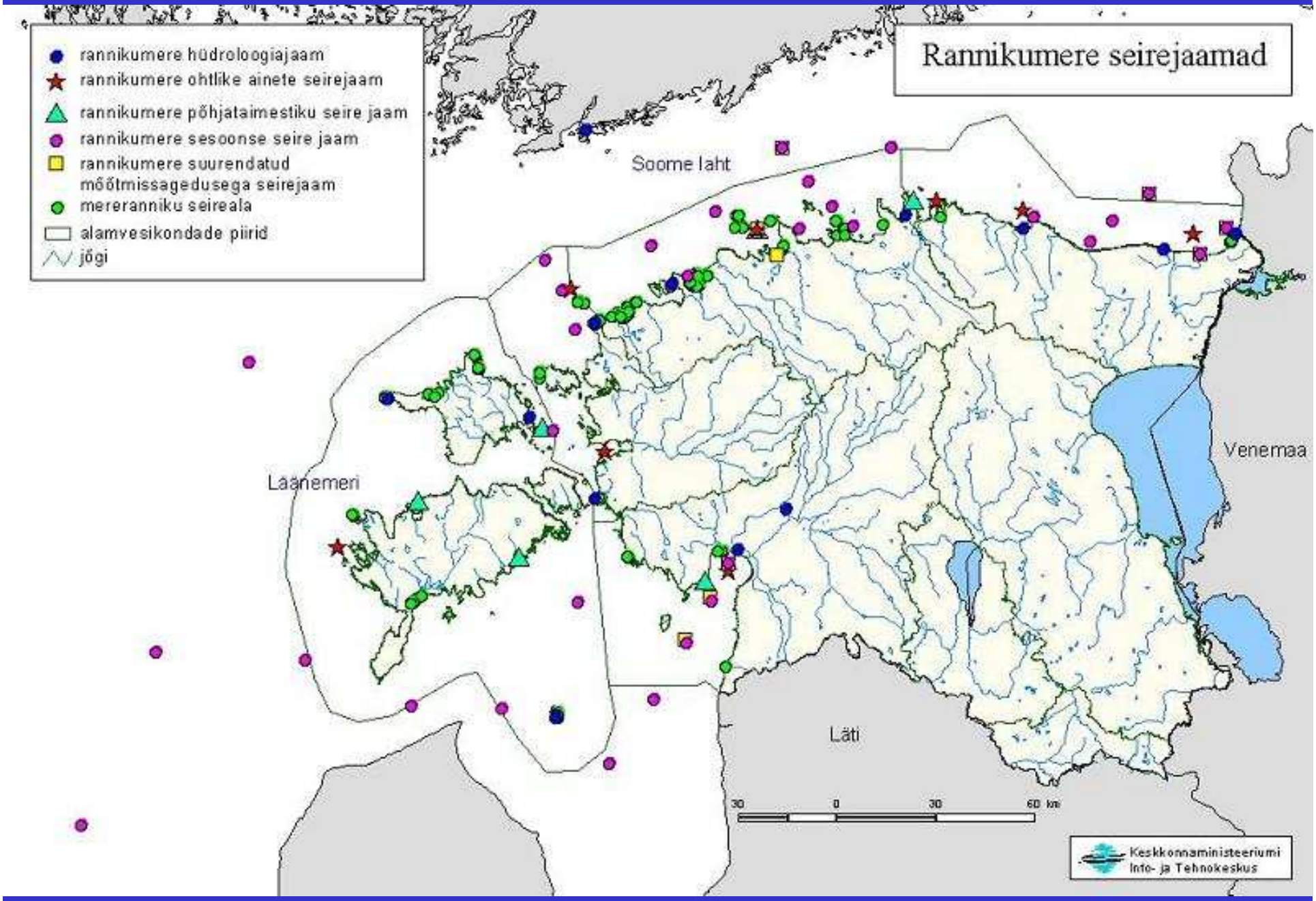
Ott Roots
Estonian Environmental Research Centre
10 617 Tallinn, Marja 4D, Estonia

