Suomen ympäristökeskuksen moniste

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Lauri Etelämäki, Kimmo Silvo, Heidi Vuoristo, Ville Hokka, Maria-Leena Hämäläinen,Tapio Pylkkö, Sami Raassina ja Erkki Santala

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SUOMEN YMPÄRISTÖKESKUS

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1 OVERVIEW OF THE FINNISH IMPLEMENTATION OF HELCOM RECOMMENDATIONS IN 2001

This publication contains reports on the implementation of the HELCOM Recommendations under Land-based pollution Group in Finland. The Land-based Pollution Group is responsible for reducing pollution from all sources on land within the catchment area of the Baltic Seas, by promoting investment and practical measures to reduce emissions. HELCOM Land works to promote environmentally sound practices and technologies - Best Available Techniques (BAT) and Best Environmental Practices (BEP).

Finnish Environment Institute (SYKE) is responsible about the reporting in Finland. Regional Environment Centers, Ministry of Traffic and Communication and some private companies have participated within to gathering the reports for this reporting round. The pollution load information has partly been collected from VAHTI- data system.

The quality of the information in the reports of the year 2001 has improved compared to the reporting of the year 1998 thanks to the harmonization work done in HELCOM. The reporting forms were simplified and unnecessary questions were removed.

For all activities the time schedule of the last reporting was exceeded and the information gaps of the answers were so big that the implementation rate of some reports could not be estimated. The reporting forms contained questions about such analysis that are not performed in Finland. Pollution load information is difficult to compile in cases where the waste waters are led straight to the communal waste water treatment plant (eg. metal surface treatment, 80 % of their waste waters are treated at communal waste water treatment plants). There are still questions of little information value in the reporting forms that increase the work and weaken the motivation of the respondents. Because of these reasons the reporting is still under development work.

The reporting covers widely industrial sectors but also such other issues as handling of dangerous substances and significant pollution load sources, together 26 different reports. Out of all the Finnish reports 11 are estimated to implement fully the requirements of the Recommendation. So there is still need to improve the implementations. On the other hand all the Recommendations of this reporting round are at least partly implemented.

Table 1. Implementation of HELCOM Recommendations in year 2001

Recommendation	DK	EE	FI	DE	LV	LT	PL	RU	SE
24/4 – Iron and steel	*	*	😐	☺	😐	*	😐	😐	😐
23/9 – Hard coal cokeries	*	*	😐	*	*	*	😐	*	😐
23/7 – Metal surface treatment	😐	😐	😐	☺	😐	n.i.	😐	😐	☺
23/8 – Oil refineries	n.i.	*	😐	☺	*	☺	☺	☺	☺
23/10 – Pesticide production	*	*	😐	*	*	*	😐	*	*
23/11 – Chemical industry	*	😐	😐	*	😐	😐	😐	😐	😐
16/7 – Leather industry	☺	☺	😐	*	n.i.	☺	☺	😐	☺
16/10 – Textile industry	☺	😐	😐	☺	😐	n.i.	😐	☹	☺

17/6 – Fertilizer industry	*	*	😐	(☺)	*	n.i.	😐	😐	(☺)
6/3 – Chlor-alkali industry	*	*	😐	*	*	n.i.	😐	*	😐
5/1 – Limitation of storm water systems (superseded by 23/5)	☺	😐	☺	(☺)	😐	☺	☺	n.i.	☺
17/7 – Urban areas by proper management of stormwater	😐	😐	😐	😐	😐	😐	😐	😐	😐
7/3 – Urban areas by development of sewerage systems	(☺)	(☺)	(☺)	😐	☹	(☺)	(☺)	☹	☺
9/2 – Effective methods in waste water treatment	(☺)	😐	😐	😐	😐	😐	n.i.	n.i.	(☺)
16/9 – Nitrogen removal at municipal sewage treatment plants	(☺)	😐	(☺)	😐	😐	😐	☹	*	😐
18/4 – wetlands and fresh water ecosystems for retention of nutrients	😐	😐	😐	😐	😐	n.i.	😐	n.i.	😐
6/1 – PCBs and PCTs	☺	☺	☺	☺	☺	n.i.	☺	😐	☺
20/4 – Antifouling paints	☺	☹	☺	☺	😐	n.i.	n.i.	☹	☺
20/2 – Approval of pesticides	☺	☺	☺	☺	☺	n.i.	☺	☹	☺
24/2 – Used batteries	☺	😐	😐	😐	😐	n.i.	☺	😐	☺
23/4 – Mercury resulting from light sources	☺	😐	😐	😐	😐	n.i.	☺	😐	☺
6/4 – Mercury in dentistry	☺	☺	☺	☺	☺	n.i.	☺	☺	☺
9/4 – Leaded gasoline	☺	☺	☺	☺	☺	☺	☺	☺	☺
17/1 – Reduction of emissions of transport sector affecting the Baltic Sea	☺	😐	☺	☺	☺	(☺)	😐	😐	☺
18/3 and 20/1 – Fish farming	(☺)	(☺)	(☺)	(☺)	(☺)	(☺)	(☺)	(☺)	(☺)
16/8 – Incineration of household waste	*	*	(☺)	*	*	*	(☺)	*	*

☺ Full implementation
(☺) Full implementation, but complete information not available
😐 Partly implemented
(😐) Steps taken to implement
☹ Not implemented
* - No such plant
n.i. - No information

Source material: HELCOM, 2003. SUMMARY REPORT ON IMPLEMENTATION OF HELCOM RECOMMENDATIONS UNDER THE LAND-BASED POLLUTION GROUP. 2003. http://www.helcom.fi/recommendations/Summary_impl_report.pdf

1.1 Reports of the HELCOM recommendations

1.1.1 Industry

REPORTING FORMAT FOR HELCOM RECOMMENDATIONS 16/4, 17/8 AND 17/9 CONCERNING THE REDUCTION OF DISCHARGES AND EMISSIONS FROM THE PULP INDUSTRY

Lead Country: Sweden
Country: Finland
Year: 2001

For each kraft pulp mill:

1. Name, location and the type of production (for example bleached, unbleached) in tones/year

		Production (t/a)	
Name and location of mill	Type of mill[1)]	Bleached	Unbleached
A. Oy Metsä-Botnia Ab Joutseno Pulp	c	334175	
B. Oy Metsä-Botnia Ab Kaskinen	c	368523	
C. Oy Metsä-Botnia Ab Kemi	c	314000	129000
D. Oy Metsä-Botnia Ab Äänekoski	c	396458	
E. Oy Metsä-Botnia Ab Rauma	c	469592	
F. Stora Enso Imatra	c	568513	157692
G. Stora Enso Kemijärvi	c	178000	
H. Stora Enso Kotka	c		121200
I. Stora Enso Oulu	c	299839	
J. Stora Enso Enocell Oy	c	560006	
K. Stora Enso Varkaus	c	178000	
L. Stora Enso Veitsiluoto	c	312000	
M. Sunila Oy Kotka	c	300536	
N. UPM-Kymmene Oyj Kaukas Lappeenranta	c	677857	
O. UPM-Kymmene Oyj Kymi Paper Oy Kuusankoski	c	419603	
P. UPM-Kymmene Oyj Pietarsaari	c	527265	39094
Q. UPM-Kymmene Oyj Tervasaari Valkeakoski	c	54001	142446

[1)] Under the heading "Type of mill" indicate whether it is:
a. a mill which started to operate after 1 January 1997: "new"
b. an existing mill which has been subject to at least a 50 % increase in its capacity after 1997: "50%"
c. mills starting to operate before 1 January 1997: "existing"

2. Short general description of the sector as a whole

A survey of BAT measures implemented at Finnish pulp and paper mills was made for the IPPC BAT work in spring 1999. According to the survey almost all mills have implemented BAT measures listed in the Helcom recommendation 17/8.

All mills treat their wastewaters biologically, the activated sludge method being the predominant treatment method. Two mills have an application of aerated lagoon (Mills G and K), one mill has a combination of anaerobic unit and activated sludge unit (Mill H), and the rest of the plants applies activated sludge plants.

In general, recovery boilers and lime kilns are equipped with SO_2-washers and electrostatic precipitators. Strong and weak odorous gases are collected from the pulp lines, evaporation plants and from storage tank areas. Malodorous gases are then incinerated in recovery boilers, lime kilns or in separate furnaces.

During the last 3 years two kraft pulp mill lines have been totally renewed. New lines started in operation in 2001 and the final reduction in environmental effects can therefore be seen from the statistics of 2002. Furthermore, many mills have improved the collection and incineration of weak odorous gases as well as applied new continuous emission measurement systems. Projects on improvement of biological wastewater treatment have bee carried out and two mills have increased aeration basin capacity of their activated sludge plants.

3. Annual mean discharges (kg/ADt) for COD, BOD, AOX, tot-P and tot-N;

The specific loads below have been calculated for non-integrated mills and for which the load from pulp production can be separated. The specific load figure calculated represents 63 % of the total kraft pulp production.

Mill (number)	Annual mean discharges (kg/ADt)				
	COD	BOD	AOX	tot-P	tot-N
A.	27,1	0,50	0,24	0,031	0,28
B.	12,5	0,36	0,05	0,016	0,14
D.	17,3	0,41	0,30	0,011	0,15
E.	7,6	0,67	0	0,020	0,18
G.	40,4	6,83	0,09	0,064	0,64
I.	18,1	0,66	0,24	0,028	0,18
J.	13,4	0,34	0,15	0,003	0,08
M.	20,6	0,63	0,20	0,029	0,06
N.	18,9	1,05	0,16	0,010	0,32
P.	33,6	2,05	0,15	0,025	0,36
Total	209,5	13,50	1,58	0,237	2,39

4. Data on air emissions from pulp industry

a) Annual average emissions (mg NO_x/MJ) fuel input or as mass concentrations from recovery boilers and lime kilns for each mill.

Mill (number)	Recovery boilers	Lime kilns	
	Annual average emissions (mg NO_x/MJ)	Annual average emissions (mg NO_x/MJ)	Type of fuel
A.	59,6	100,1	natural gas
B.	114,1	154,3	tall oil and tall pitch heavy fuel oil
C.	75,0	120,1	heavy fuel oil
D.	104,0	396,1	heavy fuel oil
E.	39,2	427,4	heavy fuel oil
F.	57,9	86,9	natural gas
G.	43,2	174,0	heavy fuel oil
H.	27,9	110,5	natural gas
I.	37,4	151,7	heavy fuel oil
J.	60,0	100,2	tall oil and tall pitch heavy fuel oil
K.	81,6	162,8	heavy fuel oil
L.	52,4	107,7	heavy fuel oil
M.	69,5	213,8	natural gas
N.	76,8	93,3	natural gas
O.	72,0	88,7	natural gas
P.	45,0	163,5	saw dust and cutter heavy fuel oil
Q.	59,9	131,2	natural gas
Average	62,9	156,7	

"Type of fuel" for the lime kilns indicates the main type of fuel used. The emissions of NO_x from the lime kilns are here reported as an average for all fuels. Calculated averages in Tables a) and b) are presented as **weighted** averages.

b) Total emissions of NO_x and gaseous S (t/a) and annual average emissions of gaseous sulphuric compounds* (kg S/ADt).

Mill (number)	Total emissions (t/a)		Annual average emissions in kg/ADt	
	NO_x	Gaseous S	gaseous sulphuric compounds	
A.	656	290	0,87	
B.	896	429	0,90	
C.	1240	203	0,15	
D.	963	245	0,62	
E.	683	224	0,48	
F.	1537	416	0,53	
G.	299	120	0,68	
H.	267	148	1,22	
I.	812	323	0,30	
J.	1002	159	0,28	
K.	836	306	0,94	
L.	1076	319	0,21	
M.	734	95	0,23	
N.	1492	323	0,34	
O.	1046	173	0,21	
P.	1246	316	0,38	
Q.	790	225	0,69	
Total	15575	4314	Average	0,46

* The only emissions not to be included are those from the auxiliary boilers.

5. Summary of evaluation of compliance with the requirements of the Recommendation

There are no major problems in the implementation of the requirements of the recommendation. The apparent high load figures in some cases are mainly due to aged treatment equipment and/or capacity problems (e.g. at RB or LK) caused by increased production rates. At water side, one aerated lagoon is going to be replaced with an activated sludge plant in the near future.

6. Means used when nationally putting into force the Recommendation

Finland adopted the IPPC directive of EU by introducing an new Environmental Protection Act that came into force on 1 March 2000. The new Act and the corresponding Decree determine the status of BAT information in permitting procedures. As linked to BAT, the Helcom recommendations are considered as one source of BAT information in local permit processes regarding pulp and paper industry.

REPORTING FORMAT FOR HELCOM RECOMMENDATIONS 11/7, 13/4 AND 17/5 CONCERNING REDUCTION OF EMISSIONS AND DISCHARGES FROM THE IRON AND STEEL INDUSTRY

Lead Country: Finland
Country: Finland
Year; 2001

1. Name and location of the plants. Optionally the number of plants may be reported.

A: Fundia Wire Oy Ab, Koverhar steel works
B: Fundia Wire Oy Ab Dalsbruk rolling mill
C: AvestaPolarit Stainless Oy, Tornio
D: Rautaruukki Steel, Raahe
E: Rautaruukki Oyj Hämeenlinna Steel
F: Imatra Steel Oy Ab, Imatra

2. Main process units, their production and use of scrap for each plant separately.

Main process units	Production (t/a)	Use of scrap	
		t/a	kg/t steel
Sintering plant	A:(Shut down in 1995) D: 2 650 000	-	-
Blast furnace	A:537 369 D: 2 312 000		
Open-heart furnace			
Basic oxygen furnace	A:513 480 D: 2 565 000	A:77 529 D: 583 000	A:150 D: 227
Electric arc furnace	C: 560 814 F: 287 170	C: 337 591 F: 307 394	C: 602 F: 1 070
Continuous casting	A:513 480 D: 2 565 000 F: 275 662	-	-
Hot rolling	B: 353 511 C: 581 790 D: 2 671 000 F: 426 224	-	-
Cold rolling	C: 521 000 E: 1 178 700	-	-

3. Waste water discharges

a) Status of the plant concerning applying of operations which cause no waste water discharges

Main process units	Operations causing no waste water discharges are applied (Yes/No)	Circulation rate (%)
Sintering plant	D: Yes	
Blast furnace	A: No D: No (partly)	A: 94 D: 96
Open-heart furnace		
Basic oxygen furnace	A: No D: No (partly)	A: 99 D: 86
Electric arc furnace	C: Yes partly	F: Unknown
Continuous casting	A: No C: Yes D: No (partly)	A: 95 C: ~100 D: 92 F: Unknown
Hot rolling	B: No C: Yes D: No (partly)	B: 94 C: >90 D: 98,5 F: Unknown
Cold rolling	C: Yes E: No	

b) Status of the plant concerning separate treatment of process water, polluted cooling water and polluted stormwater from unpolluted cooling water

	Yes	No	Partly
Process water, polluted cooling water and polluted storm water are treated separately from unpolluted cooling water?	A: Yes B: Yes D: Yes E: Yes		C: Partly F: Partly
Stormwater from plant area is treated before discharging?	A: Yes, together with process water B: Yes, together with process water	D: No	B: Partly C: Partly,clarification E: Partly F: Partly

c) Status of the plant concerning measures in order to minimize discharges (especially phenols, cyanide, COD and PAH)

Measure	Measure has been carried out? (Yes/No)	Work is going on? (Yes/No)
Utilization of by- products	A: Yes D: No E: Yes	A: Yes
Slag granulation by process water	A: (No granulation process) D: No E: Yes	D: No
Other, what?	D: No	

d) Status of the plant concerning internal and external measures in order to minimize accidental discharges

Measure	Measure has been carried out? (Yes/No)	Work is going on? (Yes/No)
Installation of sufficient storage capacity for untreated waste waters	A: Yes (wastewater treatment plant) B: Yes, wastewater treatment plant D: No E: Yes F: Yes	A: Yes B: Yes D: No
Other, what?	D: No F: Risk assessment and adjoining measures	

e) Status of the plant concerning utilization of sludges and waste (e.g. recycled in plant, externally used, landfill, other

	Percentage (%)			
Type of sludge or waste	recycled in plant	externally used	landfill	other (what?)
A: BF cyclone dust A: BF electrofilter dust A: LD electrofilter dust	A: 50	A: 100	A: 50	A: Stabilization
B: Wastewater treatment sludge		B: 50		B: 50
C: Return scrap C: Captured dust from steel smelting plant C: Dust from shot peening at cold rolling plant C: Rolling dust from hot rolling plant C: Metal dust from continuous casting	100	100 100 100 100		
	D: x (amount is not known)		D: x (amount is not known)	
E: Sludges	E: 0	E: 0	E: 0	E: 0
Sludge from clarification basin d filters le		F: 100	F: 100 F: 100	

f) Status of the plant concerning annual mean discharge (for CN_{vol} 24h value) and total waste water discharges

Process	Suspendable solids (mg/l)	CN_{vol} (mg/l)	Discharged waste water (m^3/a)
Sintering plant	A: (No sintering plant) D: 20		D: 745000
Blast furnace	A: No D: 0	A: No	A: No D: 600000
Open-heart furnace			
Basic oxygen furnace	A: No D: 29	A: No	A: No D: 3066000
Electric arc furnace	C: 3,0	C: 0,3	C: 3127415

g) Status of the plant concerning specific discharges in g/t steel

	Specific discharges in g/t steel				
Process	SS	Oil	Ni	Cr	Zn
Continuous casting	A: 43,8 D: 27 F: Not measured separately	A: 1,4 D: 0,4 F:Not measured separately			
Hot rolling	B: 38,2 D: 37 F:Not measured separately	B: 3,6 D:1,6 F:Not measured separately			
Cold rolling	C: 38,33 E: 21,8 F:Not measured separately	C: 0 E: 0,9 F:Not measured separately	C: 0,69	C: 0,69 E: 0,01	C: 0,20 E: 0,006

h) Status of the plant concerning total discharges in t/a

Process	SS	CN_{vol}	Oil	Ni	Cr	Zn
Sintering plant	D: 14,6					
Blast furnace	A: See total below		A: See total below			
Open-heart furnace						
Basic oxygen furnace	A: See total below D: 85,6		A: See total below			D: 1,3
Electric arc furnace	F: Not measured separately		F:Not measured separately			
Continuous casting	A: (22,5) D: 68 F: Not measured separately		A: 0,76 D: 1,0 F:Not measured separately			
Hot rolling	B: 13,5 D: 96 F: Not measured separately		B: 1,28 D: 4,2 F:Not measured separately			
Cold rolling	E: 25,7		E: 1,0		E: 0,012	E: 0,007
Storm water from plant area						
Total	A: 22,5 C: 51,65 D: 480 E: 25,7 F: 10	C: 0,13	A: 0,76 C: 0 D: 9,8 E: 1,0 F: 0,4	C: 0,88	C: 1,072 E: 0,012	C: 0,2 D: 1,3

4. Emissions to the atmosphere

a) Status of the plant concerning dust and fugitive emissions from all processes and dust cleaning technology used

	Yes	No	Partly
Emissions are avoided?		A: No B: No D: No	C: Partly E: Partly F: Partly
Emissions are collected and filtered?	A: Yes D: Yes E: Yes	B: No	C: Partly F: Partly
Fugitive emissions are avoided?	B: Yes	A:No D: No	C: Partly E: Partly F: Partly
Fabric filters or technology environmentally equivalent are used for dust cleaning?	C: Yes D: Yes E:Yes	B: No	A: Partly F: Partly
The particulate matter content of the filtered gases is $\leq$ 10mg/m^3 (ndg)		A: No B: No E: No	C: Partly D: Partly F: Partly

b) Status of the plant concerning total emissions from all processes

Process	Total dust emissions	
	kg/t steel	t/a
Sintering plant	D: 0,5	D: 1364
Blast furnace	A: 0,13 D: 0,4	A: 67,9 D: 994
Open-heart furnace		
Basic oxygen furnace	A: 0,37 D: 0,06	A: 192,3 D: 155
Electric arc furnace	C: 0,21 F: 0,007	C: 117 F: 2
Continuous casting	A: 0,0 F: 0,07	A: 0,0 F: 20
Hot rolling	B: 0,01 C: 0,02 D: 0,0 F: 0,04	B: 4,1 C: 12 D: 4,8 F: 18
Cold rolling	C: 0,1 E: 0,0042	C: 50 E: 4,9

c) Status of the plant concerning monitoring of emissions

	Yes	No	Partly
Emissions from all processes are monitored continuously?		B: No D: No E: No	A: Partly C: (only few so far) F: Partly

REPORTING FORMAT FOR HELCOM RECOMMENDATION 16/6 CONCERNING REDUCTION OF DISCHARGES AND EMISSIONS FROM THE METAL SURFACE TREATMENT

Lead Country:
Country:Finland
Year:2001

1. Number and type of plants discharging directly into surface waters and number and type of plants discharging to municipal sewers.

There are nearly 300 metal surface treatment plants in Finland. About 150 plants use classical plating processes, nearly 100 plants have phosphating or phosphate cleaning process and ca. 20 plants produce printed circuits, 10 plants anodize aluminium and 15 plants are hot galvanizers. Most plants are connected to municipal treatment plants, only about 30 plants discharge to the recipient.

2. Summarised description of the sector [1)] including:

- efforts to reduce the volume of waste water discharged and its pollutant load as specified in paragraph 1 of the Recommendation;

Waste water is recycled and the waste water treatment methods are improved. One target has also been minimizing the water consumption in the plants.

- efforts to avoid and substitute the use of chlorinated solvents as specified in paragraph 3 of the Recommendation;

Water wash is used more and more as a substitute because of occupational health and safety requirements but also because the general awareness about the dangerousness of the chlorinated solvents has increased.

- actions taken to reduce discharges and emissions during the last 3 years.

There are no general instructions or orders but in individual cases the authorities have demaded more efficient methods or devices to reduce discharges or emissions.

3. Information on waste water discharges for plants discharging directly to surface waters.

3.1 Waste water volume, concentration of heavy metals and other substances as specified in pargraph 2 of the Recommendation (preferably plant by plant).

Plant	Waste water m^3/a	Concentration, mg/l										
		Cd	Hg	Cr-tot	Cr-VI	Cu	Pb	Ni	Ag	Zn	total cyanide	VOX
Kalmakoski, Keuruu	2067			1,11	0,66					15,7		
Koskensaaren Oy, Petäjävesi	1356									2,1		
Avesta Polarit Stainless Oy, Tornio	3 127 415			0,1	0,06			0,04			0,03	
Arvo Piiroinen Oy, Salo	70626			0,18	0,037	0,058		0,657		1,73	0,075	
Aurajoki Oy, Salo	45517			0,037						0,31	0,007	
Aurajoki Oy, Aura	5763									0,49		

Fundia Dalwire Oy Dalsbruk	352029					0,0497	0					
Outokumpu Plating Oy, Pori	70000			3,8	0,4							
Björkboda Lås Oy	11550			0,277	0,032			0,4329				
PintosOy, Eura	1100			0						9,7		
Satakunnan vankila, Huittisten osasto/ teollisuus	24			7,2	0,014					11,4		
Jukova Oy	4607											
OFA Oy Ab, Kettinkitehdas, Loimaa	2614			0,010						0,011		
Lounais-Suomen Putki Oy	20700			0,159	0,01			0,318		1,80	0,266	
Metsämaan Niklaamo Oy	5220			0,36	0,1			1,49		7,23		
Kromatek Oy, Nakkila	28700			0,1	0,1							
Morite Oy, Teijo	1650			1,39		0,12		0,3		0,55	4,12	
Finnpipe Oy FinnBend Oy	5864,600			2,565				0,793				
Lexel Electric Oy, Ruotsinpyhtää	5492							7		0,5	0,08	
Nordic Aluminium Oyj, Kirkkonummi	42 313			<0,05	< 0,01	0,045						

3.2 Sum of trichloroethene, tetrachloroethene and dichloromethane in mg/l (expressed as chlorine in a representative sample).

4. VOC emission data to the air

Patria Finavicomp Oy: 31,4 tonnia vuonna 2001
Patria Finavitec Oy: 10,1 tonnia vuonna 2001
Avesta Polarit Stainless Oy <1ppm

5. Summarized data on plants discharging directly to municipal sewers including:number or percentage of plants which comply with the different requirements of the Recommendation (Please specify e.g. which parameters / requirements cause problems for compliance).

About 80 % of the plants comply with the requirements of the recommendation. Cr_{tot} , Cu, Ni, Zn and unbound cyanide cause problems for compliance.

6. Summary of evaluation of compliance with the requirements of the Recommendation including:

- problems encountered in the implementation of the requirements and the foreseen development of the situation.

The average size of the plants is small and small plants do not have much resources to make improvements to their processes.

[1)] Applies primarily to plants in which surfaces are plated with metals electrolytically or chemically.This involves the following main operations: pre-treatment (e.g. degreasing/cleaning and pickling); electrolytic or chemical deposition of metals, including intermediate treatment; post-plating treatment (e.g. chromating, dyeing); stripping and phosphating.

