

Template for summary reports in accordance with article 7 of the Protocol on Water and Health

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

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.

All target areas have been revised on 1.10.2019

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 were published nationally online at
<https://stm.fi/documents/1271139/1371655/Liite+kansalliset+tavoitteet.pdf/f23a4134-ad73-b464-09d8-30887ae25ca7/Liite+kansalliset+tavoitteet.pdf?t=1570610567000>

The targets were communicated to the secretariat and published online at
https://unece.org/fileadmin/DAM/env/water/Protocol_on_W_H/Target_set_by_parties/Finland/Annex_National_targets.pdf

Before publication the targets were available for public consultation via Government Project Register (Hankeikkuna) at <https://hankeikkuna.vnv.fi/app#/hanke/36183/kuvaukset>

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.

The Ministry of Social Affairs and Health coordinates the work, and each competent authority is responsible for setting and implementing the targets.

The targets have been drafted in wide-ranging cooperation cross-administratively and with expert organisations in a working group comprising the Ministry of Social Affairs and Health, the Ministry of Agriculture and Forestry, the Ministry of the Environment, the Ministry for Foreign Affairs, the Finnish Institute for Health and Welfare, the National Supervisory Authority for Welfare and Health, the Finnish Environment Institute, the

Association of Finnish Local and Regional Authorities, the Finnish Water Utilities Association and the Global Dry Toilet Association of Finland. The targets were tailored on the basis of statements requested from all key ministries (7 statements), the authorities supervising or guiding water services and health protection (20 statements), State research institutes and corresponding bodies (5 statements) as well as 37 statements from registered associations representing, *inter alia*, the industry, officials performing environmental protection and health protection supervision, water supply plants and water cooperatives, aquaculture and fishing, scientific research, development cooperation, nature conservation, swimming teaching and environmental education and information.

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.

No. The targets set for the Protocol are a compilation of targets, guidelines, decisions and good practices 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?

See points 2 and 4.

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.

Almost all organizations mentioned below in point 7 participated in the preparation of this report.

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, Finnish 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 chemical, microbiological, technical and aesthetic quality of drinking water supplied by drinking water supply plants shall meet the requirements of Council Directive 98/83/EC on the quality of water intended for human consumption, hereinafter the Drinking Water Directive.

The quality regarding radioactivity of drinking water supplied by drinking water supply plants shall meet at least the requirements of Council Directive 2013/51/EURATOM laying down requirements for the protection of the health of the general public with regard to radioactive substances in water intended for human consumption, hereinafter the Euratom Drinking Water Directive.

Information on surveillance targets, the quality of drinking water, defects observed in surveillance and the remedial action taken by the authorities shall be managed and distributed through a centralised resource planning and information management system in environmental health care. The aim is to harmonise surveillance, improve the quality of related guidance, increase the effectiveness of surveillance and promote health issues relating to water management.

The consumers of water shall be adequately informed of the quality of drinking water supplied and its importance to human health. Households and the consumers of water shall have easy access to information on the importance of the quality of drinking water to human health.

The targets relating to the quality of drinking water, its surveillance and information thereof are continuous activities in accordance with the legislation in force.

The centralised resource planning and information management system in environmental health care is in use since 2020.

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 Health Protection Act (763/1994) and Degrees undet it (Decreets 1352/2015 and 401/2001). 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 authorities monitor the quality of drinking water on a regular basis. They are obliged to prepare surveillance programmes for drinking water distribution areas together with each supplier of drinking water for the purpose of regular monitoring. Surveillance of drinking water quality 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 (Water Safety Plan approach, WSP). 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 treated, 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 if the derogation poses no hazard to human health.

Suppliers of drinking water shall provide adequate information about the quality of the water supplied. National summary reports on monitoring and quality of drinking water are published in Finnish in the Internet. Pursuant to the Drinking Water Directive 98/83/EC, reports on the quality of water intended for human consumption shall be submitted to the European Commission at regular intervals.

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

The target related to the quality of drinking water has been achieved. In 2020, 99.98 % 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 m³ in a day or for more than 5,000 consumers. These large supplies distribute drinking water for nearly 83% of the population. The summaries of the quality of drinking water are available in the Internet (in Finnish). Between January and March 2022, more than 600 visits were registered on the web page, where the latest summary 2020 is available, <https://thl.fi/fi/web/ymparistoterveys/vesi/talousvesi>. In addition, water suppliers have their own means for public information, such as web pages and customer magazines. The rest of the population get drinking water from smaller water suppliers or from private wells. Information on the quality of drinking water in these smaller units is not yet collected into national reporting system. However, the health based quality requirements are the same for both large and small water supplies and private wells.

The national healthcare information system (Vati) was introduced in 2019. All results of drinking water quality are recorded in Vati, which will in future allow also reporting water quality data on drinking water supplied by smaller suppliers.

As part of the environmental radiation monitoring required by Article 35 of the Euratom Treaty, Radiation and Nuclear Safety Authority (STUK) carries out monitoring of man-made radioactivity (Cs-137, Sr-90 and H-3) in drinking water in five municipalities. The results are reported annually to Euratom and published on STUK's webpage and reports. Man-made radioactivity has been constantly very low and it complies with parametric values laid down in directive 2013/51/Euratom. See <https://www.stuk.fi/web/en/stuk-supervises/stuk-monitors-the-radiation-safety-of-the-environment/continuous-regulatory-control-programme/radioactivity-in-household-water>

STUK also collects the results of the monitoring of naturally occurring radioactivity in drinking water. The results are compiled and published every three years. The report of the period 2019–2021 is under preparation, but according to the latest report (2016–2018),

99.3% of the samples met the radon quality standard and 98.9% met the total indicative dose quality standard. The non-compliances occurred mostly in small distribution networks where water treatment units could easily be installed, or in a single well of waterworks that could be replaced or mixed with low-activity water. See <https://www.julkari.fi/handle/10024/138997>.

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 targets implement the SDG targets 6.1 and 17.14.

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.

Waterborne outbreaks shall be prevented through surveillance, information, guidance and training and drinking-waterborne outbreaks also through the risk management of the water supply chain.

The average number of persons falling ill in drinking-waterborne outbreaks shall be at most 0.01 % of the population in six years.

The number of waterborne outbreaks and of persons fallen ill in them shall be based on an electronic system of notifications and investigations of suspected waterborne outbreaks.

Waterborne outbreaks shall be investigated using laboratory examinations, water analysis and epidemiological studies directed at those fallen ill.

A summary of outbreaks shall be published at least once every three years.

Target concerning the average number of persons falling ill shall only concern drinking-waterborne outbreaks and the other targets shall, in addition to drinking-waterborne outbreaks, also concern outbreaks related to bathing water and enclosed waters.

The monitoring, investigation and reporting of outbreaks caused by drinking water, bathing water and enclosed waters are continuous operations in accordance with the provisions in force.

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 surveillance of the quality of drinking water and action during exceptional circumstances and outbreaks caused by drinking water. The surveillance of health based quality of drinking water has to be based on the risk assessment and management procedure (WSP approach). 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 exceptional circumstances. In the event of any outbreak caused by drinking water or suspicion of such an outbreak, the drinking water supplier concerned and the municipal health protection authority are required to take immediate action to improve the quality of the drinking water, to prevent the spread of the outbreak and to inform the public.

The National Supervisory Authority for Welfare and Health (Valvira) provides guidance to local authorities who supervise drinking water quality. Valvira has drawn up a guidance document in cooperation with the Regional State Administration Agencies and other different actors. See

https://www.valvira.fi/ymparistoterveys/terveydensuojelu/talousvesi/toimintatavat_talousveden_laadun_turvaamiseksi.

The Water Services Act contains provisions for the water suppliers for preparedness for exceptional situations, including the requirement of ensuring water supply and the water quality in such situations.

