

# Summary report in accordance with article 7 of the Protocol on Water and Health\_FINLAND

## Executive summary

*Please provide an overall evaluation of the progress achieved in implementing the Protocol in your country during the reporting period. Please provide a short description of the main steps taken and highlight important achievements, key challenges, success factors and concrete good practice examples.*

*Suggested length: maximum 2 pages*

## Background

Finland set the targets in accordance with article 6 of the Protocol on Water and Health in 2008. Currently the targets have been regarded partly outdated. During the reporting period the draft of the new targets was prepared, and the new targets will be effective in 2019.

Access to drinking water and sanitation is 100% of the population in Finland. A large part of the targets have been implemented in legislation, and therefore it has not been relevant to set target dates for them. The targets not implemented in legislation consist of published guidelines, good practices and different types of strategic decisions.

## Drinking Water

The quality of drinking water has remained high, 99,99% compliance with the health based requirements. However, exceptional situations happen regularly, and therefore the emphasis of implementing the targets has been in reinforcing guidance for preparedness planning and actions to secure the quality of drinking water in exceptional situations as well as promotion of water safety planning. Due to pre-emptive actions, during the reporting period 2016–2018 only six drinking water related outbreaks where 850 persons fell ill, were recorded. The efficient obligatory reporting system of waterborne outbreaks can be regarded as a success factor, since due to the reporting system the figures are highly reliable. Other success factors related to drinking water include e.g. launching of the web-based WSP-tool which has been taken widely into use among water suppliers and authorities. The mutual trust and close collaboration between water suppliers and authorities are reflected in municipal, regional and national levels and for example in the work of the Water Services Pool, set by the National Emergency Supply Agency, which has developed several handbooks on preparedness planning, risk management and crisis communications. The major challenge in water supply is ageing, inadequate management and insufficient renewal rate of the distribution network.

## Sanitation

Risk assessment and evaluation of best available techniques (BAT) are required from wastewater treatment operators when their environment permits are under consideration. The web-based SSP-tool and national BAT conclusions, both used by operators and authorities, have contributed to harmonization of the risk assessments and served as a tool to facilitate the permit procedure. Wastewater is treated biologically and chemically to remove organic matter and nutrients. On the average, the treatment efficiency of the urban wastewater treatment plants is 97% for removal of organic matter, 96% for removal of phosphorus and 60% for removal of nitrogen. Under normal conditions untreated wastewater is not discharged to water bodies. However, due to for example operating failures discharges occur occasionally. According to legislation, the operator shall be prepared for such incidences by compiling a preparedness plan. Also heavy rainfalls or melting snow may cause intrusion of storm water into the sewerage system thus exceeding the capacity of the treatment plan and

causing discharges of wastewater into waterbodies. One of the main challenges in sewerage is ageing of the sewerage and its' insufficient renewal rate. During recent years the the proportion of separate storm water sewerages has increased, thus contributing to decreasing number of discharges due to storm water.

### **Water sources**

There are more than 6,700 surface water bodies and more than 3,800 groundwater bodies in Finland. River Basin Management Plans (RBMPs) and the related Programmes of Measures (PoMs) have been adopted for seven regions in mainland Finland. The RBMPs and the PoMs include measures which are needed to reach and safeguard the good groundwater qualitative and quantitative status and the good ecological and chemical status of surface and coastal waters.

Groundwater is an important source of drinking water. Approximately 63% of the population is served by waterworks that use groundwater or artificial groundwater. The quality of groundwater has been maintained rather well. Only less than 2% of aquifers that are important or suitable for water supply have been classified being in poor status. The legislation includes general and strict prohibition to pollute groundwater. However, there are about 500 groundwater areas where human activities cause significant risks for groundwater.

Only 2% of the surface water bodies are classified as being in a poor ecological status while 30% of the surface water bodies are in a poor chemical status. The high percentage of poor chemical status is mainly due to mercury that is common in humic and acidic small water bodies. The goal of achieving a good status by 2015 for all water bodies has not been reached. It will take more time to reach the goals especially in coastal waters and some rivers, but the final target date for reaching the good status is set for 2027.

RBMPs deal with the measures and policy instruments in different sectors, including those responsible for implementation. The RBMPs are implemented by many actors. These include operators, enterprises, households, NGOs, government sectoral authorities, regional State administrative agencies, municipalities, regional councils, research centres, interest groups, associations, and many voluntary actors. The scope of instruments for the management, development, protection and use of water resources includes environmental permits, amendments in legislation, different guidance projects, elaboration of strategies, improvement of risk assessments, development of monitoring, elaboration of water safety plans as well research and development projects. Also education and information on good practices plays an important role.

### **Bathing, pool and spa waters**

Most bathing waters have been classified as excellent or good. In a few large bathing areas, the quality of bathing water has been temporarily classified as poor, but the status has not been permanent. The compulsory reporting system requires that all water-related outbreaks will be reported. During the reporting period 2016–2018, there were four bathing water outbreaks in which 180 bathers fell ill. Outbreaks were caused by noroviruses or campylobacteria. In addition to the outbreaks, there were approximately 30 *Vibrio* infections, not cholera, but e.g. ear infections, among bathers swimming in the coastal water. All outbreaks and illness cases occurred in the warm summer 2018.

The legislation requires that all employees at public swimming pools and spas who take actions impacting on water quality must have a certificate verifying their proficiency in plant technology and pool water hygiene. The legislation also requires that all cleaners of the pool or spa premises are aware of their actions on the quality of pool water. For that reason, a voluntary test for the cleaners was developed in close collaboration with their interest organizations.

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

As swimming skills are important for physical health and in preventing drowning, The Finnish Swimming Teaching and Lifesaving Federation (FSTLF) has published a guide booklet for visitors to swimming halls. The Ministry of Education and Culture, FSTLF, and representatives of immigrant organisations, disability organisations, swimming halls and other parties contributed to the preparation of the guide. The guide booklet has been translated into 11 languages.

## Part one

### General aspects

1. Were targets and target dates established in your country in accordance with article 6 of the Protocol?

*Please provide detailed information on the target areas in part two.*

YES  NO  IN PROGRESS

*If targets have been revised, please indicate the date of adoption and list the revised target areas. Please provide detailed information in part two.*

2. Were targets and target dates published and, if so, how?

*Please explain whether the targets and target dates were published, made available to the public (e.g., online, official publication, media) and communicated to the secretariat.*

The targets and target dates in accordance with article 6 of the Protocol on Water and Health have been adopted, published (<http://stm.fi/terveydensuojelu>) and sent to the UNECE secretariat (Decision of the Ministry of Social Affairs and Health, 15<sup>th</sup> Feb 2008). The targets and target dates are based on EU legislation including relevant reporting procedures, national legislation and appropriate national programmes, strategies and progresses. Each target and target date have been explained and reasoned.

3. Has your country established national or local arrangements for coordination between competent authorities for setting targets? If so please describe, including information on which public authority(ies) took the leadership and coordinating role, which public authorities were involved and how coordination was ensured.

An expert group was established under the national working group in order to prepare target setting. Targets and target dates were discussed and finalised in an expert group meetings consisting representatives from different administration sectors. The Ministry of Social Affairs and Health was the leader of the group. The expert group collected all relevant national material, 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. In 2018–2019 the expert group has drafted the new targets which have been linked to the Sustainable Development Goals of the Agenda 2030. The new targets will be published in 2019.

The co-operation between sectoral administrations works well and the dialogue between different bodies goes fluently explaining thus the trouble-free process in target setting.

4. Was a programme of measures or action plan developed to support implementation of the targets? If so, please briefly describe that programme or plan, including how financial implications were taken into account.

The programme of measures or action plans were not developed on the basis of the targets. In the contrary, the targets set for the Protocol are a compilation of targets, guidelines and decisions that have been set in existing legislation or strategies. They all have been explained below for each target.

5. What has been done in your country to ensure public participation in the process of target setting in accordance with article 6, paragraph 2, and how was the outcome of public participation taken into account in the final targets set?

The draft of the targets and target dates were 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 2016 the targets were amended to include Water Safety Planning and Sanitation Safety Planning which was based on the Government Programme 2011–2015.

6. Please provide information on the process by which this report has been prepared, including information on which public authorities had the main responsibilities and what other stakeholders were involved.

National implementation of the targets and the target dates has been followed by the national working group mentioned before. This group is also responsible for this report. Information and results presented in the third report in 2016 have now been updated according to the current circumstances. Likewise the previous report, also this report is based on e.g. recent reports to the European Commission, national reports and programmes and Government Programmes and strategies.

7. Please report any particular circumstances that are relevant for understanding the report, including whether there is a federal and/or decentralized decision-making structure.

The competent authorities are the municipal health protection and municipal and regional environmental protection authorities.

The ministries responsible for legislation are: Ministry of Social Affairs and Health (drinking, bathing and pool water), Ministry of Agriculture and Forestry (water services), Ministry of the Environment (protection of water sources and catchment areas, wastewater).

The structure of guidance and supervision is the following. National Supervisory Authority for Welfare and Health is responsible for drinking, bathing and pool water and health aspects of sewage water, Finnish Environment Institute provides information and solutions to support the protection and sustainable use of the Baltic Sea, water systems, and water resources, National Institute for Health and Welfare is responsible for health-related issues, reporting and research, Regional Centres for Economic Development, Transport and the Environment are responsible for development of water resources management and catchment protection, and the Regional State Administrative Agencies are responsible for permissions for sewage treatment plans and for water uptake and guidance and supervision of municipal health protection authorities. Nearly all organizations mentioned above participated in the preparation of this report.

## **Part two**

### **Targets and target dates set and assessment of progress**

*For countries that have set or revised targets and target dates, please provide information specifically related to the progress towards achieving them. If you have not set targets in a certain area, please explain why.*

*For countries in the process of setting targets, please provide information on baseline conditions and/or targets considered under the relevant target areas.*

*Suggested length: one page (330 words) per target area.*

#### **I. Quality of the drinking water supplied (art. 6, para. 2 (a))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

The quality of the drinking water supplied shall meet the requirements of Decrees (1352/2015) and (401/2000). The Decrees are based on Council Directive 98/83/EC (Drinking Water Directive), and the standards are based on the guidelines of the World Health Organization (WHO) for drinking water.

The water supplier shall ensure that the employees 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).

No target date need to be set in respect of parametric values, as the transitional period concerning the Directive expired already on 25 December 2003.

The target date in respect of passing the proficiency test was on 30 June 2008.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

Provisions on the monitoring and quality of drinking water are incorporated in Decrees (1352/2015) and (401/2001). In the decrees, both health-based standards as well quality targets based on the suitability of the water are imposed on the quality of drinking water.

Municipal health protection authority monitors the quality of drinking water on a regular basis. 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. Since the revision of the Health Protection Act (763/1994) in 2017, surveillance of drinking water has to be based on risk assessment of the whole water supply chain from raw water sources through abstraction, treatment processes and distribution into consumer's tap. The surveillance programme shall be reviewed at intervals of five years and whenever review is deemed necessary due to changed circumstances.

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. Regional State Administrative Agencies may grant temporary 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.

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. National reports on monitoring and quality of drinking water are published in Finnish in the Internet.

