

Summary report of Israel

under the Protocol on Water and Health

Third Reporting Exercise

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 Three.

YES NO IN PROGRESS

If targets have been revised, please provide details here.

2. Were they published and, if so, how?

Targets were not published. This is the first summary report Israel is participating in.

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.

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.

Targets were not published. This is the first summary report Israel is participating in.

4. Which existing national and international strategies and legislation were taken into account?

Please briefly mention the most relevant national and international strategies and instruments that were taken into account when setting targets (only a limited number of references are required under this question; indicatively, five references are considered appropriate, but the number will depend on your national situation).

5. Was cost-benefit analysis of targets set performed, and if so how?

Alternatively, please explain to what extent financial implications were taken into account when setting targets.

6. 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?

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

This report was prepared by the staff of the Ministry of Health (Department of Environmental Health and Environmental Epidemiology) and the Ministry of Environmental Protection.

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

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

Emerging issues – Drinking Water

In Israel, the drinking water quality regulations are updated once per decade.

Public Health Regulations (2013): "The sanitary quality of drinking water and drinking water facilities" (link), set a high standard for the sanitary quality of drinking water, conditions and provisions for all matters pertaining to the sources of drinking water, facilities for water production and water distribution systems, provisions regarding the water treatment and the control of water quality, as well as the requirements for reporting and advertising.

Following are the emerging issues relevant to drinking water taken into consideration while setting the targets:

1. In the past 10 years, Israel is experiencing a change in its water sources variety. Five large-scale seawater desalination facilities and some smaller brackish water desalination facilities currently provide about 50% of the current domestic water requirements.

In 1999, the Israeli government initiated a long-term, large scale SWRO (Sea Water Reverse Osmosis) desalination program. The program is designed to provide for the growing demands on Israel's scarce water resources, and to mitigate the drought conditions that have characterized most years since the mid -1990's.

Since the initiation of the desalination program, there have been several changes in government decisions regarding the targeted annual quantity of desalinated water to be produced. These changes in target-production volumes were influenced by short-term changes in the history of inter-annual rainfall, and by changes in national consumption rates. Construction of the first large-scale (116 MCM/year) desalination facility was initiated in 2002.

Israel's long-term large-scale reverse-osmosis sea water desalination program began contributing potable water to the national water grid in 2005. Five large-scale seawater desalination facilities and some smaller brackish water desalination facilities currently provide about 600 mcm of Israel's potable water requirements (to all sectors). This volume is equivalent to approximately 50% of the current domestic water requirements. Desalinated water is blended in the distribution system, in changing quantities, with different water sources. High water quality is maintained.

2. 15 years ago, the Israeli government initiated a reform in the management of the municipal water sector. The legal framework: The water and sewage corporates law, 2001 and secondary legislation. Before the reform: water and sewage services were under the responsibility of the municipalities; The municipalities were suppliers and customers concurrently (for instance in watering parks and gardens) and didn't pay real tariff; Tariffs did not reflect the real costs; The water supply system wasn't based on economic methods. As a result there was conflict of interests and water revenues were used for other municipal services.

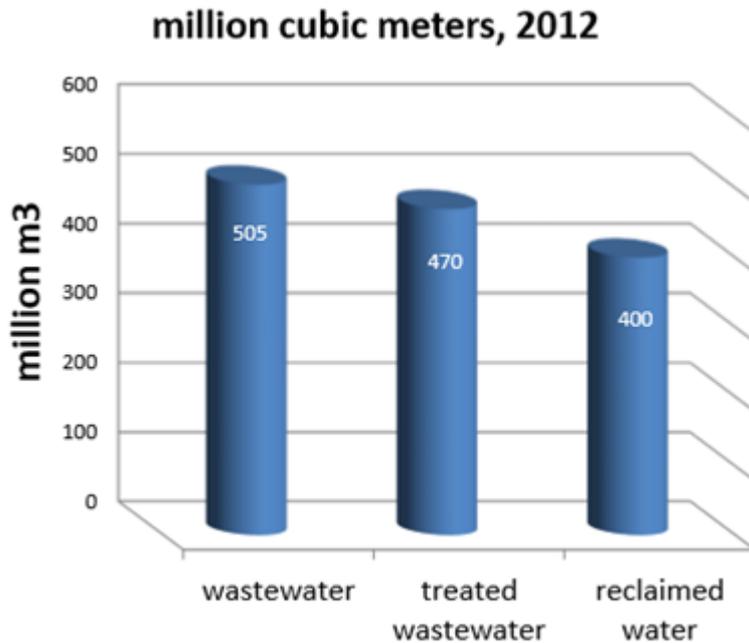
After the reform, water and sewage municipal corporations were established. These 55 corporations are owned by the municipalities but function as business entities, and their sole function is to manage the water and sewage system. As a result - efficiency and more investments in infrastructure is taking place.

3. There is a gradual process of disqualifying ground water sources due to the presence of contaminants such as Nitrate, Chloride, Microbial, detergents, Heavy metal, VOC's, EDB, MTBE, perchlorate.

199 groundwater wells were disqualified between 1998-2014. 30% of the wells were disqualified due to industrial pollution, almost all of them located on the Coastal aquifer. As an example, in the Tel-Aviv district alone, there are only 76 groundwater facilities operating to date, out of about 180 facilities operating in the 1990's.

Emerging issues – Effluent reuse (Treated domestic wastewater)

The reuse of effluent in agriculture is high on Israel's water policy priority list. This reflects a combination of factors, including severe water shortage, contamination of water resources, and highly intensive irrigated agriculture. To ensure that high-quality effluent is applied to irrigated crops, soil-aquifer treatment (SAT) has been used at the Dan wastewater treatment and reclamation plant in the Tel Aviv metropolitan area. (about 130 million m³/year or about 25% of total wastewater treated). Israel is a world leader in reusing effluent. About 96% of the wastewater is treated, and about 85% of all treated wastewater (effluent) is reclaimed.



Public review of Draft regulations (2016): "Effluent supply, use and permit" is currently taking place. The new regulation aims mainly to Increase the monitoring over the effluent supply system and change duties of effluent suppliers and effluent users in order to pass the responsibility over conserving the effluent quality to the supplier.