The Water Services Pool, which is a set up to support the preparedness of water supply services, promotes the continuity management of water supply plants. Continuity management means all measures with which the plant manages various disruptions threatening its operations through pre-planned and implemented arrangements and management models. The Water Services Pool consists of representatives of water suppliers, sewage treatment plants, municipalities, key ministries and authorities responsible for water services, health and rescue services.

The Government Decree (1365/2011) contains more specific provisions concerning measures in the event of epidemics spreading through drinking water, bathing water or pool water. There is a compulsory electronic notification system for suspected waterborne outbreaks. Immediate electronic reporting of an outbreak accelerates the co-operation between municipal authorities, water utilities and other bodies 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 regularly published and available in the Internet. See

<https://www.ruokavirasto.fi/teemat/zoonosikeskus/ruokamykytykset/ruokamykytysepidemiat-suomessa/>

Waterborne outbreaks caused by pool and bathing water are 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 six years the number of illness cases at annual level has reduced remaining below the target limit, 0.01% of the population. During the reporting period 2019–2021, the annual numbers of illness cases were between 7 and 51 persons, which is below 0.001% of the population. No deaths have been reported in the outbreaks.

Although the target is achieved on an average level, it is not feasible to reduce the target set. 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 only if the consumption of drinking water poses a threat for human health.

During the reporting period 2019–2021, the number of waterborne outbreaks (N_{tot}=8 outbreaks) varied between 2–4 outbreaks in a year. Norovirus caused three outbreaks and *Campylobacter jejuni* one outbreak. In four very small outbreaks the causative microbial agent remained unknown. All outbreaks were associated with the use of contaminated ground water as drinking water. Four outbreaks were associated with the contaminated private ground water wells and another four outbreaks with the contaminated communal ground water wells. In two outbreaks, ground water was accidentally contaminated by waste water. Water and stool analyses and epidemiological analyses have been used for investigating the outbreaks.

The latest summary of the waterborne outbreaks was published in 2021 (https://www.ruokavirasto.fi/globalassets/tietoa-meista/julkaisut/julkaisusarjat/julkaisu/ruokaviraston_julkaisu_7_2021_301221.pdf). The data including e.g. investigations related to an outbreak, number of illness cases and exposed persons, technical reasons to the outbreak etc. have been collected from the national reporting registry for foodborne and waterborne outbreaks.

In addition to the drinking water outbreaks discussed above, 68 cases of Legionnaires' Disease were reported to the Finnish National Infectious Diseases Register in 2019–2020. Out of these, 36 cases had received the infection in Finland. Source of infection in these 36 cases was most often domestic water supply system. Other sources of infection included a closed water system of mining industry, cold and hot water of an ice arena, ship cold water, hot water of a sports institute, service facilities of a shopping mall, water chamber of a sleep apnea device, gardening soil and a home compost. Legionellosis resulted in the death of 6 persons.

In 2021, 47 cases of Legionnaires' Disease were reported to the Finnish National Infectious Diseases Register. In 30 cases environmental samples were taken to identify the source of infection. Most often, domestic water supply system was identified as a source of infection. Other sources of infection included water supply systems of two hospitals and a hotel, hot water system of a school, and a home biowaste compost. In six cases (out of the 30 studied) the source of infection could not be identified. Five people are suspected to have died of these legionellosis.

Training on e.g. how to investigate waterborne outbreaks has been organised for municipal health protection authorities. During the last three years, approximately 75 persons participated to the training organised by the Finnish Institute for Health and Welfare, the University of Eastern Finland and the Savonia University of Applied Sciences.

In 2021, risk assessment of the water supply chain had been performed and accepted in 81% of the 148 large water supply zones distributing more than 1,000 m³ in a day or for more than 5,000 consumers. In 2021, there were 1135 medium size water supply zones. These medium size drinking water supplies distribute drinking water for 50 to 5000 people. The risk assessment of the water supply chain had been performed and accepted in 49% of these water supply zones.

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 targets implement the SDG targets 3.3 and 3.9.

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.

The achieved service rate, which covers 100 % of the population, shall be maintained.

The supply of drinking water shall be promoted in accordance with the implemented and planned community structure development. The development shall be based either on joining a collective system for the supply of water or on securing a property-specific supply of water.

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 aim of the Water Services Act (119/2001) is to secure water supply in such manner that enough wholesome drinking water is available for all with reasonable costs. The Act requires that areas of operation of the water supply plants are approved by the relevant municipality. When approving the area of operation, the municipality shall 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 due to the needs of relatively large number of inhabitants, health aspects 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 such 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 (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. During the reporting period 2019–2021 a new water strategy was under preparation.

The population in Finland is permanently such dispersed that it 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 best 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.

In 2019, approximately 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 sparsely settled population. However, the households in Finland have got adequate drinking water that meets the standards in terms of quality, if not via municipal system, from their own well or borehole. Efforts are made to have water supply in less populated areas and villages covered by the water supply network whenever it is 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. Several new pipelines in rural areas have been constructed, usually in conjunction with with a sewage collection system.

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 targets implement the SDG 6 and especially target 6.1.

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.

The sanitation of settlements shall be served in all Finland by collective systems in areas where this is necessary in accordance with the requirements relating to implemented and planned community development or the environment and health. In areas outside a collective water supply system, the waste waters shall be treated property-specifically using as efficient systems as possible.

Property owners shall refurbish property-specific sanitation systems in buildings that are in habitable condition so that they are more efficient than septic-tank treatment in accordance with the requirements laid down in the Environmental Protection Act.

The aim shall be to encourage property owners with advice voluntarily to bring the waste water treatment above the statutory level.

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 provisions of the Water Services Act (119/2001) described in paragraph III are applied also to sewerage. The aim of the Act is that sewerage complying health and environmental standards will be achieved with moderate costs.

The Water Services Act requires that areas of operation of the sewerage plants are approved by the relevant municipality. When approving the area of operation, the municipality must determine areas to be included in the sewerage network. The area of operation must be such that the operator is capable of managing the services in an economical and appropriate manner. A timetable for including the different parts of the operational area into the sewerage network must be set in connection with the decision on approval. In urban areas the properties in the operational area must be connected to the sewerage network. In rural areas the municipal environment authority may grant exemption of connecting to the sewerage network if connection to the sewerage network is economically unreasonable for the property owner, the need for the service is minor and provided that the exemption does not threaten proper management of the operator and that the sewerage and treatment of the sewage water fulfils the provisions laid down in Environmental Protection Act (527/2014).

In rural areas the population in Finland is permanently such dispersed that it not practical to serve the entire population by water utilities. The Government Decree (157/2017) requires the owner or possessor of a property shall 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 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. They also 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 are continuously constructed to cover also sparsely populated areas that are situated in the proximity of more densely populated areas. Hence, the share of population served by centralized systems has increased steadily but slowly.

The requirements concerning new buildings in areas where no sewer network exists have been favorably implemented. The target to enhance wastewater treatment by 31.10.2019 at all existing properties relying on septic tanks without any further treatment was, however, not achieved. In cases where the property owners do not recognize the need to enhance the treatment level in order to protect the environment, they are reluctant to invest in new treatment or to a proper rehabilitation of the old one.

Guidance and other information campaigns have succeeded in arising property owners' interest in the topic and in distributing relevant information; however, the effect on the enhancement activity has been limited.

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 targets implement the SDG 6 and especially targets 6.2 and 6.3.

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.

The operating preconditions of water supply plants shall be improved by increasing the resources of the plants so that adequate financial and proficiency resources can be ensured for the operations of the plants, with which the plants can produce to their customers high-quality and fail-safe water-supply services at reasonable costs. This may mean increasing the sizes of the plants by merging plants, ensuring the resources with new cooperation models or the use of external services.