7. Specify means used when nationally putting into force the Recommendation

- via general reference in the national legislation
- via a specific adoption of an amendment to existing national legislation
- via administrative or other means, please specify.
-

Recommendation is put in force by the environmental protection act and it's regulations

Possible problems identified when putting into force nationally the Recommendation.

REPORTING FORMAT FOR HELCOM RECOMMENDATION 6/2 CONCERNING REDUCTION OF DISCHARGES FROM OIL REFINERIES

Lead Country: Finland
Country: Finland
Year: 2001

1. Name, site and type[1)] of the oil refinery [3)]. Refer also if there is a reception facility in the refinery and the storage capacity (m^3) and the treatment capacity (m^3/d).

A. FORTUM Oil and Gas OY, type IV, PORVOO refinery with reception facility 5000000 m^3/d
B. FORTUM Oil and Gas Oy, NAANTALI refinery

2. Description of the cooling system

Cooling system	Yes / No	Cooling capacity (MW)
Air	A: Y B: Y	A: Only some minor coolers B: same
Water once through	A: N B: N	
Water, recycled	A: Y B: Y	A: 550 MW B : 120 MW

3. Waste water treatment including:

Type of effluent	Flow of discharge (m^3/a)	Mineral oil concentration at exit of system (mg/l)	Type of treatment[2)] (please tick): 1) gravity separation; 2) advanced separation; 3) biotreatment.
Process water	A: 4868000 B: 1604000	A: 1,1 B: 0,3	A: 1, 2 and 3 B: 1, 2 and 3
Uncontaminated cooling water	A: 520000000 B: 18661000		
Cooling water, contaminated or mixed with other contaminated waters			
Storm- and other surface water run-off	A: 2069000 B: included in process	A: 0,3	A: 1
Ballast water	A: Included in process waters B same		A: 1 and 2 B 1 as pretreatment
Other, specify what			
Which types of effluents are mixed with other waste water streams before treatment?	A: Process waters from petrochemical industry Some storm waters		

4. Feedstock and discharge of oil including

total feedstock processed (10^6 t/a)	A: 9,4 B: 2,7
oil refining capacity (10^6 t/a)	A: 12 B: 3
total quantity of oil discharged (according to table under point 3) (t/a)	A: 6,1 B 0,45
ratio of oil discharged to feedstock processed (g/t)	A: 0,65 B: 0,19
quantity of oil discharged due to accidental spillages (not included in c) (t/a)	A: 0,1 B: 2,4 (december accident)

5.Analytical methods including:

Analytical method used to measure mineral oil concentration (please indicate if different for different waste water streams)	A and B: SFS 3010
Infrared: extraction solvent; wavelenghts; standard solution	Aand B: CCl_4
Gravimetric extraction solvent	
Sampling method and frequency	Aand B: Grab samples twice a week

6. Effluent loads other than mineral oil

Parameter	Concentration at exit of system*)	Total quantity discharged (t/a)
COD_{Cr}	A: 134	A: 651 B: 179
BOD		B: 11,5
TOC		
Total extractable		
Phenolic compounds	A: 0,02	A: 0,1 B: 0,033
Other aromatic		
Sulphides		
Total nitrogen	A: 14 B:	A: 68 B: 9,8

*) Before connection with cooling water

7. A brief description on eventual programmes drawn up to reduce the pollution caused by the refinery regarding storm waters, cooling waters, process waters. The description of programmes drawn up is especially important for refineries not in compliance with this Recommendation.

8. Have any changes taken place since the last HELCOM reporting round (during the last 3 years) regarding: refinery operations; effluent treatment system; other.

In 2000 the once through cooling system was changed to recycling (secondary cooling)

9. When available refineries should provide a simple flow diagram of the refinery effluent system showing:

- the flow rates for the several streams (m^3/a);
- the main processing steps of the treatment plant;
- the location of the sampling and flow measuring points.

10. Summary of evaluation of compliance with the requirements of the Recommendation

	Yes	No	Partly
Collection and treatment of stormwaters			A: X B:X
Separation of cooling waters	A: X B: X		
Biological treatment of all contaminated waste waters	A: X B:X		
Oil content of the effluent < 5 mg/l	A: X B:X		
Total oil discharged ≤ 3 g/ton crude	A: X B:X		
Problems encountered in the implementation of the requirements and the foreseen development of the situation			

[1)] Note: Type I - Simple refinery: composed of crude oil distillation units, catalytic reforming units and facilities for the treatment of distillate products including desulphurization.
Type II - Type I plus catalytic cracking and/or thermal and/or hydrocracking.
Type III - Type II plus stream cracking in refineries only and/or production of lubrificants within refinery fence.
Type IV - Type II and Type III plus petrochemical industry.
Type V - Production of lubrificants only (not included in the Recommendation 6/2.

[2)] Note: 1) e.g. API, CPI, Tank
2) e.g. Chemical addition, Air flotation, Sedimentation, Filtration
3) e.g. Trickle filter, Activated sludge, Aerated pond.

[3)] Reporting should be restricted to oil refineries which process more than 1.000 000 ton crude oil per year and discharge directly into surface waters

d) Measures taken to avoid cadmium and mercury in products that can end up as scrap and the plans for further reductions

Measures have been introduced? (Yes/No)	C: No D: No E: Yes	
Measure (brief description)	Measure has been carried out? (Yes/No)	Work is going on? (Yes/No)
A: Scrap being processed by supliers B: Rolling mill	A: Yes D: No	A: Yes C: No D: No
Timetable for further reductions? (Yes/No)	D: No	

e) Measures taken to reduce the use of chlorinated oils and emulsions in metal-working plants and the melting of chlorinated plastic together with steel products

Measures have been introduced? (Yes/No)	D: No E: Yes	
Measure (a brief description)	Measure has been carried out? (Yes/No)	Work is going on? (Yes/No)
A: No use of plastic covered steelscrap B: Rolling mill C: AvestaPolarit has very strict quality programme regarding scrap they receive from their professional contractors. AvestaPolarit only receives carefully assorted scrap. F: Scrap containing plastic coated steel sheet is not used	A: Yes D: No C: Yes F: Yes	A: Yes D: No
Timetable for further reductions? (Yes/No)	A: Project is going on in Rautaruukki group D: No	

f) Further measures and plans taken for reducing emissions of mercury and dioxins

Measures at plants have been introduced? (Yes/No)	E: Yes	
Measure (a brief description)	Measure has been carried out? (Yes/No)	Work is going on (Yes/No)
A: Balance calculations on Hg is made 2001-2002 B: Rolling mill C: Yes due to avoiding oils and plastics in the scrap used. Dioxin measurements has been planned to determine further need to reduce dioxins. D: Sinterplant F: Participating in Hg-study program of JK, Sweden	A: No C: Yes D: Yes	A: Yes C: Yes D: Yes F: Yes
Timetable for further reductions? (Yes/No)	A: No D: Yes	
According to timetable further reductions	Mercury	Dioxins
will be carried out by (year)	A: 2003 D: 2002	A: No C: No timetable yet

g) The annual emissions of mercury and dioxins

	Mercury		Dioxins	
Emissions have been measured? (Yes/No)	A: No C: Partly D: Yes E: No		A: No C: Once in 1990 D: Yes E: No	
Emissions have been estimated? (Yes/No)	A: Yes C: Partly E: No		A: No C: Yes E: No	
Annual emissions	kg/a	mg/t steel	g/a	µg/t steel
D: Sinterplant	A: 10 C: 7,9 D: 10 F: 39	A: 20 C: 14 D: 3,9 F: 0,14	C: 2 (as Eadon equivalent) D: 1 F: 0,2	C: 3,6 D: 0,4 F: 0,7

h) National plans for reducing dioxin and mercury emissions in the iron and steel industry

	Mercury	Dioxins
National plans for reduction of emissions? (Yes/No)	A: No D: No E: No	A: No D: No E: No
Brief description (including e.g. limit values)	E: No	E: No

REPORTING FORMAT FOR HELCOM RECOMMENDATION 6/3 CONCERNING REDUCTION OF EMISSIONS AND DISCHARGES OF MERCURY FROM CHLORALKALI INDUSTRY

Lead Country: Estonia
Country: Finland
Year 2001

1. Name, location and type of type of technology used at each plant;
A: Eka Chemicals Oy, Oulu
Production started in 1957; Mercury method,electrolysis
B: Finnish Chemicals Oy Joutseno Factories
Membrane method (mercury-free) Finnish Chemicals Oy Kuusankoski Factories

2. Information on measures taken to reduce mercury emissions to water and to atmosphere at each plant;
A: No new techniques have been implemented in the last two years, but the general managament and operation of processes have been improved.
B: Mercury-free production (from the onset)

3. Data for waste water discharges and emissions to the atmosphere for each plant separately;

Plant (No.)	Total quantity of mercury [1] in all waste water discharged (g/t production capacity)	Mercury losses in ventilation air (g/t production capacity)	Amount of mercury in hydrogen gas [1] (g/t chlorine produced)	Mercury concentration in alkali [2] (mg/l)
A	0,13 g/t, Cl_2	0,9 g/t, Cl_2	<0,1 g/t, Cl_2	<0,1 mg/l

[1] monthly average
[2] annual average

4. Summary of evaluation of compliance with the requirements of the Recommendation including:
- problems encountered in the implementation of the requirements and the foreseen development of the situation.

5. Specify means used when nationally putting into force the Recommendation:

- via general reference in the national legislation
- via a specific adoption of an amendment to existing national legislation
- via administrative or other means, please specify.

The Recommendation is put into force by environmental permits.

REPORTING FORMAT FOR DRAFT HELCOM RECOMMENDATION 14/2 CONCERNING REDUCTION OF DISCHARGES AND EMISSIONS FROM PRODUCTION AND FORMULATION OF PESTICIDES

Lead Country:Germany
Country:Finland
Year:2001

1. Number, name, location and producing/formulating capacity for every active substance of the plants which produce or formulate more than 5.0 t/a of active substance.
Kemira Fine Chemicals Oy, Kokkola
Organic fine chemicals together 2000 t/a. Production is based on custom manufacturing.

2. Summarized description of the sector including:
- description of waste water collection and treatment systems;
- measures taken to minimize the volume of waste water;
- recycling processes;
- actions taken to reduce discharges and emissions during the last 3 years.

All wastewaters from processes are burned or sent to commercial hazardous waste incinerator.
Dilute waste water (rain and scrubber water) is drained to sea.
Several intenal recycling processes in use.

3. Waste water discharge data

3.1 Waste water volume, and concentration of the parameters required in the Recommendation

		Concentration in mg/l					
Plant	waste water volume (m^3)	AOX	Cu	Cr-tot	Cr-VI	Zn	As
1)	(15 000 t/a)	0,06-0,1 mg/l	0	0	0	0	0

3.2. Results from toxicity tests

Plant	Testing frequency (indicate which tests are used)	Amount of exceedings of the toxicity criteria in year	Waste water ($1000m^3/d$)
1)	Light bacteria test	0	11

4. Data for emissions of dust and other relevant substances into the atmosphere

Plant	Mass flow (g/h)	Mass concentration (mg/m^3) (ndg)
1)	330 (SO_2 and dust)	

5. Summary of evaluation of compliance with the requirements of the Recommendation including:

- problems encountered in the implementation of the requirements and the foreseen development of the situation.

6. Specify means used when nationally putting into force the Recommendation

- via general reference in the national legislation
- via a specific adoption of an amendment to existing national legislation
- via administrative or other means, please specify.

Possible problems identified when putting into force nationally the Recommendation.

REPORTING FORMAT FOR HELCOM RECOMMENDATION 14/3 CONCERNING REDUCTION OF EMISSIONS AND DISCHARGES FROM GLASS INDUSTRY

Lead Country: Germany
Country: Finland
Year: 2001

1. Number, name, location and type of plants discharging directly into surface waters or into municipal sewers.
   1. Pilkington Lahden Lasitehdas Oy, Lahti, manufacture, handling and sales of float glass, municipal sewers
   2. Karhulan Lasi Oy, Pakkauslasitehdas, Kotka, glass container plant, municipal sewers
   3. Ahlstrom Glassfibre Oy, Kotka, continous filament glassfibre, municipal sewers
   4. Designor Oy Ab, Iittalan lasi, Kalvola, special glass
   5. J.M.Huber Finland Oy, Taavetti (Luumäki), water glass, municipal sewers

2. Annual production and total annual use of heavy metals, for each plant, in glass production

		Annual use of heavy metals (t/a)			
Plan (No)	Annual production (t/a)	Pb	AS	Sb	F
1	60 000 t/a, float glass	-	-	-	-
2	78 992 t glasscontainers	-	-	-	-
3	31400t Glassfiber roving, chopped strand mat, wet-laid	-	-	-	-
4	1866 t	-	-	12,6	3,8
5	33 400				

3. Description of the measures taken by each plant:

- to achieve recirculation of waste water;

1. Cooling water system closed, glass washing water partially recycled,
2. Flotation Unit in cleaning fibre production waste water
4. Closed water circulation in after-treatment operations (like glass grinding, cutting and washing). The process water (condensing water) is not in touch with the production. It is taken from a lake and it goes trough the process in it's own pipes after which it is returned back to the lake.

- to reduce atmospheric emissions including fugitive dust emissions;

1. Online nox measurement
2. Primary methods, no cleaning facillities for nitrogen or dust
3. Electric precipitator in glass furnace II
4. Better temperature control of glass furnaces. Use of liquid oxygen together with natural gas.

- to reduce the use of hazardous substances;

4. The use of hazardous substances has been rather low for several years.
5. No use of heavy metals containing colorants (plants 2, 3 and 5)

- actions taken to reduce the discharges and emissions during the last 3 years

3. Flotation Unit in cleaning fibre production waste water, electric precipitator in glass furnace II, environmental Management System in use

4. Waste water volume, concentrations (mg/l) and annual loads (t/a) of Pb, As, Sb and F, for each plant, in waste water

		Concentration (mg/l) and load (t/a) of heavy metals in waste water							
Plant (No.)	Waste water volume (m^3/a)	Pb		As		Sb		F	
		mg/l	t/a	mg/l	t/a	mg/l	t/a	mg/l	t/a
1	30,000 m^3								
2	610 000 (cooling water)								
3	338707								
4	-								

5. Total annual emissions to the atmosphere of dust, Pb, As, Sb and F (in mg/m^3) and the NO_x emissions (in kg/t)

		Total annual emissions (mg/m^3) to the atmosphere				NOx emissions (kg/t glass)
Plant (No.)	dust	Pb	As	Sb	F	NOx[1)]
1.	26.28 t/ 80 mg/m^3					133.5 t, 1.7 kg/t glass
2	15,7 t/a	-	-	-	-	169,6 t/a
3	39,2 t/a	-	-	-	-	192,3 t/a = 6,1kg/t glass
4	-	-	-	-	-	36,4 t/a
5	9,4 t/a	-	-	-	-	128,1 t/a

[1)] NO_x emissions should be reported at least for each plant with a production exceeding 20 000 t/a.

6. Summary of evaluation of compliance with the requirements of the Recommendation including:
- problems encountered in the implementation of the requirements and the foreseen development of the situation.

Nox and dust requirements are strict for glass ovens Finland because their capasity is so small. Investments for implementing the recommendation are big related to the scale of the glass owens. The using period of a glass oven varies between 7 - 9 years and then it is renovated. With same sectioning nox and dust emissions will decrease.

7. Specify means used when nationally putting into force the Recommendation

- via general reference in the national legislation
- via a specific adoption of an amendment to existing national legislation
- via administrative or other means, please specify.

Recommendation is put in force by the environmental protection act and it's regulations

Possible problems identified when putting into force nationally the Recommendation.

REPORTING FORMAT FOR DRAFT HELCOM RECOMMENDATION 20E/6 CONCERNING REQUIREMENTS FOR DISCHARGING OF WASTE WATER FROM THE CHEMICAL INDUSTRY

Lead Country:
Country: Finland
Year: 2001

1. Number, name and location of plants discharging directly into surface waters or into municipal sewers (at least plants discharging directly into surface waters should be reported separately) and also description of the capacities and type of plant and production technology.

Directly to surface waters

1. Orion-yhtymä Oyj Fermion Hanko (tiedot Hangon puhdistamo/Orion Fermion)	Pharmaceuticals 23 t/a
2. Visko, Hanko	Viskose products 3500 t/a
3. Eka Chemicals, Oulu	Chemical products 239810 t/a
4. Arizona Chemical, Oulu	Tall oil: resins 45390 t/a, distillation products 118575 t/a. Turpentine distillation products 13716 t/a
5. Kemira Chemical, Oulu	Peracetiacid 3635 t/a, formamid 4127 t/a, AIV-liquids 26278 t/a, Oxalic acid 49197 t/a, hydrogen peroxide 56129 t/a
6. Kemira Chemicals, Kokkola	
7. Kemira Chemicals, Vaasa	Chemical products 28281 t/a
8. Oy Uponor Ab, Nastola	Only monitoring of cooling waters
9. MP Reuse Oy, Harviala	
10. Kemira Chemicals, Siilinjärvi	Fertilizer and industrial minerals 877600 t/a, inorganic basic chemicals 804500 t/a
11. Säteri, Valkeakoski	
12. Kemira Pigments, Pori	
13. MP Reuse Oy, Harviala	
14. Finnish Chemicals Oy, Äetsä	
15. Kemira Agro Oy, Uusikaupunki	
16. Outokumpu Harjavalta Metals	

Municipal sewers

1 .Orion-yhtymä Oyj Fermion Espoo	Pharmaceuticals
2. Orion-yhtymä - Orion pharmaceuticals Espoo	1,2 miljard tablet/y, inhalators ~0,9 million units/y, injection products ~7 million units/y
3.Hercofinn Oy Tampere	
4. Oy Reichold Asb, Espoo	unsaturated polyester resin 2542 t/a
5. Akzo Nobel Industrial Coatings Oy, Vantaa	Paints, laquers, solvents, printing inks 3240 t/a, Wood protecting chemicals 814 t/a, Solvents 859 t/a, pastes 86 t/a, water soluble paints 217 t/a
6. Sun Chemical Oy, Espoo	varnishes, inks, about 7800 t/a. Wastewater amount about 1300 m^3/a
7. Teknos Winter Oy, Helsinki	Paints, laquers, solvents, pastes 14630 t/a
8. Tikkurila Oy, Vantaa	paints and pastes about 65 000 t/a
9. Wihuri Oy Wipak (no data)	

2. Summarized description of the sector including:

- application of BAT as specified in paragraph 1 of the Recommendation;

Wastewater treatment type:	***Pre-treatment***
Unit operations used	Stripping, oil skimming
Company in which the method(s) is used	Borealis Polymers Oy
Production according to IPPC-directive	Production of plastics and petrochemicals, IPPC 4.1
Location and site description	Kilpilahti-industrial area in Porvoo, on coastal area of the Baltic Sea, 15 km Southwest from Porvoo (20 684 inhabitants)
Recipient of treated wastewaters:	Wastewater treatment plant of Fortum Oil and Gas Oy. Stripped wastewaters are conducted to bio-chemical treatment. Oily waters are conducted to activated carbon treatment. After final treatment waters are discharged to the Baltic Sea.
Description of process wastewaters to be treated	Wastewaters containing phenol from phenol / cumene unit. Oily (containing hydrocarbons) waters from benzene unit.
Results from toxicity tests	Wastewaters from benzene unit have not been tested. Wastewaters from cumene-phenol unit have been tested with daphnia, waters were non-toxic.
Description of other wastewaters	Closed cooling water circuit, dirty rainwater from production site which is conducted to oily water-sewerage and treated.
Quantity of treated wastewaters	Cumene-phenol production ca. 190 m 3 / day. Flow rate to final treatment: Bio-chemical treatment 7–8 t/h. Active carbon treatment 60–70 t/h.
Main parametres to be reduced	Phenol (CODCr , TOC, Methanol, DOC) with stripping. Benzene and other hydrocarbons with oil skimming.
Efficiency in operational use (reduction %)	Stripping: phenol 99–99.6 %
Formation of solid waste and sludge	Oil skimming: Residue from oil skimming (decantation) is delivered to a hazardous waste disposal plant.
Prevention devices for cross-media effects	Decantation tank is closed.
Energy consumption	Stripping: 0.68 MWh/t wastewater, 0.42 MWh/t treated water
Control parameter causing an alarm if set values are exceeded	Stripping: Flow in, pressure, liquid level control, reflux ratio of column. Oil skimming: temperature, liquid level
Procedures during failure in operation	Depending on quality of failure: short term storaging of waste-waters, use of emergency system, shut down of production

- efforts to reduce the use of hazardous substances;
- actions taken to reduce discharges during the last 3 years.

3. Emission data on plants discharging directly into surface waters (> 10 m3/d), for each plant separately as far as possible, including:

3.1 Waste water discharges
[1)] Process water only

Plant nro	Waste water volume m^3/a (m^3/d)[1)]	Concentration (mg/l) and pollution load (t/a)				
		COD	COD-MN,	TOC	tot-P	tot-N
1. Orion-yhtymä Oyj Fermion Hanko (tiedot Hangon puhdistamo/Orion Fermion)	1 341	199			0,9	69,3
2. Visko, Hanko	444	49			0,3	4
3. Eka Chemicals, Oulu	19 141 112	462			0,6	8
4. Arizona Chemical, Oulu	4 081 430	180			0,1	1,5
5. Kemira Chemical, Oulu	30 046				0,7	43,8
6. Kemira Chemicals, Kokkola	22 006 726				1,7	7,3
7. Kemira Chemicals, Vaasa	2 880 295					
8. Oy Uponor Ab, Nastola	cooling water 28520		0,1		0	0
9. MP Reuse Oy, Harviala	974		0,2		0	0,1
10. Kemira Chemicals, Siilinjärvi	60 889 400			0,24	0,6	45,9
11. Säteri, Valkeakoski	12 354 928	2 345 ,1			0,3	12,4
12. Kemira Pigments, Pori	60 632 128				2,4	43
13. MP Reuse Oy, Harviala						
14. Finnish Chemicals Oy, Äetsä						
15. Kemira Agro Oy, Uusikaupunki						
16. Outokumpu Harjavalta Metals						

Rate of reduction (%)					
Plant	COD	TOC	tot-P	tot-N	AOX
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					

3.2 - Heavy metal concentration and total load.

	Concentration in mg/l and total load in kg/a															
Plant	Hg		Cd		Cu		Ni		Pb		Cr-tot		Cr-VI		Zn	
	Mg/l	kg/a	mg/l	kg/a	mg/l	kg/a	mg/l	kg/a	mg/l	kg/a	mg/l	kg/a	mg/l	kg/a	mg/l	kg/a
1.																
2.																
3.		5,3												92,8		
4																
5.																
6.		1,4														
7.				3,5								2,9				
8.																
9.																
10.																192
11.																8306,4
12.		0		0				566				346				1263
13.																
14.																
15.																
16.																

3.3 - Results from toxicity tests.

Results from toxicity tests and of tests on overall persistence and bioaccumulation characteristics of the organic substance of the effluent, if available	

4. Summarized data on plants discharging directly to municipal sewers and small plants (< 10m3/d) discharging directly to surface waters including:

- data on pollutant concentration ranges
- number or percentage of plants which comply with the different requirements of the Recommendation (Please specify e.g. which parameters / requirements cause problems for compliance).

5. Summary of evaluation of compliance with the requirements of the Recommendation including:

- problems encountered in the implementation of the requirements and the foreseen development of the situation.

6. Specify means used when nationally putting into force the Recommendation

- via general reference in the national legislation
- via a specific adoption of an amendment to existing national legislation
- via administrative or other means, please specify.

Possible problems identified when putting into force nationally the Recommendation.