Public Health Regulations (2010): "Effluent Quality Standards and Wastewater Treatment Rules", require major WWTP to upgrade their treatment to tertiary, thus in the next few years a higher percentage of effluent produced will be of *unrestricted agricultural irrigation quality* and larger areas of sensitive crops will be irrigated. Deviations from effluent quality standards will immediately disqualify the effluent use in freshly eaten vegetables irrigation.

Israeli Ministry Of Health (MOH) takes part in promoting research on the effects of Pharmaceutical and Personal Care products (PPCP's), residuals in treated effluent and other contaminants of emerging concern (CEC's) on public health. This is done by research conducted in MOH laboratories, by assisting academic scientific research and by taking part in EU COST Action work group.

I. Quality of the drinking water supplied

A. Context of the data

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

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

100% of all drinking water in Israel is quality controlled.

All water sources are routinely inspected and monitored drinking water is distributed to each and every household and water consumer. The Israeli Ministry of Health – MOH, (by the department of Environmental Health) routinely supervises over water suppliers, assuring that the drinking water complies with the sanitation quality required in the regulations. Data provided in this report is derived from the ministry's computerized system containing quality test results. Laboratories and water suppliers are obliged to transfer drinking water test results to the MOH.

The rationale of this question is to understand the population coverage of the water quality data reported under sections B and C below. Please describe the type of water supplies for which data is included in the following tables, and the population share covered by these supplies. Please also clarify the source of the water quality data provided (e.g., data from regulatory authorities).

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

The water distribution systems supply both to urban and rural population.

3. Specify where the samples/measurements are taken (e.g., treatment plant outlet, distribution system or point of consumption).

The rationale behind this question is to understand where the samples were primarily taken from for the water quality data reported in sections B and C below.

In Israel there are 3 major water sources: groundwater (over a thousand groundwater wells across the mountain and coastal aquifers), surface water (Lake Kinneret, springs and rivers) and desalinated water (Mediterranean sea and Red sea).

The Water delivered to the public is tested by the water suppliers and when necessary undergo thorough and comprehensive treatment to remove undesirable components which may be harmful to the health of humans. Water sampling is performed according to regulations and relate to:

- **Groups of substances from natural sources such as: micro-organisms and algae that are naturally found in the environment or chemical substances found in rock layers and which are naturally dissolved in the water.**
- **Substances penetrating the water from non-natural sources such as: micro-organisms stemming from human and animal contamination, chemical substances used by man for industry and agriculture and which might contaminate surface water sources and penetrate underground water, byproducts of water disinfection and various substances used in the treatment process.**

The samplings are performed along the entire water supply system: water sources, water treatment plants and public water supply.

Chemical, Microbiological and Physicochemical tests of 150 parameters are being analyzed and published to the public in the MOH internet site.

From the 2013 regulations:

Testing a drinking water source

- 10 (a) A supplier who produces water from a water source shall perform tests of the raw water in the production facility as detailed hereunder:
- (1) A full microbiological test and a turbidity test - once every three months; once water supply has been renewed from a production facility from which water has not been supplied for a period exceeding one month, the supplier shall perform a full microbiological test and a turbidity test prior to renewing the water supply as aforesaid;
 - (2) A chemical test of all the factors specified in Annex 1 and 2, at a frequency as specified in Annex 3, according to the monitoring frequency group detailed in Annex 1 and 2 to these regulations;
 - (3) Additional tests of such types and frequency required by the Health Authority, in case of concern for public health or for water contamination.
- (b) The National Water Authority shall prepare, once annually, a monitoring plan for blue algae, (cyanobacteria) or their toxins in the raw water of the National Water Carrier, as well as an action plan for a situation of a deviation in blue algae toxins from the value specified in Table E of Annex 1 to this regulation; the said plans shall be submitted for approval of the Health Authority prior to November 1st of every year; the Health Authority may approve the plans, reject them, or approve them subject to conditions; the National Water Authority shall act in accordance with plans that have been approved by the Health Authority.

Testing in the water supply system

- 13 (a) A water supplier shall perform the tests detailed hereunder, in a water supply system in his ownership or possession:
- (1) A test that includes a microbiological test, a turbidity test and a test for an active disinfectant as detailed in Table A of Annex 4 ;
 - (2) A test for metals that includes – a test for iron, copper and lead as detailed in Table B the Annex 4;
 - (3) A test for fluoride as detailed in Table C of Annex 4;
 - (4) A test for asbestos, in pipe systems made of asbestos, as detailed in Table B of Annex 4.
- (b) Tests as stated in sub-regulation (a) shall be carried out in accordance with the size of the population being served as specified in Column A in Annex 4, at a frequency specified in Column B and the number of samples for each test as detailed in Column C alongside it.
- (c) Without diminishing from what is stated in sub-regulations (a) and (b), at the point of entry the supplier who is transferring the water to

another supplier, shall perform a microbiological test, a turbidity test and a test for an active disinfectant, at a frequency detailed in Annex 4, in Table A, Column B, according to the size of the population being served from that very point of entry as stated alongside it in Column A; notwithstanding the provisions of this sub-regulation, in situations detailed hereunder, the Health Authority may approve performance of the said tests at a representative sampling point or points it approved in advance:

- (1) When the water supply is carried out directly to several communities, where the total population does not exceed 5,000 residents;
 - (2) In a community where there are several points of entry, at the entry points that reliably represent water quality and size of population being served, according to a plan approved by the Health Authority.
- (d) The Health Authority shall decide as to the size of the population being served according to data from the Central Bureau of Statistics, taking into account among others, the extent and type of activity of the population being served from that water point; the decision made by the Health Authority, as stated in this sub-regulation, shall be published on the internet website of the Ministry of Health.
- (e) In a case of concern for public health or water contamination, the water supplier shall perform additional tests of such types, at such frequencies and at such locations as the Health Authority shall direct.
- (f) A test for an active disinfectant not carried out under continuous monitoring shall be made at the time of the sampling by a person qualified as stated in Regulation 33 (b), at the responsibility of the water supplier or a recognized laboratory on his behalf.