A provision concerning the competency requirements of employees responsible for water quality at drinking water supply plants and the demonstration of such competency is included in the legislation. The employees are obliged to obtain their proficiency certificates, which remain valid for five years at a time.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

The target has been achieved. The quality of drinking water in Finland is very high. In 2017, over 99.99 % of the monitoring results complied with the health based requirements set for microbiological and chemical quality of drinking water. The data is based on the frequent surveillance of large drinking water supplies distributing more than 1,000 m<sup>3</sup> in a day or for more than 5,000 consumers. These large supplies distribute drinking water for approximately 81% of the population in Finland.

The rest of the population get drinking water from smaller water supplies or from private wells. Information on the quality of drinking water in these smaller units is not collected into national reporting system. However, the health based quality requirements are the same for both large and small water supplies and private wells.

By 2018, around 55,000 proficiency tests in plant technology and water hygiene have been accepted.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

Target is based on the Council Directive 98/83/EC (Drinking Water Directive) and on the guidelines of the World Health Organization (WHO) for drinking water.

The target contributes with the Goals 6 (Clean water and sanitation) and 17 (Partnerships for the goals) and especially Targets:

**6.1** By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

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

## **II. Reduction of the scale of outbreaks and incidents of water-related disease (art. 6, para. 2 (b))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

The number of persons falling ill in drinking water-related epidemics shall be reduced to an annual level of 0.01% of the population. The target is national and based on the best knowledge on water-related epidemics and possibilities to restrict the number of them.

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.

The target date was on 31 December 2015.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

The Health Protection Act (763/1994) includes provisions concerning special circumstances and outbreak caused by drinking water. 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. In the event of any outbreaks caused by drinking water or suspicion of such an outbreak, the drinking water supply plant concerned and the municipal health protection authority are required to take immediate action to improve the quality of the drinking water and to prevent the spread of the outbreak.

The Government Decree (1365/2011) contains more specific provisions concerning measures in the event of epidemics spreading via drinking water, bathing water or pool water. There is a compulsory electronic notification system for suspected waterborne outbreaks. The National Institute for Health and Welfare (THL) helps municipal health protection authorities in technical, analytical and epidemiological problems associated with waterborne outbreaks. Immediate electronic reporting of an outbreak accelerates the co-operation between municipal authorities, water utilities and THL and enables the design of immediate management and remedial actions to control and restrict the outbreak and to prevent harmful health effects. Reports on foodborne and waterborne outbreaks are available in Finnish in the Internet.

In 2017, a holistic risk assessment based monitoring of drinking water, including WSP-approach (Water Safety Plan) to identify the hazards and assess the risks from source to tap was included in the Health Protection Act. Parallel to the WSP web-based tool developed for the risk assessment, a SSP-tool (Sanitation Safety Plan) and a checklist for the risks of water supply and sanitation in households and buildings (BWSP, Building Water Safety Plan) have been developed. WSP, SSP and BWSP are discussed below in the sections VII and VIII.

Waterborne outbreaks caused by pool and bathing water is discussed below in the sections XVII and XV.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

The target is achieved. During the last five years the number of illness cases at annual level has remained below the target limit, 0.01% of the population. During the reporting period 2016–2018, the annual numbers of illness cases have been around 330, 60 and 480, respectively, comprising 0.001–0.009% of the population. Although the target is achieved on an average level, it is not feasible to reduce the limit. In Finland, half a million people get their drinking water from their own private wells. Wells are managed and monitored according to the interest of the owner. Municipal health protection authorities can monitor the quality of a well and give orders and instructions only if the consumption of drinking water poses a threat for human health.

During the reporting period 2016–2018, the number of waterborne outbreaks ( $N_{\text{tot}}=6$  outbreaks) has varied between 1-3 outbreaks a year. Viruses, especially norovirus and sapovirus, have caused most of the outbreaks. One outbreak was caused by campylobacteria and in one outbreak the causative microbial agent remained unknown. Three outbreaks were associated with contaminated private wells and one outbreak with the contaminated communal well and distribution system. In two outbreaks, the communal drinking water distribution network was contaminated by waste water.

During the reporting period, *Legionella* bacteria have caused several illness cases via contaminated water systems. Hot and cold water systems in a swimming hall, in a hospital and in a dredger have caused totally six cases of Legionnaires' Disease. In addition, legionella in a waste water scrubber sickened two employees.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goal 3 (Good health and well-being) and especially Targets:

**3.3** By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.

**3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

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

### **III. Access to drinking water (art. 6, para. 2 (c))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

In 2015, ca. 92% of the population was served by municipal or other centralized 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 meets the standards in terms of quality. 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.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

The Water Services Act (119/2001) requires that areas of operation of water supply plants are approved by the relevant municipality. When approving the area of operation, the municipality must determine areas to be included in the drinking water network of the supplier. The area of operation must be such that the 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 operational area into the water supply network must be set in connection with the decision on approval.

The Water Services Act also prescribes that the municipality must ensure that appropriate measures are taken to establish a water supply plant, to expand the area of operation of an existing supply plant or to otherwise secure the availability of sufficient water services when required by the need of a relatively large number of inhabitants, health considerations or environmental protection. The goal is that such networks meet the needs of settlement, business and leisure activities by expansion of the networks to all areas where water services are best provided by connecting the properties to the water supply network of the operator. Also other large-scale water users and, in particular, cattle farms shall be taken into account when assessing the water supply needs.

According to the water resources strategy of the Ministry of Agriculture and Forestry (21 September 2011) every effort shall be made to manage all risks concerning water supply services. In this respect, regional planning and cooperation as well as preparedness for emergencies by linking networks and providing backup arrangements for water abstraction shall be prioritized.

The population in Finland is permanently so dispersed that it is not practical to serve the entire population by water utilities. As groundwater of good quality is widely available, the procurement of drinking water in sparsely populated areas can be guaranteed by individual wells at the properties. In such cases the Decree (1352/2015) requires that health protection authorities shall ensure that the households not connected to the water mains of a drinking water supplier are provided with adequate information about the quality of the drinking water in their area, any related possible health hazards and ways of removing such hazards.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

Several new pipelines in rural areas have been constructed, usually with simultaneous construction of a sewer pipe.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goal 6 (Clean water and sanitation) and especially Targets:

**6.1** By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

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

#### **IV. Access to sanitation (art. 6, para. 2 (d))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

In 2015, approximately 83% of the population was served by centralized systems of sewerage, 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.

In 2017, the Environmental Protection Act (527/2014) concerning treatment and conveyance of wastewater outside a sewerage network was amended and at the same time new Government Degree on Onsite Wastewater Systems (157/2017, earlier 209/2011 and 542/2003) was given. The deadline for property owners to enhance onsite waste water treatment was postponed until 31 October 2019. Property owners shall render property-specific sanitation systems compliant with requirements in those cases where connecting the property to the centralized system of sanitation is not a viable option due to the location of the property.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5 of the Protocol).

The River Basin Management Plans for years 2016-2021, adopted by the Government in December 2015 include several actions to promote the access to sanitation.

Under the Environmental Protection Act (527/2014), wastewater in areas of dispersed settlement shall be treated in such a manner that the wastewater does not pose a risk of environmental pollution. Basic requirements concerning biological oxygen demand, phosphorus and nitrogen removal have also been imposed on wastewater treatment in areas of dispersed settlement by the Act. The above mentioned Government Decree (157/2017) sets requirements for sensitive areas. The requirements became applicable to new buildings immediately. Old properties located in areas of dispersed settlement shall render their wastewater treatment systems compliant with the requirements by the 31 October 2019 unless connected to community sewerage systems prior to that time.

The Governmental Decree (157/2017) 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 centralized wastewater treatment solutions should be sought.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

Sewer networks have been constructed to cover also sparsely populated areas situated near densely populated agglomerations. Hence, the share of population served by centralized systems has increased steadily but slowly. The target set in 2012 in the National Program for Sanitation was to expand sewerage network by 20,000 during 2012–2016. This target has been met, during that period 19,800 households (44,000 people) were connected to sewer networks.

The requirements concerning new buildings in areas where no sewer network exists have been favorably implemented. The target to enhance wastewater treatment by 31 October 2019 at all existing properties relying on septic tanks without any further treatment is, however, difficult to achieve. Awareness campaigns to the public, education of designers and entrepreneurs and many other activities have been introduced. 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 in order to protect the environment, they are reluctant to invest in a new plant or to a proper rehabilitation of the old one.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goal 6 (Clean water and sanitation) and especially Targets:

**6.2** By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

**6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

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

## V. Levels of performance of collective systems and other systems for water supply (art. 6, para. 2 (e))

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the 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.

Of water supply plants serving more than 5,000 residents, 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 where their primary water abstraction facility cannot be utilized. The target is to improve the reliability of drinking water supply to get all water supply plants serving more than 5,000 residents to the safety rating of either I or II.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5 of the Protocol).

Water Services Pool, set by the National Emergency Supply Agency, has developed several handbooks on preparedness, risk management and crisis communications. Until 2016, the government supported investments in water services, especially preparedness for emergency situations, regional cooperation and water supply and sewerage development in rural areas. The Centres for Economic Development, Transport and the Environment, Finnish Environment Institute and water utilities have also made research and plans on climate change vulnerability of groundwater and adaptation of water infrastructure. Water infrastructure is also one of the elements of Finnish flood risk mapping.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

New pipelines have been constructed to serve such rural areas where local good quality groundwater is not available in needed quantities. Connection pipelines between water utilities have also been constructed to safeguard the availability of water.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goal 6 (Clean water and sanitation), 9 (Industry, innovations and infrastructure), 11 (Sustainable cities and communities) and 16 (Peace, justice and strong institutions) and especially Targets:

**6.1** By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

**6.4** By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

**9.1** Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.

**11.1** By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.

**16.6** Develop effective, accountable and transparent institutions at all levels.

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

## **VI. Levels of performance of collective systems and other systems for sanitation (art. 6, para. 2 (e))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the 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. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

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 charges for water services must be such that they cover the investments and costs of the water supply plant in the long term. Thus the construction of new sewer pipelines is funded by charges from the clients. The operation and maintenance costs are covered by wastewater fees based on water consumption.

The loads of waste water overflows are included to environmental permit conditions. The performance of overflows is monitored as a part of the enforcement of the permits.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

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. A best available techniques (BAT) report of sewer design, construction and maintenance was prepared in 2016.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goal 6 (Clean water and sanitation), 9 (Industry, innovations and infrastructure) and 16 (Peace, justice and strong institutions) and especially Targets:

**6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

**9.1** Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.

**16.6** Develop effective, accountable and transparent institutions at all levels.

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

## **VII. Application of recognized good practices to the management of water supply (art. 6, para. 2 (f))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

The key national provisions concerning surface and groundwater protection are incorporated into the Water Act (587/2011) and the Environmental Protection Act (527/2014). These include 1) the prohibition to alter groundwater, 2) the groundwater pollution prohibition, and 3) the exclusion areas of water abstraction plants under water rights. Provisions concerning groundwater protection also appear in the Land Extraction Act (555/1981) and certain other Acts and Decrees.

The general objectives for the status of waters have been set in the Water Framework Directive (2000/60/EC) and in the Directive on the Protection of Groundwater against Pollution and Deterioration (2006/118/EC). These directives provide the base for groundwater and surface water protection, sustainable use of groundwater, prevention of groundwater pollution and reduction of existing pollution. They have been implemented nationally through the Act on the Organization of River Basin Management and the Marine Strategy (1299/2004). The statutes require that surface waters and groundwater are protected, enhanced and restored so that the water status objectives will be reached by 2015. Exemptions to reach the environmental objectives may be applied as issued in the Act. The reaching of the objectives may be delayed until 2027 or even later if the exemption justification on natural condition is applied.

