

# **Tracking of Sources of Hazardous Substances in Finland**

**Hazardous Substances Screening Training  
16-17 April 2009, Vilnius  
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# Ways to identify sources of hazardous substances

- In general, source identification difficult
- For many substances multiple sources, also diffuse sources

## Approaches used in Finland:

- Monitoring (screening)
- Questionnaires
- Permitting process

## Important tools:

- National Chemicals Product Register (KETU)
- VAHTI-register on permits and discharges
- ...REACH ? Provides more information in the coming years, but not MS or location specific



# Chemical use questionnaire in River Vantaa drainage area\*

## Substances investigated:

- DEHP, DBP
- NP/NPE,
- TCMTB
- dichloromethane,
- 1,4-dichlorobenzene,
- tetrachloroethylene

## Sectors investigated:

Use sector	Nro plants within the study area/ whole country
Paints, varnishes, prints	9 / 27
Production of rubber and plastic products	6 / 134
Production of detergents and cosmetic products	9 / 33
Laundries	41 / no info

\*SOCOPSE-project / Jukka Mehtonen /SYKE



Examples of products containing target substances were given in order to help answer the questionnaire:

Taulukko 2. Esimerkkejä kemikaalituotteista, jotka sisältävät jotakin Taulukossa 1 esitetyistä yhdisteistä  
Kemikaalituotteet ovat ryhmitelty aakkosjärjestyksen mukaisesti. Lähde: Kemikaalituoterekisteri

Kemikaalituotteen nimi	Kemikaalituotteen valmistajan tai maahantuojan nimi
CC-VEKS MAALINPOISTOAINE	CC-COMPANY LTD TEKNOKEMIA OY
CILRELEASE 1814	ALGOL CHEMICALS OY
DOP 30	ALGOL CHEMICALS OY
DOP	ALGOL CHEMICALS OY
DOP, DOP - L /DOIKTYLFTALAT/ BIS(2-ETYYLIHEKSYYL)FTALAATTI	FINNPLAST OY
DOP, DOP - L /DIOKTYLFTALAT/ BIS(2-ETYYLIHEKSYYL)FTALAATTI	TEKNIKUM SEKOITUKSET OY
HD SPERSE XP TYPE DISPERSIONS	BRENNTAG NORDIC OY
METYLEENIKLORIDI	
MICROPEL 5 DOP	OY ESOPE AB
MULTISPERSE A-PTFE-80P	TEKNIKUM SEKOITUKSET OY
PALATINOL* AH	ALGOL CHEMICALS OY
TIP TOP UT-R20 KOVETTAJA	REMATIPTOP OY
TRELLBOND T2 CURING AGENT	METSO MINERALS FINLAND OY



# Results of the chemical use questionnaire

	Answering %	Nro plants using	Volume t/a (whole country in 2007/ KETU)	Fate of substance
DEHP (rubber production)	83	1	7 (100)	product
NP&NPE (paints, prints, varnishes)	44	5	160 (200)	product, WWTP, toxic waste -TP
OPE (paints, prints, varnishes)		1	< 0,07	product, WWTP
tetrachloroethylene	70	6		Closed process
DBP, dichloromethane, TCMTB, 1,4-dichlorobenzene		-		

# Results from questionnaire were used to select plants for COHIBA-project

- ✓ The case is focused on;
  - Getting a more comprehensive picture of the River Vantaa drainage area in the Southern Finland
  - In addition, large municipalities and industrial areas located on the coast or very close to the coast (<50 km from the coast) were selected
- ✓ Aimed at selecting industrial plants which are known to use target substances (or target substances are formed) in the processes
- ✓ National stakeholder group very important part of the Case study as well as the pre-study questionnaire



# Municipal Sites

## waste water – landfill – storm water

### ■ Two large-scale MWWTPs on the coast of Southern Finland

- Discharges of treated waste water directly to the Baltic
- 20 % of Finnish population connected to these MWWTs
- Contains pre-treated industrial waste water
- Two plants identified as back-up sites



