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.

Norway takes pride in our clear and pristine waters. Water as a resource is in excess and 90 % of the drinking water we produce origins from surface water bodies. However, challenges exist. Precipitation is increasing in some areas and leads to flooding. On the other hand, during the last 4 years we have experienced drought, both in the winter and the summer. In the northern part of Norway, the combination of cold weather and drought have caused water sources to freeze completely for weeks. This, combined with the fact that some 30 % of the water never reaches the consumer, tells us that improvements are possible and indeed necessary.

One of the main challenges in Norway is the water distribution systems. We have a lot of old water mains. Replacement is going slow, at a yearly average of about 0.7 %. In 2021 the risk management of more than 20 % of drinking water basins is found to be insufficient. In 2019 2000 persons were taken ill and 76 persons were hospitalized due to infection with Campylobacter jejuni, probably caused by leakage of contaminated water into a drinking water basin.

2021 The Ministry of Local Government and Regional Development, The Ministry of Health and Care Services and The Ministry of Climate and Environment have ordered a comprehensive analysis of the water and sanitation sector in Norway, aiming to illuminate how the long term renewal rate of the water and sanitation systems can be improved, "Mulighetsstudien" a feasibility study. The report came up with several propositions how to achieve the targets of the protocol faster and more cost effectively.

The water works are continuously encouraged to invest in their distribution systems. The Norwegian Food Safety Authority (NFSA) had their focus on distribution systems for their 2020 and 2021 audit of water works. In 2021, the focus was particularly on drinking water basins. The situation for the sewage system is comparable, but has improved in the last reporting period. In 2020, 32 % of the pipelines were 20 years old or younger, and 0,9 % was upgraded in 2020. Still about 15 % of the pipes are of unknown age.

The Norwegian water regulation serves to protect water sources. The drinking water regulation in force from 2017 takes this into account as well. The aim is to limit the need for water treatment, and to make untreated water as safe as possible. The rationale is that smaller water works often do not have comprehensive water treatment, and that treatment will have better effect with high quality raw water. Public awareness of water sources and catchment area protection needs to be improved in the years to come.

Norway as an EFTA-country has implemented the Urban Waste Water Directive. For waste water discharges not included by the Directive, national regulations provide adequate security for surface water bodies. Water bodies used as drinking water sources or as bathing facilities are subject to special care.

All Norwegian households, public buildings and healthcare facilities have access to drinking water and sanitation. Security of supply is relatively good. Unfortunately, some water works

lack sufficient redundancy in their supply and even in their water treatment, leaving them vulnerable to drought, polluted water sources or other unforeseen circumstances. Sufficient plans for emergency water delivery are also lacking in some municipalities. The NFSA have focused on this, and several large water works are currently outlining plans for alternative water sources. The municipality of Oslo, the Norwegian capital, is currently constructing an alternative water supply system, following a decision made by the NFSA in 2017.

Part one
General aspects

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

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

YES ☒ NO ☐ IN PROGRESS ☐

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

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

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

Targets and target dates were approved by the Norwegian government on May 22nd 2014. It was submitted to the Protocol Secreteriat. Information on the targets is available to the public online on the Norwegian Food Safety Authority webpages: https://www.mattilsynet.no/mat_og_vann/vann/Protokoll_om_vann_og_helse/ (Norwegian only). The Government has decided to revise and review the targets by 2023.

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.

Leading authority is the Ministry of Health and Care Services, with the Norwegian Food Safety Authority (NFSA) acting as coordinating secretariat. Several governmental authorities were involved during target setting and are still involved: Primarily The Ministry of Climate and Environment, the Norwegian Environment Agency and the Norwegian Institute of Public Health.

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

The Norwegian Ministry of Health and Care Services developed an action plan for the period 2014-2020 to ensure progress of the formalized targets of 2014. It was approved in October 2015 and have since been updated in 2017. The action plan has not been updated since 2018. In 2021 a governmental funding programme aiming to further improve drinking-water supply systems through technology development and innovation was implemented.

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?

Draft targets were on public consultation in 2013, and all stakeholders, NGOs, municipalities etc. were given the opportunity to comment. Norwegian Water, the organization which represents the muncipality water and wastewater utilities participated in this process.

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.

This report was prepared by a collaboration between the proper authorities, i.e. the Norwegian Institute of Public Health and the Norwegian Environment Agency, coordinated by the Norwegian Food Safety Authority.

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.

About 2/3 of the water supply systems registered with the Norwegian Food Safety Authority are owned by the local municipalities. They supply about 85 % of the total population.59 % of the drinking water systems, in Norway are serving between 50 and 500 persons. 3 % of the households receive water from such private or cooperative systems. The remaining population has a private water supply.

Most of the sanitation systems with capacity of more than 50 persons are owned by the municipalities. In 2020, approximately 13 % of the population were not connected to a public treatment plant but to an individual.

Norway has, to a large extent, a decentralised management system. Local authorities are responsible for necessary actions in order to follow up the targets. There is statutory regulations to ensure that the consumer will not be charged more than the investment and/or operational costs. Nevertheless, financial constraints may be an obstacle for the smallest municipalities because of high costs per capita. Investments in municipal infrastructure in Norway is financed by the consumer through fees or directly to private companies. The feasibility anlysis of the water and sanitation sector referred to in the summary above, indicated that small municipalities do not have the necessary competence to solve these problems on their own.

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.

Target summary:
a) Water supply systems supplying more than 500 individuals:
Shall not exceed the limit value for chemical parameters in the drinking water regulations more than two times per year.
Shall not exceed the limit value by more than a factor of five.
Microbiological parameters with a limit value of 0 shall be exceeded less than one per year.
Target year: 2016.
b) Water supply systems supplying between 50 and 500 individuals:
Shall not exceed the limit value for chemical parameters in the Drinking Water Regulations more than three times per year.
Shall not exceed the limit value by more than a factor of five.
Microbiological parameters with a limit value of 0 shall be exceeded less than three per year.
Target year: 2016.
c) Water supply systems supplying fewer than 50 individuals:
A sample taken randomly during the course of a year shall not exceed the limit value for chemical parameters by more than a factor of three.
E. coli shall not be detected.
Target year: 2020.
d) Develop and maintain an up-to-date overview of the drinking water quality for all water supply systems supplying more than 50 persons. Maintain an overview of a selection of water supply system supplying fewer than 50 persons.
Target year: 2015.

Baseline:

The EU drinking water directive (98/83/EC) is incorporated in the Norwegian drinking water regulations. The NFSA does not have a complete overview of the number of people receiving drinking water from the different sources or the quality of the water received.

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 drinking water regulation in force from 2017 makes it mandatory for water supply systems with over 50 consumers to register new installations and report annual data to the NFSA. Supplies for less than 50 people are only required to register.

Continous work is done to increase awareness of the low quality of many pipeline systems. This is an ongoing focus of the NFSA, and the 2020 and 2021 supervision focused specifically on the distribution system. The awareness over water distribution system renewal is generally growing in the population and is a recurring topic for media coverage.

The feasibility study ordered by the ministries, came up with several propositions how to achieve the targets of the protocol faster and more cost effectively.

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

The drinking water in Norway is of high quality, with relatively few deviations in analysis parameters, and it has been a stable situations for several years. With that in mind, an extreme variation from year to year is not expected. There is a significant decline in e.g. *E.* coli from the baseline value of 2005, an indication that water works are complying to the statutory requirements.

Progress for targets a and b is good. There is currently no data for target c. The Norwegian Institute of Public Health (NIPH) is currently initiating a research project into the smallest waterworks, with this as one parameter to look into.