REPORTING FORM ON HELCOM RECOMMENDATION 16/7 CONCERNING BASIC PRINCIPLES IN WASTE WATER MANAGEMENT IN THE LEATHER INDUSTRY

Lead Country: Poland

1.Country	Finland
2.Plant and location	A: Kokkolan Nahka Oy, Kokkola D: Oy Ahlskog Ab, Kronoby E: Oy Geson Ab, Alaveteli G: Rutex Oy / Lapuan Nahka, Lapua H: Urho Viljanmaan Nahkatehdas, Ylistaro I: Sata Leather Oy, Kiukainen K: Rantasen nahkajalostamo Ky, Lavia
3.Actual production (tonnes of input hides/a and/or m^2/a)	A: 325 t/a D: 356 t/a E: 700 t/a G: 2457 t/a H: 1839 t/a I: 1121 t/a K: 130 t/a
4.Water consumption, sewage discharge and pollution loads	

Water consumption m^3/a	Sewage discharged into:			
A: 4032 m^3/a D: 8878 m^3/a E: 10370 m^3/a G: 33814 m^3/a H: 50639 m^3/a I: 39539 m^3/a K: 7942 m^3/a	municipal sewerage systems m^3/a A: 787 m^3/a D: 8878 m^3/a G: 33814 m^3/a H: 50639 m^3/a I: 39539 m^3/a K: 7942 m^3/a		water bodies m^3/a A: 3000 m^3/a E: 6730 m^3/a	
Parameters	Load t/a	Specific load (kg/t) or max concentration for Cr_{tot} only	Load t/a	Specific load (kg/t) or max concentration (mg/l) for Cr_{tot} only
Cr_{tot}	D: 0,18 G: 1,3 H: 2,1 I: 1,85 K: 0,052	D: 0,51 kg/t G: 0,53 kg/t H: 1,14 kg/t I: 0,17 kg/t	A:0,004 E: 0,031	A:0,012 kg/t E: 0,044 kg/t
COD_{Cr} *)	D: 36,0 G: 117,5 H 314	D: 102 kg/t G: 47,8 kg/t H: 171 kg/t	A: 7,5 E: 22,7	A: 11 kg/t E: 3,24 kg/t
tot-N	D: 2,56 G: 15,9 H: 24 I: 20,5 K: 1,4	D: 7,23 kg/t G: 6,47 kg/t H: 13,1 kg/t I: 18,29 kg/t K: 10,8 kg/t	A:0,58 E: 8,48	A: 1,79 kg/t E: 12,11 kg/t

*) For Contracting Parties who are measuring TOC the conversion factor should be indicated

5. Description of technological processes, chemicals in use, preventive and waste water treatment processes	A: Production starts from wet blue level Waste waters treats in a Chemical precipitation D: Process: wash, hairing, fleshing, salting+acidification, chrome tanning, colouring and retanning Waste water treatment: screening, preaeration, flow equalisation and municipal treatment (biological) E: Process: hairing, chrome tanning, colouring and stuffing drum Wastewater: Activated sludge process. G: Process: desalination, liming, fleshing, splitting, tanning and retanning Waste water: drum screen, aeration tank and municipal treatment (biological) H: Process: leaching, wash, acidification and degreasing Waste water: pH equalisation, aeration and municipal treatment (biological) I: Process: desalination, liming, hairing, fleshing, splitting, tanning and retanning Waste water: primary treatment, chemical purification, biological pretreatment and municipal treatment (biological) K: Process: desalination, liming, hairing, fleshing, splitting, tanning and retanning Waste water: primary treatment, chemical purification and municipal treatment (biological), Waste water including chrome has separate chemical precipitation
6. Actions undertaken for reducing dis-charges in the last three years	A: A new precipitation and sedimentation tank

REPORTING FORMAT FOR DRAFT HELCOM RECOMMENDATION 16/10 CONCERNING REDUCTION OF DISCHARGES AND EMISSIONS FROM PRODUCTION OF TEXTILES

Lead Country:
Country: Finland
Year:2001

1. Number and location of plants discharging directly into surface waters or into municipal sewers

Surface waters
A: HÄMEEN LANKA OY, ARRAKOSKEN TEHDAS, Padasjoki
B: VÄRJÄÄMÖ MATTI ALESTALO OY, Kauhava
C: RANISEN VÄRJÄÄMÖ KY, Kauhava
D: Tapio Holm, mattokutomo Tapio Holm, Evijärvi
E: Suominen Kuitukankaat Oy, Nakkila

Municipal sewers
1: Finlayson Forssa Oy

2. Summarized description of the sector including:

- application of BAT as specified in paragraph 1 of the Recommendation;
- efforts to substitute hazardous substances as specified in paragraph 1 of the Recommendation;
- efforts taken to avoid, recycle and pretreat the waste water
- actions taken to reduce discharges and emissions during the last 3 years.

Techniques used in Finland to reduce environmental impacts of tanneries and to be considered as best available techniques

Technique	Environmental impacts			
	Emissions to water	Emissions to air	Generatin of waste	Other effects
Deliming using carbon dioxide	Reduced nitrogen and BOD in effluents		Reduced amount of nitrogenous waste	
Volumetric pigment dispensing	Reduced use of chemicals	Reduced emission of chemicals	Reduced amounts of leather and chemical wastes	
Reduction of water consumption	Reduced use of chemicals			Water conservation Energy savings
Using hair saving processes for unhairing of elk hides	Reduced use of chemicals, reduced BOD in effluents			Water conservation

3. Emission data on plants discharging directly into surface waters, for each plant separately, including:

3.1 Data on discharges directly to surface waters

		Concentration in mg/l							
Plant	Waste water volume (m^3)	CODCr [1)]	tot-P [1)]	Active Chlorine [2)]	AOX	Cr-VI	Cr-tot	Cu	Zn
A	8187	1,3	2,8						
B	3600	1,2	10,8						
C		0,1	1,8						
D									
E	308000	63,8	240						

[1)] 2 hr sampling

[2)] Only be measured if hypochlorine or chlorodioxide is used in the plant

3.2 Data on emissions to the air[*)]

Plant	Chlorine		Sum of volatile organic compounds	
	Mass flow (kg/h)	Concentration (mg/m^3)	Mass flow (kg/h)	Concentration(mg/m^3)
A:	No emission to the air		No emission to the air	
B:	No emission to the air		No emission to the air	
C:	No emission to the air		No emission to the air	
D:	No emission to the air		No emission to the air	
E:	No emission to the air		No emission to the air	

[*)] Only for textile producing plants, which:
- colour flock, yarn or fabric by use of carriers;
- bleach yarn or fabric by use of alkalies, chlorine or compounds containing chlorine;
- finish textiles by more than 500 m^2 textiles/hour.

3.3 Results from toxicity tests and colour measuring

Results from toxicity tests	
Results from colour measuring	

4. Summarized data on plants discharging directly to municipal sewers including:

- information on discharges and air emissions;
- number or percentage of plants which comply with the different requirements of the Recommendation (Please specify e.g. which parameters / requirements cause problems for compliance).

5. Summary of evaluation of compliance with the requirements of the Recommendation including:

- problems encountered in the implementation of the requirements and the foreseen development of the situation.

6. Specify means used when nationally putting into force the Recommendation
   - via general reference in the national legislation
   - via a specific adoption of an amendment to existing national legislation
   - via administrative or other means, please specify.

Recommendation is put in force by the environmental protection act and it's regulations.

REPORTING FORMAT FOR HELCOM RECOMMENDATION 17/10 CONCERNING BASIC PRINCIPLES FOR REALIZATION OF BAT AND BEP IN FOOD INDUSTRY

Country: Finland
Year: 2001

The following items have to be reported for every branch (according to Attachment 1) separately:

1) Number of plants in the branch,
A: Major plants discharging directly to waters (a few plants withouth biological treatment)
B: plants connected to public sewerage system (biological treatment) *No data availlable*

	A	B
1) milk processing	5	
2) production of fruit and vegetable production		
3) production and bottling of soft drinks		
4) potato processing	4	
5) meat processing	1	
6) breweries		
7) alcohol and spirits production	1	
8) production of vegetable fodder	4	
9) leather glue, gelatine and bone glue production		
10) malt production		
11) fish processing	1	
12) sugar production	3	
13) oil, seed and nutritive fat processing	1	
14) processing of molasses		
15) starch production		

2) Overall description of the situation in the branch referring to items 1 (in-plant measures), 3 (emissions to the atmosphere), 4 (energy consumption) and 5 (environmental management improvement),

Description of Valio Engineering Ltd (milk processing):

Human skills
- management (ISO, EMAS ...)
- training / motivation
- monitoring
- repair

Energy
- frequency converters
- recovery of heat

Water consumption
- backward stream of rinsing waters
- CIP (cleaning in place)
- high pressure foam rinsing
- use of secondary water needs membrane or UV

Chemicals

- high pH in wastewaters in the morning and acid at night => self neutralizing collecting tank instead of added neutralizing chemicals.

Wastewater

- alarm- and shut-off systems
- monitoring devices (conductivity, turbidity ...)
- reuse
- end-of-pipe treatment (neutralizing + biological)

Solid waste

- circulation of transport packages
- sorting
- careful (re)consideration of the need for plastic films for cheese ripening (cannot be reused)

Air

- freon => ammonia. (Freons are abandoned, leakage does not smell and is difficult to detect.)
- start up noise can be smoothened by choice of motors
- traffic => no empty running, logistics
- dust => measures needed at milk powder production.

Description of Oy Sinebrychoff Ab (brewery):

- Energy supply is outsourced. The power plant is on the same site, surplus heat is used primarily for the brewery and secondarily for district heating.
- Specific electricity consumption: 90 kWh / 1000 l (measured since 1998)
- Specific heat consumption: 150-200 kWh / 1000 l (measured since 1998)
- More specific monitoring of the energy consumption of the brewing block (from malt to boiling) will soon be applied and new key figures will be available next year.
- Variations between summer and winter are notable.

Water

- Artificial groundwater of high quality is bought from Helsinki Water. No further treatment is needed.
- Water consumption is very low: 3,2 m^3 / m3 of product; 10 CIPs are used; cleaning loops are now investigated and will be optimised with regard to hot/cold and acid/caustic cleaning and disinfectants.
- The waste water (2,4 m^3 / m^3) is discharged via a detention tank (6 h) to the municipal sewer and treated in the big activated sludge treatment plant of Helsinki. The BOD_7 concentration (analysed once a month from a 24 h sample) is roughly 2500 mg/l and the specific load averages 6,3 kg/m^3 of product. The Helsinki wwtp benefits from the easily biodegradable organic load and the caustic wastewater discharged by the brewery. Continuous measurement of COD is planned.

CO_2

In many big breweries CO_2 from the fermentation is reused but in Kerava it has been found more effective to bye the byproduct from the hydrogen process at the oil refinery. However, recovery pipes are installed and the CO_2 could be used for neutralising the caustic waste waters, if needed.

Reuse of packages and byproducts

Only recyclable packaging material is used. Spent grains and yeast are 100 % used as animal feed.

3) Plants which discharge into water bodies, or to municipal waste water treatment plants without biological treatment, and their discharge situation (for every plant above 25 m^3/d separately),

3.1 Waste water volume (m^3/d, m^3/a)

3.2 Discharge concentrations, loads and used methods of analysis
*)only for plants above 500 m^3/d

Food industry 2001		t/a	mg/l	kg/a	mg/l	kg/a	mg/l	
	Q m^3/a	BOD_7	BOD_7	P-tot	P	NH_4-N	NH_4-N	branch
Finnfeeds Finland, Naantali	132619	8,4	63,3	99	0,7			8
Lännen Tehtaat, Säkylä	992389	17	17,1	919	0,9	1680	1,7	12
Sucros, Salo	589543	3,6	6,1	319	0,5	2278	3,9	12 and 8
Finnamyl Oy, Kokemäki	81900	2,3	28,1	230	2,8	135	1,6	13
Länsirannikon Kala, Taivassalo	20000		0,0	57	2,9		0,0	11
Valio Juustot, Toholampi	?	?	?	?	?	?	?	1
Lapun Peruna, Lapua	68222	0,5	7,3	96	1,4		0,0	4
Hätälä Oy, Himanka	?	?	?	?	?	?	?	11
Primalco Oy, Rajamäki	392125	1,7	4,3	310	0,8	165	0,4	7
Suomen Sokeri, Porkkala	321862	23	71,5	268	0,8	539	1,7	12
Sucros, Turenki	?	0,6	?	48,5	?	?	?	8
Suomen Sokeri (ent. Neson), Jokioinen	202381	1	4,9	1256	6,2	81	0,4	8
Valio Oy, Haapavesi	576862	1731		26				1
Raisio Oy, Vihanti	?	?	?	?	?	?	?	4

1.1.2 Municipalities

REPORTING FORMAT FOR HELCOM RECOMMENDATIONS 5/1 AND 17/7 CONCERNING REDUCTION OF DISCHARGES FROM URBAN AREAS BY THE PROPER MANAGEMENT OF STORM WATER SYSTEMS				
Lead Country: Sweden				
Country: Finland			Year 2001	
A. Reduction of discharges of urban areas by the proper management of storm waters				
1. Have steps been taken to prevent and minimize the deterioration of the quality of the storm water at the source, e.g				
a) dry street cleaning?	Yes	No	Partly x	Unknown
If only partly, please give an estimation to what extent (eg. percentage)				
b) other measures? If Yes, please describe the measures.	Yes	No	Partly	Unknown
2. Are local infiltration systems used to minimize the volume of storm water entering the combined systems?	Yes	No	Partly	Unknown x
If so, describe them and your experience of applications.				
3. Are contaminated storm waters treated separately?	Yes	No	Partly x	Unknown
If only partly treated, please describe to what extent and in which cases/areas				
4. If a storm water in a **separate** sewer system district is collected from traffic or other areas where the first flush of storm water is highly polluted:				
a)Are there any flow equalization units used?	Yes	No	Partly x	Unknown
If only partly used, please describe to what extent and in which cases/areas				
b)When possible is this water treated separately in storm water treatment facilities or in sewage treatment plants, as appropriate?	Yes	No	Partly x	Unknown
If only partly treated, please describe to what extent and in which cases/areas				
5. Is waste oil from the production plants, service stations, mechanical works shops, handling/storing and other sources collected in such a way that it does not enter the storm water systems?	Yes x	No	Partly	Unknown
If only partly collected, please describe to what extent and in which cases/sources				
6. Are oil polluted waste waters from production plants, service stations, mechanical works shops, handling/storing and other sources collected and treated separately before discharged to storm water systems and muncipal sewers?	Yes x	No	Partly	Unknown

If only partly collected/treated, please describe to what extent and in which cases/areas/plants				
7. If oil does enter the storm water systems is the water then in any way treated before being discharged to the recipient?				
in accidents	Yes	No	Partly x	Unknown
in daily leakage	Yes	No	Partly x	Unknown
If only partly treated, please describe to what extent and in which cases/areas				
8.Specify means used when nationally putting into force the Recommendation • via general reference in the national legislation • via a specific adoption of an amendment to existing national legislation • via administrative or other means, please specify. Possible problems identified when putting into force nationally the Recommendation.	Finnish legislation dos not contain special parts concerning storm waters. It is handled by more general laws like for example Environmental protection law. Finland has no summarized information available on communal storm water systems. The storm water collcting and treatment systems vary depending on the time they are constructed.			

REPORTING FORMAT FOR HELCOM RECOMMENDATIONS 7/3, 9/2 and 16/9 CONCERNING MUNICIPAL WASTEWATER TREATMENT			
Lead Country: Sweden			
Country: Finland			Year: 2001
A. Development of sewerage systems			
1. What type of sewerage system is:	Combined	Semi-separated	Separated
a) in use (refer the percentage for each type)	5 %		95 %
b) chosen for new developments? (refer the percentage for each type)			
2. To what extent are sewers being renovated (e.g km/year, certain areas etc)	773 km (data from 1999)		
Is renovation a matter for the central, regional or local governments?	Local authorities		
3. Are there any calculations of the net infiltration in major catchment areas?	Yes X	No	Unknown
If there are any such calculations, do the results show compliance with the less than 100% infiltration recommended in the text of the Recommendation?	Yes X	No	Partly
B. The use of effective methods in wastewater treatment			
Are there any limit values or standard (target) values for different substances permitted to the sewerage and/or the waste water treatment plants? If yes, please submit them (or incase of earlier submittance give reference to the earlier document)	concentration and reduction BOD; 30 mg/l and 70% COD; 125mg/l and 75% SS; 35mg/l or 90% P_{tot}; 2mg/l or 80% (10 000-100 000 pe) 1mg/l or 80% (>100 000 pe) N_{tot}; 15mg/l or 70% (10 000-100 000 pe) 10mg/l or 70% (>100 000 pe)		
People served (million inhabitants)and percentage of population	4,2 million inhabitants served 82 % of the population (data from year 2000)		

For the different size classes give the **number of plants and the number of people served**:

	10 001 - 50 000 pe	50 001 - 100 000 pe	> 100 000 pe
At the coast of the Baltic Sea	15	4	6
Within the catchment area of the Baltic Sea	57	19	14
Located in nitrogen sensitive areas	53	18	13
Which are located in nitrogen sensitive areas and are in compliance with nitrogen removal requirements	No official data available (53)	No official data available (18)	No official data available (13)

Which are in compliance with phosphorous removal requirements	56	18	14
Which are in compliance with BOD removal requirements	55	18	14
Shares of different treatment methods, per cent of the people served:			
	Total discharges to the Baltic catchment area		Direct discharges to the Baltic Sea
No treatment			
mechanical			
biological			
chemical	1		2
biological-chemical	64		23
other methods			
Waste water flow, million m^3/a	430		230
Waste water load ***of treated wastewater*** , t/a	430		230
$BOD_{5\ ATU}$	3400		1700
Phosphorous	160		81
Nitrogen	11000		4800
Reduction, per cent			
$BOD_{5\ ATU}$	95 %		92 %
Phosphorous	94 %		93 %
Nitrogen	42 %		45 %
Waste water load of untreated water (overflows and bypasses)	Negligible		
volume of overflows ***and bypasses***, million m^3/a			
waste water load, t/a			
$BOD_{5\ ATU}$			
Phosphorous			
Nitrogen			
4. Results of assessments which have evaluated areas for being sensitive or non-sensitive for nitrogen	Suomen Itämeren suojeluohjelma, Työryhmän mietintö 19.6.2001 (available only in finnish) (translation: Report of a workgroup for Baltic Sea protection programme 19.6.2001)		

5. Specify means used when nationally putting into force the Recommendation • via general reference in the national legislation • via a specific adoption of an amendment to existing national legislation • via administrative or other means, please specify. Possible problems identified when putting into force nationally the Recommendation.	Reduction limits for nutrients are given in the Government resolution 365/94 Permissions for wastewater treatment plants are given case by case depending on environmental circumstances. (Water act) Nitrogen reduction is limited by low temperature and low carbon concentration in the inflow of the most wastewater plants in Finland. Without additional carbon (methanol) it is not possible to reach required reduction limits of nitrogen.
6. Please give a map of nitrogen sensitive and non-sensitive areas	

All the coastal areas of Finland exept Botnian bay are nitrogen sensitive.

1.1.3 Production control measures

REPORTING FORMAT FOR HELCOM RECOMMENDATION 6/1 CONCERNING THE ELIMINATION OF THE PCBs AND PCTs

Lead Country: Denmark			
Country:	Finland		
General implementation status:			
Specify means used when nationally putting into force the Recommendation • via general reference in the national legislation • via a specific adoption of an amendment to existing national legislation • via administrative or other means, please specify. Possible problems identified when putting into force nationally the Recommendation.		Council of State decision **1071/89** (CSD 1071/89), forbids production, import and selling of PCBs since 1.1.1990. CSD 1071/89 also demands labelling for PCB and PCT containing transformers and capacitors and demands capacitors over 1 kvar to be removed from use. **CSD 541/93** demands PCB and PCT containing waste oils to have special approval. **CSD 711/98** demands the owner of PCB-equipment (PCB amount over 5 dm^3) to inform Regional Environment Centres the facts of possessed equipment and demands the owner of PCB-waste to handle or to deliver waste to waste handler with waste permit according to Finnish Waste Act (section 15). CSD 711/98 demands the owner of PCB-equipment to find out content and amount of PCB of the equipment and to store PCB-equipment and -waste away from highly flammable substances. CSD 711/98 also defines how to dispose PCB-waste. In 1999 there has been done an inventory of equipment with PCB volumes of more than 5 dm^3 according to the Commission desicion 96/59/EC.	
1) Measures to limit or reduce production and marketing of PCBs and PCTs			
	by statutory order:	(Yes/No) Specify	Yes. CSD 1071/89.
	based on other administrative measures	(Yes/No) Specify	
	based on information campaigns:	(Yes/No) Specify	
2) Transboundary and domestic shipment			
s there any transboundary or domestic shipment of rticles or waste containing the PCBs or PCTs? Yes/No/If Yes, for what purpose?)		Yes, PCB waste has been imported to Finland to be destructed at high temperature.	

Is there any transboundary or domestic shipment of the PCBs or PCTs? (Yes/No/If yes, for what purpose?)			No
3) List the hazardous substitutes still in use			
	Substance		Approximation of the amounts marketed at the present (tn)
	No hazardous substitutes.		
4 i) Is there time table to destroy liquids containing more than 50 ppm PCBs and PCTs? (Y/N; specify)			No
4 ii) Is there time table to destroy, decontaminate or dispose equipment which have contained more than 5 dm3 or more than 500 ppm PCBs and PCTs? (Y/N; specify)			Yes/no. All equipment which have contained more than 5 dm3 or more than 500 ppm PCBs has been removed from use by December 31, 1999 according to CSD 711/1998.
National programmes to identify PCB-containing articles in use			
	finished	(Y/N):	Yes, CSD 1071/89 and CSD 711/98
	ongoing	(Y/N):	
	planned	(Y/N):	
National programmes to label PCB-containing articles in use			
*	finished	(Y/N):	Yes, CSD 1071/89 and CSD 711/98
*	ongoing	(Y/N):	
*	planned	(Y/N):	
Controlled collection of PCBs and PCTs			
*	statutory obligation to deliver waste to reception facility	(Y/N)	Yes, according to the rules in the waste act.
*	statutory obligation to deliver containers to re-ception facility	(Y/N)	Yes
*	duty of notification of waste	(Y/N)	Yes

*	duty to keep records on collected amounts	(Y/N)	Yes
*	import/export of PCBs and PCTs is registered	(Y/N)	Yes
Treatment of PCB/PCT-containing articles			
*	at refuse dumps for chemical waste	(Y/N)	No
*	at ordinary refuse dumps	(Y/N)	No
*	central treatment plants for hazardous substances established	(Y/N)	Yes, in hazardous waste treatment plant (Ekokem Oy Ab).
*	at incineration plants for house refuse	(Y/N)	No
*	by chemical conversion (chlorine removal)	(Y/N)	No
Equipment containing PCBs and PCTs			
*	liquids are collected prior to treatment	(Y/N)	Yes
*	equipment is flushed prior to treatment	(Y/N)	Yes
*	containers/equipment is disposed of in mines	(Y/N)	No
*	retrieved liquids are destructed at temperatures above 1200 degrees Celsius	(Y/N)	Yes, in Ekokem OY Ab.
*	retrieved liquids are destructed at temperatures below 1200 degrees Celsius	(Y/N)	No
Waste oils containing PCBs and PCTs			
*	waste oils are destructed at temperatures above 1200 degrees Celsius	(Y/N)	Yes, in Ekokem Oy Ab.
*	waste oils are destructed at temperatures below 1200 degrees Celsius	(Y/N)	No
Anything else:			

REPORTING FORMAT FOR HELCOM RECOMMENDATION 20/4 CONCERNING ANANTIFOULING PAINTS CONTAINING ORGANOTIN COMPOUNDS *)

Lead Country: Germany	
Country: Finland	
1	Are organotin antifouling paints used? If yes, in which type of uses (e.g. pleasure boats, boats operating only in coastal waters [e.g. ferries, fishing boats etc.], other boats and ships, underwater structures, other types of use [e.g. sluice gates, marine sensors, buoys and other static objects, aqua culture equipment, inlet pipes of cooling water systems etc.; please name them])? The uses and products on the market before 1 Jannuary 2002 are nor known. Two antifouling products containing organotin compounds are on the Finnish market. The use of them is allowed only for boats and ships larger than 25 m. No other uses are allowed from 1 January 2002. All organotin paints are banned from 1 January 2003.
2	Which total amounts of *organotin antifouling paints* (as Sn in t/a) are used? If possible, separated according to types of organotin compound, types of use and coating. Types of coating may be a) a soluble matrix (conventional), b) an insoluble matrix (conventional, contact leaching), c) ablative with a polishing co-polymer or d) self-polishing co-polymer coatings. If available, information should be given on the probable leaching rate of tin included in the different organotin antifouling paints and on possible other biocides included in the paint formulation. According to a survey made in 1999 27 000 liters of organotin containing paints were sold in 1998. The figure includes products containing organotin as single active substance (a.s.) and mixtures with Cu and/or Zn. The amount of Sn in the products has not been evaluated.
3	Which total amounts of *other antifouling paints* are used? If possible, separated according to types of active substance(s), types of use and coating. Types of coating may be a) a soluble or insoluble matrix (conventional), b) ablative with a polishing co-polymer or c) self-polishing co-polymer coatings. If available, information should be given on the probable leaching rate of the different biocides included in the paint formulation.