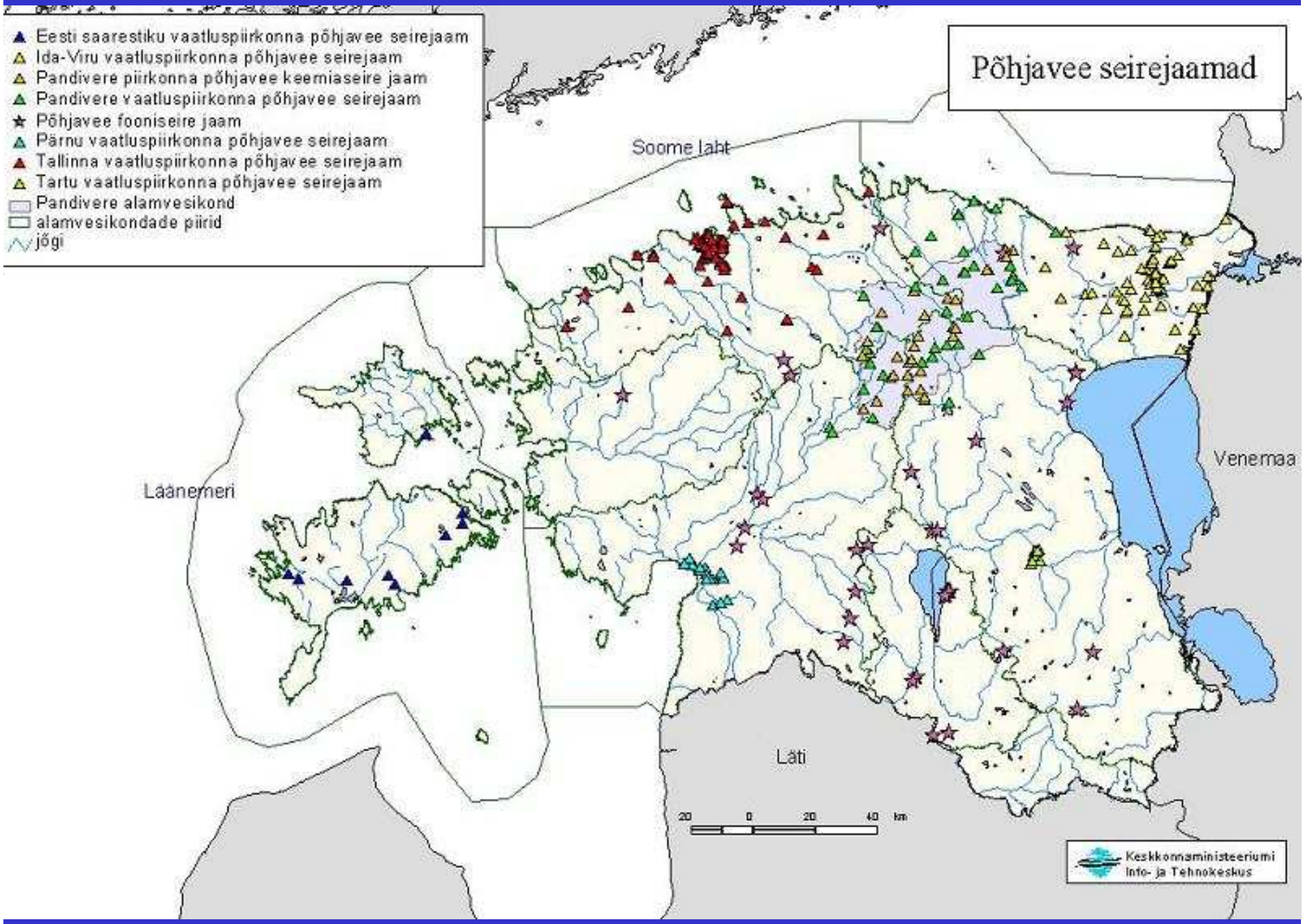
Estonian Environmental Monitoring Program

1. Meteorological – 96 Stations
2. Air Monitoring – 28 Stations
3. Groundwater Monitoring – 499 Stations
4. Surface water Monitoring – 175 Stations
5. Sea Monitoring – 101 Stations
6. Nature diversity & Landscape Monitoring – 631 Stations
7. Forest Monitoring – 116 Stations
8. Integrated Monitoring – 2 Stations
9. Radiation Monitoring – 26 Stations
10. Seismic Monitoring – 3 Stations
11. Soil Monitoring – 8 Stations
12. Support Program


