FORMAT FOR SUMMARY REPORTS UNDER THE PROTOCOL ON WATER AND HEALTH

PART ONE: GENERAL ASPECTS

1. Provide brief information on the process of target-setting in your country, e.g. which public authority (ies) took the leadership and coordinating role, which public authorities were involved, how coordination was ensured, which existing national and international strategies and legislations were taken into account, how cost-benefit analysis of target sets was performed.

2. What has been done in your country to ensure public participation in the process of target-setting and how was the outcome of public participation taken into account in the final targets set?

3. Provide information on the process by which this report has been prepared, including information on which public authorities had the main responsibilities, which other stakeholders were involved, etc.

Answer to questions 1-3

In Finland, the targets and target dates in accordance with article 6 of the Protocol on Water and Health have been adopted, published and sent to the UNECE secretariat (Decision of the Ministry of Social Affairs and Health on the national goals and target dates required by the Protocol on Water and Health to the 1992 Convention of protection and use of transboundary waters and international lakes, 15 Feb 2008). Targets and target dates are based on EU legislation including relevant reporting procedures, national legislation and appropriate national programmes and progresses. Each target and target date have been explained and reasoned.

Target setting, decision and follow-up

An expert group was established under the national working group (see the list of institutions below) in order to prepare target setting. Target and target dates were discussed and finalised in an expert group meetings consisting representatives from different administration sectors. The expert group collected all relevant national material (legislation, water protection guidelines, a programme for the protection of the Baltic Sea, other programs and strategies), determined main goals for target setting and had section by section discussions about the article 6 of the Protocol. The expert group wrote a draft document on target and target dates and their reasoning taking into account national and EU legislation and national programs and strategies. The draft was published on the website of the Ministry of Social Affairs and Health for public hearing. Before finalizing the decision of the targets and target dates the Ministry of Social Affairs and Health organized large (over 40 stakeholders) circulation and hearing process of the draft document. Hearing of different bodies (e.g. administration, industry, agriculture and forestry, research institutes and NGO's) was organised in June 2007.

In Finland, the co-operation between health and environment administrations works well and the dialogue between different bodies goes fluently explaining thus the rapid and trouble-free process in target setting. The targets and target dates were nationally published in May 2007. Decision of the targets and target dates were given on 15th February 2008.

National implementation of the targets and target dates will be followed by the working group mentioned before.

Report

Report was done by the national working group mentioned before. Information of the report is based on e.g. reports to the European Commission, national reports and programmes and Government resolution on water protection guidelines until 2015.

Institutions involved in the work (target setting, decision and follow-up and reporting)
- Ministry of Social Affairs and Health (leader of the working group)
- Ministry of the Environment
- Ministry of Agriculture and Forestry
- Ministry for Foreign Affairs
- National Institute for Health and Welfare (previously National Public Health Institute, research and expertise institute under the Ministry of Health, specialised in solving problems related to waterborne outbreaks)
- Finnish Environment Institute (research and expertise institute under the Ministry of the Environment)
- National Supervisory Authority for Welfare and Health (authority under the Ministry of Health guiding the implementation of the legislation related to the environmental health)

4. Report any particular circumstances that are relevant for understanding the report, e.g. whether there is a federal and/or decentralized decision-making structure, or whether financial constraints are a significant obstacle to implementation (if applicable).

The report represents national circumstances and national decision-making structure.

5. Please describe whether and, if so, how emerging issues relevant to water and health, (e.g. climate change) were taken into account in the process of target-setting.

Effects of climate change will be taken into account in the implementation of the directive 2007/60/EC of the European Parliament and of the Council on the assessment and management of flood risks.

Emergency handbooks on environmental healthcare and water service have been taken into account in target setting. The fundamental principle of these handbooks is to prevent incidents and to minimise their harmful impacts. A guidebook on environmental healthcare has been revised and will be published in the year 2010.

PART TWO: COMMON INDICATORS[1]

I. QUALITY OF THE DRINKING WATER SUPPLIED

A. Context of the data

Please provide general information related to the context of the data provided under sections B and C:

1. What is the population coverage (in millions or per cent of total national population) of the water supplies reported under this indicator?

4 million consumers, 75.5 % of the total population

Data provided under sections B and C is based on the reports submitted to the European Commission. According to the directive 98/83/EC member states have to report to the European Commission information on drinking water quality from those water supplies which produce drinking water more than 1 000 m^3 in a day or for more than 5 000 consumers. In Finland, there are around 170 large water supplies falling into this reporting category. These water supplies have 4 million consumers considering 75.5 % of the total population.

Drinking water quality of small water supplies (production of drinking water below 1 000 m^3 in a day, or less than 5 000 consumers) is also frequently monitored, but at the moment the results are only in the use of municipal health protection authorities. A national environmental healthcare target information system comprising all environmental healthcare sites, including plants supplying drinking water, is currently under construction. From the year 2013 when this information system is fully operational, information also from these small water supplies will be collected into national database.

2. Do the water supply systems reported here supply the urban population only or both the urban and rural populations?

Mainly urban population

3. In the reports, the standards for compliance assessment signify the national standards. If national standards for reported parameters deviate from the WHO guideline values, provide information on the values (standards) used for calculation.

B. Bacteriological quality

Indicator to be used: WatSan_S2: The percentage of samples that fail to meet the national standard for *E. coli* and the percentage of samples that fail to meet the national standard for *Enterococci.*

WatSan_S2	Baseline value (please specify the year) 2007	Current value (please specify the year) 2008
E. coli	<0.1%	< 0.1%
Enterococci	0.1%	0.3%

[1] In order to allow an analysis of trends for all Parties under the Protocol, please use wherever possible 2005 – the year of entry into force of the Protocol – as the baseline year.

C. Chemical quality

Indicator to be used: WatSan_S3. The percentage of samples that fail to meet the national standard for chemical water quality. All countries shall monitor and report on:

- Fluoride,
- Nitrate and nitrite[2],
- Arsenic,
- Lead
- Iron.

Parties shall also identify five additional health-relevant chemical parameters that are of special concern in their national or local situation (e.g. pesticides).

Substance	Baseline value (please specify the year) 2007	Current value (please specify the year) 2008
Fluoride	3.9%	1.6%
Nitrate and nitrite	0%	0%
Arsenic[3]	0%	0%
Lead	0%	0%
Iron	1.6%	1.7%
Additional chemical[4] **parameter 1: Pesticides**	0%	<0.1%
Additional chemical parameter 2: Trihalomethanes	0%	0%
Additional chemical parameter 3: _____		
Additional chemical parameter 4: _____		
Additional chemical parameter 5: _____		

If your country calculates an integrated value reflecting overall compliance with chemical quality of drinking water, please report it below:

	Baseline value (please specify the year) 2007	Current value (please specify the year) 2008
Integrative chemical failure rate	0.1%	<0.1%

[2] As defined in the WHO Guidelines.
[3] If relevant for the country.
[4] It is recommended to take into account new and emerging pressures such as climate change, or agriculture practices.

II. REDUCTION OF THE SCALE OF OUTBREAKS AND INCIDENCE OF INFECTIOUS DISEASES POTENTIALLY RELATED TO WATER

For incidence, please report the total number of cases per year from all exposure routes.
For the number of outbreaks, please report cases that could be potentially related to water.

	Incidence *Notes: From all exposure routes.*		**Number of outbreaks**	
	Baseline (specify the year) **2007**	Current value (specify the year) **2008**	Baseline (specify the year) **2007**	Current value (specify the year) **2008**
Cholera	0 illness cases	1 illness case	no outbreaks	no outbreaks
Bacillary dysentery (shigellosis)	112 illness cases	124 illness cases	no outbreaks	no outbreaks
EHEC[5]	12 illness cases	8 illness cases	no outbreaks	no outbreaks
Viral hepatitis A	15 illness cases	22 illness cases	no outbreaks	no outbreaks
Typhoid fever	11 illness cases	2 illness cases	no outbreaks	no outbreaks

Ref: Database of the National Infectious Diseases Register, National Institute for Health and Welfare

III. ACCESS TO DRINKING WATER

Percentage of population with access to improved drinking water	**Baseline value (specify the year)** **2007**	**Current value (specify the year)** **2008**
Total	100%	100%
Urban	100%	100%
Rural	100%	100%

The Joint Monitoring Programme (JMP) defines access to water supply in terms of the types of technology and levels of service afforded. Access to water-supply services is defined as the availability of at least 20 liters per person per day from an "improved" source within 1 kilometer of the user's dwelling. An "improved" source is one that is likely to provide "safe" water, such as a household connection, a borehole, a public standpipe or a protected dug well.

If your definition of access to "improved" drinking water from which the above percentages are calculated differs from the JMP, please provide the definition and describe your means of calculation.

[5] Enterohaemorrhagic *E. coli*.

IV. ACCESS TO SANITATION

Percentage of the population with access to improved sanitation, including small decentralized sewerage systems, septic tanks and safe excreta disposal.

Percentage of population with access to improved sanitation	Baseline value (specify the year) 2007	Current value (specify the year) 2008
Total	99.8%	99.8%
Urban	100%	100%
Rural	99%	99%

If your definition of access to "improved" sanitation from which the above percentages are calculated differs from the JMP, please provide the definition and describe your means of calculation.

Deleted: drinking water

V. EFFECTIVENESS OF MANAGEMENT, PROTECTION AND USE OF FRESHWATER RESOURCES

Water quality

On the basis of national systems of water classifications, the percentage of the number of water bodies or the percentage of the volume (preferably) of water[6] falling into each defined class (e.g. in classes I, II, III, etc. for non-EU countries; for EU countries, the percentage of surface waters of high, good, moderate, poor and bad ecological status, and the percentage of groundwaters/surface waters of good or poor chemical status).

For non-European Union countries:

Status of surface waters

Percentage of surface water falling into class[7]	Baseline value (specify the year)	Current value (specify the year)
I		
II		
III		
IV		
V		

[6] Please specify.
[7] Rename and modify the number of rows as requested by the national classification system.

Status of groundwaters

Percentage of groundwaters falling into class[8]	Baseline value (specify the year)	Current value (specify the year)
I		
II		
… to be completed in accordance with national groundwaters classification systems		

For European Union countries:

Ecological status of surface water

Percentage of surface water classified as of	Baseline value (specify the year) 2007 Classification is based on samples taken 2000-2007 lakes square km^2	rivers length km	Current value (specify the year)
High status	29%	22%	
Good status	59%	35%	
Moderate status	11%	30%	
Poor status	1%	10%	
Bad status	0%	4%	

Note: Figures given are based on River basin management plans, which were adopted by the Government and published in December 2009 (see: www.ymparisto.fi/vesienhoito). Classification covers 3000 water bodies, lakes larger than 5 km^2 and rivers with a catchment area larger than 200 km^2.