Target d, the registration and collection of water works data is done over the internet and is working satisfactory. As of water plants supplying less than 50 people , a total of 4,900 have been registered with the NFSA by March, 2022. We are uncertain what the total number is and how many people these small plants provide, but it is estimated to be about 600,000 people.

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

The target set under this area contributes specifically to fulfilment of SDG 6.1 towards achieving safely managed drinking water.

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.

a) Outbreaks and endemic disease caused by waterborne infection shall have low probability and consequence. Target year: 2017.

b) More reliable estimation methods for determining the scope of endemic disease due to drinking water shall be incorporated. Target year: 2017.

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).

Targeted work to strengthen the hygienic barriers in the water supply system, and implement improved procedures for the operation and maintenance of water treatment plants and the distribution network.

The NFSA supervision focus for 2018 was on UV treatment plants, specifically with respect to UV transmission control, HACCP and operational routines. In short, some 50 % of audited plants had discrepancies. Of these, most were due to a lack in operational routines. Most discrepancies were of low severity, and none posed immediate hazard to the consumer. The Norwegian Food Safety Authority (NFSA) had their focus on distribution systems for their

2020 and 2021 audit of water works. In 2021, the focus was particularly on drinking water basins.

Improved methods for identifying and reporting cases of waterborne disease or outbreaks. The NIPH is working continuously to increase funding for the improvement of the MSIS and Vesuv reporting systems. An assessment should be undertaken regarding whether the mandatory reporting of additional microorganisms should be introduced. A survey based on data from the primary health service are also to be initiated and developed.

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

Improvement of reporting system to identify and report on waterborne disease and outbreaks has been completed.

Comment to target b) on better tools for estimation of the burden of disease related to drinking water. Although it is becoming well known that the water supply distribution network is a risk factor for cases and outbreaks of gastrointestinal illness with loss of water pressure, we do not have estimation of the burden of disease attributable to contamination of the drinking water in Norway. We therefor do not know our baseline, in terms of cases of waterborne diseases caused by contamination of the drinking water, well. A main concern within the water supply sector in Norway, is related to an aging water distribution network with relatively high percentage of leakage, prone to sudden breaks. In official registers (MSIS), only laboratory confirmed cases of waterborne agents are notified. In addition, we have an operative outbreak surveillance system (Vesuv) where waterborne outbreaks are identified, however, there is probably an underreporting of waterborne outbreaks, and the surveillance system do not comprise sporadic cases of water-related illnesses.

The Norwegian Syndromic Surveillance System (NorSySS) monitors how many infectious diseases are reported during consultations with general practitioners (GPs) and out-of-hours primary care facilities. Since 2016, gastrointestinal illnesses were included in the surveillance system. The aim of NorSySS is to identify infectious disease outbreaks as early as possible in order to implement infection control measures.

https://www.fhi.no/en/hn/statistics/NorSySS/

Since the national targets were formulated, political initiative has moved the work on estimating the burden of disease related to contamination of the drinking water in a national context. A cohort-study, with the purpose of estimating gastrointestinal illness associated with drinking water, was financed in 2016 and the data collection started in 2018. The data collection was completed late 2020, and the study results are work in progress.

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

Action taken under this target will particularly contribute to the fulfilment of the SDG 3, with specific focus on goal 3.3 (reduction of waterborne diseases) and 3.9 (reduction of illnesses caused by pollution of sources etc.). Action under this target will also contribute to the SDG 6, with specific focus on 6.1 towards safely managed drinking water.

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.

a) When planning areas for new housing (including recreational cottages) or industrial areas or concentration within existing settlement areas, consideration should be given to the opportunity to connect these to existing water supply systems nearby or, if necessary, make a new local common system, so as to achieve hygienic adequate, appropriate and cost and operating efficient devices.

b) Existing private water supply systems with unclear ownership and / or unsatisfactory water quality and supply security shall be upgraded or linked to existing water supply systems in order to achieve hygienically satisfactory, appropriate and cost-effective operation and devices.

Baseline:

Most people receive drinking water from water supply systems that supply more than 500 people. It is estimated that about 600,000 persons are drinking water from small water supply systems (<50 people) where the quality of the water is largely unknown to the authorities. There is a gradual development where smaller water systems are integrated into larger units.

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).

Municipal plans and regional masterplans are required to take water quality and security of supply into consideration. This came into action with the new Norwegian drinking water regulation. Through the Planning and Building Act, NFSA in Norway have the possibility to influence and object to municipal plans, to secure the consideration of drinking water in the plans.

Municipalities and other water suppliers are encouraged to build larger supply systems, or to link smaller systems where it is possible.

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

The NFSA has continuous focus on municipal plans for land use (target a) with regards to drinking water. All public plans for land use in Norway has to be published for public consultation, to make it possible for stakeholders to give comments. The NFSA comments when needed and has the possibility to object to plans that will clearly jeopardize drinking water quality.

It is hard to pinpoint a parameter to reliably measure progress in this area. In 2021 NFSA commented on more than 1000 public plans to secure water quality and secure water supply, and the number of plans considered each year is rising steadily.

Some areas of target point b) is a recurring challenge. Water supply systems with unsatisfactory quality and/or no backup supply are instructed to resolve this. In many cases a water provider is forced to and/or wishes to discontinue their service. To solve this each case must be handled individually, often involving the NFSA.

There is shortage of necessary competence in some small municipalities, and the cooperation between different municipalities to achieve the targets could be better.

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

The target set under this area contributes specifically to fulfilment of SDG 6.1 towards achieving safely managed drinking water.

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.

a. All within a waste water collection area shall be connected to the public network or have other acceptable treatment solutions. Target year: none, continous.

b. Individual treatment systems shall be adapted to the recipient's capacity and function effectively. Target year: none, continous.

Baseline situation:
All people in Norway have access to good sanitation fascilities, independent of the environmental standards on treatment of the waste water disharges.

The number of households not connected to the municipal system in an existing waste water district is low. In 2005, approximately 17 % of the population was not connected to a public treatment plant but was connected to individual treatment. The performance of these treatment systems is not well documented and partly unknown. However, this does not represent a major environmental problem, even though some of them are likely to be in poor or less good condition. Requirements in the National regulations are depending on the environmental condition of the recipient. Municipalities as pollution authorities may adopt more stringent requirements.

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 Planning and Building Act requires that all buildings must have access to a sewage plant. The regulations set requirements for level of treatment of the waste water.

Norway implemented EUs UWWTD in national legislation in 2007. For waste water discharges not included by the Directive treatment demands, national regulations shall provide adequate security for surface water bodies.

The Pollution Control Authorities follow up on demands and they often give more strict permits, especially for phosphorous.

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

The Directive has improved the focus on changing from individual to public treatment and more advanced treatment of waste water in municipalities by the West to Northern coast.

By 2020, approximately 13 % of the population are not connected to a public treatment plant but are connected to an individual. The share of the population connected to advanced treatment plants (chemical

and/or biological treatment) has increased from 53 % in 2005 to 64 % in 2020, so the quality of the treatment of waste water has improved.

For those parts of Norway where the waste water runoff is leading to Skagerrak, 98 % of the population was and is connected to advanced treatment plants. But for other parts of Norway, there has been an improvement from approximately 21 % in 2005 to 45 % in 2019.

4. Please describe how the target set under this area contributes to fulfilling global and regional commitments, in particular the 2030 Sustainable Development Agenda.
The target set under this area contributes specifically to fulfilment of SDG 6.3 towards improving water quality by reducing pollution from waste water, but will also affect the fulfilment of SDG 6.2.

The Government's White Paper on achieving the Sustainable Development Goals will be presented to the Storting during the spring of 2022.