The objectives are determined in connection with River Basin Management Plans (RBMPs) and the related Programs of Measures (PoMs) (see Part Three, XIX of this report). The 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. The primary targets in respect of drinking water quality include

- reducing nutrient inputs causing eutrophication,
- reducing the risks arising from harmful substances, and
- protecting groundwater.

The target date of the objectives that surface waters and groundwater shall be protected, enhanced and restored so that the water status objectives will be reached was at the end of 2015.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

Openness, transparency and good practices are the watchwords of water services in Finland. Traditionally, close collaboration and mutual trust have prevailed among the authorities, water suppliers, the nationwide joint organization of water and wastewater operators (the Finnish Water Utilities Association, FIWA) and the research institutes. This has allowed e.g. rapid exchange of information, shared training courses on legal matters as well as good practises, and preparation of common practical guidebooks.

Key legislation governing water issues comprises the Environmental Protection Act, the Government Degree on Environmental Protection (714/2014), the Water Act and the Government Degree on Water Resources Management (1040/2006). The objective of the

Environmental Protection Act is to prevent pollution of the environment and to restore and reduce damage caused by pollution, and to safeguard a healthy environment. Activities posing a risk of pollution are subject to permitting 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 targets related to the water supply chain from catchment to tap have been also implemented or set under

- the Health Protection Act (763/1994)
- the Water Services Act (119/2001)
- the Land Extraction Act (555/1981)
- the Act on the Organisation of River Basin Management and the Marine Strategy (1299/2004)
- the Degree on the Quality and Monitoring of Water Intended for Human Consumption (1352/2015)
- the Government Decree on Substances Hazardous and Harmful to the Aquatic Environment (1022/2006)
- the Government Decree on Limiting Certain Emissions from Agriculture and Horticulture (1250/2014)
- the Government Decree on Urban Wastewater (888/2006)
- the Degree on Onsite Wastewater Systems (157/2017)

The main instruments in groundwater protection include:

- elaboration and implementation of protection plans to whole aquifers and safeguard zones to groundwater intakes;
- mapping and evaluation of risks;
- remediation of contaminated soil and groundwater;
- groundwater protection through land use planning;
- hydrogeological research into groundwater areas and the mapping of the occurrence and impacts of hazardous and harmful substances;
- developing groundwater monitoring and control measures.

The Environmental Protection Act includes general and strict prohibition to pollute groundwater. The environment permit cannot be granted if the activity may cause a risk of groundwater pollution. According to the Government Decree on Substances Hazardous and Harmful to the Aquatic Environment all direct or indirect inputs to groundwater are prohibited if there is a risk that it may cause groundwater pollution now or in the future.

The Government Decree on Limiting Certain Emissions from Agriculture and Horticulture entered into force in April 2015. The Government Decree on treating domestic wastewater in areas outside sewer networks entered into force in 2004 and its purpose was to reduce emissions of domestic wastewater and environmental pollution with particular regard to the national water protection objectives. In 2011 the degree was revised after considerable public dissatisfaction. The wastewater treatment requirements were set in the Environmental Protection Act, and the transition period was postponed. At present the deadline is 31 October 2019.

The Water Services Act requires that when required due to the need of a relatively large number of inhabitants or health considerations or environmental protection, a municipality shall 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. To ensure the functioning of water services in all conditions, the water supply plants need regional cooperation and partnerships, combined networks and emergency water supplies. The State supports investments in improving the preparedness. The Act also

requires that the water supplier shall ensure that the water supplied by the plant and intended for human consumption meets the quality requirements set out in the Health Protection Act. After revision of the Water Services Act in 2014 the water supplier shall also be aware of all the risks concerning the quality or the amount of the water used for supply and the risks concerning equipment and infrastructure used. The supplier shall be prepared for possible fault situations and ensure water supply in all conditions.

According to the Health Protection Act, the supplier of drinking water shall obtain approval from the municipal health protection authority prior to starting the operations. Approval shall also be sought if substantial changes occur in water abstraction or water processing or in the quality of raw water or distributed 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 groundwater may be used in decision-making.

Detailed regulation on preparedness planning to ensure the quality of drinking water in exceptional situations is given in the Decree on the Quality and Monitoring of Water Intended for Human Consumption (1352/2015). In the latest revision of the Decree in 2017, in adjunction to the amendment of the Health Protection Act, risk-based monitoring of drinking water and Water Safety Planning were ordained compulsory for all suppliers.

A practical handbook on the application the Decree on the Quality and Monitoring of Water Intended for Human consumption was first published in 2001 in collaboration with authorities, water suppliers and their interest groups. The revision of the handbook was finalised in 2019 by the National Authority for Welfare and Health. Another guidebook, the Guide on Actions to Secure the Quality of Drinking Water in Exceptional Situations was also revised in 2017–2019 in close collaboration with health, environment and rescue authorities, water suppliers, associations and research institutes.

To enable practical, easy and uniform risk assessment, a web-based WSP-tool was developed during 2011–2015 by the Government in collaboration with health and environment authorities, water suppliers, and associations. The tool is in the use of the water suppliers and authorities without charge. A checklist was also prepared to identify and mitigate the risks of water supply and sanitation in households and buildings (BWSP, Building Water Safety Plan). In 2018–2019 the web-tool was revised on the basis of the experience gained by the users. At the same time the content of the tool was amended e.g. to include also risk-based approach to water quantity in order to safeguard the supply of water.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

Groundwater is an important source of drinking water in Finland where approximately 63% of the people served by waterworks use groundwater or artificial groundwater. According to status assessment done in 2015, the quality of groundwater has been maintained rather well. Less than 2% of aquifers important or suitable for water supply have been classified being in poor status, and water from these groundwater bodies can be used as drinking water when appropriate treatment is in place. Human activities cause significant risks for groundwater in about 500 groundwater areas.

As a result of the activities identified in RBMPs it has been estimated that good water quality will be achieved in more than 90% of the lakes and about 70% of the rivers under the subject of the planning by 2015. Almost all groundwater bodies were in good water quality status in 2015. The reassessment of the status of groundwater and surface water is currently in progress and will be finished in June 2019.

The web-based WSP-tool has been taken successfully into use by drinking water suppliers, and authorities. Currently (April 2019) the tool has in total 995 active users from 480 different organizations. The number of active Water Safety Plans compiled using the tool is 959.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goals 6 (Water and Sanitation) and 16 (Peace, Justice and Strong Institutions) and especially Targets:

**6.1** By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

**6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

**6.5** By 2030, implement integrated water resources management at all levels, including through trans-boundary cooperation as appropriate.

**6.6** By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

**16.7** Ensure responsive, inclusive, participatory and representative decision-making at all levels.

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

### **VIII. Application of recognized good practice to the management of sanitation (art. 6, para. 2 (f))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

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. The operation and maintenance costs are covered by wastewater fees based on water consumption.

The key objectives and measures for wastewater treatment have been defined for both urban and rural areas as well as for industry. The major targets concerning urban wastewaters are to

- reduce nutrient inputs causing eutrophication,
- reduce the risks arising from exceptional situations,
- develop the permit procedures, and
- manage harmful storm waters.

The Council Directive 91/271/EEC concerning urban waste-water treatment was adopted in 1991. Its objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial wastewater. The directive concerns the collection, treatment and discharge of wastewater. Government Decree on Urban Waste Water Treatment (365/1994, revised 888/2006) was adopted in Finland.

Voluntary agreement to reduce the nutrient loads from the municipal waste waters was signed in 2012 between the Ministry of the Environment, the Association of Finnish Local and Regional Authorities and the Association of Finnish Waterworks. The aim was to develop and take into use cost efficient voluntary measures to reduce wastewater pollution to achieve the environmental objectives to complement the permit system as regulated under Environment Protection Act (527/2014). Concrete targets and deadlines for nutrient reductions from the municipalities have been defined in the agreement and negotiations on its continuation are at present on-going.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

The measures and instruments to achieve good water quality, and also exemptions with extended deadlines, were identified in the RBMPs (see Part Two, VII, of this report). The key instruments in the protection of water resources concerning communities, holiday homes, and rural areas include:

- investing of waterworks to the renovation and upgrade of water treatment works, and water supply and sewerage networks;
- advancing wastewater transfer projects, along with water supply and sewerage, via public-sector funding and government support to communities and rural areas in line with the available appropriations;
- improving the management and treatment of storm water;
- encouraging the integration of land use, construction, and water supply and sewerage planning;
- updating the municipal development plans for water supply and sewerage;
- improving the preparations for abnormal weather conditions and emergencies in water supply and sewerage;
- encouraging the adoption of good practices in the treatment, use, and disposal of wastewater sludge;
- carrying out nitrogen removal from community wastewater in order to meet the objectives and conform to the national water resources protection programmes;
- enhancing research and development;
- promoting the adoption of dry toilets and other water-free waste management solutions; and
- increasing the provision of guidance on wastewater management in rural areas, while improving the knowledge base and instruments.

According to the Environment Protection Act, environmental permit applications must include an evaluation on best available techniques (BAT). A national technical working group has formed BAT conclusions to be used as a tool for environmental permit applicants and permit authorities.

Risk assessment is required by authorities from the wastewater treatment operators when their environment permits are under consideration. To enable practical, easy and uniform risk assessment to prevent health hazards and environmental degradation by sewerage and wastewater treatment, the web-based SSP-tool (Sanitation Safety Plan) was launched by the Government in 2015. The tool was developed in close collaboration with health and environment authorities, water suppliers, associations and private sector consultancies. The tool is in the use of the wastewater treatment operators and authorities without charge. In the SSP approach, WSP-principles (Water Safety Plan) of hazard identification and risk assessment were applied to sewerage and wastewater treatment, and the tool enables risk assessment of sewerage and wastewater treatment.

HELCOM Baltic Sea Action Plan (BSAP) is a programme to restore the good ecological status of the Baltic marine environment by 2021. The goals of the BSAP include e.g. reduction of eutrophication and minimisation of emissions of hazardous substances into the Baltic Sea. The Plan, adopted by all the coastal states and the EU in 2007, provides a concrete basis for HELCOM work. It incorporates scientific knowledge and management approaches into strategic policy implementation, and stimulates goal-oriented multilateral cooperation around the Baltic Sea region. The BSAP is regularly updated in ministerial meetings.

The Water Services Act (109/2001) sets requirements for preparedness planning for incidents in sewage network and necessary measures on the grounds of the plan.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any 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 Government Decree on Onsite Wastewater Systems (542/2003) came into force in 2004. The Decree sets minimum standards for wastewater treatment and the planning, construction, use and maintenance of treatment systems. One important aim was to connect rural communities into the centralized sewerage networks. In 2011 the degree was revised after considerable public dissatisfaction. The wastewater treatment requirements were set in the Environmental Protection Act and the transition period was postponed. At present the deadline is 31 October 2019.

In connection of revising the degree, the Parliament stated that more information and education has to be provided to promote the water protection in rural areas. The Ministry of Environment funded environmental NGOs' information projects in 2011–2019. The guidebook "Wastewaters in sparsely populated areas – Legislation and practice" by the Ministry of the Environment for local authorities and other professionals as a help to interpret the degree was first published in 2011 and amended in 2017

The implementation of the voluntary agreement to reduce the nutrient loads from the municipal waste waters is monitored and yearly reports are published.