The commitment of the operators of water supply plants to ensuring the operational reliability of water supply services and the cooperation between the operators and the water supply plants in determining the service level of each water supply plant shall be promoted. The service level shall be monitored with key figures to be set plant-specifically. The key figures shall be recorded in the water supply information system.

The plants shall describe their operations with key figures that can be used to assess the efficiency of the operations and the finances. The key figures shall be monitored at regular intervals. Good practices and transparency of the water supply shall be improved by publishing information describing the operations of water supply plants.

Adequate access to water supply services shall be ensured also during disruptions.

The continuity management of water supply plants shall be developed in cooperation with various actors. The experiences from the continuity management of water supply plants shall be applied to all water supply plants to the extent that this is appropriate with a view of their operations.

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

Slightly under 90% of the customers of water supply plants serving more than 5,000 residents receive currently their drinking water from water supply plants with a safety rating of I or II, i.e. plants that are capable of supplying a minimum of 50 litres of water per resident per day through the distribution network even in such exceptional situations when their primary water abstraction facility cannot be utilized. The aim 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.

Water utilities enter annual figures of their operation into the national data management system concerning water services (VEETI). Key figures are calculated, and water utilities can print reports and compare the numbers between different years or with other water utilities. Some of these key figures are also published in the Internet at <https://www.vesi.fi/vesihuoltolaitosten-tunnusluvut/>.

The National Emergency Supply Agency (NESA) is a central government organisation operating under the Ministry of Economic Affairs and Employment. It is an expert organisation tasked with carrying out planning and operations related to the maintenance and development of Finland's security of supply. NESA coordinates Water Supply Pool of all relevant enterprises.

The Water Services Pool is set up to support the preparedness of water supply services, and its task is to promote the continuity management of water supply plants. Continuity management means all measures with which a plant manages various disruptions threatening its operations through pre-planned and implemented arrangements and management models. The Water Services Pool 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, Finnish Institute for Health and Welfare 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 in flood risk mapping. The National Supervisory Authority for Welfare and Health (Valvira) provides guidance to local authorities who supervise drinking water quality. Valvira has drawn up application instructions of best practices in cooperation with the Regional State Administration Agencies and other different actors. See https://www.valvira.fi/ymparistoterveys/terveydensuojelu/talousvesi/toimintatavat_talousveden_laadun_turvaamiseksi.

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

The National Water Services Reform was initiated in January 2020. A broad steering group and a vision group were nominated by the Ministry of Agriculture and Forestry and the entire water resources management sector is tasked with implementing the programme. The programme of National Water Services Reform was prepared through extensive cooperation within the sector and published on 20 April 2021. A more detailed implementation plan is under preparation.

Operation of water services and water utilities is shown by key figures in the national data management system VEETI. For example, unexpected brakages of water pipelines is calculated as number of brakes/km of pipeline/year. This varies between years and during the reporting period (2019–2021) it has been between 0.73 and 1.38.

Municipal health authorities are required by health legislation to notify regional state authorities of exceptional situations that may pose a health hazard through supplied

drinking water. In 2021, 60 notifications were made and most of them were related to pipe breakages. However, only 2 outbreaks in which 7 persons were fallen ill were recorded.

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 targets implement the SDG targets 6.1, 6.4, 9.1, 11.1 and 16.6.

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.

See targets under Paragraph V.

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).

Wastewater services of a high standard and meeting the needs of settlement as well as business and leisure activities have remained available at reasonable cost.

Water utilities are entering annual figures of their operation into the national data management system concerning water services (VEETI). Key figures are calculated and water utilities can print reports and compare those between years or other water utilities. Some of these key figures are also illustrated in the Internet. See <https://www.vesi.fi/vesihuoltolaitosten-tunnusluvut/>.

National requirements concerning wastewater collection in urban areas have existed since the early 1960s. All urban 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 in Accordance with the Environmental Protection Act (527/2014). The performance of overflows is monitored as a part of the enforcement of the permits.

According to 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. According to the Health protection Act (763/1994) sewerage shall not pose health hazard for humans. The basic requirements concerning biological oxygen demand, phosphorus and nitrogen removal have been imposed on wastewater treatment in areas of dispersed settlement by the Environmental Protection Act. Government Decree on Onsite Wastewater Systems (157/2017) sets requirements for sensitive areas. The requirements became applicable to new buildings already in 2004. Old properties located in areas of dispersed settlement had to render their wastewater treatment systems compliant with the requirements by 31 October 2019 unless connected to community sewerage systems prior to that time.

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

Awareness campaigns to the public, education of designers and entrepreneurs as well as many other activities have been introduced. During 2011–2019, funded by the Ministry of the Environment, approximately 16 organizations provided guidance to the property owners. The guidance aimed at activating the property owners and getting them interested in the effects of their wastewaters and the possibilities of improving their systems.

The River Basin Management Plans for years 2016–2021 included several actions to promote the performance level of sanitation: upgrading the old on-site wastewater treatment systems to meet the legislative requirements, appropriate use and maintenance of those systems as well as expansion of sewer network to areas of dispersed settlements. In december 2021 the government adopted updated river basin management plans for years 2022–2027. In the updated plan a new measure has been identified and proposed “upgrading the old on-site wastewater treatment systems in properties that have exemption from the legislation”. In addition, supervision and extension services will be provided to increase the awareness and to improve the treatment of on-site waste water treatment.

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 the intervals of 7–10 years, and best available technology is adopted.

Not invoiced wastewater by the operators has been about 40 %, which indicates a quite high leakage rate because of poor sewer quality. The focus will be a more extensive maintenance and rehabilitation of the sewerage 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 targets implement the SDG target 6.2.

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

Because water services include both the supply of water and sanitation the targets of the both are integrated, similarly to the targets under the Protocol.

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 status of surface waters and groundwater used as water sources shall be ensured by protection. The key objectives of water management and water protection shall be defined for each water management area. Groundwater protection shall be promoted with plans for protecting the groundwater areas and up-to-date information on the boundaries of groundwater areas and hydrogeology. Groundwater resources shall be used as water sources in a sustainable manner. Risks arising from human actions shall be reduced in groundwater areas used as or suitable for sources of drinking water.

The water management measures shall be planned in cooperation with interest groups. The key principle shall be an open and active cooperation. Any operations that may cause a risk of environmental pollution shall require a permission granted by the authorities or a notification to the authorities of the operations.

Drinking water supply and sanitation shall be subject to the principle of preparedness and comprehensive risk management (Water Cycle Safety Plan, WCSP), which comprises the WSP model for drinking water and the SSP model for waste water treatment and sewerage, for the drafting of which a national electronic online-based software shall be maintained. Risk assessment, risk management, surveillance and preparedness for disruptions shall form a coherent and mutually reinforcing entity. Water supply plants and the authorities shall act in cooperation in order to prevent disruptions in drinking water supply and sanitation as well as to prevent any adverse health and environmental impacts caused by the disruptions.

The surveillance of the quality of drinking water and the prevention of disruptions shall be based on the assessment and management of the risks affecting health-related water quality in the entire water supply chain in accordance with the Water Safety Plan (WSP) principle presented by WHO. Drinking water suppliers and the authorities responsible for the surveillance of drinking water shall have extensive guidelines on best practices to safeguard the quality of drinking water. In order to ensure adequate proficiency, all persons whose duties have an effect on the quality of the drinking water of a drinking water supply plant shall have passed a proficiency test in technical utility operations and water hygiene provided for in the Health Protection Act. Drinking water tests belonging to the supervision by the authorities shall be carried out in an approved laboratory using accredited or assessed methods.