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.

a) Non-planned interruptions in the water supply should be less than 0.5 hours on average per inhabitant per year.
b) The security of supply shall be better than 99.95 per cent. (Security of supply = the number of inhabitant hours without an interruption in the supply / the number of inhabitant hours in total x 100).
c) Annual replacement/renovation of the water distribution network should on average be two per cent at national level towards 2035.
d) Leaks from the individual pipeline network should be less than 25 per cent by 2020.
Target year: by 2020, the rehabilitation rate should be 2 per cent of the total municipal water distribution network.

Baseline:

Leakage from water distribution system is widespread and significant. On average about 30 % of the drinking water never reaches the consumer, a number which has been stable the last 6 years. In some places as much as 50 % disappears into the ground. An estimated 25 % of the pipe line system consists of pipes which should have been replaced or rehabilitated already, or must be replaced or rehabilitated in a short time to catch up with the maintenance backlog. Approximately 230 water utilities (which supply about 1.5 million people) have more than 10 km of lines added in the period before 1971 and 185 water utilities have more than 1 km asbestos cement pipes.

According to reports from water works the security of supply for municipal facilities is better than 99.99 percent nationwide. Some facilities may be less than the target.

Annual replacement of pipelines are essentially lower than the target of paragraph c). Status of the private water works is not known.

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).

There are two main points in the drinking water regulation to ensure water delivery: redundancy of water sources and plans for emergency water delivery (§9), and requirements to maintain and improve the distribution system (§15). The requirements are considerably stricter than the previous regulation.

This is a focus area for the NFSA, and it will be for some time. For 2018, focus was on data registry for water works serving more than 1,000 people. This is important to prioritize the order of audits. Both in 2019, 2020 and 2021 this has been a focus area for the NFSA audits.

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

Supply outage caused by non-planned interruption in Norway is less then 10 minutes per person per year.

https://www.ssb.no/natur-og-miljo/artikler-og-publikasjoner/rent-drikkevann-til-alle

Comment to target c) and d): The annual replacement/renovation of the water distribution network is approximately 0.7 %, (same for years in the period 2016-2018), which is lower than the set target of 2 %. The same goes for the percentage of leakage in the drinking water distribution network, where the target is set to 25 % while the national average is approximately 30 %.

In 2021, a funding programme aiming to further improve drinking-water supply systems through technology development and innovation was implemented. The programme is granted 5 million NOK/year over a five year period, followed by an evaluation. The programme is administered by the Norwegian Institute of Public Health. A description of the programme, regulations and projects which have been granted funding can be found here (Norwgian only): https://www.fhi.no/anml/drikkevann/ny-tilskuddsordning-for-kommuner-program-for-teknologiutvikling-i-vannbrans/ and https://www.fhi.no/ml/drikkevann/tildelte-midler-i-2021-program-for-teknologiutvikling-i-vannbransjen/

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

The target set under this area contributes specifically to fulfilment of SDG 6.1 towards achieving safely managed drinking water.

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.

a. Leakage and overflow should not adversely affect the water quality over time.

b. *The overflow shall generally be less than 2 percent of the pollution production in a waste water district. For large overflow discharges separation and equalization shall be considered in addition to separating and retention of surface water.*
c. *Integrate future climate projections in storm water management to avoid overloading of the sewerage collecting system.*
d. *Upgrading of public pipelines must include upgrading of the associated private pipelines.*

Target dates: Municipal action plans shall be prepared no later than by the end of 2015.

Baseline situation:
Significant leakages in the sewerage collecting systems may result in overflow discharges of waste water that can lead to contamination of waterways and potential contamination of the drinking water network. Leakage into and from pipelines and control with overflow are general challenges in Norway.

Audits conducted by the Norwegian Environmental Agency / County Governors show that there is a need to maintain and upgrade the pipelines.

In 2005, the renewal of the public sanitation pipelines was approximately 0,6 %.

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 Norwegian Environment Agency (NEPA) has since 2019 focused on the municipalities obligations to have sustainable waste water collecting and treatment systems. In 2021, the NEPA organized a nationwide supervision campaign conducted in the autumn 2021. The findings will be followed up by the County Governors. The inspectors found non-compliance in 50 of 55 municipalities. After this campaign, we hope that the management in the municipalities will be better aware of their obligations. Hopefully, it will result in a better waste-water collection and treatment system in the long term.

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

As already mentioned, it is challenging for small municipalities in Norway to oblige to high investments in public infrastructure. Municipal action plans are prepared, but not fulfilled as expected. In 2020, the renewal of the sanitation pipelines has improved and was approximately 0,9 % (Source: Statistics Norway).

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

The target set under this area contributes specifically to fulfilment of SDG 6.1 towards achieving safely managed drinking water.

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

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

For each target set in this area:

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

a) *All water and wastewater plants serving more than 50 persons, shall have an adequate control system that includes a risk analysis where climate impacts are included.*

b) *Drinking Water Sources shall be protected from contamination in order to minimize the need for water treatment.*

Baseline situation:

Requirements for risk analyses, internal control and audit are incorporated in the drinking water regulations. Written performance requirements are to a large extent adequate, but there are potential for improvement in how they follow up the described routines.

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).

Both the NFSA and the Norwegian Environment Agency (NEPA) focus their supervision on management systems, in accordance with the drinking water regulation and the Norwegian pollution regulation. The municipalities are required by law to perform emergency drills and to have contingency plans, including water and sewerage. Water works are required to have redundant delivery, i.e. a backup source of drinking water delivered through the distribution system.

With the drinking water regulation in force from 2017, water suppliers are required to protect all parts of their supply system, including untreated water and even watersheds. Protecion of water sources is also regulated in the Norwegian water regulation.

Water supply systems that supply more than 50 persons are required as per the drinking water regulation to seek operational assistance if such competance is not found internally. The NFSA has a continuous supervision focus on this. The status as of 2018 was that the large water suppliers have this in place, with only minor adjustments needed. In 2022, the focus of the supervision of the NFSA will be risk assesment and risk management of the watersheds for drinking water sources, as carried out by the waterutilities.

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

In 2016, the Norwegian Parliament granted funds to establish a national crisis support unit for waterworks. The National Waterworks Crisis Support team was launched on 2 March 2017, subsequent to a pilot period in January and February 2017. National Waterworks Crisis Support Team. This is a 24-hour advisory service for waterworks that require advice and support in the event of acute incidents that may have an impact on water supply and may cause health-related problems.

The team is made up of professionals with experience from waterworks operations and crisis management. Advice targets evaluation of the potential for microbiological contamination and health hazards caused by chemical contamination. In special circumstances, the team will

provide advice regarding hazardous chemical agents in the event of threats, and how to communicate such situations to the media and public.

Experience and data collected from the service will be analysed to give useful input to the water utilities in Norway, related to preparedness planning. In January 2019, the Norwegian Institute of Public Health, who administrate the crisis team, published a summary report from the first two years of operation.

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

The target set under this area contributes specifically to fulfilment of SDG 6.1 towards achieving safely managed drinking water.

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.

a. *All water and waste water plants serving more than 50 persons, shall have an adequate environmental management system that includes a risk analysis where climate impacts are included.*
b. *Drinking water sources shall be protected from contamination in order to minimize the need for water treatment.*

Proposed target dates: no later than by the end of 2016.

The targets are in line with existing requirements for the most important plants in relevant legislation, but is an ongoing objective for regulations of all waste water treatment plants.

Baseline situation:
Many waste water treatment plants have not established adequate environmental management system including risk analysis. Audit conducted in 2008 on 25 percent of the large sewage plants, showed that risk assessment on the environment is not completed in 70 percent of these facilities.

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 guideline made by the Norwegian Environmental Agency in 2016, new permits from the County Governors to the largest waste water treatment plants shall ensure that the demand of risk analysis is fulfilled.