Chemical status of surface water

Percentage of surface water classified as of	Baseline value (specify the year) 2007 Classification is based on samples taken 2000-2007 lakes square km^2	rivers length km	Current value (specify the year)
Good status	100%	93%	
Poor status	0%	3%	

Note: Figures given are based on River basin management plans, which were adopted by the Government and published in December 2009 (see: www.ymparisto.fi/vesienhoito). Classification covers 3000 water bodies, lakes larger than 5 km^2 and rivers with a catchment area larger than 200 km^2.

[8] Rename and modify the number of rows as requested by the national classification system

Status of groundwaters

Percentage of ground-waters classified as of	Baseline value (specify the year) 2007	Current value (specify the year)
Good status	98% (3800 areas)	
Poor status	2% (82 areas)	

Note: Figures given are based on River basin management plans, which were adopted by the Government and published in December 2009 (see: www.ymparisto.fi/vesienhoito).

Please provide any needed information that will help put into context and aid understanding of the information provided above (e.g. coverage of information provided if no related to all water resources).

Water use

Water exploitation index at the national and river basin levels for each sector (agriculture, industry, domestic): mean annual abstraction of freshwater by sector divided by the mean annual total renewable freshwater resource at the country level, expressed in percentage terms.

Water exploitation index	Baseline value (specify the year) 2007	Current value (specify the year) 2008
Agriculture	Maximum 0.1%	
Industry[9]	1.44%	1.36%
Domestic use[10]	0.39%	0.38%

Note: Figures for industrial uses include only manufacturing industries and are based on VAHTI database. Water used for domestic purposes includes both public water supply and individual water supply and is based mostly on VELVET database. Water used for agriculture has been estimated with the information that irrigation systems are available for altogether 80000 hectares of fields. The annual renewable freshwater resource is normally 110km^3.

[9] Please specify whether the figure includes both water abstraction for manufacturing industry and for energy cooling.
[10] Please specify whether the figure only refers to public water supply systems or also individual supply systems (e.g. wells).

PART THREE: TARGETS AND TARGET DATES SET AND ASSESSMENT OF PROGRESS

I. QUALITY OF THE DRINKING WATER SUPPLIED, (ARTICLE 6, PARAGRAPH 2 (a))

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

The quality of the drinking water supplied by water supply plants meets the requirements of Decrees (461/2000) and (401/2000) of the Ministry of Social Affairs and Health. The said Decrees are based on Council Directive 98/83/EC (Drinking Water Directive). The guidelines of the World Health Organization (WHO) for drinking water are used as a basis for the standards in the Drinking Water Directive.

The employees of plants supplying drinking water who engage in actions impacting on the quality of the water have passed the proficiency test in plant technology and water hygiene referred to in section 20b of the Health Protection Act 763/1994.

The target date for attainment of the fluoride limit value included in the Drinking Water Directive is set at 31 December 2007. The target date is based on the fixed-term derogations allowed under the Directive. Finland has been allowed temporarily to exceed the fluoride value, which shall be rendered in accordance with the imposed value while the derogation is in effect. No target date need be set in respect of other parametric values, as the transitional period concerning the Directive expired on 25 December 2003.

The target date in respect of passing the proficiency test is set at 30 June 2008.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

The general provisions concerning the quality of drinking water have in Finland been incorporated into the Health Protection Act (763/1994). Section 20 of this Act requires the municipal health protection authority to monitor the quality of drinking water on a regular basis. The municipal health protection authority may order that drinking water shall be processed or issue orders concerning the use of drinking water to prevent health hazards.

More specific provisions on the monitoring and quality of drinking water are incorporated in Decrees (461/2000) and (401/2001) of the Ministry of Social Affairs and Health issued pursuant to section 21 of the Health Protection Act (763/1994). In the said decrees, both health-based standards as well quality recommendations based on the usability of the water are imposed on the quality of drinking water. The requirements laid out in the Decrees are based on the Drinking Water Directive 98/83/EC, in the drafting of which regard was had to

the guidelines of the World Health Organization. Under section 6 of Decree (461/2000), Regional State Administrative Agencies may grant fixed-term derogations from fulfilling drinking water quality requirements within their region if drinking water cannot be supplied in the said region by any other reasonable means and the derogation poses no hazard to human health.

Under section 16 of Decree (461/2000) of the Ministry of Social Affairs and Health, suppliers of drinking water shall provide adequate information about the quality of the water supplied. Pursuant to the Drinking Water Directive 98/83/EC, reports on the quality of water intended for human consumption shall also be submitted to the European Commission at regular intervals. The duty to report concerns supplies of water exceeding 1,000 m³ a day as an average or serving more than 5,000 persons. In Finland, the data from the plants subject to reporting is annually compiled via the Regional State Administrative Agencies to the National Institute for Health and Welfare, which forwards the reports to the European Commission. In addition, a national environmental healthcare target information system comprising all environmental healthcare sites, including plants supplying drinking water, is currently under construction. The system, which will be available to all environmental healthcare authorities and environmental administration authorities, will include basic data on all drinking water supply plants and all statutory surveillance reports thereon. The system will be fully operational in the year 2013.

Municipalities shall prepare and adopt an environmental healthcare surveillance plan for the purpose of regular monitoring. The plan shall be based on the national environmental healthcare surveillance plan. The purpose of the national and municipal surveillance plans is to enhance the efficiency and quality of surveillance in the field of environmental healthcare (drinking and bathing water, inter alia) and to harmonize the supervision of municipal surveillance. The amendment to the Health Protection Act (763/1994) concerning the national surveillance programme and municipal surveillance plans entered into force in May 2006. More specific provisions on the drafting and contents of the surveillance programme and surveillance plans are laid down in Government Decrees (664/2006) and (665/2006), which entered into force in August 2006. The first national environmental healthcare surveillance programme has been drafted for the year 2007 and municipalities are required to have surveillance plans in place by the beginning of 2008. The programme and plans will be revised at intervals of about three years.

Under Decree of the Ministry of Social Affairs and Health concerning drinking water standards and surveillance (461/2000), municipal health protection authorities are obliged to prepare surveillance programmes for drinking water supply plants together with each plant for the purpose of regular monitoring. The particular characteristics of each plant shall be taken into account in these programmes. The surveillance programme shall be reviewed at intervals of five years and whenever review shall be deemed necessary due to changed circumstances.

Under section 14 of the Water Services Act (119/2001), a water supply plant must ensure that the drinking water supplied by the plant meets the quality requirements set out in the Health Protection Act (763/1994).

A provision concerning the competency requirements of employees responsible for water quality at drinking water supply plants and the demonstration of such competency has been added to the Health Protection Act (763/1994). This amendment, which entered into force in May 2006, applies to plants which supply at least 10 m^3 of drinking water daily or serve at least 50 persons. More specific provisions on the proficiency in plant technology and water

hygiene required of the employees of drinking water supply plants and the testing of such proficiency are laid down in Decree (1351/2006) of the Ministry of Social Affairs and Health, which entered into force in January 2007. The employees have until the end of June 2008 to obtain their proficiency certificates, which remain valid for five years at a time.

3. Briefly assess the progress achieved towards the target.

In Finland, there are areas, especially in the South-East Finland, where the content of fluoride can be remarkably high in groundwater. However, techniques for the removal of fluoride have been developed and applied and during water treatment processes the concentration of fluoride can be lowered below or quite near the parametric value, 1.5 mg/l. The number of consumers of these water supplies having occasional problems in the removal of fluoride is quite limited. Otherwise the microbiological and chemical quality of drinking water is very high complying with the health based microbiological and chemical requirements of the drinking water legislation.

The content of soluble iron in groundwater can be high. Despite removal treatments concentration of iron in drinking water can occasionally exceed the indicator value set for this parameter. However, high iron concentrations temporarily detected in drinking water do not cause any health problems, merely some technical problems such as discolouration of water fittings.

The microbiological quality of groundwater is very high and therefore groundwater is not always disinfected before distribution and consumption. However, it is known that groundwater sources can be vulnerable for microbiological contamination caused by e.g. heavy rains and floods. Microbiologically contaminated groundwater sources have caused waterborne outbreaks in Finland. Further information on waterborne outbreaks associated with the use of contaminated drinking water is described in the section II.

At the end of year 2009 13099 employees of drinking water supply plants have accomplished certificates which verify their proficiency in water plant technology and hygiene. In years 2008 and 2009 about 95% of the tested people have accomplished the certificate.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

II. REDUCTION OF THE SCALE OF OUTBREAKS AND INCIDENTS OF WATER-RELATED DISEASE (ARTICLE 6, PARAGRAPH 2 (b))

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

The number of persons falling ill in water-related epidemics shall be reduced to an annual level of 0.01% of the population at most.

The target date is set at 31 December 2015.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

The Health Protection Act (763/1994) includes provisions concerning special circumstances and epidemics caused by drinking water. Under section 8 of the Act, municipal health protection authorities together with other authorities shall prepare for readiness and emergency action to prevent, determine and remove any health hazards arising from special circumstances. The National Supervisory Authority for Welfare and Health has drafted a plan to ensure the quality of drinking water in the event of disasters and similar emergencies. More specific provisions on the content and drafting of emergency readiness plans will be issued by Decree of the Ministry of Social Affairs and Health.

In the event of any epidemic caused by drinking water or suspicion of such epidemic, the drinking water supply plant concerned and the municipal health protection authority are required under section 20a of the Health Protection Act (763/1994) to take immediate action to improve the quality of the drinking water and to prevent the spread of the epidemic. Decree (251/2007) of the Ministry of Social Affairs and Health issued in March 2007 contains more specific provisions concerning measures in the event of epidemics spreading via drinking water. The National Institute for Health and Welfare provides expert assistance in the event of epidemics spreading via drinking water. In 2000, the Ministry of Social Affairs and Health published an environmental healthcare emergency handbook (Handbooks 2000:4), in which various experts address among others the issue of action in water-related emergencies. The handbook has been revised and the revision will be published in the year 2010. In addition, the Ministry of Social Affairs and Health issued in 1997 guidelines (1/021/97) concerning the monitoring and reporting of cases of food poisoning. The Ministry will also issue more specific provisions on preparedness to disinfect drinking water. The Finnish Environment Institute published in early 2007 a handbook for plant managers on the maintenance and monitoring of small groundwater plants. The Ministry of Agriculture and Forestry, the National Emergency Supply Agency and the Finnish Environment Institute (SYKE) published in 2006 a handbook on water supply emergencies and emergency readiness.