	In 1998 the amounts sold in the Finnish market were: - Products based on Cu: 19 000 litres - Products based on Cu + organic a.s. : 18 500 litres - Products based on Zn: 7 200 litres - Products based on Zn+Cu: 10 000 litres Organic a.s. include e.g. Irgarol, diuron and zineb.
4	Which *other chemical and non-chemical antifouling protection methods* are used? If possible, separated according to types of method, types of use, extent of usage of these methods. In the cooling water systems biocides mixed to the water are used to some extent in Finland. These chemicals include inorganics as chlorine, but also organic biocides. No detailed data on the extent of usage of these chemicals for antifouling purposes is available. In boats and other vessels non-biocidal paints can be used to smoothen the surface. No data on use volumes is available. Also mechanical methods are used: bigger ships, e.g. ferries operating between Finland and Sweden, are most commonly cleaned mechanically by divers.
5	What kind of projects have been or are planned to be implemented to develop chemical and/or non-chemical alternatives to organotin antifouling paints? What is the timetable for planned projects? No special development projects has been planned or implemented by authorities.
6	What measures have been taken and are planned to eliminate pollution from antifouling paints?
	a) technical measures (e.g. paints with lower leaching rate, measures during painting, paint removal, cleaning, waste disposal, run-off, avoiding of dumping of dredged material highly contaminated with Sn or pre-treatment of dredged material, etc.) Chemicals: No technical requirements concerning leaching rate or instructions for use has been set by authorities fo far (see also 6b) Emissions: Conditions on the type antifouling paints used in shipyards and measures to prevent emissions and discharges of paints can be stipulated in the plant-by-plant consents under the Environmental Permit Act and the Water Act. The consents can also include requirements on the environmental monitoring and on further studies on less hazardous alternative paints and tehchiquaes preventing emissions.
	b) specify means used when nationally putting into force the Recommendation • via general reference in the national legislation • via a specific adoption of an amendment to existing national legislation • via administrative or other means, please specify. Possible problems identified when putting into force nationally the Recommendation.

	Authorisation system for antifouling products has been established and it is based on the early implementation of the EU Biocidal Products Directive (98/8/EC). According to the amendment of the Chemicals Act (1198/1999) approval for antifouling products had to be applied for in Finland by the end of the year 2001. Thereafter only products for which application has been made to the Finnish Environment Institute may be placed on the market. If the products contain a new active substance,. i.e. a substance that has not been on the market in the EU before 14 May 2000 the approval is to be applied for according to the procedures set in the Biocidal Products Directive. For some products (e.g. organotin paints) only transitional periods were applied for and granted.
	c) information/education The Finnish Environment Institute has information on its www-site and information is given also by journals etc.
	What is the timetable for planned measures? see 6b and 6c.
7	What technical and/or legal measures <u>have been taken</u> towards a ban on the retail sale or use of organotin paints for
	a) pleasure boats The Council of State Decision on restricting the use of organotin compounds (1041/1991) came into force 1 September 1991. By this Decision the use of organotin compounds and antifouling products containing them is prohibited in vessels less than 25 m long, in fish net cages and other underwater structures. The retail sale of these products is also restricted. The products can only be marketed for professional use. The packages must not be smaller than 20 litres and their label must contain information on the restrictions.
	b) fish net cages and see 7a.
	c) other uses e.g. seagoing vessels and underwater structures? see 7a.
8	What technical and/or legal measures <u>are planned</u> towards a ban on the retail sale or use of organotin paints for
	a) pleasure boats
	b) fish net cages and
	c) other uses e.g. seagoing vessels and underwater structures? Finland will implement the IMO Convention on the Control of Harmful Anti-Fouling Systems on Ships and consequent EU regulation. Thus the use of organotin antifoulig paints will be banned from 1 January 2003.

	What is the timetable? see 8c.
9	Concentrations of organotin compounds measured in
	a) sediments
	b) biota If available, data of organisms living in the free water phase should be listed separately from sediment dwelling (benthic) organisms.
	c) water
	d) dredged material Tributyltin concentrations in dredged material have been measured in Naantali Harbour area. The concentrations varied from 5 to 1390 µg/kg (as organotin, dry weight).
	If available, please, indicate * sampling locations * sampling years * quality evaluation of the analytical methods and of the measurement programmes (e.g. limit of detection, limit of determination, number of samples, minimum/maximum/mean/90 percentile values)

*)Reporting to the Helsinki Commission in 2000 on HELCOM Recommendation 9/10 superseded by HELCOM Recommendation 20/4 should be done by using the reporting format for HELCOM Recommendation 20/4

REPORTING FORMAT FOR HELCOM RECOMMENDATION 20/2 CONCERNING APPROVAL OF PESTICIDES (PLANT PROTECTION PRODUCTS) FOR USE IN THE CATCHMENT AREA OF THE BALTIC SEA

Lead Country: Denmark
Reporting Country: Finland
For the year: 2001

Amount of pesticides produced per year during the previous three years (kg active substance),if available:

- no own production of chemical active substances in Finland

Fungicides:
Herbicides:
Insecticides (incl. acaricides and molluscicides):
Plant growth regulators:
Repellants:
Soil disinfectants:
other pesticides _____
Sum:

Amount of pesticides sold per year during the previous three years (for domestic use, without export) (kg active substance):

- sales amounts 1998-2000 (2001 statistics not available yet, instead 2000-1998):

Fungicides : 178354 kg (2000), 219622 kg (1999), 208922 kg (1998)
Herbicides : 863083 kg (2000), 792313 kg (1999), 851961 kg (1998)
Insecticides (incl. acaricides and molluscicides) : 60236 kg (2000), 70274 kg (1999), 53942 kg (1998)
Plant growth regulators: 51601 kg (2000), 63542 kg (1999), 64991 kg (1998)
Repellants: 10000 kg (2000), 10000 kg (1999), 7000 kg (1998) (ca. 85 % of it DEET)
Soil disinfectants: not registered as pesticides in Finland, in field soil not allowed
Other: Biological pesticides: 6.7 tons (products, 2000), 2.3 tons (products, 1999), 6 tons (products, 1998)
Sum (chemical pesticides): 1166 tons (2000), 1159 tons (1999), 1191 tons (1998)

Size of agricultural area:

Agriculture: 2 179 000 ha
Fruitfarming 505 ha
Gardening/Greenhouses: 18 074 ha (open air) / 489 ha (glasshouses)

Size of forestry area: 20 000 000 ha

List of approved active substances contained in plant protection products: See the list

Active substance(s)
Areas of use (fungicide, herbicide, insecticide, etc.)
modes of application for the each active substance (kg active substance for each mode of application per year during the previous three years), if available

List of active substances contained in withdrawn (e.g. from ecological, commercial reasons) plant protection products: see the list

Active substance(s)
Areas of use
Reason for withdrawal

Pesticidal active ingredients on the market or withdrawn from the market in Finland	CAS-No.	Field of use	Registration withdrawn
1,4-dichlorobenzene	106-46-7	Insecticide, inside use	
2,4-D		Herbicide	
abamectin	71751-41-2	Insecticide, agriculture	30.6.2001
aclonifen	74070-46-5	Herbicide	
alpha-cypermethrin	67375-30-8	Insecticide, agriculture	
allethrin	584-79-2	Repellent	
aluminium phosphide	20859-73-8	Insecticide,inside use	
amidosulfuron		Herbicide	
azamethiphos	35575-96-3	Insecticide,inside use	
azinphos-methyl	86-50-0	Insecticide, agriculture	
azoxystrobin	131860-33-8	Fungicide	
Bacillus thuringiensis		Insecticide,inside use, Insecticide, agriculture	
bentazone	25057-89-0	Herbicide	
benzoic acid	65-85-0	Fungicide	
benzylbenzoate	120-51-4	Insecticide,inside use	
beta-syfluthrin	68359-37-5	Insecticide, agriculture	
bioallethrin	584-79-2	Repellent	
bitertanol	55179-31-2	Fungicide	
borax	1303-96-4	Insecticide,inside use	
brodifacoum	56073-10-0	Insecticide, agriculture, Insecticide,inside use	
bromadiolone	28772-56-7	Insecticide,inside use	
bromoxynil	1689-99-2	Herbicide	31.12.2000
buprofezin	69327-76-0	Insecticide, agriculture	
butoxycarboxim	34681-23-7	Insecticide, agriculture	
daminozide	1596-84-5	Growth regulator	
deltamethrin	52918-63-5	Insecticide, agriculture, Insecticide,inside use	
desmedipham	13684-56-5	Herbicide	
D-phenothrin	26002-80-2	Insecticide,inside use	
diazinon	333-41-5	Insecticide,inside use	
dienochlor	2227-17-0	Insecticide, agriculture	31.12.2001
difenacoum	56073-07-5	Insecticide,inside use	
difenoconazole	119446-68-3	Fungicide	
difenzoquat		Herbicide	31.12.2001
difethialone	104653-34-1	Insecticide,inside use	
diflubenzuron	35367-38-5	Insecticide, agriculture, Insecticide,inside use	
diflufenican	83164-33-4	Herbicide	
dicamba		Herbicide	
dichlobenil	1194-65-6	Herbicide	
dichlorprop-P	120-36-5	Herbicide	
diquat		Herbicide	
dimethoate	60-51-5	Insecticide, agriculture	
dimethomorph	110488-70-5	Fungicide	
dithianon	3347-22-6	Fungicide	
endosulfan		Insecticide, agriculture	31.12.2001
esbiothrin	584-79-2	Repellent	
esfenvalerate	66230-04-4	Insecticide, agriculture	

esential oilst		Insecticide, agriculture	
ethephon	16672-87-0	Growth regulator	
ethofumesate	26225-79-6	Herbicide	
fenbutatin oxide	13356-08-6	Insecticide, agriculture	
fenitrothion	122-14-5	Insecticide,inside use	
phenmedipham	13684-63-4	Herbicide	
fenoxaprop-P-ethyl	71283-80-2	Herbicide	
fenpiclonil	74738-17-3	Fungicide	31.12.2001
fenpropidin	67306-00-7	Fungicide	
fenpropimorph	67564-91-4	Fungicide	
fenvalerate	51630-58-1	Insecticide, agriculture	31.12.1999
fipronil	120068-37-3	Insecticide, agriculture, Insecticide,inside use	
flamprop-isopropyl		Herbicide	
flocoumafen	90035-08-8	Insecticide,inside use	
florasulam	145701-23-1	Herbicide	
fluazifop-P-butyl	079241-46-6	Herbicide	
fluazinam	79622-59-6	Fungicide	
fludioxonil	131341-86-1	Insecticide, agriculture,Fungicide	
fludioxonil	69377-81-7	Herbicide	
flurprimidol		Growth regulator	
flutolanil	66332-96-5	Fungicide	
phoxim	14816-18-3	Insecticide, agriculture,Insecticide,inside use	
fosetyl-aluminium	39148-24-8	Fungicide	
furathiocarb	65907-30-4	Insecticide, agriculture	
mycelium and spores of *Gliocladium catenulatum*		Fungicide	
glufosinate-ammonium	77182-82-2	Herbicide	
glyphosate (as ammonium salt of glyphosate)	40465-66-5	Herbicide	
glyphosate (as isopropylamine salt of glyphosate)	38641-94-0	Herbicide	
glyphosate (as sodium salt of glyphosate)	34494-03-6	Herbicide	
glyphosate (as trimesium salt of glyphosate)	81591-81-3	Herbicide	
guazatine acetates	115044-19-4	Fungicide	
spores of *Phlebiopsis gigantea*		Fungicide	
hexachlorethan		Insecticide,inside use	
hexazinone	51235-04-2	Herbicide	31.12.1999
hexythiazox	78587-05-0	Insecticide, agriculture	
hymexazol	10004-44-1	Fungicide	
imazalil	35554-44-0	Fungicide	
imazapyr		Herbicide	
imidacloprid	138261-41-3	Insecticide, agriculture	
ioxynil		Herbicide	
iprodione	36734-19-7	Fungicide	
isofenphos	25311-71-1	Insecticide, agriculture	
isoxaben	82558-50-7	Herbicide	
carboxin	5234-68-4	Fungicide	
repellent oil Daphne		Insecticide, agriculture	
quinoclamine		Herbicide	
chinomethionat	2439-01-2	Insecticide, agriculture, Fungicide	
clopyralid		Herbicide	
chloridazon	1698-60-8	Herbicide	
chlormequat-chloride	999-81-5	Growth regulator	
chlorothalonil	1897-45-6	Fungicide	
chlorpropham	101-21-3	Growth regulator	
chlorpyrifos	2921-88-2	Insecticide, inside use	

chlorsulfuron	64902-72-3	Herbicide	31.12.2001
coconut oil		Repellent	
kresoxim-methyl	143390-89-0	Fungicide	
coumatetralyl	67-97-0	Insecticide,inside use	
copper oxychloride	1332-65-6	Fungicide	
quizalofop-P-ethyl	100646-51-3	Herbicide	
lambda-cyhalothrin	91465-08-6	Insecticide, agriculture	
lenacil	2164-08-1	Herbicide	31.12.1998
lesitine		Fungicide	31.12.2001
linuron	330-55-2	Herbicide	
lithiumperfluoro-octansulphonate		Insecticide,inside use	
lactic acid	50-21-5	Insecticide,inside use	
malathion	121-75-5	Insecticide, agriculture,Insecticide,inside use	
maneb	12427-38-2	Fungicide	
mancozeb	8018-01-7	Fungicide	
amygdalinic acid diethyl amide	2019-69-4	Repellent	
MCPA	94-74-6	Herbicide	
mecoprop-P	93-65-2	Herbicide	
mepiquat-chloride	24307-26-4	Growth regulator	
methabenzthiazuron	18691-97-9	Herbicide	
metalaxyl	57837-19-1	Fungicide	31.12.1999
metalaxyl-M	70630-17-0	Insecticide, agriculture, Fungicide	
metamitron	41394-05-2	Herbicide	
metazachlor	67129-08-2	Herbicide	
methiocarb	2032-65-7	Insecticide, agriculture	
methoxyuron	19937-59-8	Herbicide	31.12.1999
metribuzin	21087-64-9	Herbicide	
metsulfuron-methyl	74223-64-6	Herbicide	
methyl bromide	74-83-9	Insecticide,inside use	31.12.1998
mevinphos	26718-65-0	Insecticide, agriculture	31.12.2001
MGK 264	113-48-4	Repellent	
MGK Repellent 326	136-45-8	Repellent	
mineral oil		Insecticide, agriculture	
formic acid	64-18-6	Insecticide,inside use	
pine soap		Insecticide, agriculture	
pine oil potassium soap		Insecticide, agriculture, Fungicide	31.12.2001
N,N-diethyl-m-toluamide	134-62-3	Repellent	
naphthalene		Insecticide,inside use	
sodium-2-ethylhexanate	19766-89-3	Fungicide	
nicotine	54-11-5	Insecticide, agriculture	
oxalic acid	114-62-7	Insecticide,inside use	
oxalic acid dihydrate	114-62-7	Insecticide,inside use	
oxydemeton-methyl	301-12-2	Insecticide, agriculture	
paraffin oil	72623-87-1	Insecticide, agriculture, Fungicide	
penconazole	66246-88-6	Fungicide	
permethrin	52645-53-1	Insecticide, agriculture, Insecticide,inside use	
tansy, sage and lavender extracts		Insecticide, agriculture, Insecticide,inside use	
peppermint oil	8006-90-4	Repellent	31.12.1999
piperonyl butoxide	51-03-6	Insecticide, agriculture, Insecticide, inside use, Repellent	
pirimiphos-methyl	29232-93-7	Insecticide,inside use	31.12.2001
pirimicarb	23103-98-2	Insecticide, agriculture	
prallethrin	23031-36-9	Repellent	
primisulfuron		Herbicide	

prochloraz	67747-09-5	Fungicide	
prochlorazmanganesechloridekomplex	75747-77-2	Fungicide	
prometryn	7287-19-6	Herbicide	31.12.1999
propachlor	1918-16-7	Herbicide	31.12.2000
propaquizafop	111479-05-1	Herbicide	
propamocarb-hydrochloride	25606-41-1	Fungicide	
propetamphos	31218-83-4	Insecticide,inside use	
propidine	119515-38-7	Repellent	
propiconazole	60207-90-1	Fungicide	
Pseudomonas chlororaphis MA 342		Fungicide	
pymetrozine	123312-89-0	Insecticide, agriculture	
pyrethrins	8003-34-7	Insecticide, agriculture, Insecticide,inside use, Repellent	
pyridate	55512-33-9	Herbicide	
pyrimethanil	53112-28-0	Fungicide	
potassiumsalts of fatty acids		Insecticide, agriculture, Insecticide,inside use	
rimsulfuron	122931-48-0	Herbicide	
sethoxydim	74051-80-2	Herbicide	
simazine	122-34-9	Herbicide	
citronella oil		Repellent	
citric acid	77-92-9	Insecticide,inside use	
mycelium and spores of *Streptomyces griseoviridis*		Fungicide	
sulfosulfuron	141776-32-1	Herbicide	
sulfotep	3689-24-5	Insecticide, agriculture	
cyfluthrin	68359-37-5	Insecticide,inside use	
cycloxydim		Herbicide	
cyclopentadien polymer		Insecticide, agriculture	
cymiazole hydrochloride	121034-85-3	Insecticide,inside use	
cypermethrin		Insecticide,inside use	
cyprodinil	121552-61-2	Fungicide	
cyromazine	66215-27-8	Insecticide,inside use	
tau-fluvalinate	102851-06-9	Insecticide, agriculture, Insecticide,inside use	
terbutryn	886-50-0	Herbicide	
terbuthylazine	5915-41-3	Herbicide	
tetramethrin	7696-12-0	Insecticide,inside use	
thiamethoxam	153719-23-4	Insecticide, agriculture, Fungicide	
thifensulfuron-methyl	79277-27-3	Herbicide	
thiophanate-methyl	23564-05-8	Fungicide	
thiram	137-26-8	Fungicide	
tolclofos-methyl	57018-04-9	Fungicide	
tolylfluanid	731-27-1	Fungicide	
tralkoxydim	87820-88-0	Herbicide	
triadimefon	43121-43-3	Fungicide	
triadimenol		Fungicide	
triasulfuron	82097-50-5	Herbicide	
tribenuron-methyl	101200-48-0	Herbicide	
trifluralin	1582-09-8	Herbicide	
triflusulfuron-methyl	126535-15-7	Herbicide	
triforine	26644-46-2	Fungicide	
trichlorfon	52-68-6	Insecticide,inside use	
trimethylcocosammoniumchlorid		Fungicide	
trinexapac-ethyl	95266-40-3	Growth regulator	
triticonazole	131983-27-7	Fungicide	
spores of *Verticillium lecanii*		Insecticide, agriculture	
nuclear polyhedrosis virus		Insecticide, agriculture	

List of active substances contained in withdrawn (e.g. from ecological, commercial reasons) plant protection products: see attached list

Active substance(s)
Areas of use
Reason for withdrawal

List of "banned" active substances contained in plant protection products:

Banned active substances are listed in the Decision of the Council of State 1361/96. Banned active substances are not available in the market.

Active substance(s): aldicarb, aldrin, amitrole, arsenate, arsenite, binapacryl, DDT, 1,2-diboromoethane, dieldrin, 1,2-dicloroethane, dicofol, dinoseb, DNOC, mercury compounds, ethylene oxide, folpet, HCH, hexachlorobenzene, kamfechlor, captan, captafol, carbolineum, chlordane, chlorobenzilate, quintozene, lindane, maleic hydrazide, nitrophene, paraquat, parathion, thallium sulphate, toxaphene, vinclozoline.
Areas of use
Reason for "ban": several reasons, severe health and/or environmental effects

How often are the registration reviewed?
According to the Pesticides Act the maximum registration period is 10 years, unless the Pesticide Board decides on a shorter period, e.g. if the data package is not complete or there are other reasons for an earlier review.
Similarly, for the biocides the maximum registration period is 10 years, unless the competent authorities decide on a shorter period, according to the Chemicals Act.

Specify means used when nationally putting into force the Recommendation

- via general reference in the national legislation:

  According to the Pesticides Act (327/69, amended e.g. 1204/94) plant protection products and other pesticides cannot be approved if a substance has harmful effects on health or environment or is not efficient. Respective approval conditions concerning biocides have been given in the Chemicals Act (744/89, amendment 1198/99).
  The provisions of the PPP directive (91/414/EEC) and BP directive (98/8/EC) are implemented in the Finnish legislation.

- via a specific adoption of an amendment to existing national legislation:
  When deciding on the approval of each plant protection product or biocidal product the conditions and restrictions of use (e.g. the buffer zones required to protect the surface waters, restrictions on ground water areas or in successive years on same field) are defined and put on the label. The products must be used according to the approved use instructions.

- via administrative or other means, please specify.

Possible problems identified when putting into force nationally the Recommendation:

The approval system of pesticides comprises several authorities, which may cause ineffectiveness of the decision making. The Pesticide Board is the decision making organ with members from all respective authorities, and in case of different opinions among the members the decision will be taken by voting.

The ministry of agriculture and forestry is planning to nominate a task force for reorganising the approval system of plant protection products.

REPORTING FORMAT FOR HELCOM RECOMMENDATION 14/5 CONCERNING BATTERIES CONTAINING MERCURY, CADMIUM OR LEAD

Lead Country**:** Sweden
Country: Finland
Year: 2001

1. General implementation status:

Specify means used when nationally putting into force the Recommendation
- via general reference in the national legislation
- via a specific adoption of an amendment to existing national legislation
- via administrative or other means, please specify.

Finland has implemented EU Directives which cover the obligations set in HELCOM Recommendation 14/5:
- Council Directive 91/157/EEC on batteries and accumulators containg certain dangerous substances
- Commission Directive 93/86/EEC adapting to technical progress Council Directive 91/157/EEC
- Commission Directive 98/101/EC adapting to technical progress Council Directive 91/157/EEC

The above-mentioned EU Directives are implemented by Council of State Decision on batteries and accumulators containing certain dangerous substances (105/95, amended by Council of State Decision 17/99). In addition to these decisions, the Waste Act includes obligations related to collection and disposal of all hazardous wastes including batteries containing Pb, Hg or Cd.

Possible problems identified when putting into force nationally the Recommendation.

2. Is the Recommendation in paragraph b) of the Recommendation implemented? (Yes/~~Partly/No~~) Specify:

- Hg, Cd and Pb containing batteries are classified as hazardous waste
- Hazardous wastes have to be collected separately from other wastes and stored in an environmentally sound manner
- Treatment of hazardous wastes require a specific permit, export and import of hazardous waste have to be performed in accordance with the obligations under the Basel Convention.
- Municipalities have to arrange separate collection and disposal off of hazardous wastes from households. The service is free of charge for households.
- Professional users have to organise and finance themselves the collection and disposal of hazardous wastes.

3. Has a collection system of used batteries been implemented? (Yes/~~Partly/No)~~ Specify. *See above.*

4. How big portion of the batteries in the end of service life_containing mercury, cadmium or lead are collected approximately at the present (denote the year when data obtained)?

There is no data enabling the estimation of percentage of separately collected end of life batteries (no data on yearly sales and on service life of different battery types).

Total export of different batteries in 2000 was 12 800 tonnes Pb-batteries, 100 tonnes NiCd-batteries (mainly large, sealed industry batteries) and 75 tonnes miscellaneous batteries (both containing Hg and Cd, and other batteries). Batteries are not recycled in Finland but batteries may be stored by municipalities and companies collecting them. However, exported amounts give a picture of the magnitude of batteries collected yearly

5. Describe the types of batteries and uses of batteries, where the mercury, cadmium or lead are still used:

Lead batteries are used (in addition to car batteries, which is by far the most important use of Pb batteries) e.g., in fire emergency light systems.

Small sealed nickel-cadmium batteries are still used, e.g., in power tools (consumers and construction companies), electric toothbrushes, rechargeable electric toys. NiCd-batetries Products using alternative batteries are available. Large open nickel cadmium batteries are used by railway and air-traffic companies.

6. Amount of batteries sold per year in (This information should be submitted in case it is available) (denote the year):

a) Total amount of all batteries (in tonnes/year)
b) Total amount of batteries containing mercury over 0,0005 % (in tonnes/year):
c) Nickel-cadmium, sealed batteries (in tonnes/year)
d) Nickel-cadmium, open batteries (in tonnes/year)
e) Lead containing batteries (in tonnes/year).

7. How are the collected batteries treated at the present? (Recovery, storage, disposal etc..) Specify for mercury, cadmium and lead respectively when necessary.

See points 2 and 4

8. Have labelling requirements for batteries in the paragraph d) of the Recommendation been implemented? (Yes/~~Partly/No~~) Specify. *See point 1*

REPORTING FORM FOR HELCOM RECOMMENDATION 6/4 CONCERNING MEASURES AIMED AT THE REDUCTION OF USE OF MERCURY IN DENTISTRY

Lead Country: Estonia	
1. Country	Finland
2. Specify means used when nationally putting into force this Recommendation - via general reference in the national legislation - via a specific adoption of an amendment to existing national legislation - via administrative or other means, please specify. Possible problems identified when putting into force nationally the Recommendation	
Council of State Decision 112/1997 on waste water and waste containing amalgam. Waste water containing amalgam has to be pretreated with amalgam-separators before they may be discharged into common sewer systems or waterways. Technical requirements on testing, installation, checks and efficiency (95 %) of such separators are given.	
3. Information on materials used instead of mercury for tooth filling	
Most of the new tooth fillings are made using composite materials. For children and elderly people also glass-ionomers are used.	
4. Information on collection and treatment of amalgam	
The waste from separators, surplus amalgam and other mercury containing waste must be taken to depots licenced to receive amalgam waste. Producers of such waste containing amalgam has to keep record of the waste and of delivery for treatment of such waste.	
Additional information:	
Possible reduction in mercury content in excessive sludge at municipal waste water treatment plants and in the environment (seawater, lakes, sediments, fish with indication of the sampling area)	
Amalgam separators were compulsory from 1.7.1998. Mercury content in sewage sludge from Finnish municipal waste water treatment plants has decreased as follows (year and Hg content in mg/kg dry matter) 1985: 2,3 1990: 1,4 1992:1,9 1998: 0,7 1999: 0,7 2000: 0,5	

1.1.4 Other recommendations

REPORTING FORMAT FOR HELCOM RECOMMENDATION 17/1 CONCERNING REDUCTION OF EMISSIONS FROM TRANSPORT SECTOR AFFECTING THE BALTIC SEA

Lead Country: Germany
Reporting Country: Finland
Date:23.05.2002

The Contracting Parties are requested to report on changes with regard to the following items in their respective countries since the previous reporting round:

1. What has been done to make environmental protection an integral part of the transport policy?

   Please report according to paragraphs I.1 - I.4 of the Recommendation.