The Norwegian Water association has established a benchmarking system to stimulate the municipalities further as owners of the public infrastructure to good practice in the management of sanitation.

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

Audits conducted in 2021 on urban waste water infrastructure showed that it is difficult for all municipalities to fulfill this obligation by themselves. According to new guidelines made by the Norwegian Environmental Agency in 2020, new permits from the County Governors shall ensure better reporting of how requirements such as this are followed up in practice.

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

The target set under this area contributes to fulfilment of both SDG 6.1, 6.B and 6.2 towards clean water and sanitation, by reducing the risk of contamination of drinking water and improving water and waste water management.

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.

a. *Ensure that leakages due to overflow are not in conflict with user interests such as drinking water, agricultural irrigation and bathing.*
b. *The total overflow for a collection district should generally be less than two per cent of the produced pollution.*
c. *Storm water should as far as feasible not be connected to a sewerage system.*
d. *Direct discharges of untreated domestic wastewater should not take place.*

The proposed targets are in line with existing requirements or expectations.

No target date is proposed for target a) as this is an ongoing objective. For objective b) it is proposed that there shall be municipal plans by the end of 2016. Objective c) is proposed to be evaluated by new larger building projects. Objective d) is proposed to be met by the end of 2015.

Baseline situation:
In Norway, the legal definition of waste water includes sanitary waste water, industrial waste water and urban runoff.

The Planning and Building Act requires that when new buildings are established or existing building are changed, the infrastructures for sanitation shall be considered and how they may affect ground- and surface water shall be reflected in the regulations/permits from the local authorities.

There are regulations requiring that the facility owner monitor the overflow of untreated sewage and record operating time for these. Overflow at the treatment plant will be covered by the discharge approval.

Inspection shows that the overflow volumes are rarely quantified. 561 direct emissions were observed, primarily to open sea or to fjords in 2008. There are probably no health consequences throughout the food chain attached to these.

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).

Permits are strictly regulated and gradually few untreated discharges in general are allowed. According to national legislation, direct discharges of untreated domestic wastewater from large agglomerations should not take place after 2015.

Risk analysis are being used to a larger extent to avoid conflicts of interest. The impact from storm water seems to be increasing, even the municipalities are carrying out a systematic job, separating storm water from wastewater.

Norway is in the process of developing new legislation for urban runoff. No discharge thresholds or treatment systems to reduce pollution from urban runoff is proposed. Treatment requirements are decided on a case-by-case basis in accordance with the water framework directive. Urban planning and urban run-off management is a municipal responsibility. The county governor acts as pollution control authority for urban runoff.

In line with the Central government guidelines for climate- and energy planning and climate adaptation, plans should take into account the need for open waterways, blue-green structures and proper stormwater management. The guidelines also encourage municipalities and counties to use naturebased solutions in their land-use and general planning processes. New regulations and practice should reduce the discharges of storm water into the sewerage systems.

In Norway in 2020, about 12 % of the pipelines were combined systems for both sewage and storm water, in 2015 about 23 %, so the development is positive.

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

National statistics show that there has been a reduction in direct discharges of untreated domestic waste water by the coastline from the waste water plants. Still 2 % of the population is connected to waste water plants with untreated discharges. These discharges are small and take place in less sensitive areas.

According to new guidelines made by the Norwegian Environmental Agency in 2020, new permits from the County Governors shall ensure better progress in reducing storm water overflows. An important start is to get a better overview of the use and the amount of discharges.

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

The target set under this area contributes specifically to fulfilment of SDG 6.3 towards improving water quality by reducing pollution from waste water, but will also affect the fulfilment of SDG 6.2.

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.

This target area is incorporated in target area IX in our national targets.

It is a national aim to reduce storm water from going into the sewage pipelines by establishing local treatment systems and have separate pipelines for sewage and storm 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).

An Official Norwegian Report was published in January 2016 with focus on climate and storm water in cities and with proposals on changes in some national regulations. Norway is still working to set into actions some of the proposals to secure a better management system for runoff from urban surface areas. New regulations should reduce the discharges of storm water into the sewerage systems.

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

In Norway in 2020, about 12 % of the pipelines were combined systems for both sewage and storm water, in 2015 about 23 %.

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

The target set under this area contributes specifically to fulfilment of SDG 6.3 towards improving water quality by reducing pollution from waste water, but will also affect the fulfilment of SDG 6.2.

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.

a. *Discharges from municipal waste water sector shall comply with the requirements in pollution regulations or special permits.*
b. *When outlet to a drinking water source, treatment and discharge of waste water shall be evaluated in order to prevent influence on the drinking water source.*

Objective a) is consistent with existing regulatory requirements, while b) is a clarification of existing expectations proceedings. There has not been proposed a target date for goal a) as this is an ongoing objective.

For object b) there has been proposed that municipal plans based on a risk assessment should be in place by the end of 2016 for the largest waste water treatment plants.

The following indicators are proposed for achievement of respectively a) and b):
Number of waste water treatment plants with exceedance of the permit within none sensitive and sensitive areas along the coast, and within rivers with moderate or worse environmental status.
Number of person-equivalents connected to waste water treatment plant with discharge to vulnerable drinking water sources where the discharge results in harmful microorganisms in the water source.

Baseline situation:
Largely standardized requirements are set out in Chapter 12, 13 and 14 of the Pollution Control Regulations, i.e, the minimum treatment requirements are set out in the regulations. In addition, formalized requirements are often given in a separate license granted by regional or local authority. The authority varies with the size of the waste water plant. The authorities can set stricter standards. Most plants are operational, but many do not operate well enough and there is a demand for an increase in treatment capacity.

Urban settlement: Discharges from the larger municipal treatment plants which have sea as recipient (most often) is seldom a problem for the recipient or other user interests if the discharge is led out to a good conductive area. Discharges to freshwater recipients are entitled to treatment of phosphorus and organic matter, through enforcement of the pollution regulations and the Planning and Building Act.

Rural settlement: 17 percent of the inhabitants in Norway in 2005 was connected to facilities with capacity below 50 persons-equivalents. The Municipalities are the Pollution Control Authority and shall supervise that the provisions and decisions made accordingly are followed. There may be problems with discharges from overflow and discharges from smaller plants, especially plants that are not connected to the public main system. There is a need to follow up the municipalities as authorities on its own facilities and with their handling of outlet from separate houses.

There are almost no plants that disinfect their discharge in order to protect the drinking water. Such user conflicts are to be resolved by the coordination of the discharge site and raw water intake point. In addition, there is a strategy to build up adequate hygienic barriers in portable water systems to ensure the necessary security. There is at present no intention to put forward a requirement for disinfection as a treatment processes in sewage plants. However, there is a need to improve the environmental management systems including risk and vulnerability analyses in this area.

For small plants regular conflicts between drinking water wells and discharges are identified. This is often due to infiltration systems that do not work, poorly planned discharge locations or inadequate treatment in other facilities.

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 regulations are followed up with guidelines, and discharge Permits and by audits by the authorities.

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

About 50 % of the waste water treatment plants comply with the requirements. To achieve a higher degree of fulfilment, the municipalities have to invest in renewal of the exciting plants or build new ones.

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

The target set under this area contributes specifically to fulfilment of SDG 6.3 towards improving water quality by reducing pollution from waste water, but will also affect the fulfilment of SDG 6.2.

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.