### ■ One large landfill - the largest in Finland

- Located very near the coastline of Southern Finland
- Receives both urban and industrial waste
- Another landfill site in Southern Finland as back-up site

### ■ One industrial area for **urban storm water**

- In Helsinki

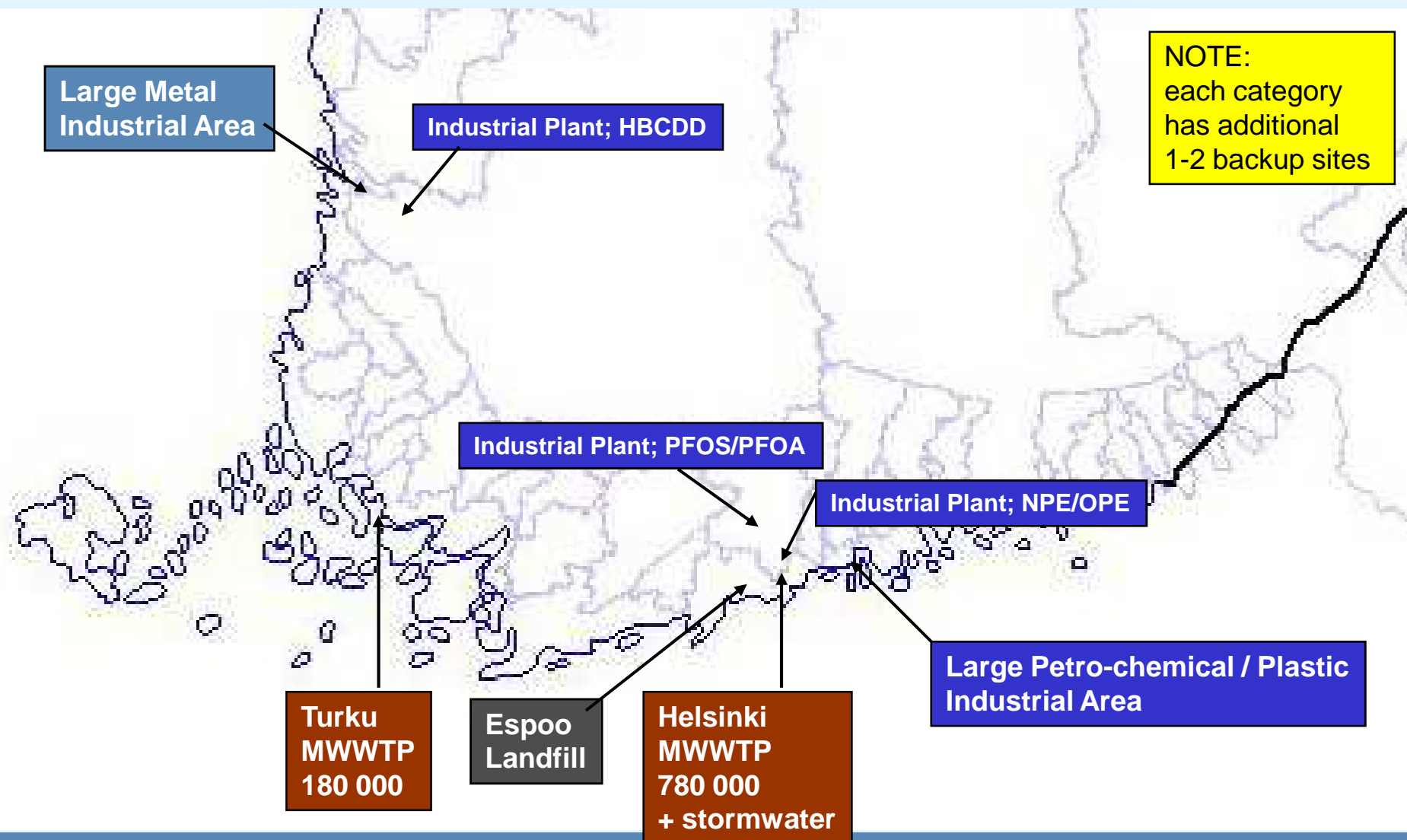


# Industrial plants

- Two large industrial areas located on the coast; both contain discharges from several industrial plants
  - Additionally, 1 large industrial area identified as back-up site
- Three targeted industrial plants located on the coast or <50 km from the coast;
  - Manufacture of EPS plastics; HBCDD used as flame retardant
  - Metal plating; PFOS used in chromium baths
  - Manufacture of paints; NP & NPE used as stabiliser/emulsifying agent