The web-based SSP-tool was launched for the use of the wastewater operators and authorities in December 2015. Currently (April 2019) the number of active Sanitation Safety Plans is 300.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goals 3 (Good Health and Well-being) and 6 (Water and Sanitation) and especially the Targets:

**3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

**6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

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

## IX. Occurrence of discharges of untreated wastewater (art. 6, para. 2 (g) (i))

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the 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 in those permit regulations yet lacking it.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

Under normal conditions, no untreated wastewater is discharged into water bodies by the urban wastewater treatment plants. Under exceptional circumstances, such as equipment (pumping stations, sewer pipes) 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 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. Only a small part of storm water becomes mixed with wastewater and ends up at treatment plants for processing. In these cases when storm water also needs to be conducted to waste water treatment plants for treatment, however, the requirements appearing in the plants' permit regulations concerning treatment efficiency and discharge volume apply.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

The condition of sewer networks has been studied in several municipalities. The need for enhanced sewer renewal has been highlighted at national level by e.g. the Ministry of Agriculture and Forestry and the Association of Finnish Civil Engineers.

According to the evaluation performed in 2019, the length of the sewer networks is approximately 50 000 km, and 12% of them are in a poor condition. This emphasizes the importance of data management and planned renewal of the networks.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goals 3 (Good health and well-being), 6 (Clean water and sanitation) and 9 (Infrastructure, industrialization) and especially Targets:

**3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

**6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

**9.1** Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.

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

## **X. Occurrence of discharges of untreated storm water overflows from wastewater collection systems (art. 6, para. 2 (g) (ii))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the 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 conditions.

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.

No target date in respect of areas served by combined sewerage systems is required with regard to normal conditions.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

The responsibility of municipalities, water supply plants and property owners for conducting storm water was clarified in 2014 in connection with revision of the water services legislation. According to revised Land Use and Building Act (132/1999), municipalities are responsible to organize storm water management comprehensively in the street plan areas.

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. 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.

Separate storm water sewerage systems or above mentioned combined sewerage systems may be used as one of the solutions in this ensemble. Also, after revision of the Water

Services Act in 2014 (119/2001), it is forbidden to convey storm water from properties to sewerage system unless the sewerage system was built before 2015 and the system has enough capacity to deal storm water load.

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 reports, "Run-off water and its management in the built environment" (in 2005) and "Storm-water guidebook" (in 2012, revised in 2017).

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

Exceptionally heavy rains have occurred frequently also in Finland and together with the climate change such phenomena will probably become 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 legislation should encourage communities to organize storm water management by using new and innovative on-site methods, rather than invest in expensive sewerage systems and treatment plants.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goals 3 (Good health and well-being), 6 (Clean water and sanitation) and 9 (Industry, innovation and infrastructure) and especially Targets:

**3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

**6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

**9.1** Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.

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

## **XI. Quality of discharges of wastewater from wastewater treatment installations (art. 6, para. 2 (h))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

Wastewater is treated biologically and chemically to remove organic matter and nutrients (phosphorus and nitrogen) that cause eutrophication. 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.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

Emissions caused by wastewater are governed by the Environmental Protection Act (527/2014) 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 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 (119/2001), 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 hazardous and harmful to the water environment and their environmental quality standards for their concentrations in the water environment as laid out in Government Decree on Substances Hazardous and Harmful to the Aquatic Environment (1022/2006) are not exceeded. The overall target is to gradually minimize discharges of the substances listed in the decree. The Decree contains a list of substances hazardous 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 wastewater treatment plans are obligated to monitor the harmful and hazardous substances they discharge to the environment. The monitoring /surveillance obligation is issued in the permit.

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 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<sub>7</sub>), phosphorus and nitrogen.

The surveillance of treatment plant operations is based on the analysis of samples taken by the operators and on so-called obligatory surveillance, which the operators usually commission from a regional water protection association or a competent consultant. The authorities verify the findings and perform spot checks if necessary. The findings of the obligatory surveillance are recorded in the environmental administration's 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 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 may issue instructions for the prevention of health hazards arising from waste and wastewater.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

Data entered in the administration's information system shows that in 2015, the treatment efficiency of urban 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 60% on average. In the near future, the efficiency of nutrients and organic matter will increase

as removal requirement is imposed on several plants in revised permit regulations. In the next few years plants concentrate more and more to intensify the removal of faecal microbes as well as harmful and dangerous substances.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goals 3 (Good health and well-being), 6 (Clean water and sanitation) and 9 (Industry, innovation and infrastructure) and especially Targets:

**3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

**6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

**9.1** Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.

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

## **XII. Disposal or reuse of sewage sludge from collective systems of sanitation or other sanitation installations (art. 6, para. 2 (i))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

According to the Government Resolution on Water Protection Guidelines until 2015, the different operators shall work together to improve the conditions for the safe and environmentally sustainable recovery and disposal of sewage sludge.

The National Waste Plan until 2016 sets targets for sewage sludge. The aims are that by 2016, 100% of all municipal sludge will be recovered, either used as energy or for soil conditioning, and that 90% of all sludge generated in rural areas will be treated in wastewater treatment plants and the remaining 10% used for biogas production at farms.

Also the national Biowaste Strategy (adopted in 2004) aims at increasing recycling and recovery of wastewater sludge. The intensification of sewage sludge treatment is also examined in the Ministry of the Environment's operational programme on the protection of the Baltic Sea and inland waters (2005).

The treatment of wastewater sludge is guided by the national and regional waste plans and by the national Biowaste Strategy.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

According to Government Decree (888/2006), neither treated nor untreated sewage sludge from community waste water treatment plants may be discharged into water systems. Increasing the efficiency of sludge treatment is an ongoing effort, and realization of the targets consists of enforcement of existing legislation.

The minimum requirements for the recovery of sewage sludge in agriculture are laid down in the Decree 24/11 (Ministry of Agriculture and Forestry) on Fertilizer Products (as amended by Decrees 12/12 and 7/13). The use of sewage sludge in agriculture is regulated in order to prevent the adverse environmental and health impacts of sewage sludge and to promote its appropriate use. Requirements are imposed on the harmful substances in the sludge, its hygienization, the amounts of sludge to be spread on the fields and the characteristics of the acreage where the sludge is spread. Additionally, the Government Decree on Waste (179/0212) sets requirements for the accounts and reporting of the relating activities.

The conditions for use of sewage sludge as a fertilizer product are imposed in the Fertilizer Products Act (539/2006) and the complementary Decrees of the Ministry of Agriculture and Forestry on fertilizer products (24/11 and its amendments 12/12 and 7/13) and on fertilizer products and their control (11/12). The sewage sludge shall be treated in the requisite manner before using it in agriculture, and the end products shall fulfil the requirements for fertiliser products used as soil improvers or organic fertilisers.

The professional or institutional treatment of sewage sludge is subject to an environmental permit pursuant to the Environmental Protection Act (527/2014). Regulations are imposed in the permit on a case by case basis in order to minimize the adverse environmental impacts.

According to the Act, the use of treated, non-hazardous waste water sludge or sludge from septic tanks as fertilizer products is allowed for farmers for their own use on the farm without an environmental permit. The treatments and use shall, however, be in accordance with the Fertilizer Products Act and Decree of the Ministry of Agriculture and Forestry on carrying out activities concerning fertilizer products. Such recovery does not result in a violation of the soil pollution prohibition provided for in the Environmental Protection Act or the groundwater pollution prohibition. The sewage sludge from onsite treatment in areas of dispersed settlement is governed in accordance with the provisions of the Waste Act (646/2011) so that the municipality plays a significant role as operator in waste transport, recovery and disposal.

The national Waste Plan until 2016 was approved by the Government in 2008. The strategy is aimed at developing the waste management system and promoting waste prevention. The 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. It sets targets such as restriction of landfilling of biodegradable waste, and increase of the energy recovery of the waste not suitable for recycling of materials.

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, farmers, agricultural machinery manufacturers and organizations responsible for tending municipal green areas. 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.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

In 2017 Finnish Water Utilities Association assessed that the amount of sewage sludge in 2016 from wastewater treatment plants was approximately 147 000 t/a dry solids. According to this report, 41% was used as fertilizer and 52% for landscaping.

Due to the lack of reliable statistics, it is not possible to evaluate the achievement of the targets set for the treatment of sludge produced in rural areas. Tighter legislation on wastewater emissions in rural areas will probably increase the amount of sludge generated outside built-up areas. It is estimated that the amount of municipal sludge will remain more or less at present levels. The local measures for the implementation of the national targets are set in five regional waste plans.

The heavy metal contents of the waste water sludge produced in Finland are low. The concentration of cadmium has been <1 mg/kg, mercury <0.5 mg/kg and lead <10 mg/kg.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goals 3 (Good health and well-being) and 6 (Clean water and sanitation) and especially Targets:

**3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

**6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

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

### **XIII. Quality of wastewater used for irrigation purposes (art. 6, para. 2 (i))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

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

Not relevant because wastewater is not used for irrigation purposes in Finland.

### **XIV. Quality of waters which are used as sources for drinking water (art. 6, para. 2 (j))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

The targets for the surface water have been described in the River Basin Management Plans (see Part Three, VII). The primary targets include:

- reducing nutrient inputs causing eutrophication, and
- reducing the risks arising from harmful substances

in order to be able to reduce the purification needs of the surface water that to be used for production of drinking water.

The target of ground water quality is the same as it is according to the Water Framework Directive and the Directive on the Protection of Groundwater against Pollution and Deterioration (2006/118/EC): good status in the year 2015. All of the ground water bodies used for drinking water meet the requirements of Decree of the Ministry of Social Affairs and Health Relating to the Quality and Monitoring of Water Intended for Human Consumption (1352/2015) after treatment.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

Most of the water protection measures to decrease point source pollution are based on legislation. Additional measures are used mainly to tackle diffuse pollution. Moreover, several policy measures such as educational measures and are also used on national and regional and local level.

The surveillance frequencies for surface water used as a source of drinking water are provided for in Government Decree (1022/2006) on substances hazardous and harmful to the water environment.

The quality of surface waters used as raw water by water supply plants is quite good in general. Reporting in 2002 relating to the Drinking Water Abstraction Directive (75/440/EEC, revoked in 2007) 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. Turku artificial groundwater plant opened in 2011 and transfers nowadays 63,000 cubic meters of fresh water a day, serving 300 000 people.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

Groundwater is an important source of drinking water in Finland where approximately 63% of the people served by public waterworks now use groundwater or artificial groundwater. According to status assessment done in 2015, the quality of ground water has been maintained good, only ca. 2% of the aquifers that are important or suitable for water supply the quality is deteriorated. Human activities cause significant risks for ground water in about 380 ground water bodies. In addition approximately 150 ground water bodies need more studies to define if they are at risk and if the status is good or bad. Progress has been made in the quality of the ground water bodies with poor status but as more studies have been done, new areas with poor status have emerged and may yet emerge. The reassessment of the status of groundwater and surface water is currently in progress and will be finished in June 2019.

As result of the activities identified in River Basin Management Plans it was estimated that good water quality would 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 achieved good water quality status by 2015. Some exemptions exist where good status would not be reached by 2015 because of technical feasibility, disproportionate costs or natural conditions. In these

cases the target date of environment objective has been set to 2021 or 2027. All sectors have to intensify implementation of the water protection measures.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goals 6 (Clean water and sanitation) and 16 (Peace, justice and strong institutions) and especially Targets:

**6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

**6.5** By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.

**6.6** By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

**16.7** Ensure responsive, inclusive, participatory and representative decision-making at all levels.

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

## **XV. Quality of waters used for bathing (art. 6, para. 2 (j))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

Water quality at large public bathing areas meets the requirements of the Decree of the Ministry of Social Affairs and Health (177/2008) and its amendment (711/2014), 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) and its amendment (710/2014).