As the number of persons contracting water-related diseases varies from year to year, the data for a single year alone does not provide an adequate basis to assess achievement of the above target. The use of epidemiological data spanning several years to calculate the relative share in the entire population of persons contracting water-related epidemic diseases provides a more reliable view of the situation.

Pool water and the swimming water at public bathing areas may also not pose health hazards. Provisions concerning the prevention of health hazards relating to these water environments are laid down in the Health Protection Act (763/1994) and the lower-level statutes issued pursuant to it. Pool water is discussed below under item (k) and the swimming water at public bathing areas under item (j).

Another way to prevent water-related diseases is the proper treatment of waste water, an area in which Finland has a long tradition. Effective treatment reduces eutrophication and the amount of oxygen-depleting substances as well as the amount of bacteria of human origin contained in waste water. At present, the legislative foundation in this respect consists of the Environmental Protection Act (86/2000). One of the major objectives of the Act is to safeguard a healthy environment. For this purpose, the Act and its supplementary Decrees seek to prevent the effects of activities posing a risk of pollution inter alia by regulating the location of such activities, prohibiting soil and groundwater pollution, imposing permit requirements and providing for an obligation to treat waste water also outside areas with sewerage. Prior to enactment of the Environmental Protection Act, the treatment of community waste water had already been regulated by the Water Act since the early 1960s. The maximum emissions from treatment plants are restricted by permits, which usually require the disinfection of treated waste water as necessary. Permit compliance is monitored by the supervisory authorities as well as through in-house control at treatment plants. The Urban Wastewater Directive 91/271/EEC was implemented by Government decision (365/1994), which has been replaced by Government Decree 888/2006 entered into force in November 2006.

Another statute which addresses local pollution issues and health hazards is Government Decree on treating domestic waste water in areas outside sewer networks (542/2003). Emissions from individual properties and other small waste water systems are regulated by this Decree, issued pursuant to the Environmental Protection Act. Although the Decree contains no specific requirements as to the hygienic quality of the treated waste water, all treatment methods that meet the other requirements laid down in the Decree also prevent hygiene hazards.

Matters relating to the treatment of waste water are addressed in greater detail below under sub-headings (e), (f) and (i).

Another contributor to the prevention of water-related disease is Decree of the Ministry of Agriculture and Forestry on hygiene standards in the primary sector (134/2006), which entered into force in March 2006. This Decree, which was issued pursuant to the Food Act (23/2006) and complements the European Communities' hygiene regulations, contains requirements concerning the quality and quality monitoring of water used in the primary sector inter alia as drinking water for domestic animals, in the watering, cleaning and refrigeration of primary sector products and in cleaning at primary sector locations.

3. Briefly assess the progress achieved towards the target.

Severe pathogens, such as *Vibrio cholerae*, *Salmonella Typhi*, *Shigella* spp., EHEC and Hepatitis A virus are not a problem in drinking water service in Finland. The number of waterborne outbreaks varies between 1-10 outbreaks in a year and these outbreaks are mainly caused by noroviruses or campylobacteria. Outbreaks are typically associated with small groundwater supplies serving less than 500 consumers. However, the annual number of illness cases varies a lot depending on an extent of outbreaks. In 2007 the number of illness cases was nearly 10 000 whereas in 2008 around 100. The national target will be achieved if the number of illness cases at annual level remains below 530, which is 0.01% of the population.

A severe waterborne outbreak in the city of Nokia was the reason to the high number of illness cases in 2007. In this outbreak more than 8 000 people got sick. The outbreak was caused by heavily contaminated drinking water. The main reason to the contamination was the illegal connection between drinking water and waste water pipelines. Treated waste water was accidentally allowed to enter drinking water network. Several pathogens, such as *Campylobacter jejuni*, salmonella, noroviruses, rotaviruses and giardia were identified from drinking water samples. Severe pathogens mentioned in the firs paragraph were not found in drinking water samples.

In Finland, there is a compulsory notification system for suspected waterborne outbreaks. The National Institute for Health and Welfare (THL) helps municipal health protection authorities who are responsible for surveillance of drinking water quality in technical, analytical and epidemiological problems associated with waterborne outbreaks. Immediate reporting of an outbreak accelerates the co-operation between municipal authorities, water companies and THL and enables the design of immediate management and remedial actions to control and restrict the outbreak and to prevent harmful health effects.

Municipal authorities and water companies are nowadays perhaps more susceptible for reacting potential problems and malfunctions related to water service. Knowledge of waterborne outbreaks associated with the use of groundwater has e.g. increased the use of disinfection methods such as ultraviolet radiation in ground water supplies. It also has improved communication system between different bodies working in the water and health sector.

Revised legislation on drinking water has improved the informing system related to waterborne outbreaks. New legislation also requires proficiency tests for personnel taking actions on the quality of drinking water. The employees have to have accomplished certificates which verify their proficiency on plant technology and water hygiene at five years intervals. Guide books have been published and research programmes have been developed to promote research activities related to water service and sanitation.

Contingency plans have been or are being developed by larger water companies but there are still many smaller water companies who have not enough financial or human resources and knowledge to perform the task. Risk assessment and risk management including adequate surveillance system for all water companies despite the size of the system would undoubtedly minimize the probability of an outbreak. Investments in infrastructure of water services should be in the priorities.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

III. ACCESS TO DRINKING WATER (ARTICLE 6, PARAGRAPH 2 (c))

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

In 2006, ca. 90% of the population was served by municipal or other collective systems for the supply of drinking water. The increase of the current service rate is expected to be slow, due to the very sparsely settled population. Improvements in the supply of drinking water seek to ensure that the drinking water available is up to standards in terms of quality. Most quality problems are local and caused by the natural quality of soil or bedrock. Efforts are made to have water supply in less populated areas and villages covered by the water supply network whenever technically and economically feasible. Drinking water procurement opportunities for individual properties are enhanced in cases where the private drinking water supply is not possible at a reasonable cost.

The target date is set at 31 December 2015.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

Under section 8 of the Water Services Act (119/2001), the areas of operation for water supply plants are approved by the relevant municipality. When approving an area of operation, the municipality must determine areas to be included in the water main network of the plant as well as areas to be included in the sewage networks of the plant.

Under section 6 of the said Act, a municipality must make sure that appropriate measures are taken to establish a water supply plant to meet the need, to expand the area of operation or to otherwise secure the availability of sufficient water services when required due to the need of a relatively large number of inhabitants or health considerations or environmental protection.

The area of operation must be such that a water supply plant can be considered capable of managing the water supply services under its responsibility in an economical and appropriate manner. A timetable for including the different parts of the area of operation into the networks must be set in connection with the decision on approval.

The goal is for the scope of such networks to meet the needs of settlement as well as business and leisure activities by expansion of the networks to all areas where water services are best provided by connecting the properties to the networks of water supply plants. Other large-scale water users and cattle farms in particular shall be taken into account alongside population in the objectives concerning the number of subscribers.

Under section 5 of the Water Services Act (119/2001), municipalities are responsible for drawing up development plans on water services for their territory in cooperation with the

water supply plants and other municipalities and for keeping such plans up-to-date. A target for the number of households to be connected to the water services and sewerage network shall be set in the development plans. Regional Environmental Centres collect data on the need to expand networks from the development plans of municipalities in their region and monitor the relationship between the needs and the decisions to approve areas of operation.

Properties may be exempted from connection if a property exempted has access to a sufficient amount of household water which meets the requirements.

Under the water resources strategy of the Ministry of Agriculture and Forestry (24 February 2005), every effort shall be made to ensure the availability and quality of water supply services under all circumstances. Under section 3 of the Act on Water Services Subsidies (686/2004), regional planning and cooperation as well as preparedness for emergencies by linking networks and providing backup arrangements for water abstraction shall be prioritized. Water services shall be improved especially in rural communities and in areas of dispersed settlement outside the networks of water supply plants. Measures also qualifying for subsidies also include those seeking to prevent contamination of surface or groundwater or to improve the condition of these.

Due to reasons of land use and housing, most settlement in Finland is permanently so dispersed as to render it practically impossible to serve the entire population by collective systems for the supply of drinking water. As groundwater of good quality is widely available, the procurement of appropriate drinking water can usually be arranged individually by each property.

Other measures to promote the expansion of water services networks and to improve their dependability include State subsidies and State water services works. The goal of several subsidized gateway water line projects is to improve the quality and availability of drinking water, while transfer sewer projects seeking to conduct treated waste water to watercourses better able to tolerate the load enhance the efficiency of water protection. Subsidies are governed by the Act on Water Services Subsidies (686/2004), which entered into force in 2005.

Under section 16 of Decree (461/2000) of the Ministry of Social Affairs and Health, the municipal health protection authority shall ensure that the households in the municipality not connected to the water mains of a drinking water plant are provided with adequate information about the quality of the drinking water in their area, any related health hazards and ways of removing such hazards.

The national environmental health programme, which seeks to promote and protect human health and wellbeing in support thereof, to conserve forms of life and species which have a positive impact on human health, and to protect the living environment, was completed in 1997. In respect of drinking water, the goal of the programme is for the population to have access to sufficient and healthful drinking water of good quality under all circumstances. At the local level, efforts towards this goal include the drafting of local environmental health programmes either in individual municipalities or as joint municipal undertakings. Joint programmes also seek to increase cooperation between municipalities and thus ensure that also small municipalities have access to the resources necessary for environmental health work. The provision of clean drinking water is one of the areas coming within the scope of the environmental health programme.

3. Briefly assess the progress achieved towards the target.

Several new pipelines in rural areas have been constructed, usually with sewer pipe placed in the same excavation. Governmental support to local water cooperatives etc. has been targeted to projects taking care of both water supply and sewer networks.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

IV. ACCESS TO SANITATION (ARTICLE 6, PARAGRAPH 2 (d))

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

In 2006, approximately 80% of the population was served by collective systems of sanitation, including proper wastewater treatment. Centralized sewerage and wastewater treatment is the goal wherever technically and economically feasible in terms of water services and environmental protection. Areas meeting these conditions are determined so that centralized sewerage and waste water treatment can be implemented before expiry of the deadline imposed by the Governmental Decree on Onsite Wastewater Systems (542/2003). Property owners shall render property-specific sanitation systems compliant with requirements in those cases where connecting the property to the collective system of sanitation is not a viable option due to the location of the property.