   On which laws, regulations are these principles based?

   Are further improvements planned, please specify.

I.1) The Ministry of Transport and Communications of Finland adopted in July 1999 a new environmental management system for the administrative sector of the Ministry. The new programme covers the years 1999-2004. The environmental management system is based on the document *"Environmental Guidelines for the Transport Sector"*. This new programme has replaced the old programme "*Action Programme for Reducing the Adverse Effects of Transport on the Environment"* that was adopted in 1994. The programme covers all transport modes.

The new environmental management is based on the ISO 14001 standard (environmental management system of the administrative sector) and it provides a practical tool for the environmental management of transport policy by setting operational policy targets and measures to reach these targets, sharing responsibilities between different actors, setting timetable for action and follow-up measures. Operational policy targets are set in the following sectors:

1) Reducing greenhouse gas emissions
2) Reducing emissions produced by traffic
3) Preventing pollution of soil and water
4) Reducing exposure to noise
5) Taking environmental impacts into account in developing transport systems: land use and landscape
6) Promoting ecological sustainability: biodiversity, waste problem and eco-efficiency.

More information is available on the environmental programme on the web-site:
http://www.mintc.fi/environment

I.2) Environmental activities in the administrative field of the Ministry of Transport and Communications are implemented by different units of the Ministry as well as by enterprises and companies and, agencies and institutions in the administrative field. In order to improve the activities, several units have developed their own strategies for environmental management. The Finnish Road Administration completed its first environmental policy already in 1982 and the Finnish Civil Aviation Administration in 1997. The Finnish Rail Administration and Finnish Maritime Administration completed their environmental monitoring systems in 1996. The follow-ups of the action programme are based on the self-monitoring and reporting of each responsible authority.

I.3) Starting from the year 1996 special attention has been paid in the environmental management of transport policy to the integration of the community structure and interaction between traffic and land-use. In the Ministry of Transport and Communications a research and development programme

named LYYLI. Research Programme on community structure and transport system with favourable environmental effects, has been completed by year 2002. The programme has provided a lot of valuable information for policy making and planning as regards solutions saving energy, ensuring good environment and avoiding the damage of nature areas. The programme is connected with several objectives defined in the environmental management programme of the Ministry.

I.4) See especially pages 3-15 of the programme "Environmental Guidelines for the Transport Sector" and "Environmental Report 2000" (both of these documents are attached). See also www.mintc.fi/environment.

2. Which measures have been promoted in the national transport policy?

Please report according to paragraph I.5 of the Recommendation and to paragraphs 1 - 12 of Attachment 1.

Are any measures under preparation, please specify.

As regards the integration of environment and sustainability into the national transport policy, the Ministry has concentrated on the implementation of the environmental management programme of the Ministry (i.e. Environmental Guidelines for the Transport Sector"). Moreover, the Ministry has tried to promote the attractiveness and market share of sustainable modes of transport. In this respect the Ministry adopted three new programmes in 2001:

- Public transport strategy: aims especially with the help of door-to-door travel chains and travel centres to increase the attractiveness and competitiveness of public transport and thereby to maintain or increase the market share of public transport.
- National cycling programme: revises and updates the aims and objectives of the first programme that was adopted in 1993. The new programme aims at doubling the share of cycling by 2020. The emphasis in the programme is given in promotion of cycling and its safety in urban areas.
- National walking programme: aims at raising walking as an individual, environmentally-friendly and health mode of transport into all planning, policy and decision making processes. Non-hindrance of urban walking environment plays an important role when promoting walking.
- On the basis of the three programmes mentioned above, the government, municipalities, companies and other parties involved have started a work to proceed in implementing the aims and objectives defined in these programmes.

3. What has been done to implement the "Polluter-Pays Principle" in the transport sector?

Please report according to paragraphs II.1 - II.3 of the Recommendation.

Which measures are under preparation, please specify.

As a guideline, in taxation, the focus will be further transferred towards the taxation of the use of vehicles. Environmentally desirable modes of transport will be supported (see actions mentioned above). "The polluter pays- and the user pays" principles will be used in applying the economic instruments". The taxation will be further developed in accordance with the "National Climate Chance Strategy" with the aim to establish a differentiation of vehicle taxation that should be in favour of energy saving and fuel efficient cars.

4. What has been done to implement the BAT for vehicles and fuels for all transport modes?

   Please report according to paragraphs III.1 - III.11 of the Recommendation.

   On which laws, regulations etc. is the implementation based?

   Are there particular certification and registration procedures for motorized vehicles to keep the emissions as low as possible, and how are these procedures legally implemented and enforced?

   Are there particular inspection and maintenance programmes to keep emissions from in-use vehicles low?

   Are other measures planned, please specify.

III.1) Directives in the attachment 2 and the UN ECE regulations have been implemented to the Decree 1256/1992 (concerning the construction and equipment of vehicles) with the following amendments: 338/1996, 91372/1996 and 902/1997. See also action programme pages 23-24, points 1-3
III.2) The requirements for emissions from motor vehicles are controlled annually in the MOT test. In addition vehicles in use are controlled with occasional checks of conformity.
III.3) The emission standard and the testing method have been implemented to the Decree concerning MOT (1702/1992) with the amendment 267/1994.
III.4) -
III.5) and III.6) The ban on use of lead (coming into effect 1.1.2000) is in preparation. In practice the fuel sold is unleaded.
III.7) A regulation (coming into effect 1.1.2000) which sets the maximum value of sulfur in dieselfuel to 0.05% m/m is under preparation. In practice, dieselfuel sold fulfills the requirement already.
III.8) Finland has implemented the directive 94/63/EC as is expected from EU member states. According to the existing regulations the recovery of fumes concerns only storage areas. There are some gas stations that voluntary collect fumes during the refueling, but there exists no national legislation of such kind.
III.9) As an objective, by the year 2000, the recovery level of scrap vehicles would be 95%.
III.10 According to a recent law (30.12.1998/1161) amending the motor vehicle tax law (722/1966) an additional tax for vehicles using CNG or LPG is exempted if the NOx –levels of a truck or bus using these fuels does not exceed the amount of 2,5 g/kWh.
III.11) See action programme page 14, point 1.

5. Please provide statistical data on actual values of air polluting emissions from the transport sector as well as an estimation of emission reduction achieved due to implemented measures.*)

Traffic emissions in Finland 2000 according to IPCC source categories [t]

	CO	HC	NOx	PM	SO_2	CO_2	Energy consumption [TJ]	
Road traffic	250 797	41 047	106 523	6 038	228	11 075 747	151 639	
Railway traffic(1	480	206	3 463	82	65	162 404	2 043	
Waterborne traffic(2	24 010	8 519	7 932	513	1 468	450 679	6 242	
Air traffic(3	2 320	168	1 313	0(4	94	383 145	5 151	
Domestic traffic total	277 608	49 940	119 232	6 632	1 855	12 071 976	165 074	

Traffic emissions and energy consumption in Finland [t]

YEAR	CO	HC	NOx	PM	SO2	CO2	Energy consumption [PJ]
1980	401 993	52 733	201 178	11 011	32 214	10 825 273	146
1981	398 802	53 567	199 447	11 177	30 569	10 849 811	147
1982	399 042	54 819	199 461	11 444	28 955	10 955 065	148
1983	399 651	56 219	199 408	11 694	28 493	11 172 221	151
1984	401 813	57 824	200 927	11 994	28 025	11 417 065	155
1985	401 141	59 392	204 733	12 413	28 133	11 875 366	161
1986	403 056	61 214	207 023	12 852	26 677	12 415 764	168
1987	410 819	63 866	213 250	13 135	27 304	13 097 325	178
1988	422 614	67 391	219 003	13 485	26 555	13 623 662	185
1989	434 551	70 082	224 311	13 508	26 208	14 375 858	195
1990	431 840	70 391	224 576	13 451	25 779	14 741 236	200
1991	399 300	67 595	218 275	13 220	24 838	14 393 597	195
1992	371 009	65 267	211 342	12 636	24 277	14 354 997	195
1993	357 369	63 520	210 353	12 250	24 208	13 830 687	190
1994	338 898	61 465	210 910	10 645	24 453	14 412 820	197
1995	332 275	60 246	206 558	10 035	22 907	14 265 372	195
1996	322 899	58 470	200 872	9 589	21 445	14 205 889	194
1997	312 132	56 888	201 463	9 261	22 202	15 019 133	206
1998	304 197	55 783	190 180	8 776	20 705	15 053 012	206
1999	295 479	54 372	195 173	8 682	20 687	15 752 516	216
2000	**282 551**	**52 007**	**185 339**	**8 222**	**19 976**	**15 612 446**	**214**
2001	257 976	47 594	170 669	7 721	17 688	15 337 206	210
2002	242 440	45 164	164 478	7 504	17 040	15 492 531	212
2003	228 605	42 607	158 362	7 314	16 379	15 631 029	214
2004	214 881	40 397	152 673	7 180	15 661	15 781 565	216
2005	202 285	38 022	147 172	7 074	14 875	15 901 361	218
2006	189 910	35 884	141 845	6 971	14 670	15 952 613	218
2007	179 583	33 997	136 203	6 881	14 166	16 002 303	219
2008	171 125	32 413	131 055	6 814	13 663	16 026 909	219
2009	164 316	31 204	126 948	6 765	13 158	16 050 066	220
2010	161 541	30 656	124 472	6 748	12 656	16 085 805	220
2011	160 734	30 530	122 983	6 726	12 155	16 103 273	220
2012	160 567	30 527	121 789	6 725	11 654	16 143 613	221
2013	160 229	30 508	120 528	6 704	11 153	16 135 805	221
2014	159 618	30 455	119 247	6 683	10 652	16 123 983	220
2015	159 731	30 514	118 216	6 679	10 152	16 150 860	221
2016	159 637	30 573	117 080	6 658	9 651	16 157 712	221
2017	159 200	30 571	115 583	6 610	9 151	16 140 426	221
2018	159 098	30 642	114 356	6 573	8 650	16 124 776	220
2019	159 353	30 771	113 377	6 552	8 277	16 148 544	221
2020	158 812	30 784	112 194	6 512	7 903	16 114 833	220

Emission reduction achieved due to implemented measures

Year	CO	HC	NOx	PM	SO2	CO2	Energy consumption [PJ]
1981	-0,1	-2,3	0,0	-2,4	5,3	-1,0	-0,7
1982	-0,2	-2,6	0,0	-2,2	1,6	-2,0	-2,0
1983	-0,5	-2,9	-0,8	-2,6	1,6	-2,2	-2,6
1984	0,2	-2,7	-1,9	-3,5	-0,4	-4,0	-3,9
1985	-0,5	-3,1	-1,1	-3,5	5,2	-4,6	-4,3
1986	-1,9	-4,3	-3,0	-2,2	-2,4	-5,5	-6,0
1987	-2,9	-5,5	-2,7	-2,7	2,7	-4,0	-3,9
1988	-2,8	-4,0	-2,4	-0,2	1,3	-5,5	-5,4
1989	0,6	-0,4	-0,1	0,4	1,6	-2,5	-2,6
1990	7,5	4,0	2,8	1,7	3,7	2,4	2,5
1991	7,1	3,4	3,2	4,4	2,3	0,3	0,0
1992	3,7	2,7	0,5	3,1	0,3	3,7	2,6
1993	5,2	3,2	-0,3	13,1	-1,0	-4,2	-3,7
1994	2,0	2,0	2,1	5,7	6,3	1,0	1,0
1995	2,8	2,9	2,8	4,4	6,4	0,4	0,5
1996	3,3	2,7	-0,3	3,4	-3,5	-5,7	-6,2
1997	2,5	1,9	5,6	5,2	6,7	-0,2	0,0
1998	2,9	2,5	-2,6	1,1	0,1	-4,6	-4,9
1999	4,4	4,3	5,0	5,3	3,4	0,9	0,9
2000	**8,7**	**8,5**	**7,9**	**6,1**	**11,5**	**1,8**	**1,9**

Footnote:

*) Details on reference years, parameters to be reported etc. will be elaborated within TC pending the development of overall airborne pollution monitoring programme of HELCOM.

2 REPORT ON THE WATER DIRECTIVES

2.1 Overview

The member states of the European Union are obliged to report on the implementation of the directives related to the water sector in accordance with the Reporting Directive 91/692/EEC and the Commission Decision 92/446/EEC, amended by Commission Decision 95/337/EC. Finland compiled the report for the first time in autumn 1999 covering the period of 1996-1998. This is the second reporting round for Finland covering the period of 1999-2001. The data is mainly given for the year 2001. The report deals with the implementation of the following directives:

Dangerous Substances Directive 76/464/EEC and the related 7 daughter directives
Fish Water Directive 78/659/EEC (reported by Finland for the first time, data for 2000 and 2001)
Titanium Dioxide Production 78/176/EEC
Groundwater Directive 80/68/EEC
Surface Water Directive (waters used for making drinking water) 75/440/EEC, 79/869/EEC

On the grounds of natural conditions Finland is exempted for the implementation of the Shellfish Water Directive (79/923/EEC) and therefore no report on that directive has been prepared. In relation to the water sector separate reports, not included here (different reporting cycles compared to this report), have been drawn up for Urban Waste Water Directive 91/271/EEC, Nitrates Directive 91/676/EEC, Bathing Water Directive 76/160/EEC and Drinking Water Directive 98/83/EC.

The report on the Dangerous Substances Directive consists of two parts: part A deals with list I substances and part B list II substances. Part A contains information on authorisations, sources, quantities and monitoring of mercury and cadmium releases into water bodies and sewers. Compared to the previous reporting round (situation in 1998) the regulatory framework remained the same whereas the actual releases of the both substances decreased slightly. In part B (list II substances) the report provides information on the control, monitoring and quantities of the following point source releases into surface waters: chromium, nickel, copper, zinc, lead, arsenium, BOD, phosphorus, nitrogen, toluene and vinyl chloride monomer. Except for copper and arsenium the total releases decreased as compared to the level of 1998. The policy on reducing the pollution load into water bodies was based on the national objectives for water protection up to 2005 approved by the Government and the specific programme of measures (Ministry of the Environment 2000, Suomen ympäristö 402).

The requirements of the Fishwater Directive 78/659/EEC (on national level Government Decision 1172/1999) were for the first time implemented in Finland in 2000. The ministry of the environment has designated 19 salmonid water areas and 5 cyprinid water areas in accordance with the Fishwater Directive. These water bodies are used for significant fishing and at the same time there is some pressure of pollution load exerted on them. The national implementation follows closely the requirements set in the directive. The water areas were to a large extent in compliance with the requirements. In four river sites suspended solids exceeded the limit values and in three Ostrobothnian river sites the pH limit values were not respected due to the acid soils in the catchment area.

There is one plant producing titanium dioxide in Finland. The plant achieved a high level of environmental protection in 2001. The plant has, for instance, neutralized waste waters since 1997. The impacts of the waste water on the quatic environment are considered small.

The groundwaters in Finland are protected against releases from anthropogenic sources and therefore no authorisations may be granted for introducing pollutants into bodies of groundwater. Potential releases of pollutants from landfills to groundwaters are controlled by the stipulations of the Government Decision 861/1997 on landfills. In 2005 there were altogether 25 authorised recharges of groundwater in operation, one new application being processed in 1999-2001.

The surface waters used for making drinking water are in general of good or excellent quality in Finland. The poorest quality raw surface water can be found along four coastal rivers where increased colour and iron concentrations due to leaching from the catchment area lower the quality of the raw water source to class A3.

2.2 The implementation reports of EU Directives

2.2.1 OUTLINE QUESTIONNAIRE ON DIRECTIVE 76/464/EEC AND DAUGHTER DIRECTIVES

A. Measures referring to List I substances of Directive 76/464/EEC

1. Authorizations for direct discharges into surface waters

For the industrial sectors/-processes in Appendix II, give the number of all authorizations granted and still valid for direct discharges into waters. Indicate in brackets what percentage of all discharges is covered by authorizations.

Industrial sectors/-processes concerned		2001	(Plant)
1.	**Mercury**		
1.1.	Chloralkali electrolysis industry (recycled brine)	1 (31 %)	(Eka Chemicals Oulu)
1.8	Non-ferrous metals industry (mercury recovery plants and extraction and refining of non-ferrous metals)	2 (40 %)	(Outokumpu Harjavalta Metals and Outokumpu Zinc Kokkola)
1.12	Coal-fired power stations	2 (0,2 %)	(Vaskiluodon Voima Vaasa and PVO-Lämpövoima Kristiinan-kaupunki)
	Sum:	5 (71 %)	
2.	**Cadmium**		
2.1.	Zinc mining, lead and zinc refining, cadmium metal and non-ferrous metals industry	3 (95 %)	(Outokumpu Harjavalta Metals, Outokumpu Zinc Kokkola and JARO Pietar-saari)
	Sum:	3 (95 %)	

2. Authorizations for discharges into sewers

For the industrial sectors/-processes in Appendix II, give the number of all authorizations granted and still valid for discharges into sewers. Indicate in brackets what percentage of all discharges is covered by authorizations.

Industrial sectors/-processes concerned		2001	(Plant)
1.	**Mercury**		
1.9.	Plants for the treatment of toxic wastes containing mercury	1 (<0,1 %)	(Ekokem, Riihimäki)
	Sum:	1 (<0,1 %)	
2.	**Cadmium**		
2.6	Electroplating	2 (<0,1 %)	(Finnair Helsinki and Finavitec Kuorevesi)
	Sum:	2 (<0,1 %)	

3. Emission standards for direct discharges into surface waters

EC standards for discharges into surface waters (76/464/EEC and the directives linked to it) apply as minimum requirements for mercury, cadmium, pentachlorophenol, chloroform, 1,2-dichloroethane, trichloroethylene and perchloroethylene. In case-by-case permitting more stringent requirements may be set. The direct discharges of pentachlorophenol, chloroform, 1,2-dichloroethane, trichloroethylene and perchloroethylene are forbidden, if these substances are used as solvents or biocides. The direct discharges of hexachlorocyclohexane, carbon tetrachloride, DDT, aldrin, dieldrin, endrin, isodrin, hexachlorobenzene, hexachlorobutadiene and trichlorobenzene are forbidden. (Environmental Protection Act 86/2000 4th Feb 2000 and Council of State Decision 19.5.1994/363).

4. Emission standards for discharges into sewers

The same provisions as for direct discharges into surface waters (explained in point 3 above) apply for discharges into sewers (Council of State Decision 19.5.1994/363).

Council of State Decision 30.1.1997/112 requires amalgam containing wastewaters from dentistry to be pre-treated (separators with at least 95 % efficiency) before discharged into sewers or into surface waters.

5. Deadlines for authorizations and/or emissions

The period of validity of authorizations is set case-by-case by the permit authority (Environmental Permit Authority, Regional Environment Centre or Municipal Environmental Authority). The period varies between 4 to 10 years. The emission standards for List I substances must be reviewed every four years (Council of State Decision 19.5.1994/363).

6. Emissions (loads) into surface waters

Give the total amount of authorized emissions of list I substances discharged (actual discharges in brackets).

Year	Substance (kg/a) for direct discharges (A1)			
	1. Hg	(actual discharge)	2. Cd	(actual discharge)
2001	29,6	(13,6)	215	(66,6)

Hg: Outokumpu Harjavalta, Eka Chemicals Oulu, Outokumpu Zinc Kokkola, Kemira Chemicals Kokkola, Vaskiluodon Voima Vaasa and PVO-Lämpövoima Kristiinankaupunki
Cd: Outokumpu Harjavalta, Outokumpu Zinc Kokkola, JARO Pietarsaari, Vaskiluodo Voima Vaasa and PVO-Lämpövoima Kristiinankaupunki

Year	Substances (kg/a) for discharges to sewers (A2)			
	1. Hg	(actual discharge)	2. Cd	(actual discharge)
2001	0,5	(0,0)	0,8	(0,1)

Hg: Ekokem Riihimäki
Cd: Ekokem Riihimäki, Finnair Helsinki and Finavitec Kuorevesi

7. Inventory

List the five biggest dischargers for each of the substances of List I and the conditions of the authorizations.

No	Name, Type or sector of industry/-processes Year of permit Location	Total Load (kg/a)	Authorized Emissions Quantity discharged in relation to production capacity (g/t)	Concentration (mg/l)	Period of validity (years)
1.	**Mercury**				
	1. Outokumpu Harjavalta Metals Non-ferrous metals industry 1992 3239029/6811030	10,0	0,05 /Cu 150 000 t Ni 40 000 t		8
	2. Eka Chemicals Oy, Oulu Chloralkali electrolysis industry (recycled brine) 2001 3425716/7212427	6,0	0,15 /chlorine 40 000 t		4
	3. Outokumpu Zinc, Kokkola*) Non-ferrous metals industry 1994 3305569/7090726	5,0	0,02/Zn 225 000 t		4
	4. Kemira Chemicals Kokkola Sulphuric acid industry**) 1994 3304611/7089520	5,0	0,01/H_2SO_4 360 000 t		4
2.	**Cadmium**				
	1. Outokumpu Harjavalta Metals Non-ferrous metals industry 1992 3239029/6811030	109,5	0,58/Cu 150 000 t Ni 40 000 t		8
	2. Outokumpu Zinc, Kokkola*) Non-ferrous metals industry 1994 3305569/7090726	100,0	0,55/Zn 225 000 t		4
	3. JARO, Pietarsaari Non-ferrous metals industry 1993 3288509/7073391	2,0	0,13/stainless , acid resistant pipe 15 000 t	0,1	9
	4. Vaskiluodon Voima, Vaasa Coal-fired power stations 1996 3225399/7009912	0,3	-		7

*) Permit includes also Kokkola Chemicals Oy and Fortum Service Kokkola

**) Sulphuric acid is produced from the sulphur dioxide gas of the other company. Mercury catalyst is not used.

There are no other plants discharging Hg or Cd that belong to the scope of the Commission Decision 95/337/EC appendix 2.

8. Quality objectives for surface water

There are no nationally applied substance (List I) specific quality objectives. The local water quality objectives are taken into account in the case-by-case permitting process.

9. Monitoring stations

How many monitoring stations for monitoring the aquatic environment (water, sediment, biota) for each of the 17 dangerous substances of list I are operating? Are quality objectives complied with?

Description of surface water quality monitoring network in Finland:

Polluters are required to monitor the quantity, quality and the effect of their own emissions in local waters (statutory monitoring). About 1700 polluters have this monitoring obligation (municipal and industrial waste water discharge, fish farms, peat production sites, quarries, landfills, water construction, regulation and dredging). The programmes are designed individually taken into account the quality of the discharged water as well as the site specific factors in the receiving water body. These programmes include physical and chemical water quality analyses, biological analyses and sediment analyses (oxygen, acidification and nutrient status as well as humic and other harmful and hazardous substances). The Regional Environmental Centres (REC) approve the statutory monitoring programmes. These programmes may include physical and chemical water quality analyses, biological analyses, periphyton and macrophyte investigations. Water quality analyses are carried out annually (2 - 12 times a year), whereas the sampling frequency for biological analyses is every third or fifth year.

Water quality monitoring in accordance with the national monitoring programme is based on two monitoring networks: river water quality measured at discharge sites, and lake water quality measured at the deepest sites. The objectives are:

-to detect changes and trends in the quality of surface waters
-to assess the effects of human activities on water quality
-to study fluctuations in water quality constituents
-to estimate natural background values of water quality variables (25-30 variables)

The river discharge programme is carried out in nationally important rivers (flow > $10 m^3 s^{-1}$). The programme started in 1962 and at present samples are taken at least 4 times per year. The lake water quality monitoring programme has 71 sites. The programme started in 1965. Samples are taken at least 3 times per year. Bioaccumulating compounds in fresh waters are monitored at the same sites as the water quality programmes every two or three years. Variables analysed include heavy metals and chlorinated hydrocarbons such as phenols, dioxins and furans.

The discharges of different substances into the Finnish coastal waters have been monitored monthly at 30 rivers since 1970. Monitoring of transboundary water courses consist of four continuous sampling sites on the Russian border. The bordering rivers River Tenojoki and River Tornionjoki, as well as River Paatsjoki in Northern Finland, have at least one sampling site each.