The target date in respect of bathing water quality was on 31 August 2015.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

The general provisions governing water quality at public bathing areas are included in the Health Protection Act (763/1994) and the more specific provisions are included in the decrees mentioned in the paragraph 1 of this section.

The decree imposed for large bathing areas that are expected to be visited by a large number of bathers in a day includes requirements for monitoring and classification of bathing waters, water quality management and dissemination of information about bathing water quality. Bathing waters are classified into four categories based on microbiological results: excellent, good, sufficient or poor. Legislation imposes requirements concerning microbiological quality on bathing water and measures to be taken when bathing water quality fails to meet the requirements.

For small public bathing areas, the decree imposes microbiological values for management action, includes regulations on measures to be taken when bathing water quality fails to meet

the microbiological values, and also provides regulations on dissemination of information about bathing water quality.

Bathing water monitoring results and their interpretation, status of classification, bathing water profile which is the description of a bathing water and factors affecting the quality of bathing water, and reasons to the poor water quality are available in the Internet. A lot of information for public is also available at the bathing area.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

The quality of bathing water is very good and the target has been achieved. Most bathing waters have been classified as excellent or good. In a few large bathing areas, the quality of bathing water has been temporarily classified as poor, but the status has not been permanent. Information on the quality of bathing water in small public bathing areas has not been systematically collected into a national reporting system.

During the reporting period 2016–2018, there were four bathing water outbreaks in which 180 bathers fell ill. Outbreaks was caused by noroviruses or campylobacteria. In addition to the illness cases mentioned above, there were around 30 *Vibrio* infections, not cholera, but e.g. ear infections, among bathers swimming in the coastal water. All outbreaks and illness cases occurred in warm summer 2018.

Occurrence of cyanobacteria in bathing water may, however, pose temporary health hazards. Heavy rains, floods, waste water accidents or bathers themselves can also deteriorate the microbiological quality of bathing water.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goal 3 (Good health and well-being) and especially Targets:

**3.3** By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.

**3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

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

## **XVI. Quality of waters used for aquaculture or for the production or harvesting of shellfish (art. 6, para. 2 (j))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

The 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 River Basin Management and Marine Strategy (1299/2004). The objectives are determined in connection with River Basin Management Plans and related programs of measures and seek to ensure no deterioration in the status of surface waters and groundwater, which should be of at least good status.

The aim of the Finnish marine strategy is to achieve a good status of the Baltic Sea by 2020. The strategy covers Finland's territorial waters and the exclusive economic zone. The marine strategy is being developed in parallel with the River Basin Management of lakes, rivers,

coastal and groundwater. Work on the Finnish marine strategy was started in 2008, and the development of the marine strategy is taking place in three steps. The Government issued a resolution on the first part in 2012. The first part contains an initial assessment of the state of the marine environment, definitions of good environmental status, and environmental targets and indicators. In 2014 the Government issued a resolution on the monitoring programme of the marine strategy. The programme of measures, or the third stage of the marine strategy, assesses the sufficiency of the current measures to protect the marine environment and proposes new ones for achieving and maintaining a good environmental status. The programme of measures was completed in December 2015 and its implementation started in 2016. For aquaculture, the objectives are to increase use of Baltic Sea fishmeal to feed fishfarms and also increase use of roach for food production.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

As regards the water quality in aquaculture the Decree of the Ministry of Agriculture and Forestry on Food Hygiene in the Primary Production of Foodstuffs (1368/2011) refers to the Article 2 of and Annex I to Regulation (EC) No 852/2004 of the European Parliament and of the Council on the hygiene of foodstuffs and to Annex III of regulation (EC) No 853/2004 of the European Parliament and of the Council laying down specific hygiene rules for food of animal origin.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

The River Basin Management Plans (RBMPs) set the environment quality objectives for the surface waters and groundwater. They also identify the measures and instruments to achieve the environmental objectives. The objectives are described more in detail in Part Three, sections VII and VIII of this report.

As a result of the activities identified in the RBMPs, it has been estimated that good water quality will be achieved by 2015 in more than 90% of the lakes and about 70% of the rivers subject to planning.

The national Aquaculture strategy until 2022 was adopted by the Government in 2014. The aim of the strategy is to ensure ecological, economic and social sustainability of aquaculture. The growth of aquaculture must be compatible with water quality requirements and other environmental objectives.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goal 6 (Clean water and sanitation) and 12 (Sustainable consumption and production), and especially Targets:

**6.5** By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate.

**12.2** By 2030, achieve the sustainable management and efficient use of natural resources.

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

## **XVII. Application of recognized good practice in the management of enclosed waters generally available for bathing (art. 6, para. 2 (k))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the 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 Health Protection Act (763/1994).

The target date set with respect to enclosed water quality was 2015, and with respect to completion of the proficiency test was 30 on June 2008.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

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 with respect to microbiological, chemical and physical quality are laid down in the Decree. The basic premise for the quality requirements is to ensure that enclosed water does not 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 and not to form by-products that are hazardous to health. 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 health protection authorities. The responsibility for communicating water quality rests with the administrator of the facility.

Surveillance analyses for the municipal health protection authorities are conducted at 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 (152/2015).

Enclosed water management, like water management in general in Finland, is subject to generally accepted practices. The National Supervisory Authority for Welfare and Health 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 operational monitoring. Another objective of the handbook is to intensify cooperation between facilities and municipal health protection authorities and to harmonise practices.

The Health Protection Act (763/1994) requires that 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). 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. The legislation also requires that operator of the pool or spa shall guarantee that all cleaners of the pool or spa premises are aware of their actions on the pool water. For that reason, a voluntary test for the cleaners was developed in close collaboration with the interest organizations of the cleaners.

Other measures taken to safeguard the quality of enclosed water include good practices and recommendations relating to the purification of 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.

The Finnish Swimming Teaching and Lifesaving Federation (FSL) prepared a booklet called 'Welcome to the swimming hall! - A guide for visitors to swimming halls'. The Sports Division of the Ministry of Education and Culture, the office and the swimming hall committee of the Finnish Association for Swimming Instruction and Life Saving, and representatives of immigrant organisations, disability organisations, swimming halls and other parties that were otherwise familiar with the topic of the guide contributed to the preparation and commenting on the guide. The guide booklet was translated into 11 languages.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

By the end of the year 2018, a total of 7,268 employees taking actions impacting on the quality of enclosed waters at swimming pools and spas have accomplished certificates which verify their proficiency in plant technology and enclosed water hygiene. All these employees are required to have the certificate in order to take actions impacting on the quality of enclosed waters. So far, the licence to test the proficiency has been issued to 50 persons.

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

The guide booklet -Welcome to the swimming hall!- has increased the personnel's understanding of different cultural backgrounds and offered support for service providers, if there has been problems in the use of a swimming hall. In addition, the guide has served as an aid for organisations to guide people from different cultural backgrounds in using swimming halls. The guide has also highlighted arrangements and space solutions that have been taken into account by building developers, planners and persons in charge of maintenance.

During the reporting period 2016–2018, there were three small pool water outbreaks in which nearly 50 bathers fell ill. Private jacuzzi contaminated by *Pseudomonas aeruginosa* caused one outbreak, pool water contaminated by noroviruses caused the second outbreak and a hotel whirlpool bath contaminated by *Legionella* bacteria sickened seven visitors.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with Goals 3 (Good health and well-being), 4 (Quality education), 6 (Clean water and sanitation) and especially Targets

**3.3** By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases.

**3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

**4a** Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all.

**6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.

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

## **XVIII. Identification and remediation of particularly contaminated sites (art. 6, para. 2 (I))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

The identification and remediation of contaminated sites will be continued in a prioritized manner within the framework of available appropriations under the baton of The Centers for Economic Development, Transport and the Environment.

Sites causing significant environmental and health danger threaten groundwater and other sensitive environmental sectors shall be prioritized in remediation.

Existing legislation and ongoing activities such as land owners plans for land use mainly determine the targets to identification and remediation contaminated sites.

The National Risk Management Strategy for Contaminated Land was completed in 2015. It is defined national vision of how the risk management and remediation of contaminated sites are managed cost-effectively and sustainably, taking into account health and the environment in the best possible way. The aim of the strategy is that - the significant risks to health and environment of the contaminated sites are under control in a sustainable way by 2040.

Remediation actions are carried out and based on National Investigation and Remediation Program for Contaminated Sites (2016-2040). The program aims to prioritize sites according to the environment and the health risks and to promote the systematic study and risk management.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

The key statute in respect of contaminated soil and groundwater is the Environmental Protection Act (527/2014). Soil protection is addressed either directly or indirectly in several other statutes as well (e.g. Land Use and Building Act (132/1999), Water Act (587/2011), Nature Conservation Act (1096/1996), Waste Act (646/2011), Chemicals Act (599/2013), Environmental Damage Insurance Act (81/1998) 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.

Soil remediation focus particular on risk management in the classified groundwater areas (groundwater is used or planned to use for municipal water abstraction) and areas where the land use is changing.

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 (527/2014). Information on contaminated sites has been collected since the early 1990s. The national soil contamination data system (MATTI) has been deployed in 2007. Data has been collected on over 25,000 sites. The sites are classified into four categories; sites requiring assessment, sites which must be investigated or remediated as necessary, sites where no remedial action is needed and operative sites. The majority of the sites fall into the category of “sites requiring assessment”. 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 not yet to be determined. Some 4,500 of the surveyed sites are located in classified groundwater areas, and some 280 sites at a distance of less than 100 meters from water abstraction facilities.

By the end of 2015, the environmental administration had taken over 5,550 decisions on the remediation of contaminated sites. On average 250–300 remediation 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.

The majority of remediation is undertaken with private funding. The estimation of the private proportion is 60%. Remediation through the State Waste Management System had been initiated at about 400 sites and through the Environmental Protection Support over 60 sites (discontinue). These funds have been used to relocate several old landfills and shooting ranges located in groundwater areas and to remediate sawmills and wood impregnation plants on the shores of watercourses. The remediation of oil-contaminated sites has been coordinated through, a joint undertaking of oil companies and the Ministry of the Environment. By the beginning of 2016, applications were submitted for the inclusion of nearly 1,700 sites in the SOILI-program or JASKA-project and remediation were initiated at nearly 700 sites. Contaminated sites located in groundwater areas have been a particular focus of this program.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

Remediation has been initiated at over 700 contaminated soil sites during 2016–2018 in Finland. Remediation through the State Waste Management System had been completed at 26 sites in the last three 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.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with Goals 3 (Good health and well-being) and 6 (Clean water and sanitation) and especially Targets:

**3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.

**6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated waste water and substantially increasing recycling and safe reuse globally.

**6.6** By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes.

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

## **XIX. Effectiveness of systems for the management, development, protection and use of water resources (art. 6, para. 2 (m))**

*For each target set in this area:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

The targets and target dates have been addressed under different sections of Part three of this report. The main targets have been set in the River Basin Management Plans (RBMP), based on the EU Water Framework Directive. The targets have been set in order to achieve or maintain good water status in the surface water bodies and groundwater bodies.

The Government approves RBMPs. The second RBMPs for years 2016-2021 were approved on 3 December 2015. The RBMPs and related Programmes of Measures (PoMs) have been adopted for seven regions in mainland Finland. The plans and PoMs will be revised by 2021.