The target date is set at 1 January 2014.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

Under the Environmental Protection Act (86/2000), wastewater in areas of dispersed settlement shall be treated in such a manner that the wastewater does not pose a risk of environmental pollution. Requirements concerning biological oxygen demand, phosphorus and nitrogen removal have been imposed on wastewater treatment in areas of dispersed settlement by the above mentioned Governmental Decree (542/2003). The requirements became applicable to new buildings in 2004. Old properties located in areas of dispersed settlement shall render their wastewater treatment systems compliant with the requirements by the beginning of 2014 unless connected to community sewerage systems prior to that time.

Measures to promote connection to public sewerage networks include the water protection programmes and the programme for the protection of the Baltic Sea (26 April 2002), in which the expansion of sewerage network coverage is presented among the means to achieve the targets for reduction of water pollution from areas of dispersed settlement.

The Governmental Decree 542/2003 requires the owner or possessor of a property to be aware of the method used to treat the property's wastewater and to submit a report thereon to the municipal environmental protection authority, if necessary. These reports allow the evaluation at the level of municipality of the standard of property-specific wastewater treatment and the environmental load arising from wastewater in areas of dispersed settlement. Moreover, they provide grounds for determining the regions where property-specific solutions remain a viable alternative and those where collective wastewater treatment solutions should be sought. The environmental administration carries out or

commissions a study on the standard of water services in areas outside the networks at intervals of some ten years.

3. Briefly assess the progress achieved towards the target.

Sewer networks have been constructed to cover also sparsely populated areas situated near densely populated agglomerations. Hence, the share of population served by collective systems increases steadily but slowly. The requirements concerning new buildings in areas where no sewer network exists has been favourably implemented. The target to enhance wastewater treatment by 2014 at all existing properties relying to septic tanks without any further treatment is very difficult to achieve. Awareness campaigns to the public, education of designers and entrepreneurs as well as many other activities have been introduced. In addition, there are a lot of different new treatment plant types in the market. But in cases where the property owners do not recognize the need to enhance the treatment level in order to protect the environment, they are reluctant to invest in a new plant or to a proper rehabilitation of the old one. New guidelines have been published in the autumn 2009 and further actions shall be taken in 2010.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

V. LEVELS OF PERFORMANCE OF COLLECTIVE SYSTEMS AND OTHER SYSTEMS FOR WATER SUPPLY (ARTICLE 6, PARAGRAPH 2 (e))

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

Water supply services of a high standard and meeting the needs of settlement as well as business and leisure activities will remain available at reasonable cost.

When water supply plants serving more than 5,000 residents are examined, slightly under 90% of subscribers currently receive their drinking water from water supply plants with a safety rating of I or II, i.e. plants that are capable of supplying a minimum of 50 litres of water per resident per day through the distribution network even in such exceptional situations when their primary water abstraction facility can not be utilized. The dependability of drinking water supply will be improved so that all water supply plants serving more than 5,000 residents have a safety rating of either I or II.

The target date in respect of upgrading the safety rating of water supply plants is set at 31 December 2015.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

The classification of water services providers and several handbooks were prepared as recently as in 2006-2007. They are still valid but additional guidance for waterworks is under preparation. State investment support has been given to waterworks for enhancing their capability to serve the population also during exceptional situations.

A project dealing with adaptation to climate change is ongoing. Special emphasis will be put in finding out such groundwater abstraction sites that might be in danger during exceptional flooding situations.

Information on construction and maintenance of private wells has been provided to the public. An especially valuable publication "Where to locate a well" was published by the Finnish Environment Institute at the end of 2008.

3. Briefly assess the progress achieved towards the target.

New pipelines have been constructed to serve such rural areas where local good quality groundwater is not available in needed quantities. Connection pipelines between larger and smaller municipalities have also been constructed to safeguard the availability of water. The safety rating of many water supply plants has been raised to the required level. The overall situation report will be updated before the target date.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

VI. LEVELS OF PERFORMANCE OF COLLECTIVE SYSTEMS AND OTHER SYSTEMS FOR SANITATION (ART. 6 (2) (e) continued)

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

Sanitation and sewerage services of a high standard and meeting the needs of settlements as well as business and leisure activities will remain available at reasonable cost.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

National requirements concerning wastewater collection in urban areas have existed since the early 1960s. All urbanized areas are connected to municipally or regionally managed sewer networks with a wastewater treatment facility. The construction of new sewer pipelines and treatment plants is funded mainly by connection fees from the clients. Some minor state support funds are available. The operation and maintenance costs are covered by wastewater fees based on water consumption. The revision of the present Water Services Act (2001) will be finished in 2010.

3. Briefly assess the progress achieved towards the target.

In several municipalities new sewer pipelines have been constructed to serve also rural areas that have earlier relied in onsite systems. Areas of new development are naturally equipped with proper sewerage before the inhabitants move in and wastewaters are discharged usually to a treatment plant. An updating of the requirements in the environmental permit of each treatment plant is done with 7-10 years intervals and best available technology is adopted.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

VII. APPLICATION OF RECOGNIZED GOOD PRACTICES TO THE MANAGEMENT OF WATER SUPPLY, (ARTICLE 6, PARAGRAPH 2 (f))

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

The general objectives of water protection have been defined in the programme of water protection guidelines extending until 2015, which was adopted by the Government on 23 November 2006. The major targets in respect of drinking water quality concern reducing nutrient inputs causing eutrophication, reducing the risks arising from harmful substances and protecting groundwater.

General objectives for the status of waters have been set in the Water Framework Directive 2000/60/EC, which has been implemented nationally through the Act on the Organization of Water Management (1299/2004). The objectives are determined in connection with water management plans and related operational programmes and seek to ensure no deterioration in the status of surface waters and groundwater, which should be of at least good status.

The targets included in the Government resolution on water protection guidelines (23 November 2006) extend until 2015. The Act on the Organization of Water Management (1299/2004) requires that surface waters and groundwater are protected, enhanced and restored so that the water status objectives can be reached by 2015 at the latest.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

The water protection guidelines include measures also for waters used as a source for drinking water. Key objectives and measures with regard to the protection of drinking water have been defined for wastewater coming from urban areas, from areas of dispersed settlement and from industry. Key measures include reducing the amount of nutrients causing eutrophication and reducing the risks arising from harmful substances. The Government adopted Finland's indicative programme for the protection of the Baltic Sea on 26 April 2002 while the operational programme for the protection of the Baltic Sea and inland waters was adopted on 1 June 2005.

The Act on the Organization of Water Management (1299/2004), which entered into force in late 2004, requires that water management plans be drafted for five water management districts and two international water management districts by the end of 2009. The Government Decrees to be issued pursuant to the said Act will define the grounds for the ecological classification of surface waters and thus provide the criteria for good surface water status. The ecological classification was adopted in late 2008. The plans referred to above shall be revised at intervals of six years. Operational programmes examining cost-effective measures to achieve the water status targets shall be prepared as part of the water management plans. Relevant health and environmental protection legislation shall be taken into account in the planning of the measures. The objective of water management is to

ensure no deterioration in the status of surface waters and groundwater, which shall be of at least good status by 2015. Surface waters shall be protected, enhanced and restored in order to achieve good ecological and chemical status. In the event that environmental objectives can only be reached in stages, the water management plans may state that the opportunity afforded in the Act to extend the deadlines for achievement of the objectives should be taken. In extreme circumstances, the environmental targets may be moderated.

Key legislation governing water issues comprises the Environmental Protection Act (86/2000), the Environmental Protection Decree (169/2000), the Water Act (264/1961) and the Water Decree (282/1962). The objective of the Environmental Protection Act is to prevent the pollution of the environment and to repair and reduce damage caused by pollution, and to safeguard a healthy environment. Activities posing a risk of pollution are subject to a permit in accordance with the Environmental Protection Act. The activities not resulting in harm to health or other significant environmental pollution or risk thereof is a precondition to the granting of a permit.

The Government Decree to protect waters from contamination by nitrates originating in agriculture (931/2000) entered into force in November 2000. Government Decree (542/2003) on treating domestic wastewater in areas outside sewer networks entered into force in 2004 and its purpose is to reduce emissions of domestic wastewater and environmental pollution with particular regard to the national water protection objectives. The Government Decree on urban wastewater (888/2006) applies to the treatment and conduction of wastewater from urban areas subject to an environmental permit under the Environmental Protection Act. The Government Decree on substances dangerous and harmful to the water environment (1022/2006) entered into force in December 2006.

The Water Framework Directive 2000/60/EC and the related Directive 2006/118/EC on the protection of groundwater against pollution and deterioration provide the guidelines for groundwater protection and related research. The latter directive, which seeks to foster the sustainable use of groundwater, prevent groundwater pollution and reduce existing pollution, was implemented by a Government Decree in 2007. Under the Directive, good groundwater status in respect of volume and quality should be achieved by the end of 2015.

The key national provisions concerning groundwater protection are incorporated into the Water Act (264/1961) and the Environmental Protection Act (86/2000): 1) the prohibition to alter groundwater (Water Act, Chapter 1, section 18), 2) the groundwater pollution prohibition (Environmental Protection Act, section 8), and 3) the exclusion areas of water abstraction plants under water rights (Water Act, Chapter 9, section 20). Provisions concerning groundwater protection also appear in the Land Extraction Act (555/1981) and certain other Acts and Decrees. Groundwater protection is governed by the Government resolution on water protection guidelines until 2015 (23 November 2006).

Under section 18 of the Health Protection Act (763/1994), a plant supplying drinking water shall obtain approval from the municipal health protection authority prior to starting to supply drinking water. Approval shall also be sought in the event of substantial expansion or modification of water abstraction or water processing or changes substantial with regard to water quality in the quality or distribution of water. In its decision, the municipal health protection authority may impose drinking water surveillance obligations or obligations concerning the treatment of water. Information provided by regional environmental centres on local water resources and raw water quality in surface and groundwaters may be utilised in decision-making. The amended Act entered into force in March 2006.

Openness, transparency and good practices are the watchwords of water services in Finland despite no specific requirements concerning these being included in legislation. Together with its member utilities, the authorities and research institutes, the Finnish Water and Waste Water Works Association, the nationwide joint organization of water and wastewater works, provides its membership with information and training relating to research in service of utilities and to administrative and technical regulations. The Association and the Association of Finnish Local and Regional Authorities together with the various interested parties have prepared inter alia a practical handbook on the application Decree (461/2000) of the Ministry of Social Affairs and Health concerning the quality and surveillance of drinking water.

3. Briefly assess the progress achieved towards the target.

The Government adopted in December 2009 the River Basin Management Plans of 7 districts covering the whole country. The plans set the environment quality objectives for the surface waters and groundwater. It also identifies the measures and instruments to achieve the environmental objectives. Recently the water quality is deteriorated (worse than good) in less than one third of the lakes and in about 40 % of rivers that have been subject to planning.