# Planned sampling sites - Finnish Case



Substances or substance groups of specific concern to the Baltic Sea
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1. Dioxins (PCDD), furans (PCDF) & dioxin-like PCBs
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2a. Tributyltin compounds (TBT)
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2b. Triphenyltin compounds (TPhT)
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3a. Pentabromodiphenyl ether (pentaBDE)
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3b. Octabromodiphenyl ether (octaBDE)
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3c. Decabromodiphenyl ether (decaBDE)
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4a. Perfluorooctane sulfonate (PFOS)
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4b. Perfluorooctanoic acid (PFOA)
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5. Hexabromocyclododecane (HBCDD)
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6a. Nonylphenols (NP)
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6b. Nonylphenol ethoxylates (NPE)
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7a. Octylphenols (OP)
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7b. Octylphenol ethoxylates (OPE)
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8a. Short-chain chlorinated paraffins (SCCP)
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8b. Medium-chain chlorinated paraffins (MCCP)
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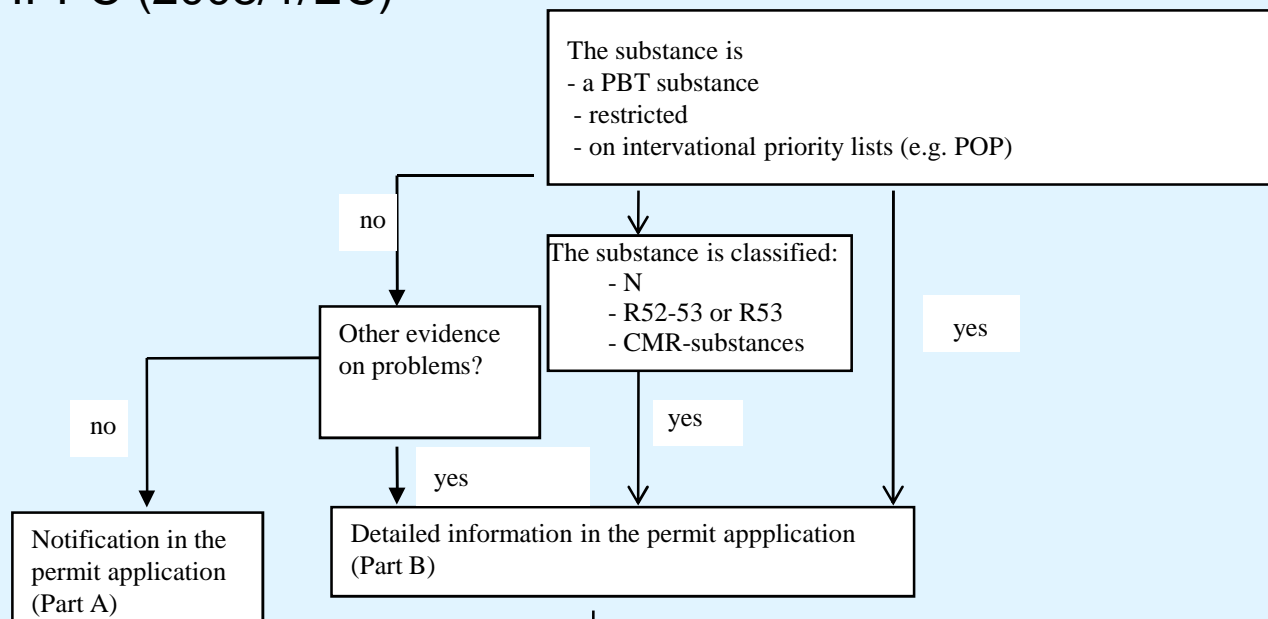
9. Endosulfan
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10. Mercury
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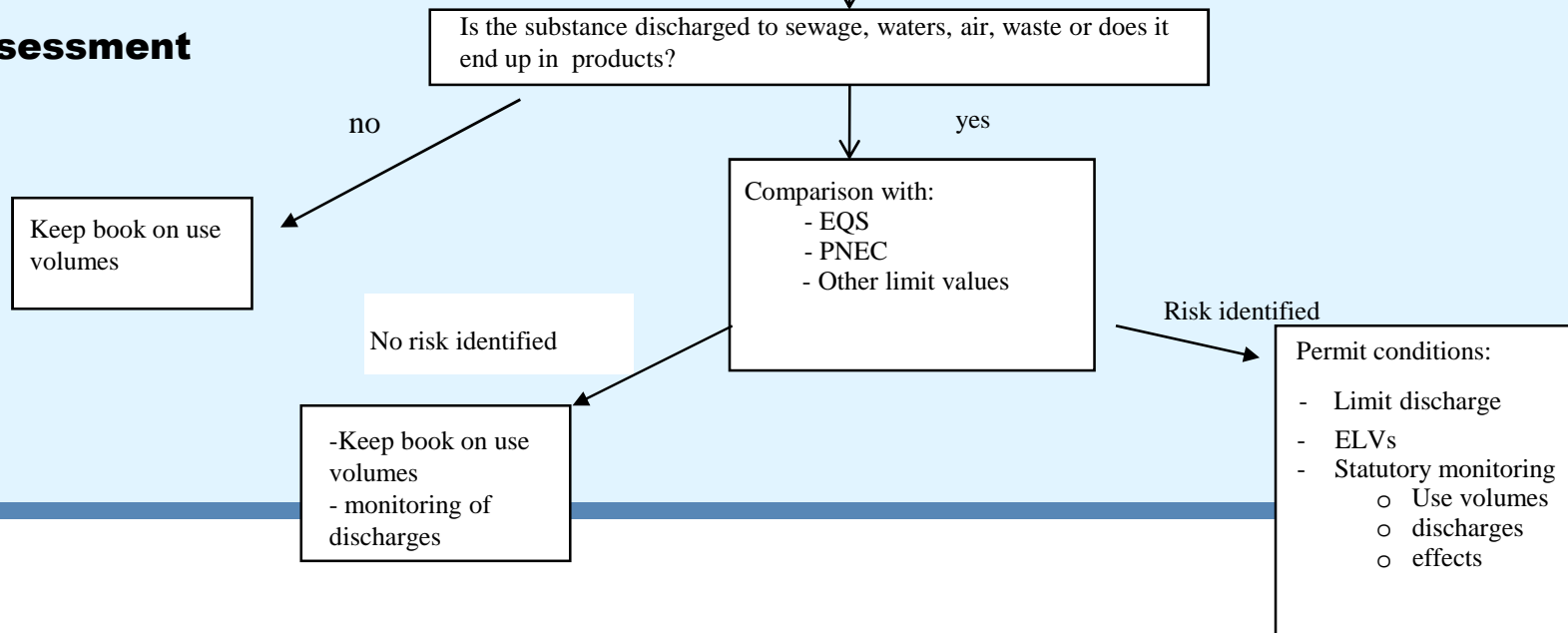
11. Cadmium
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# Hazardous substances in environmental permitting – identifying substances that belong to Annex III of IPPC (2008/1/EC)