The RBMPs and the programme of measures include measures which are needed to reach and safeguard the good groundwater qualitative and quantitative status and the good ecological and chemical status of surface and coastal waters. There are also measures to reduce discharges from the wastewater treatment plants and to improve the treatment of the wastewaters. In the RBMPs there is estimation how many measures are needed and when the environmental objectives will be reached.

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

Actions are described under different sections of Part three of this report. The measures to achieve good water quality status and to prevent the deterioration of the good water quality by 2015, with some exemptions by 2021 or 2027 have been identified in the RBMPs. The programme deals with the measures and policy instruments in different sectors, including those responsible for implementation. Through implementing the measures introduced in the RBMPs, a good ecological status will be secured or reached in 95% of lake surface water bodies and in 85% of river water bodies by 2021. It will take more time to reach the goals in coastal waters and some rivers, but the final target for reaching a good ecological status is set for 2027. For groundwater resources, excluding a few exceptional cases, nearly all are estimated to have reached a good ecological status by 2015. Good chemical status will be achieved in 70% of river water bodies, 40% lake water bodies and 95% coastal water bodies by 2021. Almost all groundwater bodies are assumed to reach good water quality status by 2021. Extended deadlines are needed mainly because of spoilt soils.

Actions are needed in all sectors in order to reach the environmental goals demands. The mitigation of agricultural nutrient pollution will require most measures, but measures are needed in other sectors as well. The RBMPs will be implemented through the actions of many different actors. These include operators, enterprises, households, NGOs, government

sectoral authorities, regional State administrative agencies, municipalities, regional councils, research centres, interest groups, associations, and many voluntary actors.

Implementation requires actions at all administrative levels (EU, national, regional, local). At the national level, ministries are responsible for implementing the RBMPs. The main instruments include allocation of the funding for enhancing water protection, development of legislation and policy instruments, and R&D. Many of the projects require common measures and horizontal policy actions and instruments.

The scope of instruments for the management, development, protection and use of water resources includes environmental permits, amendments in legislation, different guidance projects, elaboration of strategies, improvement of risk assessments, development of monitoring, elaboration of water safety plans as well research and development projects. Also education and information on good practices plays important role.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

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

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

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 cases where additional targets have been set, for each target:*

1. Please describe the current target and target date. Please provide information on the background (including the baseline/starting point and reference to existing national and international legislation) and justification for the adoption of the target.

### **Efficient use of digital databases**

There are several different information systems concerning water supply and sanitation. Ministry of Agriculture and Forestry funded establishment of a new water utility data base (VEETI), which started its' operation in the beginning of year 2016. VEETI is an open system and the data is mainly available also in internet. One objective when building up the VEETI system was that it also would integrate other information systems concerning water supply and sanitation. This integration work is still going on, the other systems have also development projects still going on. The whole development work will be completed in near future taking into account groundwater system (POVET), the drinking water quality system (VATI), wastewater supervision system (YLVA) and the performance indicator system of the Finnish Water Utilities Association (VENLA).

2. Please describe the actions taken (e.g., legal/regulatory, financial/economic, informational/educational and management measures) to reach the target (see also article 6, paragraph 5, of the Protocol).

According to Water Services Act (2014) a new information system of water utilities (VEETI) had to be in operation in the beginning of 2016. The system is operative, but the integration with the other systems will be completed later. All above mentioned systems are under development and financed by Finnish government and Finnish Water Utilities Association.

3. Please assess the progress achieved from the baseline towards meeting the target as well as any challenges encountered.

The process is going on and the final target will be reached in 2020.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.

The target contributes with the Goals 6 (Clean water and sanitation) and 17 (Partnerships for the Goals) and especially Targets:

**6.5** By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate

**17.8** Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology

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

## **Part three**

### **Common indicators<sup>1</sup>**

#### **I. Quality of the drinking water supplied**

##### **1. Context of the data**

1. What is the population coverage (in millions or per cent of total national population) of the water supplies reported under sections 2 and 3 below?

*The rationale of this question is to understand the population coverage of the water quality data reported under sections 2 and 3 below.*

*Please describe the type of water supplies for which data is included in the following tables, and the population share covered by these supplies.*

*Please also clarify the source of the water quality data provided (e.g., data from regulatory authorities).*

The data reported under sections 2 and 3 is based on the reporting obligations of the Drinking Water Directive 98/83/EC. The data covers large drinking water supplies which distribute drinking water more than 1,000 m<sup>3</sup> in a day or for more than 5,000 persons. The data is available in Finnish: <https://www.valvira.fi/ymparistoterveys/terveydensuojelu/talousvesi>.

In 2017, large water supplies distributed drinking water for around 4,5 million people which is 81% of the population in Finland.

2. Please specify from where the water quality samples reported in sections 2 and 3 below are primarily taken (e.g., treatment plant outlet, distribution system or point of consumption).

*The rationale of this question is to understand where the samples were primarily taken from for the water quality data reported in sections 2 and 3 below.*

Drinking water samples have been taken at the point of consumption (at the point of compliance).

---

<sup>1</sup> 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.

3. In sections 2 and 3 below, the standards for compliance assessment signify the national standards. If national standards for reported parameters deviate from the World Health Organization (WHO) guideline values, please provide information on the standard values.

*The rationale of this question is to understand any possible differences between the national standards for microbiological and chemical water quality parameters and the respective WHO guideline values.<sup>2</sup>*

Not relevant

## 2. Bacteriological quality

4. Please indicate the percentage of samples that fail to meet the national standard for *Escherichia coli* (*E. coli*). Parties may also report on up to three other priority microbial indicators and/or pathogens that are subject to routine water quality monitoring.

*If possible, please provide segregated data for urban and rural areas in the table below. If this is not possible, please consider reporting by alternative categories available in your country, for example by “non-centralized versus centralized” water supplies or by population number-based categories. If you do so, please indicate the reported categories by renaming the rows in the column “area/category” in the table below accordingly.*

*If data can be reported neither for urban and rural areas nor for alternative categories, please report total (national) values only.*

*Please comment on the trends or provide any other important information supporting interpretation of the data.*

Parameter	Area/category	Baseline value (2005)	Value reported in the previous reporting cycle (2014)	Current value (2017)
<i>E. coli</i>	<b>Total</b>	<b>0%</b>	<b>0.02%</b>	<b>0.02%</b>
	Urban			
	Rural			
Additional parameter 1: Enterococci	<b>Total</b>	<b>0.2%</b>	<b>0%</b>	<b>0%</b>
	Urban			
	Rural			
Additional parameter 2:	<b>Total</b>			
	Urban			
	Rural			
Additional parameter 3:	<b>Total</b>			
	Urban			
	Rural			

<sup>2</sup> The latest edition of the WHO *Guidelines for Drinking-water Quality* is available at: [http://www.who.int/water\\_sanitation\\_health/publications/dwq-guidelines-4/en/](http://www.who.int/water_sanitation_health/publications/dwq-guidelines-4/en/).

### 3. Chemical quality

5. Please report on the percentage of samples that fail to meet the national standard for chemical water quality with regard to the following parameters:

- (a) Arsenic;
- (b) Fluoride;
- (c) Lead
- (d) Nitrate.

6. Please also identify up to three additional chemical parameters that are of priority in the national or local context.

*If possible, please provide segregated data for urban and rural areas in the table below. If this is not possible, please consider reporting by alternative categories available in your country, for example by “non-centralized versus centralized” sanitation systems or by population number-based categories. If you do so, please indicate the reported categories by renaming the rows in the column “area/category” in the table below accordingly.*

*If data can be reported neither for urban and rural areas nor for alternative categories, please report total (national) values only.*

*Please comment on the trends or provide any other important information supporting interpretation of the data.*

<i>Parameter</i>	<i>Area/category</i>	<i>Baseline value (2005)</i>	<i>Value reported in the previous reporting cycle (2014)</i>	<i>Current value (2017)</i>
Arsenic	<b>Total</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>
	Urban			
	Rural			
Fluoride	<b>Total</b>	<b>0.9%</b>	<b>0.5%</b>	<b>0%</b>
	Urban			
	Rural			
Lead	<b>Total</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>
	Urban			
	Rural			
Nitrate	<b>Total</b>	<b>0%</b>	<b>0%</b>	<b>0%</b>
	Urban			
	Rural			
Additional parameter 1: <b>Pesticides</b>	<b>Total</b>			<b>0%</b>
	Urban			
	Rural			
	<b>Total</b>			

<i>Parameter</i>	<i>Area/category</i>	<i>Baseline value (2005)</i>	<i>Value reported in the previous reporting cycle (2014)</i>	<i>Current value (2017)</i>
Additional parameter 2:	Urban			
...	Rural			

<i>Parameter</i>	<i>Area/category</i>	<i>Baseline value (2005)</i>	<i>Value reported in the previous reporting cycle (2014)</i>	<i>Current value (2017)</i>
Additional parameter 3:	<b>Total</b>			
...	Urban			
	Rural			

## II. Outbreaks and incidence of infectious diseases related to water

*In filling out the below table, please consider the following points:*

*(a) For reporting outbreaks, please report confirmed water-related outbreaks only (i.e., for which there is epidemiological or microbiological evidence for water to have facilitated infection);*

*(b) For reporting incidents, please report the numbers related to all exposure routes. In your response:*

*(i) Please report cases per 100,000 population;*

*(ii) Please differentiate between zero incidents (0) and no data available (-).*

*Please extend the list of water-related diseases, to the extent possible, to cover other relevant pathogens (e.g., enteric viruses, Giardia intestinalis, Vibrio cholerae).*

*Please indicate how the information is collected (e.g., event-based or incidence-based surveillance).*

*Please comment on the trends or provide any other important information supporting interpretation of the data.*

<i>Disease</i>	<i>Incidence rate per 100,000 population (all exposure routes)</i>			<i>Number of outbreaks (confirmed water-borne outbreaks)</i>		
	<i>Value reported in the</i>			<i>Value reported in the</i>		
	<i>Baseline (2005)</i>	<i>previous reporting cycle (2014)</i>	<i>Current value (2017)</i>	<i>Baseline (2005)</i>	<i>previous reporting cycle (2014)</i>	<i>Current value (2017)</i>
Shigellosis	2.4	1.6	1.7	0	0	0
Enterohaemorrhagic <i>E. coli</i> infection	0.4	1.2	2.3	0	1 (max. 9 illness cases)	0
Typhoid fever	0.1	0.1	0.2	0	0	0
Viral hepatitis A	0.5	0.5	0.5	0	0	0
Legionellosis			0.5			3
Cryptosporiosis			4.5			0
Additional disease 1:						
Additional disease 2:						

Additional disease 3:

Ref. Database of the National Infectious Diseases Register, National Institute for Health and Welfare, <https://www.thl.fi/web/infektiaudit/seuranta-ja-epidemiatautirekisteri/tartuntataudit-suomessa-vuosiraportit> (in Finnish)

<https://www.thl.fi/ttr/gen/rpt/tilastot.html> (in Finnish)

Ref. Numbers of waterborne outbreaks in 2017 are collected by National Institute for Health and Welfare (unpublished data).