Targets for sludge and fertilizer products:

a. *Reuse at least 70 percent of produced sewage sludge as a resource and ensure that the quality of the sludge is consistent with this.*
b. *Organic residuals / waste will be used as fertilizer or soil conditioner as long as it has a quality that matches such use. It shall be used in amounts that is agronomic, environmental and health justifiable.*
c. *Facilitate better utilization of resources in residues of organic material, including the production of biogas.*
d. *Have proper use of organic fertilizers in relation to plant needs and conditions to reduce runoff from agricultural areas.*
e. *Use of fertilizers of organic origin shall be in accordance to the regulation for this, including that: The use of sewage sludge shall not result in increased runoff to waterways, and: The storage of sewage sludge shall not result in user conflicts due to smell.*

The proposed targets are in line with existing requirements in relevant legislation.
For objective a) the proposed target date has been met. For objective b) the proposed target date is set to no later than 2016. For objective c) the target date is set to no later than 2020.

Baseline situation:
In 2020 , about 84 percent of the produced sewage sludge were used on farmland and as a resource in other ways (parks, along roads, etc.) In 2009, the human intake of pollutants through food and drinking water due to spreading of sludge on agricultural land considered to have little impact based on the substances examined. During the proceedings in the municipalities health and environmental sectors spreading of sludge near drinking water sources are especially looked upon. The run-off of phosphorus to waterways is an issue. The amount of sewage sludge will increase as the primary and secondary treatment are introduced at several wastewater treatment plants and as the population increases.

Measures will contribute to reduce emissions to the pipelines, through product regulation, requirements for discharges and control of water quality in the distribution system. There is an ongoing assessment of sludge quality to ensure that the quality is improving. All used sludge is hygienic stabilised.

Regulations on fertilizer products of organic origin are to be revised and will include that limits and risks of runoff from fields where sludge is used are considered. The time for spreading in sensitive areas will be considered.

The use of organic waste as fertilizers and soil improvers is anticipated to increase. Most of the sludge are used for biogas before the residue is utilised. Most likely more mixed fertilizing products originating from

different organic wastes such as manure, sewage sludge, fish waste, food waste, waste from food processing and waste from the pulp and paper industry will be developed.

In agriculture-dominated areas runoff often affect water bodies significantly. Large runoff of particles and nutrients may contribute to poor water quality and the risk of algal blooms. Measures have been made to reduce runoff to acceptable levels. The Norwegian water regulation is focusing on this problem.

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 current legislation on fertilising material and use of organic fertilisers allows use of more nutrients in organic fertilizers than what is needed. This means that there is a risk of runoffs and subsequent pollution of lakes and waterways. This regulation has been under revision, and new regulations are suggested. The suggested regulations await public hearing.

There are specific regulatory requirements as to when organic fertilisers may be spread. The municipalities control that fertilisation is carried out according to the requirements set in the regulation. The Norwegian Food Safety Authority controls the producers of fertilising materials.

The NFSA is currently preparing a new risk evaluation on organic contaminants in sewage sludge as fertilising material. The report is expected in 2024. A risk assessment on heavy metals and As in fertilsing products was received in March 2022.

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

The Norwegian legislation is decentralized which has resulted in somewhat different practises across counties. There is continuous work from national authorities to harmonize the legal practises between the different regions.

Local authorities (the municipalities) have been given instruments to regulate discharges from industry to their waste water system in order to protect 1) sludge quality, 2) the infrastructure of the waste water system 3) health of the personnel 4) and compliance with terms given in the permit to the WWTP.

Since nearly 2/3 of Norwegian sewage sludge is used as a soil conditioner in agriculture, the sludge quality has been an important driver for the operators of the WWTP to trace containments entering the waste water system and take measures to prevent industry discharges.

The Norwegian Environment Agency (NEPA) receive annualy reports from the waste water treatment plants. Since 2017 we also receive specific data from sewage sludge treatment (plants). These include specific sewage sludge data from dedicated composting plants and biogas plants and the waste water treatment plants with integrated biological treatment (anaerob digestion).

Norway has reported according to the requirements following from the questionnaire outlined in Commission Decision 94/741/EC.

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

The target set under this area contributes specifically to fulfilment of SDG 6 towards achieving safely managed drinking water.

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

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

For each target set in this area:

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

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

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

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

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

Using waste water for irrigation is prohibited in Norway.

XIV. Quality of waters which are used as sources for drinking water and food production (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.

Bodies of water that are used for the water supply and in the production of food shall be protected against the addition of contaminants to the greatest extent possible in order to avoid user conflicts. This is particularly important if the use of the water for food production is not subject to special water treatment requirements.

Target year: first planning period (rivers, lakes and coastal waters; 20 % of Norway's bodies of water) by 2015. For the remaining water bodies, the next planning period ends by 2027.

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 bodies have been characterised and classified in accordance with the Frame Water Regulations, as well as the execution of analyses of measures and the preparation of a programme of initiatives.

The Norwegian web page designed for water information purpose (vann-nett.no) is updated with information regarding the Norwegian targets set under the Protocol. The need to pay special attention to drinking water in plans made under the Water Framework Directive is specified.

In the Norwegian drinking water regulation the municipalities' responsibility to pay attention to drinking water aspects when making area plans are described. This is further elaborated in the guidance document to the Norwegian drinking water legislation.

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

There is increased awareness in Norway regarding the need to pay attention to drinking water in area plans made by municipalities and other authorities that manages geographical areas. The plans made under the Water Framework Directive are more widely known, and the awareness in the municipalities are rising.

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

The target set under this area contributes specifically to fulfilment of SDG 6.1 towards achieving safely managed drinking water.

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.

Locations that are adapted for bathing should have excellent water quality in accordance with the EU Bathing Water Directive. Target year: 2015.

Baseline

Most waters used for bathing have good quality.

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).

Increased information towards the public on Vibrio sp. in bathing waters, and increased surveillance activity.

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

The responsibility for bathing water in Norway lies with the municipalities. Routines for surveillance and information are in general well established, primarily over the internet. The targets in this area are reached.

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

The target set under this area contributes specifically to fulfilment of SDG 6.3 and 6.6 towards achieving safely managed drinking water.

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.

a) Water bodies used for water supply and food production should as far as feasible be protected against supply of contaminants. This is particularly important if the use of water for food production is not subject to special requirements for water treatment.
b) All bodies of water shall be of at least "good ecological and chemical condition" in accordance with the deadlines set in approved management plans in accordance with the Frame Water Regulations.

Target year: first planning period (rivers, lakes and coastal waters; 20 % of Norway's bodies of water) by 2015. Second planning period for the remaining water bodies by 2021.

Baseline situation:
Fish processing companies that receive fish from marine vessels are often located in enclosed harbors. The raw water is taken from the sea nearby and may often contain fecal bacteria. Use of UV-light is installed to disinfect the water.

Regularly environmental monitoring is mandatory for all aquaculture sites producing fish for food. Results from 2014 indicates that the sediments mainly are in very good and good condition.

Salmon lice is one of the major problems for fishfarmers. Salmon lice can also infect and cause mortality on wild salmon and trout. Farmers are prohibited to control the number of lice. Some methods for delousing aquaculture fish can cause pain and death, for example bath treatments with medicines and different non-medical methods. Some delousing medicines can also cause mortality on non-target organisms, crustaceans, e.g. shrimp and lobsters. Diseases on farmed fish is common. Vaccination programmes provide good protection against the most important bacterial and viral infections on farmed fish, but bacterial and viral diseases can also cause mortality on various species of wild fish. Escapees can spread pathogens and parasites. These diseases have its origin in wild fish, but they can be more virulent in sea farms. Poor quality on the smolt can cause mortality when transferred to on-growing farms in sea. New methods and equipment can make improvements for animal welfare, others can cause mortality and poor fish welfare.

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).

For target a), the main legislation is the Norwegian water regulation. This is currently being revised to further strengthen the work in this area.

Results from environmental monitoring 2020 indicates that the sediments under and near by the locality mainly are in very good and good condition.