The information provided below contains monitoring data on dangerous substances (heavy metals) in waters, biota and/or sediment contained in statutory monitoring programmes for waters affected by those substances throughout Finland and which have been conducted after 1998.

Number of monitoring stations for the aquatic environment

Major river basin	Coastal waters outside Kokkola	Pyhäjoki	Kokemäki
Name of water	Bothnian bay	Pyhäjoki river	Kokemäki river
Type of water	Coastal water	Inland surface water	Inland surface water
Number of stations	3 (fish), 5 (sediment)	2 (fish)	16 (sediment)
Operating since			1985

Monitoring/measurement results

1.Mercury, Hg

Name of area	Year	Media	Unit	Average	Min- max	No. of samples
Kokkola coastal waters	1999	Sediment (0-5cm)	mg/kg dry weigth	0.7	0.1-1.5	5
Kokkola coastal waters	1999	Biota: Fish (pike, muscle)	mg/kg wet weigth	0.10 (0.51 dry weigth)	0.08-0.13 (0.42-0.63 dry weigth)	4
Kokkola coastal waters	1999	Biota: *Saduria entemon*	mg/kg dry weigth	0.26	0.15-0.43 (areal averages)	3 sampling areas, 182 samples
River Pyhäjoki	2001	Fish (pike, muscle)	mg/kg wet weigth	0.18	0.06-0.37	40
River Kokemäenjoki	2000	Sediment (0-2 cm)	mg/kg dry weigth	2.33	< 0.1 – 24.0	16

2. Cadmium, Cd

Name of area	Year	Media	Unit	Average	Min-max	No. of samples
Kokkola coastal waters	1999	Sediment (0-5cm)	mg/kg dry weigth	0.9	0.2-1.4	5
Kokkola coastal waters	1999	Biota: Fish (pike, muscle)	mg/kg wet weight	0.001	all 0.001	4
Kokkola coastal waters	1999	Biota: *Saduria entemon*	mg/kg dry weigth	3.3	2.7-4.5 (areal averages)	3 sampling areas, 182 samples
River Pyhäjoki	2001	Fish (pike, muscle)	mg/kg wet weigth	< 0.01	< 0.01-0.02	40
River Kokemäenjoki	2000	Sediment (0-2cm)	mg/kg dry weigth	1.59	0.33- 15.0	16

Measurement methods:

Kokkola	Sediment; Hg INSTA-VH 93/1986 Sediment; Cd SFS 3044, SFS-EN ISO 5961 Biota (Fish and Biota (Fish and *Saduria entemon)*;Hg: preparation in H2SO4-HNO3, cold vapour AAS Biota (Fish and Biota (Fish and *Saduria entemon)*; Cd: preparation in microwaweoven in HNO3/H2O2, SFS 5075
Pyhäjoki	Biota (Fish); Hg: Non filtered cold vapour atomic absorption Biota (Fish); Cd: SFS-EN 5961
Kokemäenjoki	Sediment: Pretreatment with acid (SFS 3044), Hg analyzed with the cold vapour method and Cd in graphite furnace (SFS 3047, SFS 3051)

10 Specific programmes

No substance specific programmes have been drawn up for each of the 17 dangerous substances of List I. The National Objectives for Water Protection up to year 2005 approved by the Council of State (19th March 1998) and the action programme for its implementation (Ministry of the Environment 2000, Suomen ympäristö 402, Helsinki) set targets and requirements for emission reductions in different sectors of economy (industry, agriculture, horticulture, municipalities, scattered dwellings, fish farming, peat production, fur farming, forestry, traffic). The programme is applied at national level and it sets specific targets for the reduction of discharges of the following substances or parameters: phosphorus, nitrogen, BOD, COD, hydrocarbons, chromium, nickel, copper and zinc.

B Measures referring to List II substances

1. Programmes to reduce pollution by List II substances including List I candidates

The Council of State Resolution on Water Protection Targets up to the year 2005, issued on 19th March 1998, specifies overall and sector specific targets and is applied at national level (see also A10). The resolution is supplemented by an action programme (Ministry of the Environment 2000, Suomen ympäristö 402, Helsinki) that lays down the measures necessary for achieving the targets and their timing. The main goals are the reduction and prevention of eutrophication. The general objectives of water protection are to prevent further deterioration in the state of the Baltic Sea and inland waters caused by human activities and to improve the condition of those watercourses that have already been deteriorated. The anthropogenic load of phosphorus shall be decreased by about 45 % and nitrogen by about 40 % as compared to the levels of the years 1991-1995. Compared to 1995 levels the amount of metals in industrial wastewaters should be reduced as follows: chromium 90 %, copper 80 %, nickel 75 % and zinc 65 %. The reduction target for hydrocarbons is 55 % and COD(Cr) from industrial sources 45 % during 1995-2005.

2. Pretreatment at source

Pretreatment at source is required. Environmental Protection Act (86/2000 4th Feb 2000) and Council of State Decision 365/94 stipulates that industrial wastewaters have to be pretreated before discharged into sewers in order to:
1) safeguard the health of the persons working with sewers and at the wastewater treatment plant;

2) safeguard that the sewer network and the wastewater treatment plant will not be damaged;
3) safeguard the proper operation of the wastewater treatment plant and sludge handling;
4) safeguard that the discharges from the wastewater treatment plant will neither harm the recipient nor prevent that other requirements on the recipient are fulfilled and
5) safeguard that sludge can be handled in a safe an environmentally sound way

3. Emission standards for direct discharges into surface waters

Emission limit values in the permits are set case-by-case based on the principle of Best Available Techniques in accordance with the Environmental Protection Act (86/2000, 4th Feb 2000). There are no general emission standards in use, except minimum standards for List I substances as described under A3.

4. Emission standards for discharges into sewers

Each municipal waste water treatment plant sets standards, bans and restrictions within its own area, but no legally binding general standards have been set at national level, except the requirement of proper pretreatment and for the substances mentioned above. The National Association of The Municipalities has, however, published guidelines for limit values in 1992.
The guideline values (mg/l) for certain substances are: Hg 0.01, Cd 0.01, Cr_{tot} 0.5, Cr^{6+} 0.1, Cu 0.5, Pb 0.5, Ni 0.5, Zn 2.0 and As 0.1.

In setting standards the wastewater treatment plant also takes into account the effect of the discharged water on the content of metals in the sewage sludge and the usability of the sludge in agriculture. Council of State Decision 282/1994 provides requirements on the use of sewage sludge in agriculture.

5. Deadlines for authorizations and/or emissions

The period of validity of authorizations is set case-by-case by the permit authority (Environmental Permit Authority, Regional Environment Centre or Municipal Environmental Authority). The period usually varies between 5 to 10 years..

6. Emission (loads) to surface waters

Give the total amount of authorized emissions of the main substances (use a low threshold of 50 kg/annum) discharged.
Indicate the percentage of all such emissions covered by authorization and the percentage which might be contributed by emissions falling below the thresholds.

Year	Substances	(kg/a) Authorised	Actual total discharges	Percentage covered by authorisations
2001	Cr_{tot}	10 275	(3 957)	98 %
	Ni	28 635	(8 482)	95 %
	Cu	6 540	(7 912)	94 %
	Zn	48 946	(14 324)	82 %
	Pb	1 095	(149)	83 %
	As	3 325	(1 112)	97 %
	BOD_7	36 869 305	(14 972 538)	86 %
	P_{tot}	432 612	(216 768)	93 %
	N_{tot}	3 016 535	(1 926 125)	50 %
	Toluene	292	(5)	100 %
	Vinyl chloride monomer	160	(55)	100 %

Cu: Outokumpu Harjavalta Metals Harjavalta, Outokumpu-konserni Pori, Outokumpu Zinc Kokkola
Zn: Outokumpu Harjavalta Metals Harjavalta, Outokumpu Zinc Kokkola, Outokumpu-konserni Pori, Avesta Polarit Chrome Tornio, Rautaruukki Raahe Steel Raahe, Arvo Piiroinen Salo, Säteri Valkeakoski, Galvanoimis Oy Pirkkala, Kemira Pigments Pori
Pb: Outokumpu Harjavalta Metals Harjavalta
As: Outokumpu Harjavalta Metals Harjavalta, Mondo Minerals Kaavi, Mondo Minerals Vuonos Outokumpu, Mondo Minerals Sotkamo
Cr: Outokumpu-konserni Pori, Avesta Polarit Chrome Tornio, Ligno Tech Tampere, Kemira Pigments Pori, Geson Alaveteli
Ni: Outokumpu Harjavalta Metals Harjavalta, Outokumpu-konserni Pori, Avesta Polarit Chrome Tornio, Mondo Minerals Kaavi, Mondo Minerals Vuonos Outokumpu, Mondo Minerals Sotkamo, Outokumpu Mining Hitura Nivala, Kemira Pigments Pori
Toluene: Kemira Chemicals Vaasa
Vinyl chloride monomer: Borealis Polymers Porvoo

7. Quality objectives for surface water

There are no substance specific quality objectives laid down at national level in specific programmes. The local water quality objectives are taken into account in the case-by-case permitting process. The selection of nationally prioritised substances and the determination of environmental quality objectives for these substances commenced in 2001.

8. Monitoring (stations)

Arsenic, As

Name of area	Year	Media	Unit	Average	Min-max	No. of samples
Kokkola coastal waters	1999	Sediment (0-5 cm)	mg/kg dry weigth	50	8-110	5
Kokkola coastal waters	1999	Biota: *Saduria entemon*	mg/kg dry weigth	1.3	1.1-1.5 (areal averages)	3 sampling areas, 182 samples

Chromium, Cr

Name of area	Year	Media	Unit	Average	Min-max	No. of samples
Kokkola coastal waters	1999	Sediment (0-5 cm)	mg/kg dry weigth	30.4	12-42	5
Kokkola coastal waters	1999	Biota: *Saduria entemon*	mg/kg dry weigth	2.2	1.3-2.9	3 sampling areas, 182 samples
Tornio coastal waters	2000	Biota: Fish (burbot, muscle, liver /sampling time January)	mg/kg wet weigth	Liver 0.20 Muscle 0.038	Liver 0.05-0.29 Muscle 0.02-0.07	10
Tornio coastal waters	2000	Water (1 m)	µg/l	< 5	all < 5 l	24
River Kokemäenjoki	2000	Sediment (0-2 cm)	mg/kg dry weigth	45,3	20.0 – 81.0	16
River Kokemäen-joki	2000	Water (1 m)	µg/l	2.15	0.9-6.3	13

Copper, Cu

Name of area	Year	Media	Unit	Average	Min-max	No. of samples
Kokkola coastal waters	1999	Sediment (0-5 cm)	mg/kg dry weigth	33.9	9.8-61	5
Kokkola coastal waters	1999	Biota: *Saduria entemon*	mg/kg dry weigth	144	101-195	3 sampling areas, 182 samples
River Pyhäjoki	2001	Biota: Fish (pike, muscle)	mg/kg wet weigth	1.2	0.27- 8.4	40
River Pyhäjoki	2001	Water (1m)	µg/l	8	5-14	4
River Kokemäenjoki	2000	Sediment (0-2 cm)	mg/kg dry weigth	59.2	12- 230	16
River Kokemäenjoki	2000	Water (1 m)	µg/l	3.6	2.5-6.7	13

Nickel, Ni

Name of area	Year	Media	Unit	Average	Min-max	No. of samples
Kokkola coastal waters	1999	Sediment (0-5 cm)	mg/kg dry weigth	18	6.2-28	5
Kokkola coastal waters	1999	Biota: *Saduria entemon*	mg/kg dry weigth	6.5	6.2-6.7	3 sampling areas, 182 samples
Tornio coastal waters	2000	Biota: Fish (burbot, muscle, liver/sampling time January)	mg/kg wet weigth	Liver 0.62 Muscle 0.07	Liver <0.01-2.7 Muscle 0.04 –0.18	10
Tornio coastal waters	2000	Water (1m)	µg/l	< 5	< 5 – 6	24
River Kokemäen-joki	2000	Sediment (0-2 cm)	mg/kg dry weigth	55	20 – 160	16
River Kokemäen-joki	2000	Water (1m)	µg/l	4.7	2.9-7.6	13

Zinc, Zn

Name of area	Year	Media	Unit	Average	Min-max	No. of samples
Kokkola coastal waters	1999	Sediment (0-5 cm)	mg/kg dry weigth	305	67-500	5
Kokkola coastal waters	1999	Biota: *Saduria entemon*	mg/kg dry weigth	125	112-142	3 sampling areas, 182 samples
River Pyhäjoki	2001	Biota: Fish (pike, muscle)	mg/kg wet weigth	7.2	4.3-12	40
River Pyhäjoki	2001	Water (1 m)	µg/l	17	< 20 –27	4
Tornio coastal waters	2000	Biota: Fish (burbot, muscle, liver/sampling time January)	mg/kg wet weigth	Liver 14.3 Muscle 4.3	Liver 8.4 - 21 Muscle 3.2 – 5.6	10
Tornio coastal waters	2000	Water (1m)	µg/l	< 20	all < 20	24

Measurement methods:

Kokkola	Sediment; As SFS 3044, modified SFS 5074 and SFS 5502 Sediment; Cr, Cu, Ni: SFS 3044, SFS 5074 and SFS 5502 Sediment; Zn: SFS 3044, SFS 3047 Biota (Fish and *Saduria entemon)*; As, Cr, Cu, Ni, Zn: preparation in HNO3/H2O2, SFS 5072
Pyhäjoki	Biota (Fish); Cu and Zn: SFS 3047 Water; Cu: SFS 5502 Water; Zn: SFS 3047
Kokemäenjoki	Sediment; Cr, pretreatment with acid (SFS 3044, SFS EN 1233), AAS flame Sediment; Cu and Ni, pretreatment with acid (SFS 3044, SFS 3047), AAS flame Water; Cr: SFS 3044, SFS-EN 1233 Water, Cu and Ni: SFS 3044, SFS 3047
Tornio	Biota (Fish); Cr and Ni: SFS 5502 Biota (Fish); Zn: SFS 5074 Water; Cr and Ni : SFS 5074, SFS 5502 Water; Zn: SFS 3044, SFS 3047

C. Measures referring to List I and List II substances

1. Expenditure (costs)

Give the sum of investments made for the construction of sewers and all waste water treatment plants concerned as far as possible.

Latest available figures for investments are from 1998 for industrial sector and 2001 for municipal sector.
Expenditure in Million Euros:

	Industrial sector		Municipal sector	
Period	Sewers	Plants*	Sewers (incl. pump stations)	Plants
1998	-	76		
2001			93	29

* The figures for the industrial sector comprises investments in water pollution control as a whole including both process integrated and end-of-pipe investments. These figures do not include environmental operating expenditures.

2.2.2 OUTLINE QUESTIONNAIRE ON DIRECTIVE 78/659/EEC (FISH WATERS)

Methodological notes

A. Sampling frequency
The 13 regional environment centres of Finland are the competent authorities responsible for sampling and analysis included in fresh water quality monitoring. The regional environment centres have been authorised to carry out yearly sampling programmes in order to execute Directive 78/659/EEC by an official letter from Ministry of the Environment in 29th February 2000 (Dnro 4/400/99). The competent authorities, in accordance with Article 7 of the Directive, have decided on the appropriate sampling frequency by parameter in each designation. In this report sampling years 2000 and 2001 are combined to acquire more information on the measured parameters from the designations.

B. Measurement of NH_3
Parameter 10, non-ionized ammonia (NH_3), was estimated as a function of pH and temperature first determined by Woker (1948) and as given in Fresenius *et al.* (1988, 287-292). Briefly, the proportion of non-ionized ammonia in pH 7-8 is < 5 % of total ammonia in 10-17 ° C and 0 % below pH 7.5. Therefore no NH_3 was assumed for designations with pH ≤ 7.5.

Only in designations 9, 11, 12, 13, 16 and 24 (respectively Vantaanjoki, Lohjanjärvi, Säkylän Pyhäjärvi; Vanajaveden-Pyhäjärven reitti; Kulovesi, Rautavesi and Liekovesi; Simojoki) was pH greater than 7.5 in at least one of the samples. In each of the designations G- and I-limits for NH_3 were respected.

C. Measurement of HOCL
Total residual chlorine, parameter 12, was analysed from all designations. However, the limit of detection (LOD) of the adopted SFS-standards, which are based on EN-ISO 7393-1 and EN-ISO 7393-2 standards, are 0.03 mg / l HOCL. Since the detection limits of the adopted SFS-standards are significantly higher than the 0.005 mg/l I-limit for HOCL set in the directive and results below LOD are considered unreliable, total residual chlorine results are excluded from this report.

D. Water hardness
Since surface water hardness is not currently monitored in Finland, water hardness was estimated for all designations from regional means given in Laaksonen (1970). The mean water hardness was calculated from $CaCO_3$ mg / l in sampling sites in which $CaCO_3$ mg / l had been measured in years 2000-2002. Compliance of total zinc and dissolved copper, parameters 13 and 14 respectively, were assessed accordingly.

E. Phenolic compounds and petroleum hydrocarbons
Detection of phenolic compounds and petroleum hydrocarbons, parameters 8 and 9 respectively, were carried out by visual and olfactory observations in the field. In case a film composed of hydrocarbons or phenolic compounds was observed on water surface or a scent was noticed, a further examination by taste would be made. There were no reports of observations of film or scent of hydrocarbons or phenolic compounds in any of the sampling sites.

Compliance

Compliance of each designation was determined on the basis of mandatory I-limits of Directive 78/659/EEC. In designations with more than one sampling site, compliance was determined according to the sampling site with most inferior values. All sampling sites of the designation are given in appendix 3. Temperature was measured at every sampling event, but because there are no

thermal discharges, the temperature records are not reported. Derogations from the limit values were decided separately for each designation based on natural circumstances or geographical conditions, such as regular floods and specific soil composition in the catchment area, affecting the water of the designation in question. The reasons for derogations and non-compliance are given in appendix 1 by designation.

Appendices
Appendix 1. Derogations and reasons for non-compliance of designations
Appendix 2. Map of designations for 78/659/EEC
Appendix 3. Map information of sampling sites for 78/659/EEC

References

Fresenius, W., Quentin, K. E. and Schneider, W. (Eds.) 1988. Water analysis : a practical guide to physico-chemical, chemical and microbiological water examination and quality assurance.
Laaksonen, R. 1970. Water quality in the water systems. A study based on observations carried out by the water pollution control authority 1962-1968.
Woker H. 1948. *Int. Verh. Limnol.* 10:575.

SECTION 1
National summary

1. Name of Member State	Finland	
2. Reporting years	2000-2001	
	Salmonid	Cyprinid
3 a) Total number of designations	19	5
b) Total length of river designated (km)	1959.3	177.2
c) Total area of lakes designated (km^2)	2744.1	431.1
4. a) No of designations complying	19	5
b) Total length of river complying (km)	1959.3	177.2
c) Total area of lakes complying (km^2)	2744.1	431.1

5. a) Has Directive been transposed into Member State's national law? Yes

b) Relevant legislation:
Water Act 264/61, 1:21 and Council of State Decision 1172 (December 16th 1999).

6. a) Have limit values been set by Member State? Yes
b) Fully in accordance with Directive 78/659/EEC

SECTION 2
Geographical details of any designation

1	Name of Member State	Finland
2	Designation No	1
3	Region	North Karelian Environment Centre
4	b) Name of lake	lake Pielinen; hydrological area nro 04.411
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Area of lake	565.2 km^2
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	2
3	Region	North Karelian Environment Centre
4	a) Name of watercourse	river Pielisjoki; hydrological area nro 04.311, 04.312, 04.341, 04.342
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Length of river	47.7 km
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	3
3	Region	North Karelian Environment Centre
4	b) Name of lake	lake Pyhäselkä; hydrological area nro 04.321
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Area of lake	254.3 km^2
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	4
3	Region	North Savo Environment Centre
4	b) Name of lake	lake Kallavesi (southern parts); hydrological area nro 04.272
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Area of lake	222.3 km^2
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	5
3	Region	South Savo Environment Centre
4	b) Name of lake	lake Haukivesi; hydrological area nro 04.211
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Area of lake	92.5 km^2
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	6
3	Region	Southeast Finland Environment Centre
4	b) Name of lake	lake Saimaa (southern parts); hydrological area nro 04.112, 04.111
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Area of lake	466.9 km^2
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	7
3	Region	Central Finland Environment Centre
4	b) Name of lake	lake Päijänne (northern and central parts); hydrological area nro 14.221, 14.231
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Area of lake	396.7 km^2
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	8
3	Region	Southeast Finland Environment Centre
4	b) Name of watercourse	river Kymijoki; hydrological area nro 14.111, 14.112, 14.113, 14.114, 14.115
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Length of river	121.7 km
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	9
3	Region	Uusimaa Environmet Centre
4	b) Name of watercourse	river Vantaanjoki; hydrological area nro 21.00
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Length of river	226.7 km
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	10
3	Region	Uusimaa Environment Centre
4	a) Name of watercourse	river Ingarskilanjoki; hydrological area nro 81.064
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Length of river	13.9 km
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	11
3	Region	Uusimaa Environment Centre
4	b) Name of lake	lake Lohjanjärvi; hydrological area nro 23.021
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Area of lake	83.5 km^2
8	Water type	Cyprinid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	12
3	Region	Southwest Finland Environment Centre
4	b) Name of lake	lake Säkylän Pyhäjärvi; hydrological area nro 34.031
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Area of lake	150.2 km^2
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	13
3	Region	Pirkanmaa Environment Centre

4	a) Name of watercourse	watercourse lake Vanajavesi – lake Pyhäjärvi; hydrological area nro 35.211, 35.221, 35.222, 35.231
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Area of lake	276.8 km^2
	Length of river	12.9 km
8	Water type	Cyprinid
9	Date of designation	December 16th 1999
1	Name of Member State	Finland
2	Designation No	14
3	Region	Pirkanmaa Environment Centre
4	b) Name of lake	lake Näsijärvi; hydrological area nro 35.311, 35.331, 35.332
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Area of lake	371.3 km^2
8	Water type	Salmonid
9	Date of designation	December 16th 1999
1	Name of Member State	Finland
2	Designation No	15
3	Region	Pirkanmaa Environment Centre
4	a) Name of watercourse	watercourse Siuro; hydrological area nro 35.511
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Area of lake	17.9 km^2
	Length of river	4.1 km
8	Water type	Cyprinid
9	Date of designation	December 16th 1999
1	Name of Member State	Finland
2	Designation No	16
3	Region	Pirkanmaa Environment Centre
4	b) Name of lake	lake Kulovesi, Rautavesi and Liekovesi; hydrological area nro 35.132, 35.131
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Area of lake	64.6 km^2
8	Water type	Cyprinid
9	Date of designation	December 16th 1999
1	Name of Member State	Finland
2	Designation No	17
3	Region	Southwest Finland Environment Centre

4	a) Name of watercourse	river Kokemäenjoki; hydrological area nro 35.111, 35.112, 35.121, 35.122, 35.123
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Length of river	160.2 km
8	Water type	Cyprinid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	18
3	Region	West Finland Environment Centre
4	a) Name of watercourse	river Isojoki; hydrological area 37.00
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Length of river	106.4 km
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	19
3	Region	West Finland Environment Centre
4	b) Name of lake	lake Lappajärvi; hydrological area nro 47.031
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Area of lake	149.6 km^2
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	20
3	Region	West Finland Environment Centre
4	a) Name of watercourse	river Lestijoki; hydrological area nro 51.01, 51.02, 51.03, 51.06, 51.07, 51.08, 51.09
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Length of river	95.3 km
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	21
3	Region	North Ostrobothnia Environment Centre

4	a) Name of watercourse	river Siikajoki; hydrological area nro 57.01, 57.021, 57.022, 57.024, 57.025, 57.026, 57.027, 57.028, 57.029, 57.07, 57.08, 57.09
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Length of river	589.6 km
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	22
3	Region	Kainuu Environment Centre
4	b) Name of lake	lake Oulujärvi (southern parts); hydrological area nro 59.331
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Area of lake	74.1 km^2
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	23
3	Region	North Ostrobothnia Environment Centre
4	a) Name of watercourse	river Kiiminkijoki
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Length of river	475.8 km
8	Water type	Salmonid
9	Date of designation	December 16th 1999

1	Name of Member State	Finland
2	Designation No	24
3	Region	Lapland Environment Centre
4	a) Name of watercourse	river Simojoki
5	Geographical location information	Appendix 2
6	Extent of designation	Appendix 2
7	Length of river	280.5 km
8	Water type	Salmonid
9	Date of designation	December 16th 1999

SECTION 3
Compliance details for designations

1. Name of Member State	Finland
2. Designation	No: 1, lake Pielinen
3. Monitoring years	2000-2001
4. Compliance:	Yes

5.
Sampling site No: 1, Törökari
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	21	80.9 %	80.9 % $_{(a)}$ / 100 % $_{(b)}$	Yes	No
3. pH**	21	95.2 %	-	No	Yes
4. SS	6	-	Yes	Yes	No
5. BOD_7	3	-	100 %	Yes	No
7. NO_2	3	-	100 %	Yes	No
11. NH_4N	16	100 %	100 %	Yes	No
13. Zn	10	100 %	-	Yes	No
14. Cu	3	-	100 %	Yes	No

* G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 5.7– 6.7; 1 sample pH < 6.