Groundwater is a very important source of drinking water in Finland where approximately 60% of the people served by waterworks now use groundwater or artificial groundwater. The quality of groundwater has been maintained rather good so that less than 2 % of groundwater areas important or suitable for water supply are deteriorated. Human activities cause significant risks for groundwater in about 500 groundwater areas.

As a result of the activities identified in River Basin Management Plans it has been estimated that good water quality will be achieved in over 90 % of the lakes, about 70 % of the rivers under the subject of the planning by 2015. Almost all groundwater bodies will achieve good water quality status by 2015. All sectors have to intensify the water protection measures.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

VIII. APPLICATION OF RECOGNIZED GOOD PRACTICE TO THE MANAGEMENT OF SANITATION (ART. 6, PARAGRAPH 2 (f)) continued)

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

The general objectives of water protection have been defined in the programme of water protection guidelines extending until 2015, which was adopted by the Government on 23 November 2006. The major targets concerning urban wastewaters relate to reducing nutrient inputs causing eutrophication, reducing the risks arising from exceptional situations, development of the permit procedures and management of harmful storm waters.

General objectives for the status of waters have been set in the Water Framework Directive 2000/60/EC, which has been implemented nationally through the Act on the Organization of Water Management (1299/2004). The objectives are determined in connection with water management plans and related operational programmes and seek to ensure no deterioration in the status of surface waters and groundwater, which should be of at least good status.

The targets included in the Government resolution on water protection guidelines (23 November 2006) extend until 2015. The Act on the Organization of Water Management (1299/2004) requires that surface waters and groundwater are protected, enhanced and restored so that the water status objectives can be reached by 2015 at the latest.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

In the water protection guidelines adopted by the Finnish Government, extending until 2015, the protection measures are targeted to fulfil the needs for every type of water use. Water status objectives and water protection measures required for their attainment are defined in these guidelines. Key objectives and measures for wastewater treatment have been defined for both urban and rural areas as well as for industry. Key measures include reducing the amount of nutrients causing eutrophication and the loss of oxygen in the waters. The Government adopted Finland's indicative programme for the protection of the Baltic Sea on 26 April 2002 while the operational programme for the protection of the Baltic Sea and inland waters was adopted on 1 June 2005.

More information on the water protection guidelines is given previously in Part three/VII/2.

3. Briefly assess the progress achieved towards the target.

The Government adopted in December 2009 the River Basin Management Plans of 7 districts covering the whole country. The plans set the environment quality objectives for the surface waters and groundwater. It also identifies the measures and instruments to achieve the environmental objectives. Based on a recent survey the water quality is deteriorated (worse than good) in less than one third of the lakes and in about 40 % of rivers that has

been subject to planning.

Groundwater is a very important source of drinking water in Finland where approximately 60% of the people served by public waterworks now use groundwater or artificial groundwater. The quality of groundwater has been maintained rather good so that less than 2 % of groundwater areas important or suitable for water supply are deteriorated. Human activities cause significant risks for groundwater in about 500 groundwater areas.

As result of the activities identified in River Basin Management Plans it has been estimated that good water quality will be achieved in over 90 % of the lakes, about 70 % of the rivers under the subject of the planning by 2015. Almost all groundwater bodies will achieve good water quality status by 2015. All sectors have to intensify the water protection measures.

The treatment of wastewater in rural areas of Finland with no centralized sewerage system will be improved greatly over the coming years, thanks to requirements in the Governmental Decree on Onsite Wastewater Systems (542/2003), which came into force on 1.1.2004. The Decree sets minimum standards for wastewater treatment and the planning, construction, use and maintenance of treatment systems. One important aim is to connect rural communities into the centralized sewerage networks. More information and education will be provided to promote the water protection in rural areas.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

IX. OCCURRENCE OF DISCHARGES OF UNTREATED WASTEWATER (ART. 6, PARAGRAPH 2(g) (i))

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

Untreated wastewater from communities or industry is not discharged into waters under normal circumstances. Preventative measures are taken to preclude disruptions and adequate action taken to prepare for accidents. The pollution arising from occasional discharges is taken into account in each treatment plant's environmental permit and the proportion of such discharges is examined as part of surveillance when assessing compliance with permit regulations.

No target date in respect of wastewater from communities and industry is required to manage normal conditions. Appropriate management of emergency conditions will be included by 2015 in those permit regulations yet lacking it.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

Under normal conditions, no untreated wastewater is discharged into waters by Finnish urban wastewater treatment plants. Under exceptional circumstances, such as floods and equipment failure, wastewater must nonetheless be diverted directly into waters. Despite any diversions, wastewater treatment plants must meet the emissions requirements laid down in permit regulations, which depending on plant size are expressed as quarterly, six-month or full-year averages. If this is to be achieved, the normal operation of the plant must be somewhat more efficient than required under the permit regulations so that temporary diversions of untreated or only partly treated wastewater will not cause permit limits to be exceeded.

Separate sewerage systems for wastewater and storm water are in place in Finland except in limited city centre areas. Any rainfall and snow melt water accumulated on paved surfaces is conducted directly to surface waters via separate storm water networks consisting of drains and, to a certain extent, open drain ditches. Only a small part of storm water becomes mixed with wastewater and ends up at treatment plants for processing. This outcome was a conscious choice in its time, when it was deemed that storm water contained a very small amount of contaminants relative to other water pollution. It should also be noted that large amounts of usually cold storm water gaining access to a treatment plant hamper the function of the treatment process and reduce its efficiency. As the treatment of wastewater has gained in efficiency and other measures have further contributed to reduced water pollution, attention has come to focus also on the pollution caused by storm water and means of reducing such pollution. The harmful impacts of storm water can be reduced by taking hydrological factors into account at the town planning stage. Several methods exist for the treatment of separately collected and conducted storm water. These methods can be used to reduce the flow into waters of the most contaminated waters in particular. Under certain

circumstances, storm water also needs to be conducted to waste water treatment plants for treatment; even in such cases, however, the requirements appearing in the plants' permit regulations concerning treatment efficiency and discharge volume apply.

3. Briefly assess the progress achieved towards the target.

Exceptionally heavy rains have occurred frequently also in Finland and together with the climate change such phenomena will become more and more usual. Heavy rains increase the risk of overflows of untreated wastewater from sewers, pumping stations and treatment plants. At present there is no national statistics available indicating the amount of such overflows but the progress in preventing them has been slow so far. The condition of sewer networks has been studied in several municipalities. The need for enhanced sewer rehabilitation has been highlighted recently at national level by e.g. the Ministry of Agriculture and Forestry and the Association of Finnish Civil Engineers.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

X. OCCURRENCE OF DISCHARGES OF UNTREATED STORM WATER OVERFLOWS FROM WASTEWATER COLLECTION SYSTEMS TO WATERS WITHIN THE SCOPE OF THE PROTOCOL (ART. 6, PARAGRAPH 2 (g) (ii))

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

Under normal conditions, all waste waters in combined sewerage systems are conducted to treatment plants. Preventative action is taken to prepare for overflows caused by exceptional rainfalls. The pollution arising from occasional discharges is taken into account in each treatment plant's environmental permit and the proportion of such discharges is examined as part of surveillance when assessing compliance with permit regulations.

Systematic measures to reduce the nutrient load of storm water (such as prevention of storm water formation, withholding, delay or treatment of storm water) will be implemented in areas where storm water accounts for a substantial part of the environmental load on surface waters and water status needs to be improved.

The responsibility of municipalities, water supply plants and property owners for conducting storm water will be clarified in connection with revision of the Water Services Act, which will commence in 2007.

No target date in respect of areas served by combined sewerage systems is required with regard to normal conditions. The target date for separate storm water drains is 2015.

The target date in respect of clarifying responsibilities concerning the conduction of storm water is set at 31 December 2009.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

Factors impacting on the arising of storm water, the level of contamination of these, treatment methods and administrative and legal issues are addressed in the report completed in summer 2005, "Run-off water and its management in the built environment". The responsibility of municipalities, water supply plants and property owners for conducting storm water will be clarified in connection with revision of the Water Services Act (119/2001).

3. Briefly assess the progress achieved towards the target.

The responsibilities concerning storm water management are not quite clearly defined in the present legislation. To overcome these deficiencies, the Ministry of Agriculture and Forestry has nominated a committee to prepare a revision of the Water Services Act. The revised Act together with some relevant changes to the Act on Land Use and Construction should define accurately the responsibilities of the municipal authority and the water services provider in

issues of storm water management. The work with the revision of the Water Services Act is somewhat delayed and the target concerning clarifying the responsibilities was not met in 2009 but in 2010.

In addition to the above, a guidebook on storm water management principles is under preparation.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

As mentioned above, the target date concerning clarifying storm water management responsibilities has been put forward to 2010.

5. If you have not set a target in this area, please explain why.

Not relevant

XI. QUALITY OF DISCHARGES OF WASTEWATER FROM WASTEWATER TREATMENT INSTALLATIONS TO WATERS WITHIN THE SCOPE OF THE PROTOCOL (ART. 6, PARAGRAPH 2 (h))

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

Wastewater is treated biologically to remove organic matter and nutrients causing eutrophication – phosphorus and nitrogen – are removed. The treatment efficiency of plants is constantly being improved. Greater efficiency in treatment will be introduced particularly in areas where the harmful effects of wastewater threaten surface waters whose status is not good or whose status is at risk of deteriorating and where the status of the water system could be enhanced by intensifying community wastewater treatment. Limit values and environmental quality standards shall not be exceeded with regard to harmful substances. Methods and means shall be developed to reduce the hygienic risks of urban wastewater.

The target date for the intensification of the operations of treatment plants, required for good water status, and for reduction of hygienic risks and disruptions in operation is 2015. These targets will be pursued through mutual agreement with operators in the field.

The level required under the Governmental Decree on Onsite Wastewater Systems (542/2003) shall be achieved by 2014. No target dates need be set in other respects.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

Emissions caused by wastewater are governed by the Environmental Protection Act (86/2000) and the Decrees and other statutes supplementary to it. A permit is required for all treatment plants serving more than 100 inhabitants or treating an equivalent volume of waste water. The permit authority since 1.1.2010 is the Regional State Administrative Agency. Corresponding principles apply to the treatment of industrial waste water. Under the Act on the Organization of Water Management (1299/2004), measures to increase the efficiency of wastewater treatment shall be implemented especially in locations where the water status is not good and waste water impacts on such status.