For target b): Every sea farm has to report mortality monthly for each sea pen. Every sea farm has to monitor and report the number of sea lice every month. The result is published in the website Barentswatch (https://www.barentswatch.no/en/fishhealth/2019/3). This site gives impression status of the present situation and trends for both sea lice and other diseases. Both Marine Research Institute (MRI) and

the Norwegian Veterinary Institute are monitoring sea lice loads in fjord systems and the effect on the salmonids in about 400 watercourses. The results are published in annual reports that show the situation for every watercourse in the period 2012-2018. Both MRI and VI monitor spreading of bacterial and viruses from sea farms. They make risk assessment for mortality in wild fish caused by sea lice - both in fjords and in individual rivers. Vet Reg gives information about every prescription of medicines.

The NFSA is carefully monitoring for *G. salaris* in a number of rivers, in all hatcheries for later transfer to fish farms in seawater, all hatcheries and growing fish farms for freshwater fish, and also hatcheries for restocking of rivers.

Eight rivers infected with *G. salaris* have not yet been treated. The work with planning treatment has started.

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

- The use of sea lice drugs has decreased since 2015, but is currently increasing
- The number of escapees has been reduced.
- Sea lice still pose a significant problems for wild salmon and trout I some regions
- Bacterial diseases in aquaculture fish have been rare for many years, however during the last few years the prevalence of some bacterial diseases have increased.
- Viral diseases cause some problems in aquaculture and the prevalence has been relatively stable the last years
- The number of watercourses still infected and not treated with *G. salaris* has been reduced from fiftyone to eight. I addition to the eight, four watercourses have been treated but not yet approved.

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 set under this area contribute specifically to fulfilment of SDG 14.2 towards sustainably managed and protected marine and coastal ecosystems.

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.

1. *Bathing in pool facilities (outdoor or indoor) shall not put individuals at risk of contracting an illness due to the quality of the water. Target year: 2015.*

Baseline situation:

A pool used for bathing shall follow Regulation 13 June 1996 no. 592, concerning swimming pools, spa pools and saunas, to ensure adequate hygienic standard. Municipalities and their environmental health section shall follow up. Internal control is deficient in many places, but it is not recorded any outbreaks of infectious diseases due to bathing water quality over the

last five years. There have however been some cases of Pontiac fever due to poorly cleaned spa pools.

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).

Regulation 13 June 1996 no. 592 has been updated several times the last few years, lastly in updated December 2015. Requirements concerning legionella has been included, and the regulation now harmonize with European requirements and takes into consideration the technological development, including spa pools.

The municipailites have been made responsible for overseeing the internal surveillance with the pool owners.

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

The progress is according to target.

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

The target set under this area contribute specifically to fulfilment of SDG 3.9 towards reduction of illnesses caused by pollution of sources etc. In some cases it also contributes on SDG 6.3 towards improving water quality.

6. 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 (l))

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.

a. Contaminated sites that could threaten water bodies covered by the Protocol shall be risk assessed and remediated if necessary.

The target is in line with current expectations, ref. Water Framework Directive.

Target dates:
For areas which are known by 2012, a vulnerability analysis and associated action plan shall be implemented by 2015 if it is considered necessary. For areas which are identified in the years 2011–2015, a vulnerability analyses and action plan must be in place no later than by the end of 2021.

Baseline situation:
Contaminated sites include contaminated sediments in harbours, runoff from mining, runoff from landfills etc. are registered and actions are taken according to priorities.

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).

Contaminated sites in Norway have been mapped since the 1990s. The most serious cases were remediated before 2006 by special actions initiated by the environmental authorities. After 2006, most of the actions taken are in connection with building or excavation work. When building or excavating on a contaminated site, the developer is obliged to take actions and remediate the site.

Runoff from contaminated sites is considered among discharges from other potential pollution sources as part of the Actions Plans due to the Water Framework Directive. If needed, the Authorities may impose remediation.

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

The progress is assessed as acceptable, as remediation is complex and often expensive. For sites contaminated a long time ago, it may be difficult to identify a polluter who can finance the remediation.

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

The target set under this area contributes specifically to fulfilment of SDG 6.3 towards improving water quality by reducing pollution from contaminated sites.

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.

a. The water resources shall be protected against pollution as effectively as possible. The protection shall be sufficient with regard to the interests associated with the use of the water.
b. There shall be no discharges via treatment plants, overflows or large leakages that may represent an unacceptable risk to the recipient or user interests.
c. Measures against run-off from agricultural activities shall help to achieve the targets set for water quality.
d. Aquaculture facilities shall be located and operated in an environmentally sustainable manner.
e. The regulations shall make expectations, requirements and responsibilities clear for all parties.

Target year: none, continuous process.

Baseline situation:
Most raw water sources that are used for drinking water supply for approved waterworks, shall be protected according to the needs that are identified in terms of treatment and the size of the water source and supply.

Annual reporting for waste water plants to the central authority provides an overview showing to what degree the requirements are complied with. Findings through frequency-based supervision is followed up through imposition of corrective measures and audit of permits when required.

Discharges from treatment plants and overflows are normally considered in order to prevent user conflicts. There is, however, less control of leakages that end up in recipients via storm water outlets. Discharges from individual treatment systems may conflict with wells used for drinking 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).

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.

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.

a) The waterwork owner shall provide information about the drinking water quality and their water sypply system, and other relevant authorities shall provide information about the bathing water quality and pollution conditions to the local population and others who require it. Target year: 2014.

b) All municipalities and the NFSA shall have websites featuring a relevant and up-to-date drinking water overview, including a condition description of status/assessments. Target year: 2014.

c) Private waterworks owners who supply permanent settlements of over 500 persone shall make up-to-date information available in the same way as the municipalities. Target year: 2015.

d) Other waterwork owners shall make the information available in an appropriate manner. Target year: 2015.

e) Information shall be reported and communicated to relevant authorities in accordance with national and international obligations. Target deadline relates to relevant obligations.

f) Information regarding the pollution conditions of the waterways shall be made available through www.vannportalen.no. *Target date relates to ongoing work with the Frame Water Regulations.*

Baseline situation:

When the targets were set (2014), there was a requirement regarding reporting from the waterworks to the NFSA. These reports are made available to the Norwegian Institute of Public Health. Some information is forwarded to Statistics Norway. Otherwise, the availability of this information is limited for the general public. Most of the large waterworks have dedicated websites featuring some information about water supply conditions and any supplied drinking water. The information available from the private waterworks are somewhat poorer.

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).

In general, most requirements towards these targets have been adressen in the updated drinking water regulation of January 2017. Extensive information has been given to the public on all targets.

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

Target a) Finished according to plan.

Target b) Finished according to plan.

Target c) Finished according to plan.

Target d) Finished according to plan.

Target e) Continous process, no finish date set.

Target f) Finished according to plan.

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 set under this area contribute specifically to fulfilment of SDG 3.9 towards reduction of illnesses caused by pollution of sources etc., and SDG 6 towards improving water quality.

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

Part three
Common indicators[1]

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 population of Norway was by January 1st, 2018, approx. 5.3 million persons. The data for 2017 is based on 1,412 waterworks delivering water to >= 50 persons. They serve approx. 4.68 million persons or approx. 88 % of the population.

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.

Categories - Number of persons served*	Number of waterworks in category	Percentage waterworks in category	Number of persons served by waterworks in category	Percentage of persons served by waterworks in category

[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.

51 – 500	793	59.3 %	150,800	3.2 %
501 – 5,000	402	30.1 %	662,400	13.9 %
5,001 – 50,000	127	9.4 %	1,902,200	39.9 %
50,001 – 500,000	14	1.1 %	1,356,900	28.5 %
500,001 -	1	0.1 %	693,500	14.5 %
Sum	1,337	100.0 %	4,765,800	100.0 %

* Norwegian waterworks used ground water (10 % of abstracted volume) and surface water (90 % of abstracted volume). Ground water is more dominant among the smaller waterworks.