Water treatment and monitoring in treatment facility

- 17 (a) A supplier shall operate a water treatment facility and shall monitor the water in a facility approved by the Health Authority and in accordance with the instructions of The Director, with regard to the types of production and treatment facilities, their capacity and their complexity.
- (b) A treatment facility shall be planned, established and operated in accordance with the Best Available Technology (BAT) as approved by The Director, with consideration of, among others, the effect of the facility on the environment.
- (c) In addition to sub-regulations (a) and (b) -
- (1) Raw water produced in an underground water facility in which a deviation has occurred as stated in Regulation 11(a)(2) or has been exposed to contamination, in the opinion of the Health Authority, shall be treated in a manner that ensures the removal of at least 3 orders of magnitude of viruses.
- (2) Raw water produced in a surface water facility shall be treated with a technology that will include at least filtration, and in a manner that ensures the removal of factors as detailed herein:
- (a) cryptosporidium - 2 orders of magnitude (99% removal);
- (b) giardia – 3 orders of magnitude (99.9% removal);
- (c) viruses - 4 orders of magnitude (99.99% removal);
- (d) Notwithstanding what is stated in sub-regulation (c), the Health Authority may demand the removal of higher orders of magnitude than stated in sub-regulation (c), when high concentrations of cryptosporidium or giardia have been found in the water source or when such concern exists.
- (e) A filtration treatment facility shall be designed for a turbidity level of between 0.1 - 0.3 Nephelometric Turbidity Units (NTU) upon leaving the facility (exit point), at the discretion of The Director.
- (f) Water turbidity shall be continuously analyzed at the exit point of each filtration unit and shall not exceed 0.3 NTU for 95% of the time on a daily average, and in any event, a deviation from 0.3 NTU shall not persist for more than 30 consecutive minutes.

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

The process for setting Drinking water regulations includes a review of all parameters found in international standards (US, EU, Au/Nz, WHO).

Public Health Regulations (2013): the sanitary quality of drinking water and drinking water facilities set a high standard for the sanitary quality of drinking water. Deviations from the WHO guideline value include:

- Nitrate (NO₃) maximum concentration – 70 mg/l
- Trihalomethanes maximum concentration: 0.1 mg/l

Column A The Factor	Column B By-Products of Disinfection	Column C Maximum Concentration Mg/l	Column D Maximum Concentration for no more than two consecutive weeks Mg/l	Column D Maximum annual weighted average Mg/l
Chlorine	Trihalomethanes	0.1 per 90% of the time at least	0.15	0.1

In the coastal aquifer, located in Israel's densely populated region, saline and nitrate concentrations have increased considerably since 2000. Nitrate concentrations have increased from 30 to more than 60 mg/liter in the last 60 years, mostly due to agricultural activity and the slow upgrading into tertiary wastewater treatment.

Additional parameters, beyond those set by the WHO:

1. Over 50% of the Drinking water are desalinated, and a special chapter is dedicated in the regulations for monitoring and quality instructions for desalinated water. These instructions include reference to stabilization values such as: soluble Calcium, Alkalinity, CCPP, Langelier index.

Annex 6
(Regulations 2, (4) 2, 18 (a) and (c), and 36 (c))
Monitoring and Quality Instructions for Desalination

Column A Type of Monitoring	Column B Sampling point	Column C The factor	Column D Unit of measurement	Column E Required level
Continuous	Exit from desalination plant	Conductivity	Micro-Siemens per centimeter	Operational value ¹ in 95% of daily measurements and not more than 30% above the operational value
		Turbidity	NTU	0.5 and below in 95% of daily measurements and not more than 1.0
	Exit from "Hardening"	Acidity/Alkalinity	pH	7.5-8.3 in 95% of the daily measurements and not more than 8.5
Grab Sample	Exit from "Hardening"	Soluble Calcium	Mg/l as - CaCO ₃	80-120 ²
		Alkalinity	Mg/l as - CaCO ₃	80 and above
		Stabilization value - CCPP ³	Mg/l as - CaCO ₃	3.0-10 ⁴
		Stabilization value – LI Langelier Index	unit	0 and above ⁴

Notes on the Table:

- (1) Operational value approved by the Health Authority for operation of the desalination plant.
- (2) In water that has been desalinated from brackish water wells, the concentration of soluble calcium shall not be less than 50 mg/l as CaCO₃ and provided that the CCPP values shall be within the confines of the permitted concentration and as has been approved by the Health Authority.
- (3) Calcium Carbonate Precipitation Potential - a quantitative parameter that represents the precipitation potential of CaCO₃(s) in solution until achieving an equilibrium state between the aqueous and solid phases: Calculating the parameter is made iteratively by using the values of these parameters in the aqueous phase: general alkalinity, soluble calcium concentration, EC of the water, pH and temperature; a software designed for water chemistry such as the STASOF₄ and the AWWA (RTW model) will carry out the calculation.
- (4) Not mandatory for small brackish water desalination plants supplying up to 5,000 cubic meters of water per day to a regional water supply system only.

2. The Drinking water regulations specify the "Sum of ratios value":

"Sum of ratios value" - the sum of measured values, each divided by the relevant maximum concentration, as detailed in the formula:

$$\frac{\text{Conc. of Measured Parameter } N_1}{\text{Standard conc. } N_1} + \frac{\text{Conc. of Measured Parameter } N_2}{\text{Standard conc. } N_2} + \frac{\text{Conc. of Measured Parameter } N_i}{\text{Standard conc. } N_i} = \text{Sum of ratios value}$$

Quality of drinking water

- 4 The following shall be applied for drinking water at all time:
 - (1) It contains no coliform bacteria in 100 milliliters;
 - (2) It contains no factor deviating in measure, concentration, value or **Sum of ratios** value of those detailed in Annex 1,2,5 or 6 to these regulations;
 - (3) It has been treated in accordance with the provisions of these regulations.