The assessment and management of sanitation risks shall be carried out by applying the Sanitation Safety Plan (SSP) model, which corresponds to WSP, which, in addition to the prevention of adverse health impacts, also takes into account the assessment and management of the risks affecting the environment. The assessment and management of adverse environmental and health impacts in accordance with the SSP model form part of the environmental permit regulations of waste water treatment plants. In order to reduce the load from urban waste water, a water protection development contract shall be drafted to agree on the drafting of an indicative programme for voluntary measures to be taken by the different actors in order to intensify waste water treatment.

It shall be ensured that the plants reconstruct their water supply systems adequately, that the reconstructions are allocated properly and that tools and key figures are developed to support the investments.

Undertakings and organisations are encouraged to enter into a water stewardship commitment to identify the water risks in their value chains and to develop sustainable use and management of water.

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 works (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 Act on the Organisation of River Basin Management and the Marine Strategy (1299/2004), the Environmental Protection Act

527/2014), Water Services Act (109/2011), Health Protection Act (763/1994), Water Act (587/2011) and several Government and Ministry Degrees under them. 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 Health Protection Act aims to ensure that no activity causes a threat to human health. The Water Services Act aims to ensure proper water supply and sanitation for all, and the Water Act include provisions for example for permits for water abstraction and for safeguard zones of the abstraction points.

The targets related to the water supply chain from catchment to tap are also implemented or set under the Land Extraction Act (555/1981) that states that all buildings shall be built and maintained in a manner that it ensures proper drinking water and wastewater services.

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. An 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 (1022/2006) all direct or indirect inputs to groundwater are prohibited if there is a risk that they may cause groundwater pollution now or in the future.

The Government Decree on Limiting Certain Emissions from Agriculture and Horticulture entered into force in 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, but the transition period with the deadline of 31 October 2019 was postponed.

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 prescribed 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, application instructions of best practices was written 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).

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

During the reporting period the river basin management plans were updated for years 2022–2027 and adopted by the government in December 2021. The objective of the plans is to achieve good water quality in all surface and groundwater bodies by 2027. The programmes of measures were established to meet these objectives. The preparation of the plans was conducted in cooperation of relevant water users and stakeholders. The environmental objectives of the river basin management plans are integrated with those of drinking water directive. As a result of the activities identified in river basin management plans it has been estimated that good water quality was achieved in more than 87% of the lakes and about 67% of the rivers by 2021. Almost all groundwater bodies were in good water quality status in 2021. The reassessment of the status of groundwater and surface waters will be conducted in 2025. In the updated river basin management plans it was assessed, that during the classification period (2012–2017) only 5 water suppliers had exemptions on the quality standards set based on the drinking water directive.

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 2019, 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 approximately 500 groundwater areas.

Groundwater protection is promoted through groundwater protection plans and updated information on groundwater boundaries and hydrogeology. By the end of 2021

- a protection plan had been established for over 1,800 groundwater areas (over 35 %)
- about 70% of Finland's groundwater areas boundaries and classification have been reviewed
- in connection with the classification, more information on the hydrogeology of groundwater areas have also been produced.

By the end of year 2021 more than 25 000 employees of drinking water supply plants had a valid certificate, which verify their proficiency in water plant technology and hygiene. All of these employees are required to have the certificate in order to take actions impacting on the quality of the drinking water at the drinking water supply plant. From 2007 to the end of 2021 more than 68 000 employees of drinking water supply plants have accomplished certificates, which are valid only for five years. So far, the licence to test the proficiency has been issued to 131 persons.

The web-based WSP-tool has been taken successfully into use by drinking water suppliers, and authorities. In 2021, there were 7900 logons to the system, and in the previous year 2020 there were 6200 logons. In March 2022 the total number of users of the tool was 1592 from 775 different organizations (water suppliers and authorities).

Supporting water stewardship actions has been listed as one of the objectives of the five ministries' cross administrative Finnish International Water Strategy, and water stewardship commitments and partnerships have been noted as its practical means. The Finnish water stewardship commitment was established in 2017, and by 2021 seven companies had joined the commitment. To support the implementation of the strategy, Finnish ministries, research institutes and WWF Finland published a roadmap in 2019 which sets a target for Finnish companies to become world leaders in water stewardship by 2030. A research project was conducted in 2020–2021 to identify and develop ways to achieve the 2030 targets. In addition, in 2021 Finland signed the Glasgow declaration for fair water footprints. In the updated river basin management plans for 2022–2027 water stewardship was also identified as one of the measures to improve water protection in industrial sector.

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 targets implement the SDG targets 6.1, 6.3, 6.4, 6.5, 6.6, 6.a, 6.b, 9.1, 9.4, 12.2, 12.6, 12.8, 16.6, 16.7, 17.7, 17.9, 17.14, 17.16, 17.17.

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.

See the targets under Paragraph VIII.

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 urban 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 objective of the Council Directive 91/271/EEC concerning urban waste-water treatment 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. The directive was implemented in Finland by the Government Decree on Urban Waste Water Treatment (365/1994, revised 888/2006).

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. An 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. The deadline for implementation of the treatment systems was 31.10.2019.

The measures and instruments to achieve good water quality, and also exemptions with extended deadlines, have been identified in the RBMPs compiled in accordance with the Water Framework Directive.

All sewage treatment plants are required to have an environmental permit. According to the Environment Protection Act, the 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 are applied to sewerage and wastewater treatment.

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

The measures and instruments to achieve good water quality, and also exemptions with extended deadlines, have been identified in the River Basin Management Plans. The progress in implementation of the measures concerning communities of the plans have been sufficient. The plans were updated for 2022-2027. The key instruments in the protection of water resources concerning communities include:

- use, maintenance and upgrade of waste water treatment plans;
- implementing measures of the risk management and preparedness plans
- improving the management of priority substances in waste water treatment plants

- decreasing stormwater overflows and changing combined sewer and storm water networks to separate ones
- improving the level of wastewater treatment with a Green deal
- integrating waste water treatment into bigger facilities
- improving the cooperation of water utilities to implement sustainable water services
- improving energy efficiency of water utilities
- integrating land use planning, water services and construction to improve water services
- research and development projects to assess new priority and emerging substances in wastewater treatment

A new voluntary agreement to reduce the nutrient loads from the municipal waste waters was signed in 2021 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).

In order to encourage better operations than the permit regulations, the municipal wastewater treatment industry associations and the Ministry of the Environment have in 2021 entered into a green deal, in which the treatment plants undertake to achieve a better treatment result than the permit regulations.

The progress for the targets 1, 2 and 7 have been described in general level under paragraph VII.

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 targets implement the SDG 3 and 6, especially targets 3.9 and 6.3.

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 urban waste water or industrial waste water shall not be discharged into waters under normal circumstances. Disruptions caused by the conduct and treatment of urban and industrial wastewater shall be precluded by preventive measures, and adequate action, such as drills, shall be taken to prepare for accidents and to inform thereof. The pollution arising from occasional discharges shall be taken into account in each treatment plant's environmental permit and the proportion of such discharges shall be examined as part of surveillance when assessing compliance with permit regulations.

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

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 the Environmental Protection Act (527/2014) no untreated wastewater is allowed to be discharged into the natural waters. Thus, under normal conditions, no untreated wastewater is discharged into waters. However, for example during heavy rain or snow melt in spring time, the capacity of the sewer network or wastewater treatment plant are momentarily inadequate, and some untreated wastewater has to be discharged into the recipient waters. Also under exceptional circumstances, such as equipment (pumping stations, sewer pipes) failure, wastewater must 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.

The amount of discharged wastewater shall be monitored and it shall be included into the environmental permit of the water utility. Hence, total amount of pollution will not be exceeded because of overflows from sewer networks. The urban wastewater directive is under evaluation in 2022, and there will be new regulations on overflows of untreated wastewater in near future.

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 rehabilitation 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 targets implement the SDG 3, 6 and 9, especially targets 3.9, 6.3 and 9.1.