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

The Norwegian Food Safety Authority collects water quality data from Norwegian waterworks, as per the Norwegian drinking water regulation.

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.

The water quality samples are part of a routine monitoring programme can be taken from the treatment plant outlet to the point of consumption. Most of the samples are taken on the distribution system/points of consumption.

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]

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.

[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/.

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.

In Norway, we do not have a clear division between rural and urban area regarding water supply. It is more relevant to divide between centralized and non-centralized water works, which relate to the cut-off where the water works are of such size that they are obliged to report analysis data annually to the National Food Safety Authority. We do not have water quality data for the smaller water works.

The data is based on a different dataset than the last reporting. We have limited the data set to waterworks >= 50 persons (given that they have reported at least 4 samples for microbiological parameters a year).

Parameter	*Area/category*	*Baseline value (2005)*	*Value reported in the previous reporting cycle (2017)*	*Current value (2020 *)*
E. coli	**Total**			
	Urban			
	Rural			
Intestinal enterococci:	>= 50 persons	0,66 %	0,32 %	0,19 %
	Total			
	Urban			
	Rural			

* The dataset for 2021 is not yet available.

** Approx. 600 000 persons are served by waterworks serving less than 50 persons or that have individual water supply. They represent to a great extent the rural areas of Norway. They are not obliged to report water quality data to the monitoring authorities.

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.

The data is based on a different dataset than the last reporting. We have limited the data set to waterworks >= 50 persons.

Parameter	*Area/category*	*Baseline value (2005)*	*Value reported in the previous reporting cycle (2017)*	*Current value (2020)*
Arsenic	>= 50 persons	0 %	0 %	0,2 %
	Urban**			
	Rural**			
Fluoride	>= 50 persons	0 %	0,2%	0,2 %
	Urban**			
	Rural**			
Lead	>= 50 persons	0 %	0 %	0,3 %
	Urban**			
	Rural**			
Nitrate	>= 50 persons	0 %	0 %	0,5%
	Urban**			
	Rural**			
Colour***:	>= 50 persons	Persons served with average outside recommended values (%) 1,32 %	Persons served with average outside recommended values (%) 0,10 %	Persons served with average outside recommended values (%) 0,2%
	Urban**			
	Rural**			
pH***		Persons served with average outside	Persons served with average outside	Persons served with average outside

	>= 50 persons	recommended values (%)	recommended values (%)	recommended values (%)
		1,3 %	0,65 %	%
Urban**				
Rural**				

** There are approx. 600 000 persons that are served by waterworks serving less than 50 persons or that have individual water supply. They represent to a great extent the rural areas of Norway. They are not obliged to report water quality data to the monitoring authorities.
*** We have chosen colour and pH as additional parameters for Norway. However, it is not set guideline values for these parameters, only recommended values. We have estimated the percentage of persons served with average outside recommended values for colour (and not the number of samples). 10 023 samples have been analyzed for pH with a median value of 6,75 mg/l

II. Outbreaks and incidence of infectious diseases related to water

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

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

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

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

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

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

	Incidence rate per 100,000 population (all exposure routes)			*Number of outbreaks (confirmed water-borne outbreaks)*		
Disease	*Baseline (2004)*	*Value reported in the previous reporting cycle (2018)*	*Current value (2020)*	*Baseline (2005)*	*Value reported in the previous reporting cycle (2018)*	*Current value (2020)*
Shigellosis	0.2	0.4	0.69	0	0	0
Entero-haemorrhagic *E. coli* infection	0.2	5	6.17	0	0	0
Typhoid fever	0.1	0	0.13	0	0	0
Viral hepatitis A	0.3	0.2	0.26	0	0	0
Legionellosis	2.4	0.6	0.73	0	0	0
Cryptosporiosis	*	2.7	9	*	0	0
Giardiasis	-	-	299	-	-	0
Tularemi	-	-	99	-	-	0

Campylobacteriose	-	-	483	-	-	0
Vibrio (non-cholera) infection **	-	-	0.97	-	-	0
Shewanella infection**	-	-	0.75	-	-	0

*Cryptosporidiosis was not notifiable in Norway in 2005 (no data)

** Vibrio (non-cholare) and Shewanella infections were not notifiable in Norway in 2019

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

Information about the incidence rate is collected through MSIS, which is the Norwegian system for notification of infectious diseases, information is gathered through statutory notification and notification routines. It is not shown in MSIS whether it is food, water or other sources of infection which is the cause of disease.

Information about outbreaks is collected through Vesuv, a rapid alert system. The system is used for mandatory outbreak alerts from municipal medical officers, healthcare institutions, and food safety authorities.

Data is also based on information from the Norwegian Syndromic Surveillance System (NorSySS) monitors how many infectious diseases are reported during consultations with general practitioners (GPs) and out-of-hours primary care facilities. The aim of NorSySS is to identify infectious disease outbreaks as early as possible in order to implement infection control measures.

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

Note that Shewanella and *Vibiro* (non-cholera) is from bathing water, and not from drinking-water. We have seen an increased number of reported cases of infections related to Shewanella and Vibrio (non-cholera), related to increased temperatures during heatwaves in saltwater bodies.

In 2020, there was a decline for the vast majority of infectious diseases that are transmitted from food, water and animals and are subject to notification to MSIS. The decline is mainly due to far fewer people infected abrad, but also infection control measures in society as a result of the covid-19 pandemic, have probably been significant.

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 2004*	*Value reported in the previous reporting cycle 2019*	*Current value 2021*
Total	100 %	100 %	100 %
Urban	100 %	100 %	100 %
Rural	100 %	100 %	100 %

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

☒ 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.

Percentage of population with access to sanitation	*Baseline value (2004)*	*Value reported in the previous reporting cycle (2019)*	*Current value (2021)*
Total	100 %	100 %	100 %
Urban	100 %	100 %	100 %
Rural	100 %	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.*

Access to sanitation: access to hand wash basins and toilets.

In particular, please specify if the above percentage on "access to sanitation" refers to access to (tick all applicable):

☒ Improved sanitation facilities (as per JMP definition)

☐ Facilities not shared with other households

☐ Facilities from which excreta is safely disposed in situ or treated off site

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

1. Water quality

1. On the basis of national systems of water classification, please indicate the percentage of water bodies or the percentage of the volume (preferably) of water[3] falling under each defined class (e.g., for European Union countries and other countries following the European Union Water Framework Directive[4] 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 (2015)*	*Value reported in the previous reporting cycle (2019)*	*Current value (2021)*
High status	21,0	26,1	21.6
Good status	41,6	49,2	48.8
Moderate status	21,9	16,7	19.9
Poor status	6,7	4,6	6.4
Bad status	1,8	2,1	2.5
Total number/~~volume~~ of water bodies classified	26,568	24,646	32,385
Total number/~~volume~~ of water bodies in the country	28,580	28,233	32,652

(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.

Percentage of surface water bodies classified as	*Baseline value (2015)*	*Value reported in the previous reporting cycle (2019)*	*Current value (2021)*
Good status	2,1	2.1	4.4
Poor status	0,8	0.8	3.1
Total number/~~volume~~ of water bodies classified	829	829	2,449
Total number/~~volume~~ of water bodies in the country	28,580	28,580	32,652

(iii) Status of groundwaters

Percentage of groundwaters classified as	*Baseline value (2015)*	*Value reported in the previous reporting cycle (2019)*	*Current value (2021)*
Good quantitative status	52	15,8	100
Good chemical status	N/A	1,3	67
Poor quantitative status	1,1	N/A	0
Poor chemical status	N/A	0,1	N/A
Total number/~~volume~~ of groundwater bodies classified	734	239	
Total number/~~volume~~ of groundwater bodies in the country	1,381	1,394	

(b) For other countries

(i) Status of surface waters

Percentage of surface water falling under class[a]	*Baseline value (specify year)*	*Value reported in the previous reporting cycle (specify year)*	*Current value (specify year)*
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

Percentage of groundwaters falling under class[a]	*Baseline value (specify year)*	*Value reported in the previous reporting cycle (specify year)*	*Current value (specify year)*
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.