Siseveekogude seirejaamad
hüdrobioloogilise kompleksseire jaamad jõgedel
hüdrokeemiaseire jaamad jõgedel
sooseirejaam
Peipsi järve rannaseireala
Võrtsjärve rannaseireala
Seirejaamad:
Narva veehoidla akvatooriumil ja kaldal
Peipsi järv akvatooriumil ja kaldal
Võrtsjärvel
väikejärvedel
jõgi
alamvesikondade piirid
Pandivere alamvesikond
Soome laht
Läänemeri
Venemaa
Läti
30
0
30
60 km
Keskkonnaministeeriumi
Info- ja Tehnokeskus


Gulf of Finland
Tallinn WWTP
Kroodi
Mustjõe
Lasnamäe collector
Tallinn
Keila WWTP
Horizon pulp and paper
Former Tapa airport
Rakvere
Trigi karst
Kohtla-Järve wastewater
treatment plant
VKG oil shale slag heaps
Kohtla river
Jõhvi
Narva
Narva vesi WWTP
Balti power plant
cooling water
Eesti power plant
UTT3000
Rapla
Paide
Jõgeva
Lake Peipsi
RUSSIA
Monitoring of Hazardous Substances
Monitoring Point 2002-2003
Riiklik keskkonnaseire
programm 2002


Rannikumere seirejaamad
rannikumere hüdroloogiajaam
rannikumere ohtlike ainete seirejaam
rannikumere põhjataimestiku seire jaam
rannikumere sesoonse seire jaam
rannikumere suurendatud mõõtmissagedusega seirejaam
mereranniku seireala
alamvesikondade piirid
jõgi
Soome laht
Läänemeri
Läti
Venemaa
30 0 30 60 km
Keskkonnaministeeriumi Info- ja Tehnokeskus


Põhjavee seirejaamad
Eesti saarestiku vaatluspiirkonna põhjavee seirejaam
Ida-Viru vaatluspiirkonna põhjavee seirejaam
Pandivere piirkonna põhjavee keemiaseire jaam
Pandivere vaatluspiirkonna põhjavee seirejaam
Põhjavee fooniseire jaam
Pärnu vaatluspiirkonna põhjavee seirejaam
Tallinna vaatluspiirkonna põhjavee seirejaam
Tartu vaatluspiirkonna põhjavee seirejaam
Pandivere alamvesikond
alamvesikondade piirid
jõgi
Soome laht
Läänemeri
Venemaa
Läti
20 0 20 40 km
Keskkonnaministeeriumi Info- ja Tehnokeskus

The support of environmental research and monitoring aid in decision –making*

Research - Knowledge of environmental endurance: critical loads and critical levels