### III. Access to drinking water

*If possible, please provide segregated data for urban and rural areas in the table below. If this is not possible, please consider reporting by alternative categories available in your country, for example by “non-centralized versus centralized” water supply systems or by population number-based categories. If you do so, please indicate the reported categories by renaming the rows in the table below accordingly.*

*If data can be reported neither for urban and rural areas nor for alternative categories, please report total (national) values only.*

*Please comment on the trends or provide any other important information supporting interpretation of the data with regard to access to drinking water.*

<i>Percentage of population with access to drinking water</i>	<i>Baseline value (2007)</i>	<i>Value reported in the previous reporting cycle (2015)</i>	<i>Current value (2018)</i>
<b>Total</b>	100%	100%	100%
Urban	100%	100%	100%
Rural	100%	100%	100%

Estimates provided by the WHO/United Nations Children’s Fund (UNICEF) Joint Monitoring Programme (JMP) for Water Supply and Sanitation. *JMP definitions are available at <http://www.wssinfo.org/definitions-methods/watsan-categories>.*

Please specify how “access” is defined and what types of drinking-water supplies are considered in the estimates in your country.

*In particular, please specify if the above percentage on “access to drinking water” refers to access to (tick all applicable):*

- Improved drinking water sources (as per JMP definition)
- Supplies located on premises
- Supplies available when needed
- Supplies that provide drinking water free from faecal contamination

### IV. Access to sanitation

*If possible, please provide segregated data for urban and rural areas in the table below. If this is not possible, please consider reporting by alternative categories available in your*

country, for example by “non-centralized versus centralized” sanitation systems or by population number-based categories. If you do so, please indicate the reported categories by renaming the rows in the table below accordingly.

If data can be reported neither for urban and rural areas nor for alternative categories, please report total (national) values only.

Please comment on the trends or provide any other important information supporting interpretation of the data with regard to access to sanitation.

Percentage of population with access to sanitation	Baseline value (2007)	Value reported in the previous reporting cycle (2015)	Current value (2018)
<b>Total</b>	99,8	99,8	100
Urban	100	100	100
Rural	99	99	100

- Estimates provided by JMP. JMP definitions are available at <http://www.wssinfo.org/definitions-methods/watsan-categories>.
- considered in the estimates in your country. considered in the estimates in your country.
- In particular, please specify if the above percentage on “access to sanitation” refers to access to (tick all applicable):
- Improved sanitation facilities (as per JMP definition)
  - Facilities not shared with other households
  - Facilities from which excreta is safely disposed in situ or treated off site

## V. Effectiveness of management, protection and use of freshwater resources

### 1. Water quality

1. On the basis of national systems of water classification, please indicate the percentage of water bodies or the percentage of the volume (preferably) of water<sup>3</sup> falling under each defined class (e.g., for European Union countries and other countries following the European Union Water Framework Directive<sup>4</sup> classification, 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 other countries, in classes I, II, III, etc.).

<sup>3</sup> Please specify.

<sup>4</sup> Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

**(a) For European Union countries and other countries following the European Union Water Framework Directive classification**

*(i) Ecological status of surface water bodies*

<i>Percentage of surface water classified as:</i>	<i>Baseline value (Classification is based on samples taken 2000-2007)</i>		<i>Value reported in the previous reporting cycle (specify year)</i>	<i>Current value (Classification is based on samples taken 2007-2012)</i>	
	<b>Lakes square m<sup>2</sup> / Rivers length km</b>			<b>Lakes square m<sup>2</sup> / Rivers length km</b>	
High status	29%	22%		29%	20%
Good status	59%	34%		55%	44%
Moderate status	11%	30%		13%	24%
Poor status	1%	10%		1%	10%
Bad status	0%	4%		0%	2%
<b>Total number/volume of water bodies classified</b>	2 983			6 634	
<b>Total number/volume of water bodies in the country</b>	6 153			6 731	

Note: Figures given are based on River basin management plans, which were adopted by the Government and published in December 2015 (see: [www.ymparisto.fi/vesienhoito](http://www.ymparisto.fi/vesienhoito)). The classification covers lakes larger than 1 km<sup>2</sup>, rivers with a catchment area larger than 100 km<sup>2</sup> and 264 coastal water bodies. The total number of water bodies includes 276 coastal water bodies. Currently, the ecological quality status of most of Finland's inland waters is either good or high. However, that of approximately 40% of total river length and 60% of the coastal water areas included within the scope of the plans is moderate, poor or bad. The water quality of Finland's lakes is generally better. The classification system has changed and the amount of water bodies has increased compared to the situation of the previous period. Therefore the recent status is not directly comparable to the previous status. The reassessment of the status of surface water is currently in progress and will be finished in June 2019.

*(ii) Chemical status of surface water bodies*

<i>Percentage of surface water bodies classified as</i>	<i>Baseline value (Classification is based on samples taken 2000-2007)</i>		<i>Value reported in the previous reporting cycle (specify year)</i>	<i>Current value (Classification is based on samples taken 2007-2012)</i>	
	<b>Lakes square m<sup>2</sup> / Rivers length km</b>			<b>Lakes square m<sup>2</sup> / Rivers length km</b>	
Good status	100%	93%		68%	70%
Poor status	0%	3%		32%	30%
<b>Total number/volume of water bodies classified</b>	3 965			6 731	

<i>Percentage of surface water bodies classified as</i>	<i>Baseline value (Classification is based on samples taken 2000-2007)</i>	<i>Value reported in the previous reporting cycle (specify year)</i>	<i>Current value (Classification is based on samples taken 2007-2012)</i>
	<b>Lakes square m<sup>2</sup> / Rivers length km</b>		<b>Lakes square m<sup>2</sup> / Rivers length km</b>
<b>Total number/volume of water bodies in the country</b>	6 153		6 731

Note: Figures given are based on River basin management plans, which were adopted by the Government and published in December 2015 (see: [www.ymparisto.fi/vesienhoito](http://www.ymparisto.fi/vesienhoito)). The decrease in the percentage of the number of water bodies in good status is due to the presence of mercury that was evaluated for the first time in all water bodies in 2015. The number of water bodies has also increased due to large number of small water bodies which included to the classification 2015. As the classification system has changed, the recent status is not comparable to the previous status. The reassessment of the status of surface water is currently in progress and will be finished in June 2019.

(iii) *Status of groundwaters*

<i>Percentage of groundwaters classified as</i>	<i>Baseline value (2007)</i>	<i>Value reported in the previous reporting cycle (2010)</i>	<i>Current value (2015)</i>
Good quantitative status		99.95%	99.92%
Good chemical status	98% (3 800 areas)	98%	97.5%
Poor quantitative status		0,05%	0,08%
Poor chemical status	2% (82 areas)	2%	2.5%
<b>Total number/volume of groundwater bodies classified</b>	3 603*		3 826*
<b>Total number/volume of groundwater bodies in the country</b>	3 804		3 826

\* Total number of groundwater bodies where both quantitative and qualitative status has been assessed.

Note: Only 2.5% of the groundwater resources important to and suitable for water supply purposes are classified as having poor status. Of the approximately 3 800 groundwater bodies classified as important or suitable for water supply and surveyed for the river basin management plans, approximately 380 were designated as areas at risk (see: [www.ymparisto.fi/fi-FI/Vesi/Pohjavesien\\_tila](http://www.ymparisto.fi/fi-FI/Vesi/Pohjavesien_tila)). There are still ca. 150 ground water bodies where the status has not been able to be evaluated but in the programmes of measures, further review has been proposed with regard to these groundwater bodies. Status assessment has been carried out for all groundwater bodies designated as areas at risk. The status of 99 groundwater bodies was classified as poor (quality and/or quantity). Three groundwater bodies were found to be of poor quantitative status, and 97 were classified as having poor chemical status. The reassessment of the status of groundwater is currently in progress and will be finished in June 2019.

**(b) For other countries**

*(i) Status of surface waters*

<i>Percentage of surface water falling under class<sup>a</sup></i>	<i>Baseline value (specify year)</i>	<i>Value reported in the previous reporting cycle (specify year)</i>	<i>Current value (specify year)</i>
I			
II			
III			
IV			
V			
<b>Total number/volume of water bodies classified</b>			
<b>Total number/volume of water bodies in the country</b>			

<sup>a</sup> Rename and modify the number of rows to reflect the national classification system.

*(ii) Status of groundwaters*

<i>Percentage of groundwaters falling under class<sup>a</sup></i>	<i>Baseline value (specify year)</i>	<i>Value reported in the previous reporting cycle (specify year)</i>	<i>Current value (specify year)</i>
I			
II			
III			
IV			
V			
<b>Total number/volume of groundwater bodies classified</b>			
<b>Total number/volume of groundwater bodies in the country</b>			

<sup>a</sup> Rename and modify the number of rows to reflect the national classification system.

2. Please provide any other information that will help put into context and aid understanding of the information provided above (e.g., coverage of information provided if not related to all water resources, how the quality of waters affects human health).

**2. Water use**

3. Please provide information on the water exploitation index at the national and river basin levels for each sector (agriculture, industry, domestic), i.e., the mean annual abstraction of freshwater by sector divided by the mean annual total renewable freshwater resource at the country level, expressed in percentage terms.

<i>Water exploitation index %</i>	<i>Baseline value (2007)</i>	<i>Value reported in the previous reporting cycle (2015)</i>	<i>Current value (2017)</i>
Agriculture	max.0,1%		
Industry <sup>a</sup>	1,4%	1,36%	1,46%

<i>Water exploitation index %</i>	<i>Value reported in the</i>		
	<i>Baseline value (2007)</i>	<i>previous reporting cycle (2015)</i>	<i>Current value (2017)</i>
Domestic use <sup>b</sup>	0,39%	0,38%	0,38%

<sup>a</sup> Please specify whether the figure includes both water abstraction for manufacturing industry and for energy cooling.

<sup>b</sup> Please specify whether the figure only refers to public water supply systems or also to individual supply systems (e.g., wells).

Note: Figures for industrial uses include only manufacturing industries and are based on YLVA database. Water used for domestic purposes includes both public water supply and individual water supply and is based mostly on VEETI database. Water used for agriculture has been estimated with the information that irrigation systems are available for altogether 88 000 hectares of fields. The annual renewable freshwater resource is normally 110 km<sup>3</sup>.

## Part four

### Water-related disease surveillance and response systems

1. In accordance with the provisions of article 8 of the Protocol:

Has your country established comprehensive water-related disease surveillance and early warning systems according to paragraph 1 (a)?

YES  NO  IN PROGRESS

Has your country prepared comprehensive national or local contingency plans for responses to outbreaks and incidents of water-related disease according to paragraph 1 (b)?

YES  NO  IN PROGRESS

Do relevant public authorities have the necessary capacity to respond to such outbreaks, incidents or risks in accordance with the relevant contingency plan according to paragraph 1 (c)?

YES  NO  IN PROGRESS

2. If yes or in progress, please provide summary information about key elements of the water-related disease surveillance and outbreak response systems (e.g., identification of water-related disease outbreaks and incidents, notification, communication to the public, data management and reporting). Please also provide reference to existing national legislation and/or regulations addressing water-related disease surveillance and outbreak response.

The Health Protection Act (763/1994) includes provisions concerning special circumstances and outbreaks caused by drinking water. 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 published a guide to ensure the quality of drinking water in the event of disasters and similar emergencies.

The Government Decree (1365/2011) contains more specific provisions concerning measures in the event of outbreaks spreading via drinking water, bathing water or pool water. A nominated expert group for foodborne and waterborne outbreaks must be established in every municipality. Representatives of health care, municipal health protection, veterinary treatment and the drinking water service shall be included in this group. In the event of any waterborne outbreak or suspicion of such outbreak, this group is required to take immediate actions to prevent the spread of the outbreak and to start investigations to solve the outbreak

and the causes behind it. The National Institute for Health and Welfare provides expert assistance in the event of outbreaks spreading via water.