Wastewater treatment plants shall operate in such a manner that the emission norms imposed on substances dangerous and harmful to the water environment and the norms for their concentrations in the water environment as laid out in Decree (1022/2006) are not exceeded. The Decree contains a list of substances dangerous and harmful to the water environment. More knowledge will be accumulated on the harmful substances in community waste water and their sources. Harmful substances that do not disintegrate during treatment will be prevented from entering community wastewater treatment systems and water systems.

The Decree on Urban wastewater (888/2006) presents the minimum requirements for

biological treatment and phosphorus removal in wastewater treatment as well as the grounds on which nitrogen shall be removed from wastewater. The required nitrogen removal shall satisfy the minimum requirements under the Decree.

The Government resolution taken on 23 November 2006 on water protection guidelines requires that hygienic risks caused by wastewater shall be reduced through the development and introduction of new means and procedures in cooperation with operators in the water services sector.

Under the Environmental Protection Act, wastewater from areas of dispersed settlement may not cause pollution of the environment. Wastewater treatment shall moreover meet the requirements for biological oxygen demand, phosphorus and nitrogen removal under the Governmental Decree on Onsite Wastewater Systems (542/2003).

The maximum permissible amount of emissions is always determined in treatment plant permits, usually both quantitatively and as an efficiency percentage. Requirements are normally imposed on urban wastewater treatment plants in respect of at least organic matter (BOD_7), phosphorus and nitrogen.

The surveillance of treatment plant operations is based on the analysis of samples taken by the plants and on so-called obligatory surveillance, which plants usually commission from a regional water protection association or a competent consultant. The authorities verify the findings and perform spot checks as necessary. The findings of obligatory surveillance are recorded in the environmental administration's VAHTI information system, which also allows the compilation of regional and national summaries.

General provisions concerning waste and wastewater are included in the Health Protection Act (763/1994). The requirement of waste and wastewater not causing a health hazard appears in section 22 of the Act. The provision concerns the storage, collection, transportation, processing and recovery of waste, the conducting and treatment of wastewater and the planning, placement, construction and maintenance of sewers. The National Supervisory Authority for Welfare and Health (Valvira) pursuant to section 25 of the Act may issue instructions for the prevention of health hazards arising from waste and wastewater.

3. Briefly assess the progress achieved towards the target.

Data entered in the VAHTI system shows that in 2007, the treatment efficiency of community waste water treatment plants in the removal of organic matter was 97% on average, in the removal of phosphorus 96% on average and in the removal of nitrogen 55.7% on average. In the near future, the efficiency of nitrogen removal will increase as total nitrogen removal requirement is imposed on several new plants in revised permit regulations. The removal efficiency of organic matter and phosphorus will also improve somewhat from current figures.

Under the Government resolution on water protection guidelines until 2015 (23 November 2006), community wastewater treatment plants are required to increase the efficiency of wastewater treatment especially when the plants impact on surface waters whose status is not good or whose status can be enhanced by more efficient wastewater treatment. Nutrient removal will be intensified and the operating conditions of treatment plants improved by using the best available technology and in keeping with Finland's programme for the protection of the Baltic Sea (26 April 2002) and the operational programme to protect the

Baltic Sea and inland waters (1 June 2005). Attention is paid in the resolution to the prevention of emergency situations and the proper care of sewerage systems and treatment plants. Voluntary agreement-based measures will be developed to complement the permit procedure in order to ensure that measures to reduce waste water pollution are carried out as cost-effectively as possible.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

XII. DISPOSAL OR REUSE OF SEWAGE SLUDGE FROM COLLECTIVE SYSTEMS OF SANITATION OR OTHER SANITATION INSTALLATIONS (ART. 6, PARAGRAPH 2 (i), first part)

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

The Decree on community waste water (888/2006) prohibits the discharge of sewage sludge into waters.

Under the Decree on fertilizer products (12/07) and the Government decision on the use of sewage sludge in agriculture (282/1994), sewage sludge shall be treated in the requisite manner before placement elsewhere than in landfills.

The national waste plan until 2005 required the reuse of a minimum of 90% of sewage sludge. The new national waste plan will be submitted to the Government for adoption during 2007.

Under the Government resolution on water protection guidelines until 2015 (23 November 2006), the different operators shall work together to improve the conditions for the safe and environmentally sustainable recovery and placement of sewage sludge.

Realization of the targets provided for consists of enforcement of existing legislation. Increasing the efficiency of sludge treatment is an ongoing effort.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

The professional or institutional treatment of sewage sludge is subject to an environmental permit pursuant to the Environmental Protection Act (86/2000). Based on the application, regulations shall be imposed in the permit on a case by case basis so as to minimize the adverse environmental impacts of the activity. Under Section 4(1)(4) of the Environmental Protection Decree (169/2000), the recovery of treated, non-hazardous sludge from waste water or septic tanks as soil improvement material or fertilizer is not deemed to require an environmental permit. Such recovery may not however result in a violation of the soil pollution prohibition provided for in section 7 of the Environmental Protection Act of the groundwater pollution prohibition provided for in section 8 of that Act.

Under Government Decree (888/2006), neither treated nor untreated sewage sludge accumulating from community waste water treatment plants may be discharged into water systems.

The intensification of sewage sludge treatment is examined in the Ministry of the Environment's operational programme on the protection of the Baltic Sea and inland waters (1 June 2005).

The intensification of sewage sludge treatment is also included in the national waste plan, which was reviewed in 2003. The national biowaste strategy was adopted in 2004. The treatment of sewage sludge will be intensified in accordance with national and regional waste plans and the national biowaste strategy. The target of 90% recovery of sewage sludge by 2005 was set in the national waste plan. Achievement of this target is hampered by uncertainty as to the ultimate recovery of sewage sludge stored or composted at landfills. In earlier statistics, sewage sludge of this kind was also deemed to have been recovered, and according to these statistics, sewage sludge recovery increased in the 1990s from 58% to 91%. In 2003, composted sewage sludge whose ultimate recovery could not be ascertained was entered in the statistics under "other treatment", decreasing the recovery rate in 2003 to only 65%. Most of this composted sewage sludge was used in the landscaping of landfills and other sites and as a soil improvement agent in agriculture. The prohibition on discharging sludge into water systems appears in the Government Decree on community waste water (888/2006).

In 2008 the government approved the new national waste plan until 2016. This nationwide strategic plan is aimed at developing the Finnish waste management system and promoting waste prevention. The national waste plan emphasizes the relationship between waste issues and other sectors of environmental policy such as chemical policy, sustainable resource use, climate policy, environmental health, soil protection, and technology policy. The plan sets targets as restriction of landfilling of biodegradable waste. The energy recovery of those wastes which are not suitable for materials recycling should be increased. The aim is that in 2016, some 90 % of all sludge generated in rural areas would be treated in wastewater treatment plants and the remaining 10 % in biogas plants at farms. Tighter legislation on wastewater emissions in rural areas will probably increase the amount of sludge generated outside built-up areas. The aim is that by 2016, 100 % of all municipal sludge will be recovered, either to be used as energy or for soil conditioning. It is estimated that the amount of municipal sludge generated will remain more or less at present levels.

The Government Decree on Onsite Wastewater Systems (542/2003) entered into force at the beginning of 2004. The environmental administration together with the Ministry of Agriculture and Forestry, municipalities and water supply and sewerage plants will develop the general planning of water and waste management so that the treatment of sewage sludge in areas of dispersed settlement and the further processing of sewage sludge in urban areas will be addressed and reconciled in the plans.

Water supply plants will study options to increase the recovery of sewage sludge. Wastewater treatment plants will increase their cooperation with inter alia the manufacturers of fertilizers and substrates, organizations responsible for tending municipal green areas, farmers and agricultural machinery manufacturers. The goal of such cooperation is to develop sewage sludge processing so that the properties as well as transport and spreading systems of sludge products meet the requirements of users.

The minimum requirements for the recovery of sewage sludge in agriculture are laid down in Government decision (282/1994) on the use of sewage sludge in agriculture. The use of sewage sludge in agriculture is regulated under the decision so as to seek to prevent the adverse environmental and health impacts of sewage sludge while promoting its appropriate use. Requirements are imposed on the harmful substances in the sludge, its hygienization, the amounts of sludge to be spread, the characteristics of the acreage where the sludge is spread, and the accounts and reporting relating to the activities.

The Ministry of Agriculture and Forestry handbook “Supplementary terms/Farming method and environmental terms” states the following in respect of sewage sludge, “In the event that a farmer takes delivery of sewage sludge, such sludge shall have been treated with an approved method and shall meet the hygiene requirements imposed.” In a letter dated 17 June 2005, the same Ministry has defined the supplementary terms for the use of treated sewage sludge in agriculture. The Ministry’s Department of Food and Health and the Finnish Food Safety Authority have defined the sewage sludge treatment methods currently accepted in Finland and clarified the supplementary terms in their instructions.

The use of sewage sludge in agriculture is governed by the new Fertilizer Products Act (539/2006) and the complementary Decrees of the Ministry of Agriculture and Forestry, (12/07) on fertilizer products and (13/07) on carrying out activities concerning fertilizer products, in which the conditions for the utilization of sewage sludge as a fertilizer product are imposed.

The sewage sludge arising from property-specific treatment in areas of dispersed settlement are considered waste generated in settlements, which is governed in accordance with the provisions of the Waste Act (1072/1993) concerning corresponding waste (waste transport scheme and waste recovery and disposal) so that the municipality plays a significant role as operator.

3. Briefly assess the progress achieved towards the target.

The amount of municipal sludge is about 150 000 t/a dry solids. 96 % is applied in landscaping (covering closed landfills, mixing with clay, sand and peat for turfcontracting etc.). 3 % is applied in agriculture and 1 % is landfilled.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

XIII. QUALITY OF WASTEWATER USED FOR IRRIGATION PURPOSES (ART. 6, PARAGRAPH 2 (i), second part)

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

Not relevant in Finland

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

3. Briefly assess the progress achieved towards the target.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

5. If you have not set a target in this area, please explain why.

XIV. QUALITY OF WATERS USED AS SOURCES FOR DRINKING WATER (ART. 6, PARAGRAPH 2 (j), first part)

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

The quality of surface water used as a source for drinking water meets the requirements of Government decision (366/1994).

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

The Government may, pursuant to the Water Services Act (119/2001), issue by Decree more specific provisions on quality requirements for raw water, the implementation of surveillance obligations and the supply of surveillance data. The surveillance frequencies for surface water used as a source of drinking water are provided for in Government Decree (1022/2006) on substances dangerous and harmful to the water environment. The earlier Government decision on the quality requirements and surveillance of surface water used for drinking water (366/1994) also remains in force.