As an example, see Table c, of annex 1:

Table C: Organic Substances from an Industrial Source

Column A The Factor	Column B Symbol (for reporting purposes)	Column C CAS No.	Column D Maximum Concentration microgram per liter (mcg/l)	Column E Monitoring Frequency Group in a production facility relevant to Annex 3
Ethylbenzene	ETBN	100-41-4	300	A
Polychlorinated Biphenyls (PCB's)	PCB	1336-36-3	0.5*	B
Benzene	BENZ	71-43-2	5	A
Benzo[a]pyrene	BNZP	50-32-8	0.5	A
Di(2-ethylhexyl) phthalate	BEPT	117-81-7	8	A
Ethylene Dibromide	ETDB	106-93-4	0.05	A
1,1-Dichloroethylene	DCEY	75-35-4	10	A
Cis-1,2-Dichloroethylene	CDCE	156-59-2	50	A
Trans-1,2-Dichloroethylene	TDCE	156-60-5	50	A
1,2-Dichloroethane	DCET	107-06-2	4	A
1,2-Dichlorobenzene	MDCB	95-50-1	600	A
1,4-Dichlorobenzene	PDCB	106-46-7	75	A
Dichloromethane	DCLM	75-09-2	5	A
1,2-Dichloropropane	DCPN	78-87-5	5	A
Vinyl chloride	VYCL	75-01-4	0.5	A
Toluene	TOLU	105-88-3	700	A
Tetrachloroethylene	TECE	127-18-4	10	A
1,1,1-Trichloroethane	TCET	71-55-6	200	A
1,1,2-Trichloroethane	TCEN	79-00-5	5	A
Trichloroethylene	TCEY	79-01-6	20	A
1,2,4-Trichlorobenzene	TCB	120-82-1	70	A
Chloroform	CHLF	67-66-3	80	A
Monochlorobenzene	MCBZ	108-90-7	100	A
Styrene	STYR	100-42-5	50	A
Formaldehyde	FORM	50-00-00	900	D
Carbon Tetrachloride	CCL4	56-23-5	4	A
Xylene – sum of all isomers	XYLE	1330-20-7	500	A
Sum of ratios value			1.5 (No Units)	

B. Bacteriological quality

Indicator to be used: WatSan_S2: The percentage of samples that fail to meet the national standard for E. coli and the percentage of samples that fail to meet the national standard for Enterococci. *Please comment on the trends or any other important information supporting interpretation of the data.*

<i>WatSan_S2</i>	<i>Current value 2015</i>
Coliform (2015)	0.61%

Microbial Standards In the distribution system: No coliform bacteria in 100 ml. If one or more coliform bacteria has been found in 100 ml of water, E. coli will be analyzed.

Microbial Standards In groundwater sources: 50 coliform bacteria, 10 fecal coliform bacteria, 10 fecal streptococci/enterococci bacteria.

Quality of drinking water	4 The following shall be applied for drinking water at all time: (1) It contains no coliform bacteria in 100 milliliters; (2) It contains no factor deviating in measure, concentration, value or Sum of ratios value of those detailed in Annex 1,2,5 or 6 to these regulations; (3) It has been treated in accordance with the provisions of these regulations.
Deviation in test result	6 In addition to what is stated in Regulation 5 - (1) Once in a microbiological test, one or more coliform bacteria has been found in 100 milliliters of water, the supplier or the laboratory, as the case may be, shall carry out the following actions: (a) The laboratory that performed the test shall immediately test the coliform bacteria found to identify E.coli and shall immediately forward the test results to the Health Authority; (b) The water supplier shall carry out repeat sampling for a repeat microbiological test; the Health Authority may require the supplier to carry out sampling at additional sampling points;
Deviation in a microbiological test in an underground water facility	11 (a) Once the results of a full microbiological test of 100 milliliters of water sampled in an underground water facility, prior to disinfection, exceed 50 coliform bacteria, or 10 fecal coliform bacteria or 10 streptococci bacteria - (1) The water supplier shall carry out repeat sampling for an additional full microbiological test, shall immediately perform corrective actions necessary to prevent water contamination, and shall report these actions to the Health Authority without delay, and shall also conduct an investigative sanitary survey

C. Chemical quality

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

- (a) Fluoride;
- (b) Nitrate and nitrite;¹
- (c) Arsenic;
- (d) Lead;
- (e) Iron.

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

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

<i>Substance</i>	<i>Current value 2015</i>
Fluoride	No fluoridation since Aug 2014
Lead	0.45 %
Iron	0.64 %
THM	0
Copper	0
Turbidity	0.22%
Residual Free Chlorine	2.01%

*** Nitrate and Arsenic are not tested in the distribution system. These factors are tested in the water sources.**

*** Chloramines are not used as a primary disinfectant, thus Nitrite is not tested.**

***Fluoridation in Israel was discontinued on August 2014. In March 2016, The MOH amended the drinking water regulations, thus restoring the fluoridation of drinking water.**

***Lead and Iron: MOH procedure requires a repeat sampling. In most cases there was no violation of standard.**

¹ As defined in the WHO Guidelines for drinking-water quality.

II. Reduction of the scale of outbreaks and incidence of infectious diseases potentially related to water

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

(a) For reporting outbreaks, please indicate if the numbers reported are related to all exposure routes or only related to water (i.e., for which there is epidemiological or microbiological evidence for water to have facilitated infection);

(b) For reporting incidents:

(i) Please report cases per 10,000 persons;

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

(iii) If possible, please distinguish between autochthonous and imported cases.

Please consider extending the list of water-related diseases to cover other relevant pathogens (e.g., enteric viruses, Cryptosporidium, Giardia, Legionella).

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

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

	Incidence		Number of outbreaks			
	Baseline (specify the year)	Value reported in the previous reporting cycle (average 2010-2014)	Current value (2015)	Baseline (2010-2014)	Value reported in the previous reporting cycle (2014)	Current value (2015)
Cholera		0.00	0.00	0	0	0
Bacillary dysentery (shigellosis)		5.57	2.50	2.8/y	3	8
Enterohaemorrhagi . coli.*		0.01	0.00	0	0	0
Viral hepatitis A		0.08	0.06	0.2/y	0	1
Typhoid fever		0.01	0.01	0	0	0

* No cases for viral hemorrhagic fever (Ebola, Lassa, Marburg and Other) for these

III. Access to drinking water

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

Percentage of population with access to drinking water	Current value (2015)
Total	
Urban	100%
Rural	100%

Please specify if the above data is based on national estimates or estimates provided by the WHO/United Nations Children's Fund (UNICEF) Joint Monitoring Programme (JMP) for Water Supply and Sanitation.

If national estimates are provided, please specify how access is defined and estimated in your country.

JMP definitions and categories are available at <http://www.wssinfo.org/definitions-methods/watsan-categories>.