Parameter 6. Total phosphorus, mg / l.

	N	Mean 00	Mean 01
TOTP	8	0.0092	0.0097

Reasons for non-compliance: See appendix 1.
Reasons for derogations: See appendix 1.

1. Name of Member State: Finland
2. Designation: No: 2, river Pielisjoki
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 3
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	20	75.0 %	75.0 % $_{(a)}$ / 95.0 % $_{(b)}$	I	No
3. pH**	20	100 %	-	Yes	No
4. SS	15	-	Yes	Yes	No
5. BOD_7	7	-	100 %	Yes	No
7. NO_2	8	-	100 %	Yes	No
11. NH_4N	17	100 %	100%	Yes	No
13. Zn	13	100 %	-	Yes	No
14. Cu	7	-	100 %	Yes	No

* G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 6.3 – 6.8

Parameter 6. Total phosphorus, mg / l.

	N	Mean 00	Mean 01
TOTP	4	0.0093	0.0093

1. Name of Member State: Finland
2. Designation: No: 3, lake Pyhäselkä
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 4
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	21	71.4 %	71.4 % $_{(a)}$ / 100 % $_{(b)}$	Yes	No
3. pH**	20	100 %	-	Yes	No
4. SS	5	-	Yes	Yes	No
5. BOD_7	3	-	100 %	Yes	No
7. NO_2	3	-	100 %	Yes	No
11. NH_4N	18	100 %	100 %	Yes	No
13. Zn	17	100 %	-	Yes	No
14. Cu	3	-	100 %	Yes	No

*G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 6.1 – 7.1

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
TOTP	5	0.010	0.009

1. Name of Member State — Finland
2. Designation — No: 4, lake Kallavesi (southern parts)
3. Monitoring years — 2000-2001
4. Compliance: — Yes

5.
Sampling site No: 5, Kallavesi 350
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	33	78.8 %	78.8 % $_{(a)}$ / 100 % $_{(b)}$	Yes	No
3. pH**	26	100 %	-	Yes	No
4. SS	8	-	Yes	Yes	No
5. BOD_7	4	-	100 %	Yes	No
7. NO_2	4	-	100 %	Yes	No
11. NH_4N	22	100 %	77.3 %	I	No
13. Zn	23	100 %	-	Yes	No
14. Cu	4	-	100 %	Yes	No

*G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 6.6 – 7.5

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
TOTP	9	0.020	0.0195

1. Name of Member State	Finland
2. Designation	No: 5, lake Haukivesi
3. Monitoring years	2000-2001
4. Compliance:	Yes

5.
Sampling site No: 7, Siitinselkä
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	25	76.0 %	76.0 % (a) / 100 % (b)	Yes	No
3. pH**	26	100 %	-	Yes	No
4. SS	8	-	Yes	Yes	No
5. BOD_7	4	-	100 %	Yes	No
7. NO_2	3	-	66.7 %	No	No
11. NH_4N	18	100 %	83.3 %	I	No
13. Zn	18	100 %	-	Yes	No
14. Cu	4	-	100 %	Yes	No

*G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 6.5 – 7.3

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
TOTP	12	0.0182	0.0187

1. Name of Member State — Finland
2. Designation — No: 6, lake Saimaa (southern parts)
3. Monitoring years — 2000-2001
4. Compliance: — Yes

5.
Sampling site No: 10, Haukiselkä
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	19	89.5 %	89.5 % (a) / 100 % (b)	Yes	No
3. pH**	18	100 %	-	Yes	No
4. SS	13	-	Yes	Yes	No
5. BOD_7	15	-	100 %	Yes	No
7. NO_2	15	-	100 %	Yes	No
11. NH_4N	16	100 %	93.8 %	I	No
13. Zn	17	100 %	-	Yes	No
14. Cu	4	-	100 %	Yes	No

*G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 6.8 – 7.5

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
TOTP	19	0.0112	0.0098

1. Name of Member State: Finland
2. Designation: No: 7, lake Päijänne (northern and central parts)
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 15, Päijänne 657
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	25	80.0 %	80.0 % (a) / 100 % (b)	Yes	No
3. pH**	27	100 %	-	Yes	No
4. SS	5	-	Yes	Yes	No
5. BOD_7	4	-	100 %	Yes	No
7. NO_2	15	-	73.3 %	No	No
11. NH_4N	23	100 %	95.7 %	I	No
13. Zn	23	100 %	-	Yes	No
14. Cu	4	-	100 %	Yes	No

*G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 6.6 – 7.5

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
TOTP	27	0.0172	0.0211

1. Name of Member State: Finland
2. Designation: No: 8, river Kymijoki
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 15
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	27	74.1 %	74.1 % $_{(a)}$ / 100 % $_{(b)}$	Yes	No
3. pH**	27	100 %	-	Yes	No
4. SS	46	-	Yes	Yes	No
5. BOD_7	27	-	96.3 %	Yes	No
7. NO_2***	1	-	100 %	Yes	No
11. NH_4N	27	100 %	74.1 %	I	No
13. Zn	27	100 %	-	Yes	No
14. Cu	27	-	100 %	Yes	No

*G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 6.8 – 7.3
***1 sample, September 2nd 2002: 0.0066 mg / l.

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
TOTP	27	0.0198	0.0136

1. Name of Member State Finland
2. Designation No: 9, river Vantaanjoki
3. Monitoring years 2000-2001
4. Compliance: Yes

5.
Sampling site No: 16
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	24	83.3 %	83.3 % (a) / 100 % (b)	Yes	No
3. pH**	48	100 %	-	Yes	No
4. SS	72	-	No	No	Yes
5. BOD_7	25	-	76.0 %	No	No
7. NO_2	19	-	5.3 %	No	No
11. NH_4N	41	100 %	36.6 %	I	No
13. Zn	49	100 %	-	Yes	No
14. Cu	11	-	100 %	Yes	No

* G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 6.9 – 7.8

Parameter 6. Total phosphorus, mg / l.

	N	Mean 00	Mean 01
$TOTP_{1-2)}$	4	0.0678	0.0674

1) Both yearly means for 2000 and 2001 are over the 0.05 mg / l limit given for salmonid rivers.
2) Range for TOTP in year 2000 was 0.005 – 0.440 mg / l and 0.011 – 0.282 mg / l in year 2001.

Reasons for derogations: See appendix 1.

1. Name of Member State: Finland
2. Designation: No: 10, river Ingarskilanjoki
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 17
Sampling depth: ≤ 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	27	77.8 %	77.8 % (a) / 92.6 % (b)	I	No
3. pH**	27	100 %	-	Yes	No
4. SS	25	-	No	No	Yes
5. BOD_7	12	-	91.7 %	No	No
7. NO_2	12	-	58.3 %	No	No
11. NH_4N	14	100 %	57.1 %	I	No
13. Zn	36	100 %	-	Yes	No
14. Cu	12	-	100 %	Yes	No

* G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 6.3 – 7.5

Parameter 6. Total phosphorus, mg / l.

	N	Mean 00	2001
TOTP	26	0.0646	0.0793

1) Both yearly means 2000 and 2001 are over the 0.05 mg / l limit given for salmonid rivers.
Reasons for non-compliance: See appendix 1.
Reasons for derogations: See appendix 1.

1. Name of Member State	Finland
2. Designation	No: 11, lake Lohjanjärvi
3. Monitoring years	2000-2001
4. Compliance:	Yes

5.
Sampling site No: 19, Brukstäsket
Sampling depth: ≥ 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	48	100 %	95.8 % (a) / 100 % (b)	Yes	No
3. pH**	48	100 %	-	Yes	No
4. SS	24	-	Yes	Yes	No
5. BOD_7	11	-	100 %	Yes	No
7. NO_2	12	-	100 %	Yes	No
11. NH_4N	12	100 %	100 %	Yes	No
13. Zn	11	100 %	-	Yes	No
14. Cu	11	-	100 %	Yes	No

* G-values (a): 50 % ≥ 8 mg / l ; (b):100 % ≥ 5 mg / l.
**pH range 7.0 – 8.0

Parameter 6. Total phosphorus, mg / l.

	N	Mean 00	Mean 01
TOTP	36	0.0233	0.0241

1. Name of Member State: Finland
2. Designation: No: 12, lake Säkylän Pyhäjärvi
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 20
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	39	92.3 %	92.3 % (a) / 100 % (b)	Yes	No
3. pH**	39	100 %	-	Yes	No
4. SS	27	-	Yes	Yes	No
5. BOD_7	3	-	100 %	Yes	No
7. NO_2	3	-	100 %	Yes	No
11. NH_4N	37	100 %	91.9 %	I	No
13. Zn	13	100 %	-	Yes	No
14. Cu	1	-	100 %	Yes	No

*G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 6.9 – 8.0

Parameter 12. Total residual chlorine, HOCL (µg / l).

	N	Mean	SE	Range	Median	Mode
HOCl	13	33.46	5.3	15-60	40	50

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
TOTP	29	0.0169	0.0252

1. Name of Member State — Finland
2. Designation — No: 13, watercourse lake Vanajavesi- Pyhäjärvi
3. Monitoring years — 2000-2001
4. Compliance: — Yes

5.
Sampling site No: 21, Vanajanse 98
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	27	100 %	100 % $_{(a)}$ / 100 % $_{(b)}$	Yes	No
3. pH**	27	100 %	-	Yes	No
4. SS	10	-	Yes	Yes	No
5. BOD_7	3	-	100 %	Yes	No
7. NO_2	7	-	85.7 %	No	No
11. NH_4N	23	100 %	100 %	Yes	No
13. Zn	12	100 %	-	Yes	No
14. Cu	7	-	100 %	Yes	No

*G-values (a): 50 % ≥ 8 mg / l ; (b):100 % ≥ 5 mg / l.
**pH range 7.0 – 8.2

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
TOTP	16	0.0328	0.0317

1. Name of Member State: Finland
2. Designation: No: 14, lake Näsijärvi
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 24, Vilppulankoski
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	33	63.6 %	63.6 % $_{(a)}$ / 100 % $_{(b)}$	Yes	No
3. pH**	31	100 %	-	Yes	No
4. SS	21	-	Yes	Yes	No
5. BOD_7	8	-	100 %	Yes	No
7. NO_2	11	-	100 %	Yes	No
11. NH_4N	23	100 %	87.0 %	I	No
13. Zn	22	100 %	-	Yes	No
14. Cu	11	-	100 %	Yes	No

*G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 6.3 – 6.9

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
TOTP	24	0.0218	0.0202

1. Name of Member State: Finland
2. Designation: No: 15, watercourse Siuro
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 27, Siuronkoski
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	30	100 %	90.0 % (a) / 100 % (b)	Yes	No
3. pH**	30	100 %	-	Yes	No
4. SS	13	-	Yes	Yes	No
5. BOD_7***	5	-	100 %	Yes	No
7. NO_2	7	-	100 %	Yes	No
11. NH_4N	9	100 %	100 %	Yes	No
13. Zn	14	100 %	-	Yes	No
14. Cu	7	-	100 %	Yes	No

*G-values (a): 50 % ≥ 8 mg / l ; (b):100 % ≥ 5 mg / l.
**pH range 6.5 – 7.1
***All samples are from year 2000.

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
TOTP	23	0.0250	0.0271

1. Name of Member State: Finland
2. Designation: No: 16, lake Kulovesi, Rautavesi and Liekovesi
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 28
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	33	100 %	100.0 % (a) / 100 % (b)	Yes	No
3. pH**	34	100 %	-	Yes	No
4. SS	23	-	Yes	Yes	No
5. BOD_7	10	-	100 %	Yes	No
7. NO_2	6	-	100 %	Yes	No
11. NH_4N	23	100 %	100 %	Yes	No
13. Zn	24	100 %	-	Yes	No
14. Cu	11	-	100 %	Yes	No

*G-values (a): 50 % ≥ 8 mg / l ; (b):100 % ≥ 5 mg / l.
**pH range 6.7 – 7.6

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
TOTP	24	0.0228	0.0244

1. Name of Member State: Finland
2. Designation: No: 17, river Kokemäenjoki
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 29
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	33	100 %	87.9 % (a) / 100 % (b)	Yes	No
3. pH**	34	100 %	-	Yes	No
4. SS	35	-	No 1)	No 1)	Yes
5. BOD_7	25	-	100 %	Yes	No
7. NO_2	11	-	100 %	Yes	No
11. NH_4N	32	100 %	100 %	Yes	No
13. Zn	25	100 %	-	Yes	No
14. Cu	25	-	100 %	Yes	No

*G-values (a): 50 % ≥ 8 mg / l ; (b):100 % ≥ 5 mg / l.
**pH range 6.7 – 7.2
1) Yearly mean 2000 was 25.6 mg / l, over the G- limit. Yearly mean 2001 was 21.0 mg / l, within the G-limit.

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
TOTP	32	0.0584	0.0514

Reasons for non-compliance: See appendix 1.
Reasons for derogations: See appendix 1.

1. Name of Member State: Finland
2. Designation: No: 18, river Isojoki
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 30
Sampling depth: ≤ 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	23	82.6 %	82.6 % (a) / 100 % (b)	Yes	No
3. pH**	23	73.9 %	-	No	Yes
4. SS	25	-	Yes	Yes	No
5. BOD_7	2	-	100 %	Yes	No
7. NO_2	5	-	80.0 %	No	No
11. NH_4N	18	100 %	11.1 %	I	No
13. Zn	29	100 %	-	Yes	No
14. Cu	5	-	100 %	Yes	No

*G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 5.3 – 6.9

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
$TOTP_{1)}$	21	0.0709	0.0692

1) Both yearly means are over the 0.05 mg / l limit given for salmonid rivers.
Reasons for non-compliance: See appendix 1.
Reasons for derogations: See appendix 1.

1. Name of Member State: Finland
2. Designation: No: 19, lake Lappajärvi
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 31
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	26	80.8 %	80.8 % (a) / 100 % (b)	Yes	No
3. pH**	24	100 %	-	Yes	No
4. SS	5	-	Yes	Yes	No
5. BOD_7	3	-	100 %	Yes	No
7. NO_2	4	-	100 %	Yes	No
11. NH_4N	22	100 %	90.1 %	I	No
13. Zn	21	100 %	-	Yes	No
14. Cu	3	-	100 %	Yes	No

*G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 6.5 – 7.3

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
TOTP	7	0.0230	0.0247

1. Name of Member State: Finland
2. Designation: No: 20, river Lestijoki
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 32
Sampling depth: 0.5 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	35	91.4 %	91.4 % (a) / 100 % (b)	Yes	No
3. pH**	36	75.0 %	-	No	Yes
4. SS	40	-	Yes	Yes	No
5. BOD_7***	2	-	50.0 %	No	No
7. NO_2	8	-	62.5 %	No	No
11. NH_4N	32	100 %	40.6 %	I	No
13. Zn	30	100 %	-	Yes	No
14. Cu****	6	-	100 %	Yes	No

*G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 5.3 – 7.0
*** All samples are from year 2002.
**** All samples are from year 2001.

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
$TOTP_{2)}$	16	0.0705	0.0681

2) Both yearly means are over the 0.05 mg / l limit given for salmonid rivers.

Reasons for non-compliance: See appendix 1.
Reasons for derogations: See appendix 1.

1. Name of Member State: Finland
2. Designation: No: 21, river Siikajoki
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 33
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	43	72.1 %	72.1 % (a) / 100 % (b)	Yes	No
3. pH**	40	77.5 %	-	No	Yes
4. SS	40	-	No 1)	No 1)	Yes
5. BOD_7	22	-	95.5 %	No	No
7. NO_2	9	-	55.6 %	No	No
11. NH_4N	44	100 %	31.8 %	I	No
13. Zn	30	100 %	-	Yes	No
14. Cu	23	-	100 %	Yes	No

*G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 5.5 – 6.9
1) Yearly mean 2000 was 27.1 mg / l, over the G- limit. Yearly mean 2001 was 14.1 mg / l, within the G-limit.

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
$TOTP_{2)}$	40	0.0719	0.0748

2) Both yearly means are over the 0.05 mg / l limit given for salmonid rivers.

Reasons for non-compliance: See appendix 1.
Reasons for derogations: See appendix 1.

1. Name of Member State: Finland
2. Designation: No: 22, lake Oulujärvi
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 34
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	26	84.6 %	84.6 % (a) / 100 % (b)	Yes	No
3. pH**	26	100 %	-	Yes	No
4. SS	7	-	Yes	Yes	No
5. BOD_7	4	-	100 %	Yes	No
7. NO_2	3	-	100 %	Yes	No
11. NH_4N	26	100 %	96.2 %	Yes	No
13. Zn	12	100 %	-	Yes	No
14. Cu	2	-	100 %	Yes	No

*G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 6.0 – 7.1

Parameter 6. Total phosphorus (mg / l).

	N	Mean 00	Mean 01
TOTP	9	0.014	0.014

1. Name of Member State: Finland
2. Designation: No: 23, river Kiiminkijoki
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 35
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	37	78.4 %	78.4 % (a) / 100 % (b)	Yes	No
3. pH**	35	97.3 %	-	Yes	No
4. SS	35	-	Yes	Yes	No
5. BOD_7	20	-	100 %	Yes	No
7. NO_2	9	-	88.9 %	No	No
11. NH_4N	37	100 %	91.9 %	I	No
13. Zn	28	100 %	-	Yes	No
14. Cu	11	-	100 %	Yes	No

* G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 5.6 – 7.5

Parameter 6. Total phosphorus, mg / l.

	N	Mean 00	Mean 01
TOTP	4	0.0357	0.0308

1. Name of Member State: Finland
2. Designation: No: 24, river Simojoki
3. Monitoring years: 2000-2001
4. Compliance: Yes

5.
Sampling site No: 36
Sampling depth: 1 m

Parameter	N	Within I	Within G	Compliance	Derogation
2. O_2D*	31	96.8 %	96.8 % $_{(a)}$ / 100 % $_{(b)}$	Yes	No
3. pH**	33	100 %	-	Yes	No
4. SS	32	-	Yes	Yes	No
5. BOD_7	22	-	100 %	Yes	No
7. NO_2***	9	-	88.9 %	No	No
11. NH_4N	33	100 %	72.7 %	I	No
13. Zn	33	100 %	-	Yes	No
14. Cu	33	-	97.0 %	Yes	No

* G-values (a): 50 % ≥ 9 mg / l ; (b):100 % ≥ 7 mg / l.
**pH range 6.1 – 7.6
*** All samples are from year 2001.

Parameter 6. Total phosphorus, mg / l.

	N	Mean 00	Mean 01
TOTP	4	0.0217	0.0184

Appendix 1

Derogations

In designations 9, 10 (Vantaanjoki, Ingaskilanjoki) the limit values of suspended solids were exceeded in years 2000 and 2001. In designations 17 and 21 (Kokemäenjoki and Siikajoki) the limit values were exceeded in the year 2000, but not in 2001. Elevated concentrations of suspended solids in these four designations result from specific geographical conditions and natural circumstances in a combination of high percentage of clayey soil in the catchment areas and regular high flood events in the watercourses. The natural load of suspended solids is enhanced by human activities, especially agriculture.

In designations 18, 20 and 21 (Isojoki, Lestijoki and Siikajoki) the mandatory limits for pH are not respected. Low pH values are caused by fine-grained clay/silt soils rich in sulphides in the catchment areas geographically typical for the Ostrobothnia region. The load from these soils is natural and continuous, but it is enhanced by human activities, especially large-scale drainage operations.

In designation 1 (Pielinen, Törökari) low pH values are caused by humic substances originating from abundant peatlands in the catchment area.

Measures to reduce pollution load

The competent authorities, the regional environmental centres, have not recognized adequate reasons for establishing special programmes of measures for various individual designations separately. Obligations to reduce pollution load are included in environmental permits, which are checked and renewed regularly. The Decision of Principle on the Water Protection Targets by the Finnish Council of State and regional plans for water use, management and protection are taken into consideration when setting the obligations.

Measures to mitigate the effects of land use patterns are planned and implemented regionally, including the designated areas. In order to reduce the loads of suspended solids and nutrients from agriculture, farmers have to establish buffer zones on fields according to the NO3-directive. Detailed plans for buffer zones have been made e.g. for the designation 18 (Isojoki). Wastewater treatment methods and management systems for rural areas have been developed in a project under the Finnish Environmental Institute. European Union Life Projects are important examples of ongoing work. The following Life Projects concern the designated fish water areas:

Integrated river catchment management – a network for optimized water rehabilitation and protection of aquatic ecosystems in Karjaanjoki area (designation 11. Lohjanjärvi)

Intergration of environmental priorities with agricultural policies in order to minimise the nutrient load on inland waters and the Baltic Sea (designations 13, 14, 15, 16, 17 in the catchment area of the river Kokemäenjoki)

A new intergrated management system for the restoration of eutrophied lakes (designation 19, Lappajärvi)

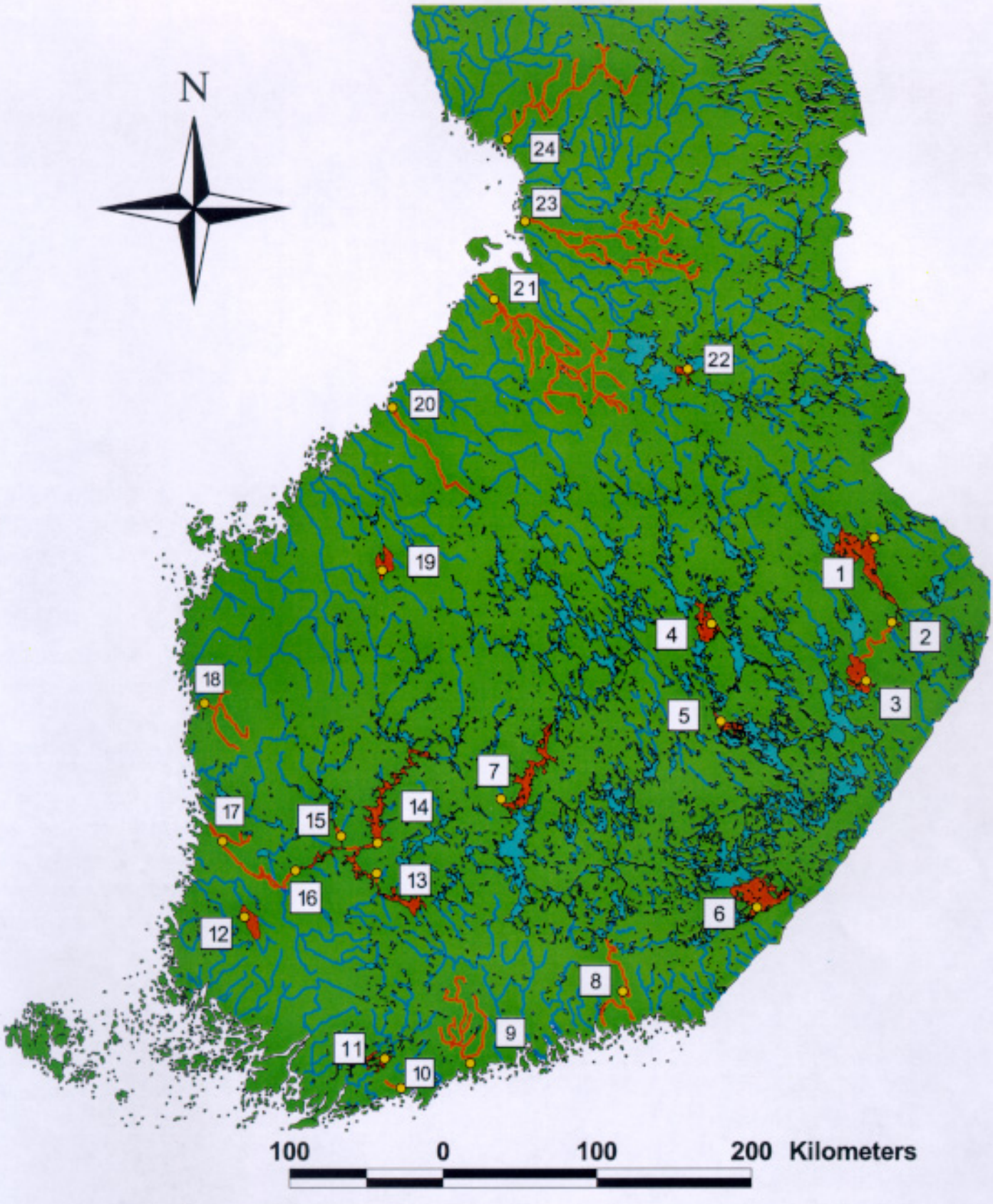
Environmental protection in agriculture and Local Agenda 21 applied to the River Vantaa area (designation 9, Vantaanjoki)

A cost-effective decision support system for management of boreal river basins (designation 24, Simojoki)

Lake Pyhäjärvi – New methods for water protection and land-use planning (designation 12, Säkylän Pyhäjärvi)

LIFE Lestijoki – managing acid sulphate soils (designation 20, Lestijoki)

Appendix 2. Map of designations for Directive 78/659/EEC



SYKE / Ville Hokka 23.10.2002

Appendix 3. Map information of all sampling sites for Directive 78/659/EEC.