The quality of surface waters used as raw water by water supply plants is quite good in Finland in general. Reporting in 2002 relating to the Drinking Water Abstraction Directive (75/440/EEC) stated that there were four water supply plants in Finland at the time where raw water quality was rated in the lowest acceptable category of A3, at least for part of the year. The low quality rating was due to natural factors, i.e. excessive degree of coloration and iron content. Two of the four plants already had in place concrete plans for abstracting raw water of better quality by switching over to the use of artificial groundwater.

3. Briefly assess the progress achieved towards the target.

Recently the water quality is deteriorated (worse than good) in less than one third of the lakes and in about 40 % of rivers that has been subject to planning.

Groundwater is a very important source of drinking water in Finland where approximately 60% of the people served by public waterworks now use groundwater or artificial groundwater. The quality of ground water has been maintained rather good so that less than 2 % of ground water areas important or suitable for water supply are deteriorated. Human activities cause significant risks for ground water in about 500 ground water areas.

As result of the activities identified in River Basin Management Plans it has been estimated that good water quality will be achieved in over 90 % of the lakes, about 70 % of the rivers under the subject to the planning by 2015. Almost all ground water bodies will achieve good water quality status by 2015. All sectors have to intensify the water protection measures.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

XV. QUALITY OF WATERS USED FOR BATHING (ART. 6, PARAGRAPH 2 (j), second part)

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

Water quality at large public bathing areas meets the requirements of the Decree of the Ministry of Social Affairs and Health (177/2008), which are based on the requirements of the Bathing Water Directive 2006/7/EC. According to these regulations, bathing water quality should be at least sufficient.

Bathing water at small public bathing areas meets the national requirements of the Decree of the Ministry of Social Affairs and Health (354/2008).

The target date in respect of bathing water quality is set at 31 August 2015.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

The general provisions governing water quality at public bathing areas are included in the Health Protection Act (763/1994). Under section 13 of the said Act, the municipal health protection authority shall be notified of the establishment or entry into use of a public bathing area, swimming pool or spa. The authority may in its decision impose regulations or prohibitions necessary to prevent health hazards.

The more specific provisions concerning the monitoring of water quality at large public bathing areas appeared in Decree (177/2008) of the Ministry of Social Affairs and Health, which are based on Directive 2006/7/EC of the European Parliament and of the Council concerning the management of bathing water quality and repealing Directive 76/160/EEC. The new Decree provides for the monitoring and classification of bathing waters, water quality management and dissemination of information about bathing water quality. The said Decree imposes requirements concerning microbiological quality on bathing water and measures to be taken when bathing water quality fails to meet the requirements imposed. This Decree shall apply to large public bathing areas that are expected to be visited by at least 100 swimmers per day. Under the Decree, bathing waters will be classified into four categories based on microbiological parameters: excellent, good, sufficient or poor. Bathing water shall qualify as at least sufficient by the end of the bathing season 2015.

Bathing water quality at small public bathing areas is monitored pursuant to section 29 of the Health Protection Act (763/1994). The quality requirements laid out in Decree (354/2008) of the Ministry of Social Affairs and Health apply to bathing waters in small public bathing areas that are expected to be visited by less than 100 swimmers per day. The said Decree imposes microbiological values for management action. Decree includes regulations on measures to be taken when bathing water quality fails to meet these

microbiological values. The Decree also provides regulations on dissemination of information about bathing water quality.

3. Briefly assess the progress achieved towards the target.

The first classification of large public bathing areas will be done after the bathing season 2011.

In general, the quality of Finnish bathing waters is very good. Occurrence of cyanobacteria in bathing water can, however, pose health hazards. Heavy rains, floods or waste water accidents can temporarily deteriorate the microbiological quality of bathing water.

The monitoring data of small public bathing areas is at the moment in the municipalities. A national environmental healthcare target information system comprising all environmental healthcare sites, including public bathing areas, is currently under construction. From the year 2013 when this information system is fully operational, information also from these small public bathing areas will be collected into national database.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

XVI. QUALITY OF WATERS USED FOR AQUACULTURE OR FOR THE PRODUCTION OR HARVESTING SHELLFISH (ART. 6, PARAGRAPH 2 (j), third part)

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

The general objectives of water protection have been defined in the programme of water protection guidelines extending until 2015, which was adopted by the Government on 23 November 2006.

General objectives for the status of waters have been set nationally in the Water Framework Directive 2000/60/EC, which has been implemented nationally through the Act on the Organization of Water Management (1299/2004). The objectives are determined in connection with water management plans and related operational programmes and seek to ensure no deterioration in the status of surface waters and groundwater, which should be of at least good status.

The targets included in the Government resolution on water protection guidelines (23 November 2006) extend until 2015. The Act on the Organization of Water Management (1299/2004) requires that surface waters and groundwater are protected, enhanced and restored so that the water status objectives can be reached by 2015 at the latest.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

The general quality requirements for water used in aquaculture are laid down in Under Decree (134/2006) of the Ministry of Agriculture and Forestry, the water used in the primary sector for aquaculture shall be pure and may not contain foreign odours or flavours or micro-organisms, parasites or foreign substances to such a degree that the water might compromise the safety of primary sector produce and the foods obtained there from.

As to the achievement of good water quality for aquaculture, there are no sector-specific regulatory, financial or other actions to be distinguished from the overall measures described above in point 1.

3. Briefly assess the progress achieved towards the target.

The Government adopted the River Basin Management Plans of 7 districts covering the whole country. The plans set the environment quality objectives for the surface waters and groundwater. It also identifies the measures and instruments to achieve the environmental objectives. Recently the water quality has deteriorated (worse than good) in less than one third of the lakes and in about 40 % of the rivers that have been subject to planning.

As a result of the activities identified in the River Basin Management Plans, it has been

estimated that good water quality will be achieved by 2015 in over 90 % of the lakes and about 70 % of the rivers subject to planning. All sectors have to intensify the water protection measures.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

XVII. APPLICATION OF RECOGNIZED GOOD PRACTICE IN THE MANAGEMENT OF ENCLOSED WATERS GENERALLY AVAILABLE FOR BATHING (ART. 6, PARAGRAPH 2 (k))

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

The quality and monitoring of enclosed waters intended for public use shall meet the requirements of Decree (315/2002) of the Ministry of Social Affairs and Health. Employees taking actions impacting on the quality of enclosed waters at swimming pools and spas shall have passed the proficiency test on plant technology and enclosed water hygiene referred to in section 28a of the Health Protection Act (763/1994).

The target date in respect of enclosed water quality is set at 2015 and in respect of passage of the proficiency test at 30 June 2008.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

Provisions on the quality and monitoring of enclosed waters at public pools are laid down in the Decree of the Ministry of Social Affairs and Health on the quality requirements and surveillance of enclosed waters at swimming pools and spas (315/2002). Requirements in respect of microbiological, chemical and physical quality are laid down in the Decree. The basic premise for the quality requirements is for enclosed water not to pose a health hazard to swimmers. This is ensured by adequate chlorine disinfection relative to usage and the appropriate conditions for chlorine disinfection to function effectively. The Decree also provides regulation for the monitoring frequency of enclosed waters. The basic principle is that the more persons use the waters on average, the more frequently water samples shall be taken. Ultimately, responsibility for monitoring enclosed water quality rests with the municipal health protection authority. The responsibility for communicating water quality rests with the administrator of the facility.

Surveillance analyses for the municipal health protection authorities are conducted at the laboratories that have been approved by the Finnish Food Safety Authority and have been evaluated according to ISO/IEC 17025 standard. Prerequisites for the approval are laid down by Government Decree (1174/2006).

Enclosed water management, like water management in general in Finland, is subject to generally accepted practices. In addition to the aforementioned Decree (315/2002) of the Ministry of Social Affairs and Health, that Ministry together with the Ministry of Education and the Finnish Association for Swimming Instruction and Life Saving has prepared a practical handbook on the quality and monitoring of enclosed water, containing inter alia instructions for the preparation of a surveillance programme and monitoring during use. Another objective of the handbook is to intensify the cooperation between facilities and the municipal health protection authorities and to harmonize practices.

Section 28a of the Health Protection Act (763/1994) requires all employees at public swimming pools, spas and similar facilities who take actions impacting on water quality to hold a certificate issued by the National Supervisory Authority for Welfare and Health verifying their proficiency in plant technology and enclosed water hygiene. More specific provisions on the proficiency in plant technology and enclosed water hygiene required of employees at the above facilities and the testing of such proficiency are laid down in Decree (1350/2006) of the Ministry of Social Affairs and Health. The Decree inter alia provides for the parties entitled to test the aforementioned employees as well as the areas of expertise which employees shall master in order to pass the test. The persons licensed to test the proficiency are registered and supervised by the National Supervisory Authority for Welfare and Health. The objective of legislation is to increase the overall competence of public swimming pool and spa employees in matters of enclosed water hygiene and plant technology. The aim is to ensure appropriate enclosed water quality under all circumstances and particularly in special circumstances.

Other measures taken to safeguard the quality of enclosed water include good practices and recommendations relating to the purification of enclosed water. Instructions on building the treatment system for enclosed water are provided in Building Information Group's HEVAC Building Services Information File LVI 22-10386. The file provides detailed instructions on the proper construction of enclosed water treatment systems in various circumstances so that the health requirements for enclosed water are met at all times. The product file is used as a construction recommendation at all sites where public swimming pools are built.

3. Briefly assess the progress achieved towards the target.

At the end of year 2009 1699 employees taking actions impacting on the quality of enclosed waters at swimming pools and spas have accomplished certificates which verify their proficiency on plant technology and enclosed water hygiene. All the employees have to have the certificate in order to take actions impacting on the quality of enclosed waters. In year 2007 only 40% of the tested people passed the test. In years 2008 and 2009 the passage percentages were 76% and 86%, respectively. So far, the licence to test the proficiency has been permitted to 35 persons.

In general, the water quality of enclosed waters at swimming pools and spas fulfil the requirements that are at the laid down by the Decree of the Ministry of Social Affairs and Health (315/2002). At present a national environmental healthcare target information system comprising all environmental healthcare sites is under construction. The system will be in use in year 2013. Through this system the surveillance information gathered and inspected at the municipalities can be investigated also at Regional State Administrative Agencies, Supervisory Authority for Welfare and Health and Ministry of Social Affairs and Health.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

XVIII. IDENTIFICATION AND REMEDIATION OF PARTICULARLY CONTAMINATED SITES (ART. 6, PARAGRAPH 2 (l))

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

The identification and remediation of contaminated sites will be continued in a prioritized manner within the framework of available appropriations.