The MOH has data regarding water access for all communities. The Whole population of Israel has access to high quality drinking water which are monitored regularly. Access to drinking water is defined as immediate availability of drinking water for drinking and food preparation in every household.

IV. Access to sanitation

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

Percentage of population with access to sanitation	Baseline value (specify the year) 1990	Value reported in the previous reporting cycle (specify the year)	Current value (specify the year) 2014
Total	99.0		99.9
Urban	100		100
Rural	90		98.9

Please specify if the above data is based on national estimates or estimates provided by JMP for Water Supply and Sanitation.

If national estimates are provided, please specify how access is defined and estimated in your country.

Access to sanitation is calculated by estimating the population connected to public sewers, with or without connection to wastewater treatment plants together with the population connected to small scale wastewater treatment systems or to septic tanks.

JMP definitions are available at <http://www.wssinfo.org/definitions-methods/watsan-categories>.

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

Water quality

On the basis of national systems of water classification, the percentage of the number of water bodies or the percentage of the volume (preferably) of water² falling under each defined class (e.g., in classes I, II, III, etc. for non-EU countries; for EU countries, the percentage of surface waters of high, good, moderate, poor and bad ecological status, and the percentage of groundwaters/surface waters of good or poor chemical status).

For non-European Union Countries

Status of surface waters

Percentage of surface water falling under class ^a	Baseline value (specify the year)	Value reported in the previous reporting cycle (specify the year)	Current value (specify the year)
I			
II			
III			
IV			
V			

² Please specify.

<i>Percentage of surface water falling under class^a</i>	<i>Baseline value (specify the year)</i>	<i>Value reported in the previous reporting cycle (specify the year)</i>	<i>Current value (specify the year)</i>
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.

Status of groundwaters

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

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

For European Union countries

Ecological status of surface water bodies

<i>Percentage of surface water classified as:</i>	<i>Baseline value (specify the year)</i>	<i>Value reported in the previous reporting cycle (specify the year)</i>	<i>Current value (specify the year)</i>
High status			
Good status			
Moderate status			
Poor status			
Bad status			

Total number/volume of water bodies classified

Total number/volume of water bodies in the country

Chemical status of surface water bodies

<i>Percentage of surface water bodies classified as</i>	<i>Baseline value (specify the year)</i>	<i>Value reported in the previous reporting cycle (specify the year)</i>	<i>Current value (specify the year)</i>
Good status			
Poor status			

Total number/volume of water bodies classified

Total number/volume of water bodies in the country

Status of groundwaters

<i>Percentage of groundwaters classified as</i>	<i>Baseline value (specify the year)</i>	<i>Value reported in the previous reporting cycle (specify the year)</i>	<i>Current value (specify the year)</i>
Good quantitative status			
Good chemical status			
Poor quantitative status			

<i>Percentage of groundwaters classified as</i>	<i>Baseline value (specify the year)</i>	<i>Value reported in the previous reporting cycle (specify the year)</i>	<i>Current value (specify the year)</i>
Poor chemical status			
Total number/volume of groundwater bodies classified			
Total number/volume of groundwater bodies in the country			

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

Water use

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

<i>Water exploitation index</i>	<i>Baseline value (specify the year)</i>	<i>Value reported in the previous reporting cycle (specify the year)</i>	<i>Current value (specify the year)</i>
Agriculture			
Industry ^a			
Domestic use ^b			

^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 individual supply systems (e.g., wells).

Part Three

Targets and target dates set and assessment of progress

For countries that have set 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 the relevant target areas (e.g., baseline conditions, provisional targets, etc.)

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:

- Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
- Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
- Assess the progress achieved towards the target.
- In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
- If you have not set a target in this area, please explain why.

National target 1: Monitoring water quality in the distribution system by a computerized system

Target date 31.12.2018

In the past 10 years, Israel is experiencing a change in its water sources variety.

Five large-scale seawater desalination facilities and some smaller brackish water desalination facilities currently provide about 50% of the current domestic water requirements.

Desalinated water is blended in the distribution system, in changing quantities, with different water sources. High water quality is maintained. A computerized system will enable efficient monitoring of water quality parameters in the distribution system, based on tests taken in water sources.

Intermediate targets:

1. Monitoring water stabilization values and effect on pipes:

Desalinated water may comprise a very low mineral content due to boron and chloride removal. Thus, turning the water corrosive and having an effect on pipes and water quality. There are 5 Desalination plants, several of which were erected before the 2013 regulations, which require provision for the stabilization of the water. The target is to monitor these stabilization values

2. Monitoring essential minerals (such as Calcium and Magnesium), accompanied by epidemiologic and ecologic studies:

In the past 10 years, Water consumers began drinking low mineral content water. A surveillance of mineral content in the distribution system, accompanied by epidemiologic and ecologic studies is required in order to monitor possible morbidity due to lack of minerals.

3. Reduction of Disinfectant residual and surveillance of THMFP (THM formation potential): flexibility of water distribution system and the blending of different water sources leads to Insufficient control over water detention time (water age) in the system, type of disinfectant and its residual. Better surveillance over these parameters is needed.

As water ages, there is a greater potential for DBP formation such as THM. This phenomenon, of high detention time, is apparent in some parts of the water distribution system, in the past 2 years, due to different flow patterns of water coming from different sources.

National target 2: Empowerment of water suppliers and transferring responsibility for water quality supplied (training, reporting, sanitary surveys)

Target date : 31 December 2018

Until recently, the MOH handled areas of responsibility belonging to the water supplier: managing water crisis, water quality reports to the public, monitoring programs etc.

The target is to transfer responsibility from the MOH to the supplier, by several intermediate targets:

Intermediate targets:

1. Knowledge transfer in the field of water quality (Courses, seminars etc.)
2. The MOH will establish a computerized data base so that water suppliers may develop monitoring programs and review their implementation.
3. Carrying out Sanitary surveys by water suppliers (Familiarity with their water system, weakness points and failure repair.

National target 3: Improving Public access to drinking water test results

Target date: 30 June 2017

Drinking water results are published in the Ministry of Health Internet site. In order to facilitate public access to these results, the ministry is planning a user-friendly internet accessible tool that will enable consumers to check on their water quality results in their neighborhood, in water sources and in water treatment facilities.