## Hazard assessment



## Risk assessment



## Annex to permit application – chemical information

[illegible]

ca. 400 substances identified from the Chemicals Product Register  
as Annex III-substances:  
<http://www.ymparisto.fi/default.asp?node=1093&lan=fi>



# Extract from VAHTI-register:

In 2007 in total  
6284 chemical  
substances/  
products  
mentioned in  
VAHTI

Customer	Chemical	kg/a
Puunjalostustehdas)	Diccolasyr TBC petsipohja	108,00
Puunjalostustehdas)	Dicco Flex 30 TCL maali	2 926,00
Puunjalostustehdas)	Colonol lakkakitti	40,00
Puunjalostustehdas)	800-09198 ohenne	12 600,00
Puunjalostustehdas)	D-DUR 542-01103 täyte	10,00
Aurajoki Oy, Auran tehdas	Natronlipeä 50 %	21 600,00
Aurajoki Oy, Auran tehdas	Ammoniumkloridi	1 000,00
Aurajoki Oy, Auran tehdas	Suolahappo	249 700,00
Aurajoki Oy, Auran tehdas	Amminiakkivesi 25%	600,00
Aurajoki Oy, Auran tehdas	Hexamiini	1 000,00
Aurajoki Oy, Auran tehdas	Vetyperoksidi 50%	0,00
Aurajoki Oy, Auran tehdas	Gardacid P 4350	2 000,00
Aurajoki Oy, Auran tehdas	Sinkkiammoniumkloridi	16 000,00
Ovako Wire Oy Ab, Dalsbruk, valssaamo ja satama	Ferrisulfaatti PIX-105	325 350,00
Ovako Wire Oy Ab, Dalsbruk, valssaamo ja satama	Tieluola	625,00
Ovako Wire Oy Ab, Dalsbruk, valssaamo ja satama	Natronlipeä	167 417,00
Björkboda Lås Oy Ab	Metex Tensid EM	150,00
Björkboda Lås Oy Ab	Demulgaattori 4	170,00
Björkboda Lås Oy Ab	Ensolv liuotin	4 914,00
Björkboda Lås Oy Ab	Maalit ja ohenteet	5 550,00
Björkboda Lås Oy Ab	Neu-Tri E Solvent (trikloorietyleeni)	1 740,00
Björkboda Lås Oy Ab	Kenlevel Ultima Brightener	1 260,00
Björkboda Lås Oy Ab	Muut kemikaalit	709,00
Björkboda Lås Oy Ab	Natrium Metabisulfit	600,00
Björkboda Lås Oy Ab	Kalsiumkloridi	2 000,00
Björkboda Lås Oy Ab	Decorrdal 40/80-3 rasvanpoisto/fosfatoin	915,00
Björkboda Lås Oy Ab	Suolahappo Tekn. 32%	2 150,00
Björkboda Lås Oy Ab	Kenlevel ultima Carrier	100,00
Björkboda Lås Oy Ab	Hessobrite grundglans Ni 2000	230,00
Björkboda Lås Oy Ab	Tripass PK3	425,00
Björkboda Lås Oy Ab	Hakupur 50/468	450,00
Björkboda Lås Oy Ab	Kaliumkloridi	1 550,00
Björkboda Lås Oy Ab	Metex Cleaner Base K	3 360,00
Björkboda Lås Oy Ab	Boorihappo	401,00
Björkboda Lås Oy Ab	Hessobrite Ni2000 mix	1 000,00
Björkboda Lås Oy Ab	Öljyt	3 400,00
Björkboda Lås Oy Ab	Macrome 8210 U kromsalt	350,00
Björkboda Lås Oy Ab	Rikkihappo 93%	3 113,00



# Relevant information on HELCOM priority substances

- ✓ **Towards a Baltic Sea Unaffected by Hazardous Substances - HELCOM Overview 2007.**
  - Background document prepared for HELCOM Baltic Sea Action plan
  - Supportive information to identify relevant sources of target substances (see specifically Annexes 1 and 2)  
[http://www.helcom.fi/stc/files/Krakow2007/HazardousSubstances\\_MM2007.pdf](http://www.helcom.fi/stc/files/Krakow2007/HazardousSubstances_MM2007.pdf)
  
- ✓ **Hazardous substances of specific concern to the Baltic Sea – Final report of HELCOM HAZARDOUS project (still draft)**
  - More thorough information on sources of target substances
  - Will be published in the beginning of March 2009 during annual HELCOM Commission meeting. The latest draft (under process of language correction) will be circulated to COHIBA participants. The final version will be available at HELCOM websites.