Sites that threaten groundwater and other sites causing significant environmental and health hazards shall be prioritized in remediation.

Realization of the targets consists of enforcement of existing legislation and ongoing activities.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

The key statute in respect of contaminated soil and groundwater is the Environmental Protection Act (86/2000). Soil protection is addressed either directly or indirectly in several other statutes as well (e.g. Forest Act (1093/1996), Nature Conservation Act (1096/1996), Waste Act (1072/1993), Chemicals Act (744/1989), Environmental Damage Insurance Act (81/1998), Act on Combating Oil Pollution on Land (378/1974) and Act on the Oil Pollution Compensation Fund (1406/2004)). The Government Decree concerning the assessment of soil contamination and need for decontamination (214/2007) entered into force in June 2007.

Areas of contaminated soil and soil extraction shall be areas of particular focus in groundwater risk management. The harmful substances in contaminated sediments and their impacts will be studied as necessary and any harm prevented by attending to necessary water protection measures in connection with dredging, etc.

Provisions on the key issues in respect of soil contamination have been laid down in the Environmental Protection Act (86/2000). Information on contaminated sites has been collected since the early 1990s. The SAMASE project on the study and remediation of contaminated sites was completed in 1994, after which the data has been reviewed and updated during 1998 and 1999. A new national soil contamination information system is in test use at present and will be deployed during 2007. Site data will be reviewed in connection with deployment. All in all, data has been collected on nearly 22,000 sites. The sites are classified as in need of study, evaluation or decontamination or as areas not in need of decontamination. The majority of the sites fall into the category of “in need of study”. These consist of sites where activities using substances harmful to the environment are or have been pursued and where such substances may have found their way into the soil but the possible contamination of the site is yet to be determined. Some 4,000 of the surveyed sites are located in groundwater areas, slightly under 3,200 sites at a distance of less than 100

metres from watercourses and some 250 sites at a distance of less than 250 metres from water abstraction facilities.

By the end of 2009, the environmental administration had taken some 4,000 decisions on the remediation of contaminated sites. Some 300 decontamination projects are initiated annually. Most remediation is related to changes in land use in urban areas or property transactions. In ground water areas, remediation seeks to prevent any deterioration in the quality of the groundwater. Very few attempts have been made to date to decontaminate groundwater sites that have already been contaminated, largely due to the uncertain results, high costs and long duration of such undertakings. The risk of groundwater contamination has been taken into account when determining soil remediation objectives in groundwater areas and the objectives have therefore often been stricter than in other areas.

The majority of remediation is undertaken with private funding. Remediation through the State waste management system had been initiated at nearly 360 sites by the beginning of 2009. These funds have been used to relocate several old landfills located in groundwater areas and to remediate sawmills and wood impregnation plants on the shores of watercourses. The remediation of old filling stations has been coordinated through, a joint undertaking of oil companies and the Ministry of the Environment. By the beginning of 2007, applications had been submitted for the inclusion of nearly 1,350 sites in the programme and remediation had been initiated at nearly 520 sites. Old filling station properties located in groundwater areas have been a particular focus of this programme.

3. Briefly assess the progress achieved towards the target.

Remediation has been initiated at nearly 620 contaminated soil sites during 2008 and 2009 in Finland. From these 120 sites were located in groundwater areas and 10 sites at a distance of less than 100 meters from groundwater areas and 50 sites less than 100 meters from surface waters.

Remediation through the State waste management system had been completed at 40 sites in the last two years. It has been applied in the sites, when the property owner is not able to pay and there has been significant threat to the environmental or health. In most cases the risk focuses on groundwater quality. At the same time the SOILI programme has begun remediation actions at 110 old filling stations. In recent years this state budget money has been about 3 million euros per year and from The Oil Pollution Compensation Fund 2 million euros per year.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

No need at the moment

5. If you have not set a target in this area, please explain why.

Not relevant

XIX. EFFECTIVENESS OF SYSTEMS FOR THE MANAGEMENT, DEVELOPMENT, PROTECTION AND USE OF WATER RESOURCES (ART. 6, PARAGRAPH 2 (m))

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of such target.

The targets and target dates have been addressed under different sections of Part three of this report.

The implementation of the targets is supported by the Act on the Organization of Water Management (1299/2004), under which water system management plants and related operational programmes shall be prepared on the basis of river basins.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

Actions are described under different sections of Part three of this report.

3. Briefly assess the progress achieved towards the target.

The progress achieved in different sectors is described in other sections of Part three of this report.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

There are no special target dates set for the overall effectiveness of the management of water resources, all aspect are properly covered in the different sections.

5. If you have not set a target in this area, please explain why.

The targets and target dates have been addressed fully under different sections of the Protocol.

XX. ADDITIONAL NATIONAL OR LOCAL SPECIFIC TARGETS

In case additional targets have been set, for each target:

1. Describe the target, target date and baseline conditions. Please include information on whether target is national or local, and intermediate targets as relevant.

2. Briefly describe the actions taken (e.g. legal/regulatory, financial/economic and informational/ educational and management measures) to reach the target and, if applicable, the difficulties and challenges encountered.

3. Briefly assess the progress achieved towards the target.

4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g. in the light of scientific and technical knowledge? If so, and if the revised target and targets date have already been adopted, please describe them.

PART FOUR: OVERALL EVALUATION OF PROGRESS ACHIEVED IN IMPLEMENTING THE PROTOCOL

This part of the summary report shall provide an analysis and synthesis of the status of implementation of the Protocol. Such an overall evaluation should not only be based on the issues touched upon in the previous parts, but should also include, as far as is possible, a succinct overview of implementation of: article 9 on public awareness, education, training, research and development and information; article 10 on public participation; article 11 on international cooperation; article 12 on joint and coordinated international action; article 13 on cooperation in relation to transboundary waters; and article 14 on international support for national action.

This analysis or synthesis should provide a succinct overview of the status, trends and threats, sufficient to inform decision makers, rather than an exhaustive assessment of these issues. It should provide an important basis for planning and decision-making as well as for the revision of the targets set, as needed.

Waterborne outbreaks

In Finland, the compulsory notification system of suspected waterborne outbreaks launched in 1997 has decreased the detection limit of outbreaks and increased the awareness of the quality of drinking water. Municipal health protection authorities and water companies are nowadays more susceptible for reacting potential problems and malfunctions related to water service. The notification system has also accelerated the co-operation between different bodies enabling expert help when planning and starting preventive management and remedial actions to investigate and restrict the outbreak and to prevent health hazards.

Today in Finland, also small and restricted waterborne outbreaks associated e.g. with the use of a private well come out. The figures on waterborne outbreaks are nowadays more realistic than before this notification and reporting system and quite close to the real numbers.

Awareness about waterborne outbreaks has led to the revision of the legislation. Waterworks can not be taken into use without permission granted by municipal health protection authorities. Flow of information between municipal health protection authorities and water companies has been enhanced. New legislation also requires supplementary education and proficiency tests for personnel taking actions impacting on the quality of drinking water. Ministry of Health who is responsible for drinking water legislation are most probably in the near future including requirement for disinfecting readiness into legislation which means that waterworks are obliged to start disinfection within certain hours in the case of microbiological contamination of drinking water. If this requirement comes true the cooperation between neighbouring waterworks will be increased because every waterworks shall have detailed plans and arrangements in advance how to start disinfection within the timeframe set in the legislation.

Guide books on water treatment, communication in severe accidents related to drinking water service and operation and maintenance of small waterworks have been published. National and EU wide research programmes have been developed to promote research activities related to water service and sanitation. High number of waterborne outbreaks has already had effects on treatment processes, e.g. the use of ultraviolet radiation has been increased especially in groundwater plants. Ultraviolet radiation is a good choice for disinfection of groundwater although it does not have any effects in the distribution network.

Public information and public participation

The importance of up to date information on the quality of e.g. drinking, bathing and pool water can not be underestimated. This information is easily available for public in different ways such as leaflets, newspapers and Internet. Severe problems and waterborne outbreaks are duly informed in the media.

Public participation is taken into account especially in the establishment of a public bathing area. According to the legislation, municipal health protection authorities shall arrange opportunities for public to get information on the implementation of the bathing water legislation and on the draft list of bathing areas. Public have opportunity to make proposals and comments on the implementation of the bathing water legislation and especially on the list of bathing areas.

In order to enhance the knowledge on private water supply systems and water quality in wells numerous guidebooks, leaflets and brochures have been published. The environmental authorities have also created comprehensive website with emphasis on water quality in private wells. In addition, special educational courses are available each year for those active in the field.

Numerous guidebooks, leaflets and brochures as well as several comprehensive websites are available on small scale sanitation issues. They are actively used by professionals and those living in areas with no centralized water services, including the holiday home owners. A public awareness campaign dealing with onsite sanitation was arranged together with several actors in spring 2009. A similar campaign has been planned for late March 2010 as well.

International co-operation in small scale wastewater treatment

Based on the proposal and preparation of Finland the Helsinki Convention (HELCOM) adopted in 2007 a recommendation concerning on-site wastewater treatment of single family homes, small businesses and settlements up to 300 person equivalents. It includes a recommendation to the Governments of the contracting states that certain practices should be promoted in on-site wastewater treatment coming from the above mentioned units.

The main recommendations are:
- untreated wastewater shall not be led directly to natural water systems in areas not connected to sewers and
- wastewaters from single family homes, small businesses and settlements should be treated so that the emissions per capita to the environment reach at most the values set in the recommendation.

Maximum permissible loads are given for biological oxygen demand, total phosphorus and total nitrogen. There are three alternatives how to determine the limit values. Different possible phases of minimization of the discharges are given as well as examples how to reduce the generated load, e.g. by using dry toilets and separation of grey water.

A transitional period of 10 years was given for implementation. Follow-up has been included and a reporting format has been developed recently.

PART FIVE: INFORMATION ON THE PERSON SUBMITTING THE REPORT

The following report is submitted on behalf of **Finland** in accordance with article 7 of the Protocol on Water and Health.

Name of officer responsible for submitting the national report: Mr. Jari Keinänen

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Ministry of Social Affairs and Health
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Signature:

Date:

Submission

Parties are required to submit their summary reports to the joint secretariat, using the format outlined in these guidelines, by **31 March 2010**. Submission of the reports ahead of this deadline is encouraged, as this would help facilitate the preparation of analyses and syntheses to be made available to the second meeting of the Parties.
Parties are requested to submit, to the two addresses below, an original signed copy by post and an electronic copy either on a diskette or CD-ROM or by e-mail. Electronic copies should be available in word processing software, and any graphic elements should be provided in separate files.

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