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.

Combined sewerage systems shall, where possible, be changed into separate sewerage systems. The management of storm water to be collected shall be developed by the plants so that its discharge into waste water sewers remains small and does not disturb the normal operations of waste water treatment plants. Systematic measures to reduce the nutrient load of storm water, such as prevention of storm water formation, withholding, delay or treatment of storm water, shall be implemented by municipalities in areas where storm water accounts for a substantial part of the environmental load on surface waters and the water status needs to be improved.

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).

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 cases when storm water needs to be conducted to waste water treatment plants, however, the requirements appearing in the plants' permit regulations concerning treatment efficiency and discharge volume apply.

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.

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 been paid also on the pollution caused by storm water and the means for 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.

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 occur occasionally 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, and the progress in preventing them has been slow so far.

The legislation aims to 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.

Methods for preparing for floods caused by exceptional rainfall have been introduced and are being developed in the Water Protection Program of the Ministry of the Environment. The load caused by accidental emissions is taken into account when monitoring compliance with the permit requirements issued in the environmental permits of treatment plants. The river basin management plans set measures that aim to reduce stormwater overflows as described in section VIII. The stormwater overflows have been decreasing steadily, but renewal of all mixed sewer networks takes time.

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 targets implement the SDG target 6.3.

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.

Urban waste water and industrial waste water shall undergo a biological and chemical treatment using the best available technology to remove organic matter and nutrients causing eutrophication, phosphorous and nitrogen, so that the treatment efficiency of plants shall constantly be improved. Greater efficiency in treatment shall be introduced particularly in areas where the harmful effects of waste water threaten surface waters whose status is not good or whose status is at a risk of deteriorating and where the status of the water system could be enhanced by intensifying urban waste water treatment.

Limit values and environmental quality standards shall not be exceeded with regard to harmful substances defined in legislation. The hygienic risks arising from urban waste waters shall be reduced, where necessary. The risks arising from new emerging micro pollutants (pharmaceutical residues, micro plastics) shall be examined and, where necessary, procedures and methods shall be developed to reduce and prevent the risks in a cost-effective manner. Correspondingly, practices and methods to recycle and recover nutrients shall be developed.

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 by the Regional State Administrative Agency is required for all treatment plants serving more than 100 inhabitants or treating an equivalent volume of waste water. Corresponding principles apply to the treatment of industrial waste water. Under the Water Services Act (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 the status.

Wastewater treatment plants shall operate in such a manner that the emission norms imposed on substances that are hazardous and harmful to the water environment and their environmental quality standards 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 the 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 that 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's permit, usually both quantitatively and as an efficiency percentage. Requirements are normally imposed on urban wastewater treatment plants in respect of at least organic matter (BOD₇), phosphorus and nitrogen.

The surveillance of treatment plant operations is based on the analysis of samples taken by the operators and on 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 prevention on human health hazard by waste and wastewater are included in the Health Protection Act (763/1994). The provisions concern 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 guidance for the prevention of health hazards arising from waste and wastewater, and the municipal health authorities may give orders or bans in order to prevent health hazard.

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 the treatment efficiency of urban waste water treatment plants in the removal of organic matter has been 97% on average, in the removal of phosphorus 96% on average and in the removal of nitrogen 60% on average.

In order to encourage better operations than the permit regulations, the municipal wastewater treatment industry associations and the Ministry have entered in 2021 into a green deal agreement, in which the treatment plants undertake to achieve a better treatment result than the permit regulations.

Over the past couple of years, the main focus of Nutrient Recycling Program of the Ministry of the Environment's has been on the recycling of nutrients and promotion of energy efficiency in municipal wastewater and by-products. Efforts have been made to pilot larger-scale experiments and technologies to launch investments and achieve significant water and climate benefits, as well as improved nutrient and energy self-sufficiency and security of supply. Since 2012, the nutrient recycling program has funded more than 100 RDI projects with more than EUR 30 million. About half of this was for 2019–2021.

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 targets implement the SDG target 6.3.

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.

Sewage sludge from treatment plants shall not be discharged into waters or the sea and they shall not be placed in landfills, but the sludge shall be collected, treated and utilised as fertiliser products, energy products or as other products.

Mineral phosphorous resources shall be saved by recycling the phosphorous in the sludge. The recovery of nutrients shall be increased so that at least 50 percent of urban waste water sludge shall be utilised using developed technology by the year 2025. The usability of the nutrients in the sewage sludge shall be improved by developing new treatment methods.

Regulation relating to the properties of fertilising products produced by recycling shall be modified and their use shall be actively promoted without endangering the safety of the fertilisers and environmental protection. Special attention shall be paid to the products not causing soil contamination or endangering the production of high-quality food or feed.

The adverse health and environmental impacts of treated urban waste water shall be identified and efficient management procedures shall be defined for identified impacts to enable water reuse.

The microbiological quality of fertiliser products shall be safeguarded with legislation, surveillance and research.

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 of the 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 (179/2012) 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.

According to the Government Resolution on Water Protection Guidelines, given in 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 was approved by the Government in 2008, and it set targets for sewage sludge. 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 aim of the Plan was 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.

Municipal wastewater treatment plants are also subject to contingency planning required by the Water Services Act, which is comparable with the risk management plan required by environmental permits. Several facilities make use of the Sanitation Safety Plan (SSP) developed on the WSP (Water Safety Plan) principles.

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

In 2021, the Finnish Water Utilities Association assessed that the amount of sewage sludge in 2020 from wastewater treatment plants was approximately 135 000 t/a dry solids. According to this report, 45% was used as fertilizer and 41% 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.

There have been several projects in which new technologies for phosphorus recovery from municipal wastewater have developed and tested. Examples are the new RAVITA technology for the recovery of phosphorus as phosphoric acid, the precipitation of phosphorus as struvite and the pyrolysis of sludge into sludge carbon. The common goal of developing these technologies is to recover nutrients as safe end products without the risk of organic contaminants and microplastics. Examples of other research projects include for example “Potential of sewage sludge phosphorus in plant production and impacts of harmful compounds in sludge on environment and food chain” (2015-2018), “*Legionella* in growing media” (2018–2020) and “The occurrence of *Legionella* bacteria in circular economy products” (2018–2020).

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.

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 targets implement the SDG 3 and 6, especially targets 3.9 and 6.3.

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.

The adverse health and environmental impacts of treated urban waste water shall be identified and efficient management procedures shall be defined for identified impacts to enable water reuse.

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).

Finland is planning on deciding that reuse of municipal wastewater for agricultural irrigation is not appropriate in any river basin district in Finland in accordance with Article 2(2) of the Water Reuse Regulation ((EU) 2020/741).

Finland has abundant water resources, and there is no foreseeable shortage of water in the near future justifying the reuse of municipal wastewater for agricultural irrigation. Additionally, reuse for agricultural irrigation cannot be justified from an environmental or economic perspective.

The decision would not prevent small-scale pilot projects for reuse of municipal wastewater in agricultural irrigation.

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.

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 quality of the waters shall meet the requirements of the EU Water Framework Directive. A good ecological and chemical status of surface water as well as a good chemical and quantitative status of groundwater shall be achieved. The weakening of the status of waters in good and excellent status shall be prevented. Protection plans for groundwater areas shall be drawn up and kept up-to-date in groundwater areas used for the abstraction of water as well as in groundwater areas where activities affecting the status of groundwater take place.

Environmental targets shall be set on all bodies of water. In defining the targets, special attention shall be paid to waters used for the abstraction of drinking water and to bathing waters, with regard to which special attention shall be paid to the hygiene quality.

See also targets under Paragraph VII.

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 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 intended to be used for production of drinking water.

The target of groundwater 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 by the year 2015.