Information on all water-related outbreaks is to be reported into national electronic register. Water-related outbreaks caused by drinking water have been reported into national informing and reporting register since 1998, and outbreaks caused by bathing water and pool water since 2012. Nation-wide reports on foodborne and waterborne outbreaks have to be published at the interval of three years. These reports are available in Finnish in the Internet.

3. Please describe what actions have been taken in your country in the past three years to improve and/or sustain water-related disease surveillance, early warning systems and contingency plans, as well as to strengthen the capacity of public authorities to respond to water-related disease outbreaks and incidents, in accordance with the provisions of article 8 of the Protocol.

New sampling and analytical methods have been and are developed and applied in the investigations of waterborne outbreaks. In addition, guidance and instructions for authorities, water supplies, laboratories have been published. Among these are for example the guidance of National Authority for Welfare and Health for preventing the outbreaks and good practices in the case of an outbreak, and the model for contingency planning published by the National Emergency Supply Agency.

Compulsory Water Safety Planning was added to legislation in 2017, and a web-tool for compiling the plans was created. The Internet-tool is maintained by the Ministry of Social Affairs and Health, and it is in use for the water suppliers and authorities free of charge. The same tool can also be used to create Sanitation Safety Plans in order to safely manage sewerage and sewage water treatment.

## **Part five**

### **Progress achieved in implementing other articles of the Protocol**

Please provide a short description of the status of implementation of articles 9 to 14 of the Protocol, as relevant.

*Suggested length: up to two pages*

#### **Guidance for emergency planning**

Emergency planning of drinking water treatment plants is statutory. Guidance has been further developed in close association with all competent authorities and stakeholders in order to integrate the emergency plans of drinking water treatment plants to the communal emergency planning in the fields of water supply and environmental health. Guidance include emergency preparedness to microbiological, chemical and radiological contamination of drinking water, deliberate contamination of water (vandalism), cyber threats, power cuts, and crisis communication.

Guidance for emergency planning is available in Finnish in the Internet, [https://www.valvira.fi/ymparistoterveys/terveydensuojelu/talousvesi/toimintatavat\\_talousveden\\_laadun\\_turvaamiseksi](https://www.valvira.fi/ymparistoterveys/terveydensuojelu/talousvesi/toimintatavat_talousveden_laadun_turvaamiseksi) and <https://www.vvy.fi/vesilaitosyhdistys/vesihuoltopooli/>.

#### **Statutory proficiency testing of employees in water supply plants, swimming pools and spas**

Proficiency testing of employees of the drinking water supply plants was regulated by law in 2007. By year 2018 more than 55 000 employees of drinking water supply plants have accomplished certificates which verify their proficiency in water plant technology and hygiene. The certificate for the proficiency is valid for five years. The test questions were revised in 2012 when the second period of the testing began. Similar statutory proficiency

testing is statutory also for the pool and spa employees. By year 2018 more than 7 200 employees accomplished certificates.

### **Promoting swimming to all people**

The Finnish Swimming Teaching and Lifesaving Federation (FSL) prepared a booklet called 'Welcome to the swimming hall! - A guide for visitors to swimming halls'. The Sports Division of the Ministry of Education and Culture, the office and the swimming hall committee of the Finnish Association for Swimming Instruction and Life Saving, and representatives of immigrant organisations, disability organisations, swimming halls and other parties that were otherwise familiar with the topic of the guide contributed to the preparation and commenting on the guide. The guide booklet was translated into 11 languages. The guide booklet has increased the personnel's understanding of different cultural backgrounds and offered support for service providers, if there has been problems in the use of a swimming hall. In addition, the guide has served as an aid for organisations to guide people from different cultural backgrounds in using swimming halls. The guide has also highlighted arrangements and space solutions that have been taken into account by building developers, planners and persons in charge of maintenance.

### **Information and education projects for water protection**

The Governmental Decree on Onsite Wastewater Systems was revised in 2011 and in 2017. In connection of the revision, the Parliament stated that more information and education has to be provided to promote the water protection in rural areas. The Ministry of Environment has funded environmental NGO's information projects annually since 2011. There have been information lectures, town meetings and on-site advising available in all provincial areas. The NGO's staff took part in supplementary education provided by Finnish Environment Institute to assure consistent and neutral guiding. In the time period 2012-2017 ca 38 000 households received personal, on-site guidance at the property and ca 46 000 people received more general guidance via lectures, emails, phone etc.

The Ministry of the Environment published a guidebook "Wastewaters in sparsely populated areas – Legislation and practice" in 2011 (revised 2017) for local authorities and other professionals as a help to interpret the degree. The educational video is available in the web (<https://www.youtube.com/watch?v=3zAxbeZTxdo>). In addition two coherent brochures were published. Finnish Environment Institute collects technical information and scientific studies of most commonly available on-site wastewater treatment systems for public and professional use in a treatment database.

### **Groundwater areas – a guide for their designation and classification and preparation of protection plans** (<http://julkaisut.valtioneuvosto.fi/handle/10024/161164>)

The Ministry of Environment published the guide 2018. Its purpose is to provide practical instructions to the Centers for Economic Development, Transport and the Environment in the determination and classification of groundwater areas. Guidance provided to municipalities and other stakeholders in preparing protection plans for groundwater areas. Central objective of the guide is to clarify and harmonize practical implementation of the regulation.

The guide examines the grounds for the classification of groundwater areas, determining the boundaries of groundwater areas and catchments from which groundwater bodies receive their recharge, and studies and analyses on these. A particular focus is on taking account of terrestrial and surface water ecosystems that depend on groundwater. Guidance is also concerned with the practices to be followed in drafting protection plans for groundwater areas, requirements for the content of such plans, and communicating on the plans. The practices relating to protection areas around water abstraction sites are also discussed.

Provisions on designation, classification and protection plans of groundwater areas were included in the Act on the Organization of River Basin Management and the Marine Strategy

in 2015 and in the Government Decree in 2016. The purpose of the legislative amendments was to clarify the implementation of the obligations of the EU Water Framework Directive regarding the identification of bodies of groundwater and review of their characteristics.

**A tool to assess well water quality (The Well Water Interpreter)**

The purpose of the well water analysis interpreter is to make easier for both the private well owner and other people dealing with the quality of the well water to assess the quality of water. Both the electronic tool (2013) and the printed brochure (2008) have been made and are available in the web. The electronic tool is under revision in 2019. The new application is going to be more suitable for example to mobile phone users.

**Part six  
Thematic part linked to priority areas of work under  
the Protocol**

**1. Water, sanitation and hygiene in institutional settings**

1. In the table below, please provide information on the proportion of schools (primary and secondary) and health-care facilities that provide basic water, sanitation and hygiene (WASH) services.

*Basic services refer to the following:*

(a) *Basic sanitation service: Improved facilities (according to JMP definition), which are sex-separated and usable at the school or health-care facility;*

(b) *Basic drinking water service: Water from an improved source (according to JMP definition) is available at the school or health-care facility;*

(c) *Basic hygiene service: Handwashing facility with water and soap available to students (schools) or patients and health-care providers (health-care facilities).*

*If the above definitions/categories do not apply in your country, please report for alternative categories for which data are available. In this case, please indicate the reported categories by renaming the rows in the table below accordingly.*

*Please indicate the source of data. If data is not available, please put (-).*

<i>Institutional setting</i>	<i>Current value (specify year)</i>
<i>Schools</i>	
Basic sanitation service	100
Basic drinking-water service	100
Basic hygiene service	100
<i>Health-care facilities</i>	
Basic sanitation service	100
Basic drinking-water service	100
Basic hygiene service	100

2. Has the situation of WASH in schools been assessed in your country?

YES  NO  IN PROGRESS

3. Has the situation of WASH in health-care facilities been assessed in your country?

YES  NO  IN PROGRESS

4. Do approved policies or programmes include actions (please tick all that apply):

- To improve WASH in schools  
 To improve WASH in health-care facilities

5. If yes, please provide reference to main relevant national policy(ies) or programme(s).

## 2. Safe management of drinking-water supply

6. Is there a national policy or regulation in your country, which requires implementation of risk-based management, such as WHO water safety plans (WSPs), in drinking water supply?

YES  NO  IN PROGRESS

7. If yes, please provide reference to relevant national policy(ies) or regulatory documentation.

In 2017 a provision was added to the Health Protection Act (763/1994) that monitoring of the drinking water quality shall be based on risk assessment. Provisions for compiling the Water Safety Plans were included in the Degree (1352/2015).

The Ministry of Social Affairs and Health published an online-tool for compilation of the WSPs in December 2017. The tool is intended especially for large water suppliers that supply at least 1,000 m<sup>3</sup> of drinking water a day (153 suppliers that supply water to 4,5 million persons, 82% of total population), but it is available free of charge for all suppliers and authorities. Currently, in April 2019, the number of the active WSPs in the tool is 959, and the tool has in total 995 users from 480 different organizations.

8. In the table below, please provide information on the percentage of the population serviced with drinking-water under a WSP.

*Please indicate the source of data. If data is not available, please put (-).*

<i>Percentage of population</i>	<i>Current value (specify year)</i>
<b>Total</b>	75 (2018)

## 3. Equitable access to water and sanitation

9. Has the equity of access to safe drinking-water and sanitation been assessed?

YES  NO  IN PROGRESS

10. Do national policies or programmes include actions to improve equitable access to water and sanitation (please tick all that apply):

- To reduce geographical disparities  
 To ensure access for vulnerable and marginalized groups  
 To keep water and sanitation affordable for all

11. If yes, please provide reference to main relevant national policy(ies) and programme(s).

Access of water to all have been safeguarded in legislation. According to Water Services Act (119/2001) the owner of the premises is responsible for acquisition of water. According to Land Use and Construction Act (132/1999) the building shall be designed and construction in such a way that it is healthy in respect of water intended for human consumption.

According to Water Services Act the municipality shall take actions to establish a water services plant, enlarge the operational area of an existing water services plan, or in other ways to secure water services if the needs of a large number of people can be judged to require it. According to the Act, the water services shall be reasonably priced.

## **Part seven**

### **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: Jarkko Rapala

E-mail: jarkko.rapala@stm.fi

Telephone number: +358 295 163 315

Name and address of national authority: Ministry of Social Affairs and Health

Signature:



Date: 18 April 2019

#### **Submission**

1. Parties are required to submit their summary reports to the joint secretariat, using the present template and in accordance with the adopted guidelines on reporting, 210 days before the next session of the Meeting of the Parties. Submission of the reports ahead of this deadline is encouraged, as this will facilitate the preparation of analyses and syntheses to be made available to the Meeting of the Parties.
2. Parties are requested to submit, to the two addresses below, an original signed copy by post and an electronic copy by e-mail. Electronic copies should be available in word-processing software.

#### **Joint Secretariat to the Protocol on Water and Health**

United Nations Economic Commission for Europe  
Palais des Nations  
1211 Geneva 10  
Switzerland  
(E-mail: protocol.water\_health@unece.org)

World Health Organization Regional Office for Europe  
WHO European Centre for Environment and Health  
Platz der Vereinten Nationen 1  
53113 Bonn  
Germany

(E-mail: [euwatsan@who.int](mailto:euwatsan@who.int))