National target 4: Mapping municipal planning schemes approved in water protection zones

Target date : 31 December 2017

According to the Public health regulation (1995) "Sanitary conditions for drinking water wells", protection zones were set around groundwater sources, and restrictions regarding construction and activity in these zones were set forth.

Information regarding planning schemes approved but not yet realized, is lacking and thus the occurrence of schemes situated in the restricted area is possible.

A joint venture of the Ministry of Health, Water authority and the Israel Land Authority lead to a governmental decision as to the need of mapping approved municipal planning schemes in water protection zones.

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. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.
4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
5. If you have not set a target in this area, please explain why.

In Israel, since drinking water is treated (to a standard of 0 coliform / 100 ml) and inspected frequently, waterborne infections are rare, and pathogens are mostly spread by oral-fecal route through contamination of food rather than contamination of water. It is noteworthy that Gastro-Intestinal infections are affected by seasonal changes.

Nevertheless, there are some programs addressing certain pathogens that might be waterborne. We will discuss these programs related to the following pathogens, which all are mandatory reportable by law.

A. Israel aim is to be considered Polio Free. In addition, poliovirus prevention is reached through vaccination program since 1955, covering up to 90% of the population.

In addition sewage water is inspected to Poliovirus systematically and nationwide. Our expectation is to find 0 wild type virus. If a virus is found, measures to stop its spread are applied. Last finding was on 2013, and contained successfully. Before that an outbreak occurred in 1988.

B. Hepatitis A is controlled through vaccination program since 1999, given to children at age 18 and 14 months. Vaccination coverage is high and reaches 90% nationwide. Hence, hepatitis cases are very rare, and rates decline each year. Israel aim is to maintain these low levels of morbidity,

C. Legionella control in Israel is achieved through water supply regulation that mandates purification and inspection of drinking water, and also defines the means to apply in every public facility (especially when a sensitive population, such as children, elders, or immunosuppressed, is concerned). Hence, reported outbreaks are rare in Israel, and annual prevalence is 0.6/100,000.

D. Salmonella, Shigella and Campylobacter control is achieved by various methods of surveillance. Apart from the mandatory reporting(since 1951), all specimens of these pathogens from all labs in Israel are transported for further analysis to the central public health labs in Jerusalem. Thus, a complete national picture of morbidity is achieved in real time. In addition, preliminary data from sentinel labs is processed at the Israeli Center of Disease Control, which results in prompt information regarding trends and outbreaks. Specifically, cluster analysis is done regarding shigellosis, which directs public health intervention towards specific areas in which they occur. This might also explain the relatively high number of shigella outbreaks reported in 2015.

National Target: By maintaining these surveillance and control methods, our aim is to further reduce the number of outbreaks by 20% each year.

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

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.
4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
5. If you have not set a target in this area, please explain why.

100% of the population in Israel has access to high quality drinking water.

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

For each target set in this area:

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

National target: To provide access to sanitation for the entire population in order to ensure hygienic separation of human excreta from human contact and to protect human health and the environment.

In 2014 99.9% of population in Israel had access to sanitation facilities: 100% of the urban population and 98.9% of the rural population.

2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.

Under the "Public Health Regulations (Effluent Quality Standards and Rules for Sewage Treatment), 2010", wastewater (including in rural areas) shall be treated.

The stated aim of the effluent quality regulations is to protect public health, to prevent pollution of water sources from sewage and effluents, to facilitate the recovery of effluents as a water source, to protect the environment, including ecological systems and biological diversity, soil and agricultural crops.

The Regulations, which replace the 1992 regulations on wastewater treatment, set much higher treatment levels in existing and future wastewater treatment plants. They include maximum levels for dissolved and suspended elements and compounds and for 36 different parameters in effluents which then enable unrestricted irrigation and discharge to rivers.

Additional provisions in the Regulations relate to the preparation of monitoring and control plans on the quality and quantity of sewage discharged to wastewater treatment plants and to sampling and testing, at defined frequencies, at the exit of the wastewater treatment plant. Monitoring plans and results as well as sampling and test results are published on the websites of the Ministry of Environmental Protection, Ministry of Health and Water Authority.

3. Assess the progress achieved towards the target.

Percentage of population with access to sanitation has increased steadily (from 99.0% in 1990 to 99.9% in 2014).

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

Effluent Quality Standards and Rules for Sewage Treatment reflect latest scientific information and are revised periodically.

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. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.
4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
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) continued)

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.
4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
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. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.

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

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.
4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
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. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.

National target: Wastewater treatment according to "Public Health Regulations (Effluent Quality Standards and Rules for Sewage Treatment), 2010", and termination of untreated wastewater discharge to rivers.

Target date: full implementation by 31.12.2021.

2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.

According to "Public Health Regulations (Effluent Quality Standards and Rules for Sewage Treatment), 2010" new wastewater treatment plants will be built, and untreated wastewater discharge to rivers will cease. This will be achieved by enforcement of the Regulations and by financial tools such as low interest loans or grants.

3. Assess the progress achieved towards the target.

The amount of total municipal sewage was about 510 MCM in 2014.

98.9% of the sewage was centrally collected via public sewage network and about 1.1% was discharged to cesspools in rural areas.

96.7% of the sewage was treated at wastewater treatment plants, and about 85% of treated wastewater (effluent) was reclaimed for reuse.

About 2.2% of the sewage was untreated and was discharged to rivers.

Between 1990 and 2014 the discharge of untreated wastewater decreased from 11.8% to 2.2%.

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

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 to waters within the scope of the Protocol (art. 6, para. 2 (g) (ii))

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.
4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
5. If you have not set a target in this area, please explain why.

XI. Quality of discharges of wastewater from wastewater treatment installations to waters within the scope of the Protocol (art. 6, para. 2 (h))

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

National target: To decrease by 75%, pollutant load discharge of treated wastewater from wastewater treatment plants to waters (in the case of Israel- to rivers), by upgrading facilities and by sustainable maintenance of wastewater treatment plants.

Target Date: 31.12.2022

2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.

Implementation of Administrative Guidelines relating to sustainable maintenance of wastewater treatment plants..

3. Assess the progress achieved towards the target.

About 18% of the total sewage was discharged to rivers in 2014 (of this, 12% was untreated wastewater and 88% was effluent).

Pollution loads to 17 main rivers was TOC – 5,019 t/y, TN – 3,768 t/y, TP – 386 t/y.