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 are also used on national, regional and local level. In the river basin management plans, surface and groundwater bodies used for drinking water and surface water bodies including popular bathing sites are designated as protected areas and necessary measures shall be taken to achieve the environmental objectives of the water framework directive and those quality standards set out in drinking water directive or bathing water directive.

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.

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 2019, the quality of groundwater has been maintained good, only approximately 2% of the aquifers that are important or suitable for water supply the quality is deteriorated. The groundwater protection plan has been

compiled for 80% of the groundwater areas that are in risk of pollution. In regard of the groundwater bodies used for abstraction of drinking water the coverage of the protection plans is 95%.

In 2019 87 % of lakes and 68 % of rivers were in good ecological status, where as only 13 % of the coastal water achieved good ecological status. The environmental objectives of all water bodies should be met at latest by 2027. Exemptions to the objectives may be applied in certain occasions. In the updated river basin management plans for years 2022-2027, approved by the government in December 2021, all necessary measures to achieve the environmental objectives of the water bodies have been presented. Exemption of less stringent objectives have been applied to 4 surface water bodies and one groundwater body, due to long lasting historical pollution and with no technical solutions available to achieve the objectives. In addition, exemption of extending the timeline for achieving the objectives have been applied to approximately 1500 water bodies due to reasons of natural conditions, i.e. it takes longer time for the ecosystems to recover, although the measures needed are in place.

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 targets implement the SDG targets 6.3, 6.5, 6.6 and 16.7.

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.

Popular areas shall have public bathing areas or small public beaches. The water quality at public bathing areas shall meet the requirements of Directive 2006/7/EC of the European parliament and of the Council, hereinafter the Bathing Water Directive, and/or the requirements of the decrees of the Ministry of Social Affairs and Health. Bathing water quality shall be at least sufficient at bathing areas where a large number of people bathe.

A bathing water profile shall be established for all bathing areas where a large number of bathers is expected. The bathing water profile shall describe the characteristics of the bathing water and other surface waters and groundwaters in its catchment area, and any activities located in the catchment area that could be a source of pollution of the bathing water, and assess the causes that may affect the quality of bathing waters and impair bathers' health. Each public bathing area where a large number of people bathe shall have an accessible toilet.

Information on the quality of bathing waters, defects observed in surveillance and the remedial action taken by the authorities shall be collected into a centralised resource planning and information management system in environmental health care, the aim of which is to harmonise surveillance, improve the quality of related guidance and increase the effectiveness of surveillance.

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 177/2008 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 354/2008 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 required be available at the bathing area.

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

There are approximately 300 public large bathing areas and a higher number of small public bathing areas. Most bathing waters at large public area have been classified as excellent or good. In a few areas, the quality of bathing water has been temporarily classified as poor, but the status has not been permanent. In some areas, management measures have been carried out to improve the quality of bathing water. The monitoring results of the last bathing season are available in Finnish on the web pages of municipalities or bathing areas. The list of public bathing waters including the status of the bathing water during the last three bathing seasons are available at <https://www.valvira.fi/ymparistoterveys/terveydensuojelu/uimavesi>. In addition, EU-wide annual reports on the quality of bathing waters are available at <https://www.eea.europa.eu/data-and-maps/data/bathing-water-directive-status-of-bathing-water-13>. Information on the quality of bathing water in small public bathing areas has not been collected as a national summary.

During the reporting period 2019–2021, there was one bathing water outbreak in which 35 bathers fell ill. No deaths were reported in this outbreak. The outbreak was caused by noroviruses.

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

Bathing water profiles have been established for all large public bathing areas, and the profiles have been updated in 2021. All profiles are available in Finnish on the web pages of municipalities or bathing areas.

In the beginning of 2019 the national environmental healthcare information system, Vati, was introduced. Local authorities record all essential information about the bathing sites in Vati, such as the results of bathing water analyses. Information on toilet facilities at the bathing sites is not yet available in Vati.

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 targets implement the SDG 3, especially targets 3.3. and 3.9.

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.

Plant-specific environmental permits granted under the Environmental Protection Act and the Water Act shall ensure that aquaculture is located so that the operations do not cause harm to the environment and that water-borne health security risks have been minimised.

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.

Emissions caused by aquaculture are governed by the Environmental Protection Act (527/2014) and the Decrees and other statutes supplementary to it. A permit is required for all aquaculture facilities using more than 2000 kg of dry feed per year or corresponding nutrition value of other feed, or where volume of produced fish is more than 2000 kg/year. In addition, the aquaculture facilities need a permit by the Regional State Administrative Agency under the Water Act. The regulations ensure that aquaculture is located so that the operations do not cause harm to the environment.

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

An updated version of the Guidelines for environmental protection in fish farming was published in 2020. The purpose of the guidelines for environmental protection in fish farming is to support the authorities in the implementation of environmental legislation and harmonise the activities and supervision procedures of the authorities. The document also present lists and summaries of the relevant legislation on environmental protection and good practices for the operators in the sector. The guidelines are intended for the Regional Environment Centres and Regional State Administrative Agencies and, for information purposes, for the environmental protection authorities and relevant stakeholders. The guidelines are not binding on the authorities and they are to be applied on a case-by-case basis.

In the coastal area the fish farming is mainly situated according to the national location advice plan from 2014. In addition, the maritime spatial plans for the coastal areas, approved in 2020 coordinate possible locations protected areas and possible sea based activities, including fish farming.

National program for promoting domestic fish in nutrition was adopted in 2021 by the government. It includes guidelines on sustainable aquaculture needed to achieve the objective set by the program.

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 targets implement the SDG targets 6.5 and 6.6.

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.

There shall be public swimming pools and they shall be maintained so that people have a possibility to learn and maintain swimming skills. Accessibility shall be taken into account in public swimming pools.

The quality and surveillance of enclosed waters shall meet the requirements of the Decree of the Ministry of Social Affairs and Health (315/2002).

Information on the quality of enclosed waters, defects observed in surveillance and remedial action taken by the authorities shall be collected into a centralised resource planning and information management system in environmental health care, the aim of which shall be to harmonise surveillance, improve the quality of related guidance and increase the effectiveness of surveillance.

The employees of swimming centres and spas who engage in actions impacting the quality of enclosed waters shall pass the proficiency test in plant technology and hygiene of enclosed waters referred to in section 28a of the Health Protection Act (763/1994).

In order to decrease the load of enclosed waters, the persons participating in the sanitation and cleaning of swimming pools and wet rooms shall have adequate knowledge of the effects of the hygiene of the premises on the health quality of enclosed waters and adequate competence in the cleaning and sanitation of these premises in accordance with the provisions of section 28a of the Health Protection Act (763/1994).

The operators shall have plans for each pool or pool group to address possible disruptions. The plans for disruptions shall describe the instructions to prevent adverse health impacts and the personnel shall be trained to act in accordance with the instructions.

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 Finnish Swimming Teaching and Lifesaving Federation (FSL) has improved the swimming and water safety skills of everyone living in Finland by offering different kind of guidance and instructions. Example of this is a guide booklet 'Welcome to the swimming hall! - A guide for visitors to swimming halls'. The booklet has been translated into several languages included easy-Finnish. In 2019 a new building information file, RT 103059 Swimming Pool Planning Guide, was published, where accessibility and equality of the building has been taken into account already at the planning state.

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 aim 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 but 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.

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 2021 approximately more than 8 900 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 55 persons.

Also the cleaning sector has taken seriously the requirement of the legislation (The Health Protection Act 763/1994) to show awareness of hygienic demands on pool cleaning. Since 2016 there has been available a voluntary test for hygiene expertise in swimming pools and wet rooms and there is about 2 100 cleaners who have participated this test. There is about 50 persons who has the licence to test the proficiency.