Note: Norway does not collect data that is applicable for this purpose.

Water exploitation index	*Baseline value (specify year)*	*Value reported in the previous reporting cycle (specify year)*	*Current value (specify year)*
Agriculture		N/A	N/A
Industry[a]		N/A	N/A
Domestic use[b]		N/A	N/A

[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.

MSIS is the Norwegian system for notification of infectious diseases. Only those cases reported by MDs will be registered in MSIS. It is not shown in MSIS whether it is food, water or other sources of infection which is the cause of disease.

https://www.fhi.no/en/hn/health-registries/msis/

Vesuv is the outbreak rapid alert system in Norway, established in 2005 by the Norwegian Institute of Public Health. The system is used for mandatory outbreak alerts from municipal medical officers, healthcare institutions, and food safety authorities. A guideline to support the outbreak investigation have been developed

https://www.fhi.no/en/publ/2018/guidelines-for-investigation-of-outbreaks-of-food--and-waterborne-diseases/

The Norwegian Syndromic Surveillance System (NorSySS) monitors how many infectious diseases are reported during consultations with general practitioners (GPs) and out-of-hours primary care facilities. The aim of NorSySS is to identify infectious disease outbreaks as early as possible in order to implement infection control measures.

https://www.fhi.no/en/hn/statistics/NorSySS/

National legislations:

- Infectious disease act and Public Health Act
- Regulation on surveillance (MSIS-legislation)
- IHR-regulation

What:

- Describes diseases to be reported, who, what, when and where to report
- Includes obligation to notify serious infectious disease events, outbreaks or other serious public health events of local or potential international concern
- Describes roles and reponsibilities in outbreak management

Also relevant:

- Health Preparedness Act
- National health preparedness plan
- Joint multisectoral food and waterborne diseases outbreak investigation guideline

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.

A waterborne outbreak of *Campylobacter* occurred in Askøy in June 2019. Around 2000 persons were ill from the drinking-water, and 76 of these were admitted to hospital for treatment of gastrointestinal infection. This disease outbreak has had ripple effects. It caused renewed attention to a holistic approach to the water distribution system and effects of climate change in the country. The NSFA was commissioned to make an overview of the state of drinking-water in Norway, including identification of areas of improvements for water supply systems, where caverns for drinking water storage were particularly emphasised as vulnerable and in need of further attention to reduce risk of microbial contamination of drinking water. This has led to a further improved reporting of identified vulnerable points.

The Covid-19 pandemic has provided incentive to investigate wastewater surveillance as a new tool to track disease in communities.

The National Waterworks Crisis Support Team continues to be an active advisory service for water utilities who need to respond to events that threaten the drinking water quality and could potentially develop to disease outbreaks and/or incidents.

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

Article 9

Public awareness, education, training, research and development and information

Information towards the public has been extensive the last few years. With the new drinking water regulation, a lot was done by governmental agencies to inform waterworks owners and others. There is a steady awareness on drinking water and sanitation in Norway. For drinking water, this is for the most part due to media focus on redundant water supply, as well as old water and sewage pipes.

While the Norwegia water sector is generalle well informed, the fact remains that the smaller waterworks pose a challenge as far as education and information goes. The NFSA is developing a guidance on basic WSP for this segment. Also, the association of water and sanitation systems, Norsk Vann (Norwegian Water) is planning a project to focus on the small waterworks, with start in the spring of 2019.

Education within the water- and sewage sector is maintained at several technical high schools. Recruitment has been limited the last years. Many waterworks struggle to find employees with sufficient and right knowledge.

Article 10

Public information

Relevant information on this target is listed under target area 6.2.n (section XX).

Article 11

International cooperation

Article 12

Joint and coordinated international action

Norway has taken the initiative towards creating a Nordic – Baltic network on water and sanitation in order to discuss:

- Challenges in the area of drinking water and sanitation in the Nordic and Baltic countries;
- Role of UNECE/WHO-Europe Protocol on Water and Health in addressing these challenges;
- Possibilities for closer cooperation between Nordic and Baltic countries in the area of drinking water and sanitation as well as in the area of water management, both at national and transboundary levels. Cooperation in formulating common projects regarding water and sanitation.

The network meets on a yearly basis to discuss such issues, often with participation from the Protocol secretariate.

Article 13

Cooperation in relation to transboundary waters

There are in practice no challenges with transboundary waters in Norway.

Article 14

International support for national action

From 2007 to 2013 was active in running the so called ad hoc Project Facilitation Mechanism (AHPFM) to help mainstream international support for national action in accordance with Article 14 of the Protocol on Water and Health.

In 2010 Norway took initiative towards establishing a water fund within the European Bank for Reconstruction and Development (EBRD) aiming at securing loans and grants for projects developed under the umbrella of the national targets of the protocol. Such a water fund was established in 2010. This fund is open to applications from prioritized countries entitled to receive ODA support.

In the years folloing the Meeting of Parties in Oslo in 2013, Norway as lead country together with Belarus, has been active in program areas under the Programme of work 2014-2016 and 2017-2019 regarding:

Strengthening capacity in survellance of water-related diseases and outbrake mangagement

Strengthening capacity in uptake of risk-based approaches in drinking water quality surveillance.

Among the actvities carried out under theese areas are:

Development of training modules on water-related disease (WRD) surveillance

Organization of national capacity-building activities on WRD surveillance and outbreak management in several countries. (Originally only covering only disease surveillance but later also covering water quality surveillance.) The latest beeing a capacity building workshop held in Armenia Yerevan, 4-6 June 2018

Developmant of technical guidance documents. (Drafts will be presented to the MOP in november.

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 (-).

Institutional setting	*Current value (2021)* *
Schools	
Basic sanitation service	100 %
Basic drinking-water service	100 %
Basic hygiene service	100 %
Health-care facilities	
Basic sanitation service	100 %
Basic drinking-water service	100 %
Basic hygiene service	100 %

* There is no official statistics on this in Norway. However, statutory requirements implies that in practice neither schools nor health-care facilities are built without full access to water and sanitation.

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

YES ☐ NO ☒ IN PROGRESS ☐

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

YES ☐ NO ☒ IN PROGRESS ☐

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

☐ To improve WASH in schools

☐ To improve WASH in health-care facilities

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

2. Safe management of drinking-water supply

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

YES ☒ NO ☐ IN PROGRESS ☐

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

Drinking water regulation (FOR-2016-12-22-1868).

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 (-).

Percentage of population	*Current value (specify year)*
Total	

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).

In cases where a recipient of water should not be able to pay the water bill, soscial security programs will enter into force. It is unkown to the Food Safety Authority or the Ministry of Health and Care Services that people have been disconnected from public water or sanitation services because of nonpayment. According to our building act, new housing has to document that safe water and sanitation is in place before building permits are given.

Part seven
Information on the person submitting the report

The following report is submitted on behalf of _____Norway_____ [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: Kjetil Tveitan

E-mail: kjetil.tveitan@hod.dep.no

Telephone number: +47 22 24 87 66

Name and address of national authority:

Norwegian Ministry of Health and Care Services

Teatergata 9

NO-0030 Oslo

NORWAY

Signature:

Date:

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

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Palais des Nations
1211 Geneva 10
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