Between 1994 to 2014 pollution loads to 17 main rivers decreased: TOC – by 79%, TN – by 59.5% and TP – by 94.1%.

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

For each target set in this area:

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

National target: Effective treatment of sewage sludge from waste water treatment plants for agricultural use or soil conditioning and for energy production, and termination of sewage sludge disposal to sea.

Target date: 31.06.2017.

2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.

Under the "Water Regulations (Prevention of Water Pollution) (Usage of Sludge), 2004" sewage sludge from wastewater treatment plants must be treated.

The aim of these Regulations is to protect public health, to prevent pollution of water sources from sewage sludge, to protect the environment, including ecological systems and biological diversity, soil and agricultural crops.

According to these Regulations, sludge designated for agricultural use or soil conditioning must be sludge class A, treated by stabilization and pasteurization processes.

The Regulations establish standards for heavy metals and pathogens for treated sludge.

They also set recording and laboratory testing requirements, set limitations on areas of sludge use, and establish a safe sludge load to protect soil and agricultural crops, and to prevent nitrogen leaching to groundwater.

3. Assess the progress achieved towards the target.

In 2014, the amount of sewage sludge was 114,600 tonnes dry solids. 62.5% was applied in agriculture, 31.9% was disposed of at sea, and 5.6% was landfilled.

Between 2002 to 2014 the agricultural use of treated sludge has increased by 23.9%, dumping at sea decreased by 26.5%, and landfill increased by 2.8%.

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

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), second part)

For each target set in this area:

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

2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.
4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
5. If you have not set a target in this area, please explain why.

National Target 1 : 85% of effluent will comply with "Effluent quality standards and wastewater treatment rules" 2010.

Target date: 31/12/2021

The promotion of wastewater treatment and effluents safe reuse for agricultural purposes, is a national mission. Treated wastewater in Israel is regarded as a financial resource and is mostly utilized for agricultural irrigation. Until 2010, most effluent was used for restricted applications. In 2010, the government decided to enact "Effluent quality standards and wastewater treatment rules" and set regulations for treating wastewater to an "Unrestricted agricultural irrigation quality" or to "Quality required for discharge into the environment". See tables below.

In 2015, about 60% of all effluent is produced from tertiary treatment plants and about 40% of effluent is produced from secondary treatment plants. This percentage takes into account effluent produced from tertiary treatment plants in addition to effluent which was treated in an equivalent tertiary treatment according to former regulations (such as long retention time in reservoirs).

According to regulations, wastewater treatment plants of up-to 1000 cubic meters/day are not obliged to have tertiary treatment.

Upgrading of wastewater treatment plants to tertiary treatment, is slow and does not meet regulations (due to financial reasons, lack of space etc.). According to regulations, an Exceptions Committee was established, whose members are the Environmental Supervisor, the Health Supervisor and the Director of the Water Authority.

Pursuant to a reasoned request in writing of a wastewater producer, an operator or an effluent user, the Exceptions Committee may permit, for a period of no more than five years, to discharge effluents at less stringent values than those detailed in the regulations, provided it will not result in the contamination of water sources.

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Parameter	Units	Unrestricted agricultural irrigation			Quality required for discharge into streams		
		Maximum monthly arithmetic average value ¹	Maximum value	Minimum value	Maximum monthly average value	Maximum value	Minimum value
Category A							
Fecal coliform	Units per 100 ml	10	50		200	800	
BOD ₅ ²	mg/l	10	15		10	15	
Suspended solids (TSS 105°C)	mg/l	10	15		10	15	
COD	mg/l	100	150		70	100	
Ammoniacal nitrogen (ammonium)	mg/l	10	15		1.5	2.5	
Total nitrogen ³	mg/l	25	35		10	15	
Total phosphorus	mg/l	5	7		1	2	
Category B							
Chloride	mg/l	250	280		400	480	
Electrical conductivity	dS/m	1.4	1.8				
Fluoride	mg/l	2	3				
Sodium	mg/l	150	200		200	240	
Dissolved oxygen	mg/l			0.5			3
pH ⁴			8.5	6.5		8.5	7.0
Mineral oil ⁵	mg/l				1.0	1.5	

First Schedule
(Regulations 2, 4(a)(1) and (3) and (e), 18 and 19)
Maximum Levels and Maximum Value for Average Monthly Levels



Parameter	Units	Maximum monthly arithmetic average value ¹	Maximum value	Minimum value	Maximum monthly average value	Maximum value	Minimum value
Residual chlorine ²	mg/l	1	2.5	0.8	0.05	0.1	
Anionic detergent	mg/l	2	3		0.5	1.0	
SAR	(Mmol/L) ²	5.0	6.5				
Boron	mg/l	0.4	0.5				
Category C³							
Mercury	mg/l	0.002	0.005		0.0005	0.0025	
Chromium	mg/l	0.1	0.25		0.05	0.25	
Nickel	mg/l	0.2	0.5		0.05	0.25	
Selenium	mg/l	0.02	0.05				
Lead	mg/l	0.1	0.25		0.008	0.04	
Cadmium	mg/l	0.01	0.025		0.005	0.025	
Zinc	mg/l	2	5		0.2	1.0	
Arsenic	mg/l	0.1	0.25		0.01	0.05	
Iron	mg/l	2	5				
Copper	mg/l	0.2	0.5		0.02	0.1	
Manganese	mg/l	0.2	0.5				
Aluminum	mg/l	5	12.5				
Molybdenum	mg/l	0.01	0.025				
Vanadium	mg/l	0.1	0.25				
Beryllium	mg/l	0.1	0.25				
Cobalt	mg/l	0.05	0.125				
Lithium	mg/l	2.5	6.25				
Cyanide	mg/l	0.1	0.2		0.005	0.01	

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National Target 2 : Operational solutions for effluent or wastewater that do not comply with the quality needed by the regulations during technical failures (such as emergency reservoirs).

Target date: 31/12/2021

"Effluent quality standards and wastewater treatment rules" permit unrestricted irrigation using treated effluent, with the appropriate quality (see charts above). As a result, keeping care that WWTP continue supplying high quality effluent at all times becomes of great importance in avoiding harm to public health. Solutions for effluent which do not comply with *unrestricted agricultural quality* produced during technical failures, are required. One of the solutions is building reservoirs for each WWTP for containing the low quality effluent until it can be pumped back in to the WWTP.