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). In the beginning of 2019 the national environmental healthcare information system (Vati) was introduced. 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 Finnish Institute for Health and Welfare.

The Finnish Swimming Teaching and Lifesaving Federation (FSL) has published new guides when the situation so requires, for example they have translated the guide 'Welcome to the swimming hall!' into the necessary languages. 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 2019–2021, there were no outbreaks related to the pool 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 targets implement the SDG targets 6.1, 17.14, 3.3, 4a and 6.3.

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 risk targets shall be identified, examined and remediated in a prioritized manner. Sites that threaten groundwater and other sites causing significant adverse environmental and health impacts shall be prioritized and their identification and remediation shall be promoted in a cost-effective and sustainable manner.

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) have entered into force in June 2007.

Soil remediation focus particular on risk management in the classified groundwater areas (groundwater that is used or planned for 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.

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.

A new Governmental Decree on supporting the remediation of contaminated sites (1239/2019) entered into force in 2020. The Decree lays down provisions on supporting the investigations and remediation of contaminated sites. Support may be granted if the party causing the pollution cannot be identified, reached, or bear the costs of the measure.

The regulatory framework on contaminated land is currently being revised. The revision aims at promoting the recovery of excavated soils in construction by expanding the existing administrative process on site remediation (i.e., the exemption from environmental permit requirement based on a specific notification) to the reuse and temporary storage of excavated soils as well as to soil stabilization by certain waste-derived binders. The reform also aims at clarifying some of the key definitions, obligations, and responsibilities in the legislation to harmonize the current procedures, and to enhance the risk-based and sustainable remediation practice.

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

Progress has been made in achieving the targets. Investigations and remediation of sites threatening groundwater or causing other significant environmental and health risks have been prioritized in particular in state-funded projects. Also the use of sustainable remediation methods and practices have increased. Contaminated areas have also been taken into account more than previously in the early stage of land use planning.

The State on Finland grants EUR 2,871,000 annually into developing soil protection and investigation and remediation of orphan contaminated areas.

The implementation of the National Risk-based Programme for Investigation and Remediation on Contaminated Land Areas is one of the main policy measures for achieving the main goal of the National Risk Management Strategy for Contaminated Land. The purpose of the programme is to identify significant contaminated sites and promote investigations and implementation of necessary risk management measures at these sites within the next 25 years. In 2019–2021, 135 orphan sites have been investigated and more than 20 remediated within the program. The total amount of contaminated areas restored during this period exceeds 1000. Since 2020 measures have also been taken to investigate the environmental impacts of orphan closed and abandoned mining waste sites as well as the need for risk management measures on the sites.

In 2021 two state-funded development projects were completed. In the first project a Guide on Sustainable Restoration Practices in Finland were prepared and in the second a model to coordinate and improve Comprehensive Risk Management of Groundwater Areas in Poor Chemical Condition (POAKORI). Underway in also the renewal of the website maaperakuntoon.fi which provides information on for example investigation ja remediation projects, related legislation and provisions. Also the development of the National Soil Database System (MATTI), that contains information about sites where harmful substances may have been released from current or previous activities on the site, is continued.

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 targets implement the SDG target 3.9.

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.

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.

The targets, target dates, and the actions the progress have been addressed and described under different sections of Part three of this report.

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.

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.

Part three

Common indicators¹

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 m³ in a day or for more than 5 000 persons. The data is available in Finnish:

- <https://thl.fi/fi/web/ymparistoterveys/vesi/talousvesi>
- <https://www.valvira.fi/ymparistoterveys/terveydensuojelu/talousvesi>

In 2020, large water supplies distributed drinking water for 4,6 million people which is 82% 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, consumer's tap).

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.²

The values correspond to the WHO's guideline values.

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

² 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/.

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.

| <i>Parameter</i> | <i>Area/category</i> | <i>Baseline value (2005)</i> | <i>Value reported in the previous reporting cycle (2017)</i> | <i>Current value (2020)</i> |
|-------------------------------------|----------------------|------------------------------|--|-----------------------------|
| <i>E. coli</i> | Total | 0.00 % | 0.02 % | 0.00 % |
| | Urban | | | |
| | Rural | | | |
| Additional parameter 1: Enterococci | Total | 0.24 % | 0.00 % | 0.00 % |
| | Urban | | | |
| | Rural | | | |
| Additional parameter 2: | Total | | | |
| | Urban | | | |
| | Rural | | | |
| Additional parameter 3: | Total | | | |
| | Urban | | | |
| | Rural | | | |

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 (2017)</i> | <i>Current value (2020)</i> |
|------------------------------------|----------------------|------------------------------|--|-----------------------------|
| Arsenic | Total | 0.00 % | 0.00 % | 0.00 % |
| | Urban | | | |
| | Rural | | | |
| Fluoride | Total | 0.88 % | 0.00 % | 0.00 % |
| | Urban | | | |
| | Rural | | | |
| Lead | Total | 0.00 % | 0.00 % | 0.00 % |
| | Urban | | | |
| | Rural | | | |
| Nitrate | Total | 0.00 % | 0.00 % | 0.00 % |
| | Urban | | | |
| | Rural | | | |
| Additional parameter 1: Pesticides | Total | 0.07 % | 0.00 % | 0.01 % |
| | Urban | | | |
| | Rural | | | |
| Additional parameter 2: ... | Total | | | |
| | Urban | | | |
| | Rural | | | |

| <i>Parameter</i> | <i>Area/category</i> | <i>Baseline value (2005)</i> | <i>Value reported in the previous reporting cycle (2017)</i> | <i>Current value (2020)</i> |
|-------------------------|----------------------|----------------------------------|--|---------------------------------|
| Additional parameter 3: | Total | | | |
| ... | 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);

In 2020, there were no waterborne outbreaks related to the pathogens listed in a table below.

(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).

The Finnish Institute for Health and Welfare maintains a national infectious diseases register based on the Communicable Diseases Act and Decree. Data is collected to the register using communicable disease notifications filed by doctors and laboratories. The register data is used in the prevention of infectious diseases, the work to combat infectious diseases and research.

The public statistical database of the National Infectious Diseases Register provides access to statistical data by hospital district, age group and gender, on an annual and monthly basis. In addition to the number of cases, the register provides information about incidence, or the number of cases relative to 100 000 residents. Data have been collected since 1995.

Diseases in 2020 (all exposure routes)

- total 175 EHEC cases, 71% of them (125) was domestic
- total 41 shigellosis, 20% of them (8) was domestic
- total 3 *S. typhi* cases, all cases from abroad
- total 12 viral hepatitis A cases, part of the cases was from abroad, part was domestic
- total 571 cryptosporiosis
- total 24 legionellosis, 69% of them was domestic

<https://thl.fi/en/web/infectious-diseases-and-vaccinations/surveillance-and-registers/finnish-national-infectious-diseases-register>

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

| Disease | Incidence rate per 100,000 population (all exposure routes) | | | Number of outbreaks (confirmed water-borne outbreaks) | | |
|--|--|--|-------------------------|--|--|-------------------------|
| | Baseline (2005) | Value reported in the previous reporting cycle (2017) | | Baseline (2005) | Value reported in the previous reporting cycle (2017) | |
| | | Current value (2020) | Current value (2020) | | Current value (2020) | Current value (2020) |
| Shigellosis | 2.4 | 1.7 | 0.7 | 0 | 0 | 0 |
| Enterohaemorrhagic <i>E. coli</i> infection | 0.4 | 2.3 | 3.2 | 0 | 0 | 0 |
| Typhoid fever | 0.1 | 0.2 | < 0.1 (0.05) | 0 | 0 | 0 |
| Viral hepatitis A | 0.5 | 0.5 | 0.2 | 0 | 0 | 0 |
| Legionellosis | | 0.5 | 0.4 | 0 | 3 | 0 |
| Cryptosporidiosis | | 4.5 | 10.3 | 0 | 0 | 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://thl.fi/en/web/infectious-diseases-and-vaccinations/surveillance-and-registers/finnish-national-infectious-diseases-register> (data is in Finnish)

Ref. Information on waterborne outbreaks is collected by National Institute for Health and Welfare from the National food and waterborne outbreak registry where all confirmed waterborne outbreaks having at least 5 illness cases are reported.