Designation No	Designation	Sampling site no	Sampling site name	Hydrological area no	North co-ordinate	East co-ordinate
1	Pielinen	1	PIELINEN 62 TÖRÖKARI	04.411	7025631	3649386
1	Pielinen	2	PIELINEN 7 KALKKUSAARI	04.411	7023617	3629496
2	Pielisjoki	3	PIELISJOKI 1 KALTIMO	04.34	6970464	3660985
3	Pyhäselkä	4	PYHÄSELKÄ 5 KOKONLUOTO	04.321	6932118	3644516
4	Kallavesi	5	KALLAVESI 350	04.272	6978440	3538060
4	Kallavesi	6	KALLAVESI 25	04.272	6969500	3544340
5	Haukivesi	7	SIITINSELKÄ 134	04.211	6905800	3550400
5	Haukivesi	8	HEPOSELKÄ 35	04.211	6895750	3568200
6	Saimaa (southern)	9	SAIMAA ILKONSELKÄ 021:46	04.112	6795000	3563600
6	Saimaa (southern)	10	SAIMAA HAUKISELKÄ 017	04.112	6784280	3574260
6	Saimaa (southern)	11	VUOKSI MANSIKK 057:2800	04.111	6788849	3595886
7	Päijänne (northern)	12	PÄIJÄNNE 69	14.231	6897890	3437260
7	Päijänne (northern)	13	PÄIJÄNNE 71	14.221	6867040	3423540
7	Päijänne (central)	14	PÄIJÄNNE 657	14.221	6854728	3408118
8	Kymijoki	15	KYMIJ HURUKSELA 033:5600	14.111	6729450	3487450
9	Vantaanjoki	16	VANTAA 4,2 (6040)	21.011	6682607	3388155
10	Ingarskilanjoki	17	INGARSKILAÅN 0,4	81.064	6666449	3342966
11	Lohjanjärvi	18	LOHJANJ. ISOSELKÄ 91	23.021	6685647	3332333
11	Lohjanjärvi	19	BRUKSTRÄSKET, LUUSUA 2	23.021	6676366	3324591
12	Säkylän Pyhäjärvi	20	PYHÄJÄRVI 93 VA93	34.031	6777956	3241100
13	Vanajavesi-Pyhäjärvi	21	VANAJANSE 98	35.231	6788339	3351336
13	Vanajavesi-Pyhäjärvi	22	VANAJA 42 KÄRJENNIEMI	35.222	6797457	3337676
13	Vanajavesi-Pyhäjärvi	23	KONHONVUOLLE 7300	35.222	6793100	3330736
14	Näsijärvi	24	VILPPULANKOSKI 7700	35.332	6881176	3369445
14	Näsijärvi	25	TAMMERKOSKI 8000	35.311	6826042	3327555
13	Vanajavesi-Pyhäjärvi	26	NOKIANKOSKI 8200 ALAVIRTA	35.211	6822439	3310299
15	Siuron reitti	27	SIURONKOSKI 8400	35.511	6824238	3304769
16	Kulovesi, Rautavesi ja Liekovesi	28	LIEKOVESI TYRVÄÄN VL 1	35.131	6809339	3277912
17	Kokemäenjoki	29	KOJO 35 PORI-TRE	35.111	6827211	3226832
18	Isojoki	30	MYLLYKANAVA VP 9100	37.011	6917348	3215140
19	Lappajärvi	31	LAPPAJÄRVI ETELÄ P 125	47.031	7004485	3330418
20	Lestijoki	32	LESTIJOKI 10800 8-TIEN S	51.011	7111245	3336941
21	Siikajoki	33	SIIKAJOKI 8-TIEN S 11600	57.012	7181570	3402937
22	Oulujärvi	34	PALTASELKÄ 138	59.331	7135920	3528820
23	Kiiminkijoki	35	KIIMINKIJ 13010 4-TIEN S	60.011	7232511	3423166
24	Simojoki	36	SIMOJOKI AS. 13500	64.011	7286613	3411648

2.2.3 OUTLINE QUESTIONNAIRE ON DIRECTIVE 78/176/EEC (TiO2)

Since 1986, which industrial establishments producing titanium dioxide are still authorized pursuant to articles 4, 5 and 6 of the Directive:

The implementation of the directive 78/176/EEC at the only titanium dioxide plant in Finland at Kemira Pigments Oy Pori has been as follows:

1.1. To dump waste at sea (strong acid waste)?

Dumping of strong acid waste at sea has not been done. Dumping at sea is prohibited by the Water Act.

1.2. To discharge or dump waste into surface waters (weak acid waste)?

Length of the period authorized

Permit for wastewater discharge

Validity period	Issued by
1985 -1991	Water Court of Western Finland, Supreme Water Court
1991 - 1997	Water Court of Western Finland
1997 - 2005	Water Court of Western Finland, Supreme Water Court

Trend of the annual quantities of waste discharged, including the quantities of heavy metals.

See annex 1: Wastewater load 1999 - 2001

Type and concentrations of the substances contained in the waste water.

See annex 1: Wastewater load 1999 - 2001

Characteristics and location of discharges.

Wastewater is pumped via three pipelines to the Gulf of Bothnia to the distance of 4,5 kilometres from the shore and to the depth of 17 meters.

Effects on the marine environment of the different components of waste, including an assessment of surveillance methods.

Lowered pH values on the bottom layer of the sea have been limited to the immediate vicinity of the discharge point. Iron has earlier caused fouling of fishing gears and deterioration of benthic conditions.

These impacts have been reduced as the discharges of wastewater have become smaller by years. Since the start up of the new wastewater treatment plant in 1997 the pollution load has significantly decreased further (see attachment 1) and the impacts on the marine environment have further diminished.

1.3. To carry out storage, tipping or injection operations?

Geographical location

Disposal areas are located in the immediate neighbourhood of the plant.

Characteristics of the methods of tipping, storage and injection, including an assessment of surveillance

Ferrous sulphate surplus (ferrous sulphate is mainly marketed) and other solid wastes are disposed on controlled disposal areas. The landfills have plastic and bentonite subsurface walls for groundwater protection. The quality of the waste is controlled by comprehensive inspection procedures.

2. Since 1986 what measures have been taken to reduce air pollution caused by sulphur dioxide?

Oil fired boilers were replaced by a coal fired Pyroflow powerplant equipped with SO2- removal in 1987.
Oil was replaced by propane in calciners in 1987.
Activated carbon adsorption to eliminate SO2 from calciners was started in 1992.

3. What monitoring operations have been carried out under article 7?

The plant monitors the effluents and their impacts on the environment with comprehensive monitoring programmes approved by the South West Finland Regional Environment Centre. These monitoring programmes are in harmony with the requirements of article 7.

4. Since 1986 what measures have been taken pursuant to article 8?

The permit conditions have gradually become stricter. There has not been any need for immediate measures according to article 8.

5. What actions have been pursuant to article 3 (reuse and recycling of waste), including any changes since 1986?

- Waste acid concentration (lines I and II) , start up 1985
- Waste acid concentration expansion (line III), start up 1990
- Waste acid concentration expansion (lines IV and V), start up 1992
- Waste water neutralization, start up 1997

6. Give a brief description of the production processes used in the industrial establishments concerned, including the most significant changes since 1986.

Production is based on the sulphate method. Except for the capacity increase and environmental investments no other major changes in the production processes have been made.

Kemira Pigments Oy, Pori

Annex 1

Wastewater load at sea 1999 - 2001 (process, cooling and runoff)

Year	Wastewater volume m^3/a	Fe t/a	H_2SO_4 t/a	Solids t/a	SO_4 t/a	Total TiO_2 t/a	Soluble TiO_2 t/a	Al t/a	Mn t/a	P t/a	Sb t/a	Zn t/a	V t/a	Cr t/a	Pb t/a	Ni t/a	Co t/a	Cu t/a	Cd kg/a	Hg kg/a
1999	64 538 843	203	0	1004	23 715	65	0	50	117	1,9		1,8		0,3		0,6	0,3	0,6	0,001	
2000	64 528 362	205	0	891	23 158	61	0	66	104	2,6	0	3,1	0,3	0,4	0	0,6	0,3	0	0	0,02
2001	60 632 128	201	0	918	23 298	73	0	65	104	2,4	0	1,3	0,09	0,3	0	0,6	0,2	0	0	0

Average quantities

Year	Wastewater volume m^3/a	Fe mg/l	H_2SO_4 mg/l	Solids mg/l	SO_4 mg/l	Total TiO_2 mg/l	Soluble TiO_2 mg/l	Al mg/l	Mn mg/l	P mg/l	Sb mg/l	Zn mg/l	V mg/l	Cr mg/l	Pb mg/l	Ni mg/l	Co mg/l	Cu mg/l	Cd µg/l	Hg µg/l
1999	64 538 843	3,145		15,56	367	1,0071		0,77	1,81	0,03		0,03		0,005		0,01	0	0,01	0	
2000	64 528 362	3,177		13,81	359	0,9453		1,02	1,61	0,04	0	0,05	0	0,006	0	0,01	0	0	0	0
2001	60 632 128	3,315		15,14	384	1,204		1,07	1,72	0,04	0	0,02	0	0,005	0	0,01	0	0	0	0

2.2.4 OUTLINE QUESTIONNAIRE ON DIRECTIVE 79/923/EEC (SHELLFISH WATERS)

On the grounds of natural conditions Finland is exempted for the implementation of Directive 79/923/EEC.

2.2.5 OUTLINE QUESTIONNAIRE FOR DIRECTIVE 80/68/EEC (GROUNDWATERS)

Section 1 - List I substances

1. Provide a list of the legislation currently in force which has been adopted by the Member State to prevent the introduction into groundwater of substances in list I.

Environmental Protection Act 86/2000, 4th Feb 2000, paragraphs 8 and 35, Environmental Protection Decree 169/2000 18th Feb 2000 paragraphs 9, 10, 11 and 13.

Council of State Decision on the protection of the ground waters against pollution caused by certain substances hazardous to environment or public health, 19th May 1994/364.

2. For each year (1999, 2000, 2001) provide the following information:

a) provide a list of the authorizations which have been granted during the reporting period, their geographical location, date of authorization, indicate the main technical precautions observed and specify if the site is included on the inventory of authorizations required by Article 15.

According to the existing legal requirements (see point 1) it is not possible to grant an authorization for discharging List I substances into ground waters.

3. Provide a list of disposal and tipping sites which are currently recorded on the inventory of authorizations required by Article 15.

List I substances are not allowed to be placed in disposal and tipping sites in such a way that discharges of these substances might occur - Waste Act (3rd December 1993/1072) , Waste Decree (22nd December 1993/1390), Council of State Decision on Landfills, 4th September 1997/861.

4. (a) Is there any groundwater into which discharges are permitted in accordance with Article 4(2)?

There is no such body of groundwater because of the total prohibition to discharge List I substances into ground waters.

5. (a) Is any use made of the provisions of Article 4(3)?

No such use has been made.

Section 2 - List II substances

1. Provide a list of the legislation currently in force which has been adopted by the Member State to limit the introduction into groundwater of substances in list II

Environmental Protection Act 86/2000, 4th Feb 2000, paragraphs 8 and 35, Environmental Protection Decree 169/2000 18th Feb 2000 paragraphs 9, 10, 11 and 13.

Council of State Decision on the protection of the ground waters against pollution caused by certain substances hazardous to environment or public health, 19th May 1994/364

2. For each year (1999, 2000, 2001) provide the following information:

a) provide a list of the authorizations for direct discharges of list II substances granted during the reporting period, their geographical location, date of authorization, indicate the main technical precautions observed and specify if the site is included on the inventory of authorizations required by Article 15.

No authorizations have been granted for direct discharges of list II substances.

b) how many applications were made during the reporting period (1999 - 2001) for waste disposal or tipping authorizations for the purposes of disposing material which might lead to an indirect discharge of a list II substances or substances?

During the period 1999 - 2001 the total number of landfill environmental permit applications dealt with was 12 (municipal landfill sites, industrial and private sites). The authorizations have to be in compliance with the requirements of the Council of State Decision 861/1997 on landfills

3. Provide a list of sites where a direct discharge of a list II substance is authorized (other than those listed under 2 b) and which are currently included in the inventory of authorizations required by Article 15. Indicate also the geographical location and date of authorization for each site.

None

4. For each year 1999, 2000 and 2001 provide the following information:

a) how many applications were made during the reporting period for artificial recharges under Article 6?

During the period of 1999 - 2001 there was 1 application for artificial recharge.

b) provide a list of the authorizations granted, their geographical location, date of authorization and indicate what is the source of the water used for the recharge.

In 2001 there were totally 25 authorized recharges of groundwater in operation.

Information on Vuontee (Laukaa, Jyväskylä) artificial recharge:

Location:	6914919, 3449742
Date:	2000
Source:	Kuusvesi

Section 3 - Monitoring requirements

1. Describe the monitoring system which has been adopted in accordance with Article 13.

Since no discharges of list I or list II substances into ground waters are allowed no monitoring system for the purpose of those discharges has been adopted.

2.2.6 A OUTLINE QUESTIONNAIRE FOR DIRECTIVE 75/440/EEC (SURFACE WATER)

1. Article 4 (2) action plans – only A3 waters need to be included in the first reporting period
(a) The geographical location of the water
(b) The parameter(s) to be improved
(c) The quality objectives to be achieved
(d) The programme for improvement including information on the timetable, measures to be taken and planned investment

There were altogether four waterworks using raw water with some parameters classified as A3 at least some time of the year 2001. The use of these waters as raw water for public water supply is possible, because all those high parameter values are due for natural reasons.

1. Raisio-Naantali waterworks (South-Western Finland)
a) Raisionjoki river, drainage basin nr 82.022
b) Colour, iron (both by nature)
c) Colour and iron reduction
d) The Raisio-Naantali waterworks is examining the possibilities for utilizing artificial groundwater jointly with the neighbouring municipalities. The implementation of such plans is possible by 2008. The construction of a connection pipeline from the water distribution network of the City of Turku to the network of Raisio-Naantali waterworks was finished in 2001. In case of a severe drought or quality problems, this connection can supply all the water needed in Raisio-Naantali area. Normally, only a minor part of water demand is supplied using this connection pipeline.

2. Turku waterworks (South-Western Finland)
a) Lower Aurajoki river, drainage basin nr 28.001
b) Colour, iron (both by nature)
c) Colour and iron reduction
d) Natural soil conditions are the main reasons for the high values of colour and iron in the river water. Therefore the possibilities for improving the raw water quality are not realistic and Turku waterworks is examining the possibilities for utilizing artificial groundwater jointly with the neighbouring municipalities (i.e. Raisio-Naantali waterworks). The implementation of such plans is possible by 2008.

3. Vaasa waterworks (Western Finland)
a) The raw water intake is located in the Pilvilampi reservoir (coordinates 699944 / 153828, total area 120 ha, volume 2,9 million m^3), which receives water from the river Kyrönjoki, drainage basin nr 42. In the summer, the river water is pretreated before discharging to the reservoir basin.
b) The water in the Pilvilampi reservoir basin usually meets the quality requirements of class A2. Some samples show higher values (class A3) for iron and colour that are due for natural reasons. There were less problems with low pH than in 1999. In the Kyrönjoki river the values of colour and iron are higher more often, the highest value for colour being 220 mg/l Pt and 2,9 mg/l for iron. Also some low pH values has been measured.
c) Improvement of the above mentioned parameters
d) The Vaasa waterworks has a control programme with frequent sampling from the Pilvilampi reservoir basin. In addition to that, the Vaasa City environmental control laboratory takes six extra samples annually both from Pilvilampi reservoir and river Kyrönjoki. Pretreatment of the river water has been practised. Also a special Kyrönjoki Board has been established and intensive research has been done in order to better understand the special problems of Kyrönjoki river basin.

4. Oulu waterworks (North Ostrobothnia)
a) Lower Oulujoki river, drainage basin 59.111
b) Colour (by nature)
c) Colour reduction
d) Natural soil quality together with spring time high water increase the colour values of Oulujoki river. The Oulujärvi lake and some other upstream lakes are regulated and there are several hydropower plants. Wastewater discharges to the river are minor and will further decrease, when the main sewer line under construction serving the upstream settlements will be finished.

2. Article 4 (3) management plans
(a) The geographical location of the water
(b) The parameter(s) to be improved
(c) The treatment process used or planned to be used
(d) The programme for improvement including information on the timetable, measures to be taken and planned investment

For drinking water purposes, the waterworks in Finland do not use such surface water bodies, that are lower in quality than class A3.

3. Article 8 derogations
For each derogation list the following:
(a) the name and geographical location of the water;
(b) the parameters concerned;
(c) the duration of the derogation, including the date it commenced and ended;
(d) a short description giving the reasons for the derogation.

There were only four waterworks using raw water with some parameters classified as A3 some time of the year 2001. All high parameter values were due to natural reasons and have been taken into account in choosing and optimising the treatment process. Hence, no derogations according to article 8 have been necessary.

4. In addition to the above, Member States should also provide information about the legislation they have adopted to implement the Directive.

The directive 75/440/EEC has been implemented in Finland by the Council of State Decision nr 366, dated 19th May, 1994.

2.2.6 B OUTLINE QUESTIONNAIRE FOR DIRECTIVE 79/869/EEC

1. Provide a list of the legislation adopted to implement the Directive

1. Directive 79/869/EEC has been implemented in Finland by the Council of State Decision nr 366, dated 19th May 1994.

2. For each parameter provide:

(a) method of measuring; (b) CEN or ISO number or other standard method if used;
(c) range of annual frequency of sampling and analysis;

Parameter	Method of measuring
pH	SFS 3021
Colour	SFS-EN ISO 7887
Conductivity	SFS-EN 27888
Nitrate (NO3-N)	ISO 10304-1,-2, SFS 3030, SFS-EN ISO 13395
Nitrite-N	SFS 3029
Total-N	SFS 3031, SFS-EN ISO 11905-1
Ammonium-N	SFS 3032
Fluoride	SFS 3027, SFS-EN ISO 10304-1, -2, ionchromatography
Iron	SFS 3044, 3047 AAS flame, SFS 5502 AAS-graph., SFS 3028
Manganese	SFS 3044, 3048 AAS flame, SFS 5502 AAS-graph., SFS 3033
Copper	SFS 3044, 3047 AAS flame, SFS 5502 AAS-graph.
Zinc	SFS 3044, 3047 AAS flame, SFS 5502 AAS-graph.
Cadmium	SFS 3044, 3047 AAS flame, 5074, 5502 AAS-graph.
Chromium	SFS 3044, 5071 AAS-flame, 5074, 5502 AAS-graph.
Lead	SFS 3044, 3047 AAS flame, 5074, 5502 AAS-graph.
Aluminium	SFS 5502 AAS-graph.
Sulphate	SFS-EN ISO 1034, SFS 5738 , ionchromatography
Chloride	SFS-EN ISO 1034
Calcium	SFS-EN ISO 7980
Magnesium	SFS-EN ISO 7980
Potassium	SFS 3017
Sodium	SFS 3017
Phosphates	SFS 3025
Total phosphorus	SFS 3026, SFS-EN 1189
COD_{Mn}	SFS 3036, SFS-EN ISO 8467
Oxygen	SFS 3040, SFS-EN 25813, 25814
TOC	SFS-EN 1484
Turbidity	SFS-EN ISO 7027
Alkalinity	SFS 3005, SFS-EN ISO 9963-1, -2
Total hardness	SFS 3003, SFS-EN ISO 7980
Suspended solids	SFS-EN 872
Total coliforms	SFS 3016 membrane, 4089 MPN; SFS-EN ISO 9308-1 membrane & E. coli
Thermotolerant coliforms	SFS 3951, 3950 , 4088 membrane; 4447 and 4089 MPN
Fecal streptococci	SFS 3950, 3051, SFS-EN ISO 7899-2 membrane; 4447, 3015 MPN
Heterotrophic colonies	SFS-EN ISO 6222

Frequency: Samples are taken 2 - 100 times annually.

Kuvailulehti

Julkaisija	Suomen ympräistökeskus	Julkaisuaika Marraskuu 2003
Tekijä(t)	Lauri Etelämäki, Kimmo Silvo, Heidi Vuoristo, Ville Hokka, Maria-Leena Hämäläinen, Tapio Pylkkö, Sami Raassina ja Erkki Santala	
Julkaisun nimi	Implementation of HELCOM recommendations and EU water directives in Finland 2001 (HELCOM teknologiakomitean suositusten ja Euroopan Unionin vesidirektiivien täytäntöönpano Suomessa 2001)	
Julkaisun osat/ muut saman projektin tuottamat julkaisut	Julkaisu on saatavana myös internetissä: http://www.environment.fi/publications	
Tiivistelmä	Tässä julkaisussa esitetään Suomen raportit Itämeren suojelusopimuksen eli Helsingin komission (HELCOM) teknologiakomitean toimialalla hyväksyttyjen suositusten toimeenpanosta sekä EU:n vesidirektiivien täytäntöönpanoraportit vuonna 2001. HELCOM suositukset koskevat mm. eri teollisuuden aloja, asumajätevesien puhdistusta, maatalouden päästöjä ja vaarallisten aineiden käyttöä. Suositusten noudattamisesta raportoidaan HELCOM:lle pääsääntöisesti joka kolmas vuosi. Suositukset koskevat mm. päästötasoja sekä eri toimenpiteiden ja tekniikoiden käyttöönottoa. Suositusten toteutumista Suomen ja muiden jäsenmaiden välillä voidaan vertailla, mutta siihen pitää suhtautua pienellä varauksella. Vaikka suositusten raportointia on kehitetty edellisestä raportointikerrasta (1999), on siinä vielä joitain eroja maitten välillä. Lisäksi suosituksiin sisältyy jonkin verran tulkinnanvaraisuutta, koska suositusten ehdot eivät ole pelkästään numeerisia. Suomen osalta voidaan kuitenkin todeta suurimman osan HELCOM suosituksista toteutuvan suurimmalla osalla laitoksista, joskin parantamisen tarvetta esiintyy edelleen. EU:n vesidirektiivit on laadittu toisaalta turvaamaan vesien erilaisia käyttötapoja ja terveellisyyttä sekä toisaalta rajoittamaan haitallisten aineitten päästöjä. Lähes kaikille vesidirektiiveille on tyypillistä suunnitelmien ja ohjelmien laatimisvelvoitteet. Direktiivien täytäntöönpanosta tulee raportoida komissiolle joka kolmas vuosi, EU:n vesiensuojelua koskevat direktiivit on pääasiassa täytäntöön pantu vesilain nojalla annetuin valtioneuvoston päätöksin. Uusitun lainsäädännön varsin nopea toimeenpano ei ole aiheuttanut mainittavia vaikeuksia. HELCOM-suositusten ja EU:n vesidirektiivien toimeenpanon raportoinnista vastaa Suomen ympäristökeskus (SYKE), joka kerää tarvittavat tiedot yhteistyössä alueellisten ympäristökeskusten ja tarvittaessa muiden tahojen kanssa. Päästötiedot on pyritty, niin paljon kuin mahdollista, keräämään ympäristöhallinnon VAHTI-tietorekisteristä. Pyydetyt tiedot ovat kuitenkin usein esitetty sellaisessa muodossa, ettei VAHTI-rekisterin tietoja suoraan ole voitu käyttää hyväksi, vaan tiedot on jouduttu pyytämään erikseen joko alueelliselta ympäristökeskukselta tai suoraan kyseessä olevalta laitokselta.	
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Abstract	This publication contains the Finnish implementation reports of the Recommendations adopted under the Technological Committee of the Baltic Marine Environment Protection Commission - the Helsinki Commission (HELCOM) as well as the implementation report of the EU water directives compiled in 2002 (covers the period of 1999-2001). Recommendations for different sectors to curb pollution from various sources have been adopted under the Technological Committee of the Helsinki Commission. The implementation of these HELCOM Recommendations are to be reported to HELCOM every three years. The requirements in the Recommendations include limit values for waste water discharges and air emissions as well as pollution control measures for different sectors. Notwithstanding the elaboration of the reporting since the previous reporting round there are still notable differences in the contents of the reports between the countries. Based on the reports the implementation of the HELCOM recommendations in Finland was on a fairly good level although some areas for further improvement were identified. The Finnish Environment Institute (SYKE) is responsible for the reporting of the implementation of the EU water directives in Finland. The data is collated in cooperation with the regional environmental centres (13) and other appropriate stakeholders. Much of the information is abstracted from the emission and water status data bases of the Finnish Environment Administration. This report covers the implementation of the water directives listed in annex I and II of the Reporting Directive 91/692/EEC. The Fish Water Directive (78/659/EEC) was reported for the first time in 2002, whereas for the other water directives, this was the second reporting round (first time reported in 1999)	
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