Monitoring – Knowledge of the state of environment

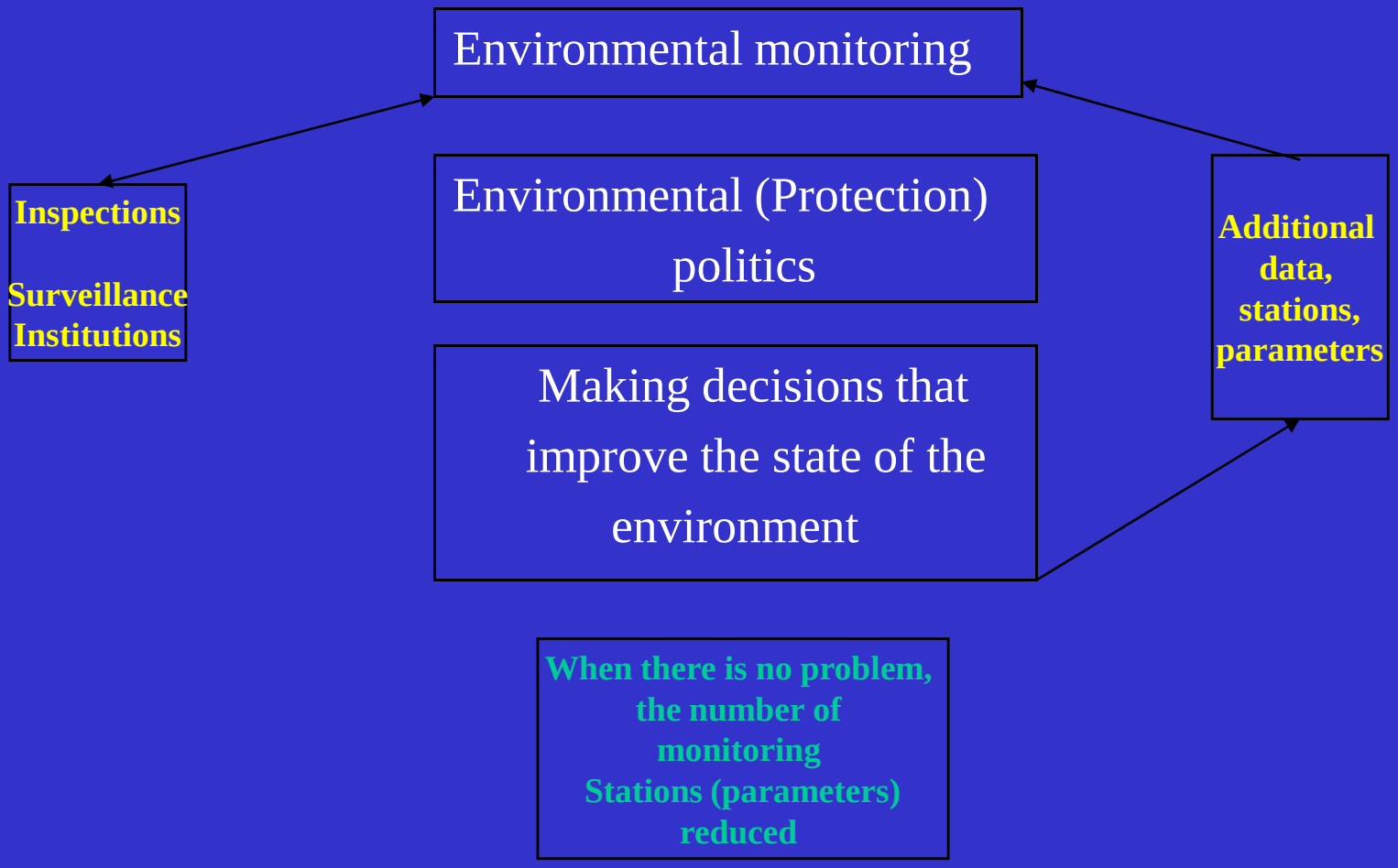
Objectives: Objectives set for the state of environment and environmental pollution loads

Inventories + Studies, reports – Knowledge of the means of environmental protection and of management of natural resources

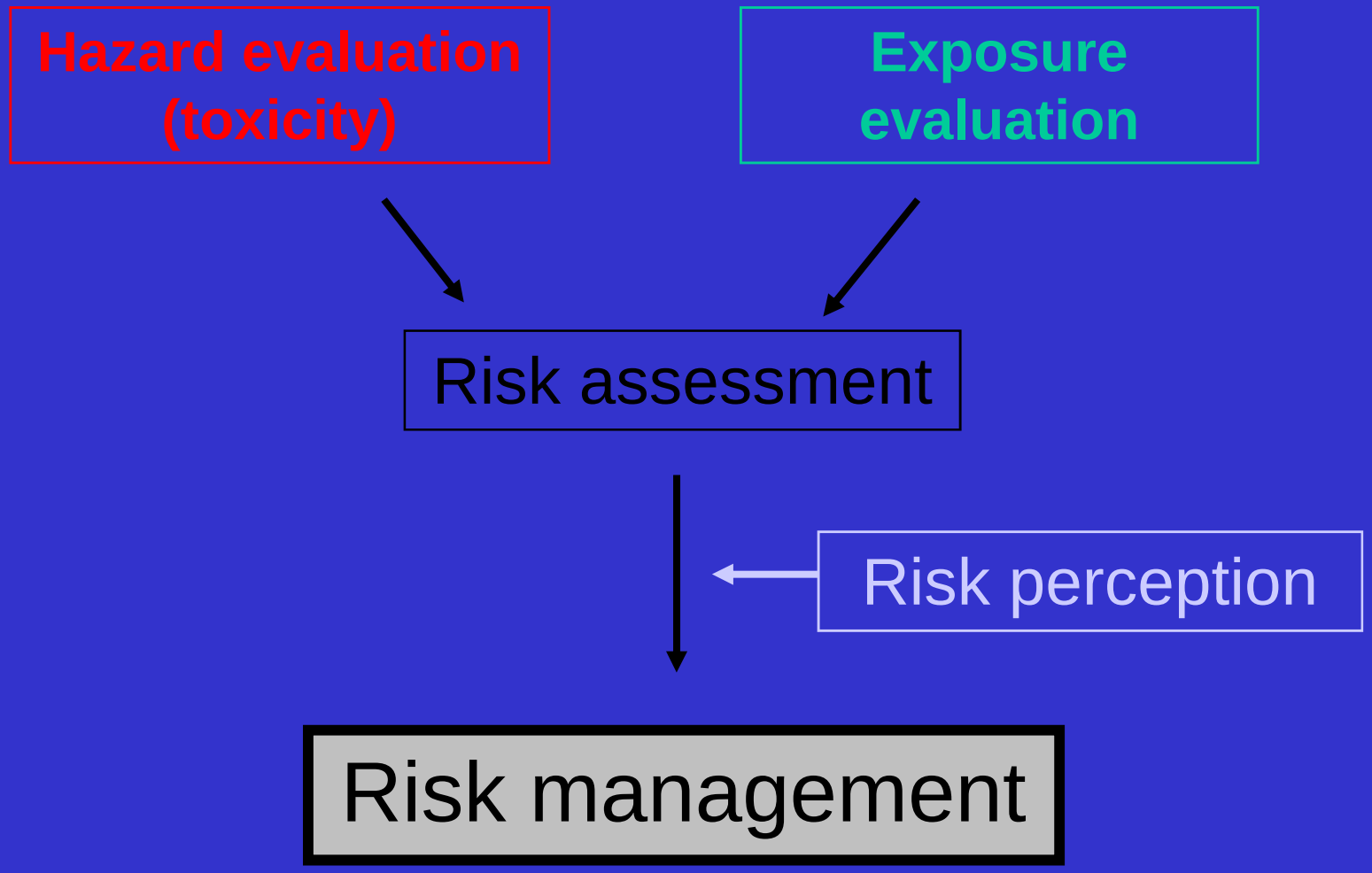
Strategy development: Sector programmes of suitable development