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.

| Percentage of population with access to drinking water | Baseline value (specify year) | Value reported in the previous reporting cycle (specify year) | Current value (specify year) |
|--|----------------------------------|---|---------------------------------|
| Total | 100% | 100% | 100% |
| Urban | 100% | 100% | 100% |
| Rural | 100% | 100% | 100% |

- X 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>.*
- National estimates. *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.

| <i>Percentage of population with access to sanitation</i> | <i>Baseline value (specify year)</i> | <i>Value reported in the previous reporting cycle (specify year)</i> | <i>Current value (specify year)</i> |
|---|--------------------------------------|--|-------------------------------------|
| Total | 99.8% | 100% | 100% |
| Urban | 100% | 100% | 100% |
| Rural | 99% | 100% | 100% |

- Estimates provided by JMP. *JMP definitions are available at <http://www.wssinfo.org/definitions-methods/watsan-categories>.*
- National estimates. *Please specify how “access” is defined and what types of sanitation facilities are 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 water³ falling under each defined class (e.g., for European Union countries and other countries following the European Union Water Framework Directive⁴ 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.).

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

(i) Ecological status of surface water bodies

| Percentage of surface water classified as: | Baseline value (Classification is based on samples taken 2000-2007) | | Value reported in the previous reporting cycle (Classification is based on samples taken 2007-2012) | | Current value (Classification is based on samples taken 2012-2017) | |
|---|--|--|---|--|--|--|
| | Lakes square m ² / Rivers length km | Lakes square m ² / Rivers length km | Lakes square m ² / Rivers length km | Lakes square m ² / Rivers length km | Lakes square m ² / Rivers length km | Lakes square m ² / Rivers length km |
| High status | 29% | 22% | 29% | 20% | 35% | 23% |
| Good status | 59% | 34% | 55% | 44% | 52% | 45% |
| Moderate status | 11% | 30% | 13% | 24% | 12% | 23% |
| Poor status | 1% | 10% | 1% | 10% | 1% | 12% |
| Bad status | 0% | 4% | 0% | 2% | 0% | 1% |
| Total number/volume of water bodies classified | 2 983 | 6 634 | 6 634 | 6 692 | 6 692 | 6 692 |
| Total number/volume of water bodies in the country | 6 153 | 6 731 | 6 731 | 6 800 | 6 800 | 6 800 |

Note: Figures given are based on River basin management plans, which were adopted by the Government and published in December 2021 (see: www.ymparisto.fi/vesienhoito). The classification covers lakes larger than 1 km², rivers with a catchment area larger than 100 km² 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 80% 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 baseline period. Therefore the recent status is not directly comparable to the baseline status.

(ii) Chemical status of surface water bodies

³ Please specify.

⁴ 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.

| <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 (Classification is based on samples taken 2007-2012)</i> | | <i>Current value (Classification is based on samples taken 2012-2017)</i> | |
|---|--|--|--|--|---|--|
| | Lakes square m² / Rivers length km | Lakes square m² / Rivers length km | Lakes square m² / Rivers length km | Lakes square m² / Rivers length km | Lakes square m² / Rivers length km | Lakes square m² / Rivers length km |
| Good status | 100% | 93% | 68% | 70% | 0% | 0% |
| Poor status | 0% | 3% | 32% | 30% | 0% | 0% |
| Total number/volume of water bodies classified | 3 965 | | 6 731 | | 6800 | |
| Total number/volume of water bodies in the country | 6 153 | | 6 731 | | 6800 | |

Note: Figures given are based on River basin management plans, which were adopted by the Government and published in December 2021 (see: 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 and new ubiquitous priority substances (especially PBDE), which were evaluated in all water bodies in 2021. 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.

(iii) *Status of groundwaters*

| <i>Percentage of groundwaters classified as</i> | <i>Baseline value (2007)</i> | <i>Value reported in the previous reporting cycle 2015)</i> | <i>Current value (2019)</i> |
|---|------------------------------|---|-----------------------------|
| Good quantitative status | | 99.92% | 99.9% |
| Good chemical status | 98% (3 800 areas) | 97.5% | 97.6% |
| Poor quantitative status | | 0,08% | 0,1% |
| Poor chemical status | 2% (82 areas) | 2.5% | 2.4% |
| Total number/volume of groundwater bodies classified | 3 603* | 3 826* | 3900* |
| Total number/volume of groundwater bodies in the country | 3 804 | 3 826 | 3900 |

* 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 3 900 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). There are still ca. 170 groundwater 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 97 groundwater bodies was classified as poor (quality and/or quantity). Four groundwater bodies were found to be of poor quantitative status, and 95 were classified as having poor chemical status.

(b) For other countries

(i) Status of surface waters

| <i>Percentage of surface water falling under class^a</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 | | | |
| Total number/volume of water bodies classified | | | |
| Total number/volume of water bodies in the country | | | |

^a Rename and modify the number of rows to reflect the national classification system.

(ii) *Status of groundwaters*

| <i>Percentage of groundwaters falling under class^a</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 | | | |
| Total number/volume of groundwater bodies classified | | | |
| Total number/volume of groundwater bodies in the country | | | |

^a 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 (specify year)</i> | <i>Value reported in the previous reporting cycle (specify year)</i> | <i>Current value (specify year)</i> |
|---------------------------------|--|--|---|
| Agriculture | max 0.1% | | |
| Industry ^a | 1.40% | 1.46% | 1.46% |
| Domestic use ^b | 0.39% | 0.38% | 0.38% |

^a Please specify whether the figure includes both water abstraction for manufacturing industry and for energy cooling.

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

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 exceptional 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 Finnish 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. The latest report covering waterborne outbreaks in 2017-2019 has been published at the end of 2021.

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, including molecular biological methods, have been and are developed and applied in the investigations of waterborne outbreaks. Training on the investigation of waterborne outbreaks has been provided for the municipal health protection authorities.

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 and <https://www.vvy.fi/vesilaitosyhdistys/vesihuoltoopooli/>.

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 2021 more than 68 000 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. Similar statutory proficiency testing is statutory also for the pool and spa employees. By year 2021 more than 8 900 employees accomplished certificates. Also cleaners of the pool and spa areas are required to show by testing their competence for maintenance of the the hygienically challenging wet and moist pool and spa environments. By year 2021, approximately 2100 persons have passed the test.

Promoting swimming to all people

The Finnish Swimming Teaching and Lifesaving Federation (FSL) has 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 has been 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 Government 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=3zAxbeZTxd0>). 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 has now been revised, and the new application is more suitable than previously 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

6. 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 for use for all water suppliers and competent authorities, and it is available free of charge.

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> |
|---------------------------------|-------------------------------------|
| Total | 85% |

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).

Part seven Information on the person submitting the report

The following report is submitted on behalf of FINLAND
[name of the Party, Signatory or other State] in accordance with article 7 of the Protocol on Water and Health.

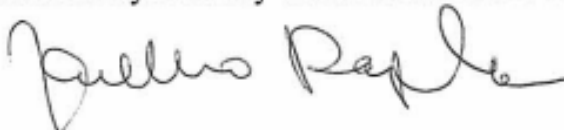
Name of officer responsible for submitting the national report:

E-mail: Jarkko.rapala@gov.fi

Telephone number: +358 205 163 315

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

Signature: Jarkko Rapala



Date: 20.4.2020

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
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