National Target 3 : Reporting effluent quality tests by a computerized system

Target date: 31/12/2018

Analyzing effluent quality is carried out in laboratories recognised by the MOH. The computerized system will enable efficient monitoring of effluent quality parameters by transferring the test results directly to one single governmental system that will be open to several ministries: Health, Environment protection, Water Authority, Agriculture.

National Target 4 : GIS (Geographic Information System) for effluent irrigated land.

Target date: 31/12/2016

MOH uses GIS to map all effluent irrigated areas. During 2016 a new GIS software should be installed and used to update the 2016 effluent irrigated areas.

National Target 5 : Enacting "Effluent supply, use and permit" regulations.

Target date: 31/12/2017

Public review of Draft regulations (2016): "Effluent supply, use and permit" is currently taking place. The new regulation aims mainly to Increase the monitoring over the effluent supply system and change duties of effluent suppliers and effluent users in order to pass the responsibility over conserving the effluent quality to the supplier.

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

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.
4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
5. If you have not set a target in this area, please explain why.

In Israel there are 3 major water sources: groundwater (over a thousand groundwater wells across the mountain and coastal aquifers), surface water (Lake Kinneret, springs and rivers) and desalinated water (Mediterranean sea and Red sea).

National Target 1: Reviewing the Israeli methodology of determining groundwater protection zones

Target date: 31.12.2017

According to the Public health regulation (1995) "Sanitary conditions for drinking water wells", protection zones were set around groundwater sources. There are 3 zones: The inner zone has a minimum radius of 10 meters in unconsolidated aquifer and of 20 meters in fractured aquifers. Zone B: is calculated based on a 50 day travel time to the abstraction source and Zone C is calculated for a travel time of 200 days. The Methodology is classified as a manual method/analytical solution and results in standard shaped zones based on idealized representation of local condition.

Default calculation of travel time is based on a simple equation taking into account well depth, pump capacity and average porosity (different for unconsolidated and fractured aquifers). Use of hydrologic models to calculate travel time is optional.

A committee is reviewing the current methodology, and along the way will examine other protection zone methodologies. Protection zones for springs will also be examined.

National Target 2: Establishing Intake point protection zones for Desalination plants

Target date: 31.12.2021

Water scarcity is a major concern in Israel, a country subject to arid and semi-arid climatic conditions. Water consumption exceeds the natural rate of replenishment and pollution load intensifies pressure on water resources. As the water crisis has deepened following several consecutive years of drought, more emphasis has been placed on increasing supply through an extensive program of seawater desalination. Five large-scale seawater desalination facilities and some smaller brackish water desalination facilities currently provide about 600 mcm of Israel's potable water requirements (to all sectors). This volume is equivalent to approximately 50% of the current domestic water requirements.

Intake points of Desalination plants are located in close proximity to several potentially contaminating sources such as: active ports (Ashkelon and Ashdod), streams carrying discharged wastewater and treated wastewater, maritime connectors for oil tankers, fish farming, etc. There is a strict monitoring program with stringent alert levels and a system reporting different contamination indicator parameters.

Establishing intake point protection zones for desalination plants will aid in the reduction of contamination potential to the water used for desalination in two aspects: contaminant travel time and dilution of contaminant.

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

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.
4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
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), third part)

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.
4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
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. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.
4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
5. If you have not set a target in this area, please explain why.

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

For each target set in this area:

1. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.
4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
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. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.
4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
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. Describe the target, target date and baseline conditions. Please include information on whether the target is national or local, and intermediate targets as relevant. Also include information on the background and justification for the adoption of the target.
2. Describe the actions taken (e.g., legal/regulatory, financial/economic and informational/educational, including management measures) to reach the target, having regard to article 6, paragraph 5, and, if applicable, the difficulties and challenges encountered.
3. Assess the progress achieved towards the target.
4. In the review of progress achieved towards the target, has it appeared that the target and target date need to be revised, e.g., in the light of scientific and technical knowledge? If so, and if the revised target and target date have already been adopted, please describe them.
5. If you have not set a target in this area, please explain why.

Part Four Overall evaluation of progress achieved in implementing the Protocol

In this part of the summary report, Parties shall provide an analysis and synthesis of the status of implementation of the Protocol. Such an overall evaluation should not only be based on the issues touched upon in the previous parts, but should also include, as far as possible, a succinct overview of implementation of activities related to, for example:

- (a) Response systems (article 8);
- (b) Public awareness, education, training, research and development and information (article 9);
- (c) Public information (article 10);
- (d) International cooperation (article 11);
- (e) Joint and coordinated international action (article 12);
- (f) Cooperation in relation to transboundary waters (article 13);
- (g) International support for national action (article 14).

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

Suggested length: up to 3 pages

Part Five

Information on the person submitting the report

The following report is submitted on behalf of **The Israel_Ministry of Health and Ministry of Environmental Protection** [name of the Party or the Signatory] in accordance with article 7 of the Protocol on Water and Health.

Name of officer responsible for submitting the national report: **Dganit Eichen**

E-mail: **Dganit.eichen@moh.gov.il**

Telephone number: **972-50-6242417**

Name and address of national authority: **Environmental Health Dept., Public Health Services, Ministry of Health, P.O.B. 1176 Jerusalem, 9101002, Israel**

Signature: 

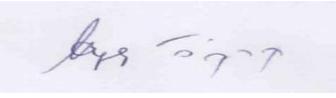
Date: **18.04.2016**

Name of officer responsible for submitting the national report: **Dr. Isabella Karakis**

E-mail: **isabella.karakis@moh.gov.il**

Telephone number: **-972-2-5080530**

Name and address of national authority: **Environmental Epidemiology Dept., Public Health Services, Ministry of Health, P.O.B 1176, Jerusalem, 9101002, Israel**

Signature: 

Date: **18.04.2016**

:

Submission

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, by **18 April 2016**. 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 third session of the Meeting of the Parties.

Parties are requested to submit, to the two addresses below, an original signed copy by post and an electronic copy either on a CD-ROM or by e-mail. Electronic copies should be available in word-processing software, and any graphic elements should be provided in separate files.

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