

Wastewater treatment

Water quality (physical, chemical, microbial, biological) is affected by water abstraction, by pollution loads from human activities (agriculture, industry, households) and by climate and weather.

If pressure from human activities becomes so intense that water quality is impaired to the point that it requires ever more advanced and costly treatment, or that aquatic plant and animal species in rivers and lakes are greatly reduced, then the sustainability of water resource use is in question.

Definitions

The indicator presented here refers to sewage treatment connection rates, i.e. the percentage of the national population connected to a wastewater treatment plant. Sewerage connection rates are shown as complementary information.

“Connected” means actually connected to a wastewater treatment plant through a public sewage network. It does not take into account independent private facilities (e.g. septic tanks), used where public systems are not economic.

The data show total connection rates and the extent of secondary and/or tertiary sewage treatment to provide an indication of efforts to reduce pollution loads.

- Primary treatment: physical and/or chemical process involving settlement of suspended solids, or other process in which the BOD5 of the incoming wastewater is reduced by at least 20% before discharge and the total suspended solids are reduced by at least 50%.
- Secondary treatment: process generally involving biological treatment with a secondary settlement or other process, with a BOD removal of at least 70% and a COD removal of at least 75%.
- Tertiary treatment: treatment of nitrogen and/or phosphorous and/or any other pollutant affecting the quality or a specific use of water (microbiological pollution, colour, etc.).

This indicator should be read in connection with information on public wastewater treatment expenditure. It should be related to an optimal national connection rate, recognising that the optimal connection rate is not necessarily 100%: it may vary among countries and depends on geographical features and on the spatial distribution of habitats.

Overview

In recent decades, OECD countries have been progressing with basic domestic water pollution abatement and with sewerage and wastewater treatment infrastructure.

- The share of the population connected to a municipal wastewater treatment plant rose from about 50% in the early 1980s to over 60% in the early 1990s and is close to 80% today.

- Due to varying settlement patterns, economic and environmental conditions, starting dates and the rate at which the work was done, the share of population connected to wastewater treatment plants and the level of treatment vary significantly among OECD countries: secondary and tertiary treatment have progressed in some while primary treatment remains important in others.
- OECD countries with relatively low GDP per capita are still in the phase of infrastructure development, which can command investment of the order of 1% of GDP. Those OECD countries that established their water infrastructure decades ago now face the challenge of upgrading ageing networks. Some countries have reached the economic limit in terms of sewerage connection; they must find other ways of serving small or isolated settlements and ensuring proper control and functioning of small independent treatment facilities.

Comparability

Data on the share of the population connected to wastewater treatment plants are available for almost all OECD countries. In some countries, data relate to population equivalents and are thus not fully comparable. Information on the level of treatment and on treatment charges remains partial.

Data include estimates.

For additional notes, see the Annex.

Sources

OECD (2015), “Wastewater Treatment (% Population Connected)”, *OECD Environment Statistics* (database), <http://dx.doi.org/10.1787/data-00604-en>.

Further information

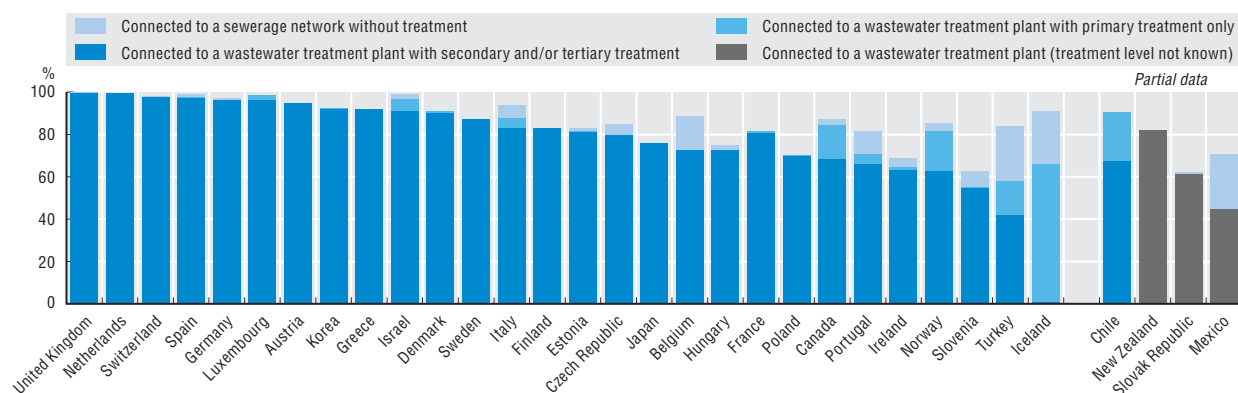
OECD Work on Water, www.oecd.org/environment/resources/water.htm.