* Source:Swedish EPA

Environmental monitoring provides materials for politicians, helping them to make decisions



Risk management



INVENTORIES 2000 - 2002

Inventory (2000). Research of emissions of hazardous substances in Tallinn and Harju County (Comps. E.Otsa, H. Tang & I. Tamm).Estonian Environmental Research Centre and MAVES.

Inventory (2001). Research of emissions of hazardous substances in Lääne-Viru and Ida-ViruHarju Counties(Comps. E.Otsa, H. Tang & I. Tamm).Estonian Environmental Research Centre and MAVES.

Inventory (2002). Research of emissions of hazardous substances and plan for reduction of emissions in Hiiu, Jõgeva, Järeva, Lääne, Tartu, Põlva, Pärnu, Rapla, Saare, Valga, Viljandi and Võru Counties (Comps. E.Otsa, H. Tang & I. Tamm).Estonian Environmental Research Centre and MAVES.

Total calculated emissions of substancesinto water belonging to List 1 of hazardous substances of Estonia (Tamm,2005)

Hazardous substances	Total emission, kg/year
Oil products	15771
Carbon tetrachloride	304
Perchloroethene (PER)	21.0
Trichloroethene (TRI)	10.4
1,2-dichloroethane	3.9
Cd	3.1
Cloroform	2.1
Pentachlorophenol	1.7
Hg	0.3
Cyanide	0.2
Lindane	0.02

Total calculated emissions of substancesinto water belonging to List 2 of hazardous substances of Estonia (Tamm,2005)

Hazardous substances	Total emission, kg/year
Ba	7531
Ni	4980
Zn	2566
Monobasic phenols	866
Cr	451
Cu	398
As	104
Co	90.7
Pb	83.2
Mo	76.7
Benzene	19.7
Sn	2.1
V	1.7
Se	0.6
PAH	0.09

MORE INFORMATION

O. Roots. Proposal for selection of national priority hazardous substances for Estonian surface water bodies. Environmental Chemistry, St. Petersburg University+Thesa, 2008, v. 17, No.1,, 44-56 (www.thesa-store.com/eco)

A. Roose & O. Roots. Monitoring of priority hazardous substances in Estonian water bodies and the coastal Baltic Sea. – BOREAL ENV. RES., 2005, v.10, No.2, 89-102.

THANK YOU for your attention!