OECD (2012), *OECD Environmental Outlook to 2050: The Consequences of Inaction*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264122246-en>.

Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>.

Figure 1.23. Sewage treatment connection rates, 2013 or latest available year

% of national population connected to a wastewater treatment plant



Source: OECD (2015), "Wastewater Treatment (% Population Connected)", OECD Environment Statistics (database).

StatLink <http://dx.doi.org/10.1787/888933261900>

Table 1.7. Sewage treatment connection rates, % of population

	Sewage treatment connection rates								Sewerage network connection rates	
	Early 1990s			Early 2000s			2013 or latest		2013 or latest	
	Total	Of which:		Total	Of which:		Total	Of which:		Total
		Secondary treatment	Tertiary treatment		Secondary treatment	Tertiary treatment		Secondary treatment	Tertiary treatment	
Australia	..	..	..	..	..	..	..	..	..
Austria	72	60	7	85	..	..	95	1	94	95
Belgium	..	..	..	41	6	36	73	9	63	88
Canada	62	21	27	87	48	19	84	53	15	87
Chile	..	..	..	72	2	48	91	4	63	..
Czech Republic	50	..	..	64	..	..	80	8	72	85
Denmark	85	42	29	88	4	83	91	2	88	91
Estonia	68	31	..	69	28	40	82	7	74	83
Finland	76	0	76	80	0	80	83	0	83	83
France	69	..	..	79	51	26	82	44	29	82
Germany	86	32	48	93	5	88	96	3	93	97
Greece	11	11	0	..	..	..	92	6	86	92
Hungary	20	14	1	46	24	6	73	16	57	75
Iceland	2	0	0	33	0	0	66	0	1	91
Ireland	44	21	0	70	21	8	65	49	14	69
Israel	77	32	28	87	40	34	97	39	52	99
Italy	61	..	..	82	..	..	88	34	49	94
Japan	44	42	2	62	54	8	76	55	20	76
Korea	33	..	..	71	69	1	92	10	82	92
Luxembourg	90	..	..	95	66	22	98	27	70	98
Mexico	22	19	0	23	..	..	50	..	..	..
Netherlands	94	84	8	98	17	82	99	1	99	99
New Zealand	80	33	40	81	26	40	82	..	..	..
Norway	57	1	43	74	1	51	82	1	61	85
Poland	34	..	..	54	30	20	70	14	56	70
Portugal	21	11	0	57	26	9	71	47	19	81
Slovak Republic	43	..	..	51	..	..	61	..	..	62
Slovenia	..	..	..	36	15	2	55	33	22	63
Spain	48	..	..	81	65	15	98	29	68	99
Sweden	94	9	85	86	5	81	87	4	83	87
Switzerland	90	28	62	96	22	74	98	11	87	98
Turkey	7	1	0	26	15	4	58	20	22	84
United Kingdom	87	65	14	..	..	..	100	50	50	100
United States	70	34	28	75	34	39	..	..	..	..
OECD	57	34	18	67	34	29	77	28	42	81
OECD America	61	29	21	63	29	28	67	28	28	72
OECD Asia-Oceania	42	41	2	65	57	7	81	43	39	81
OECD Europe	59	35	21	71	29	37	84	23	56	89

Note: See the Annex for country notes.

Source: OECD (2015), "Wastewater Treatment (% Population Connected)", OECD Environment Statistics (database).

StatLink <http://dx.doi.org/10.1787/888933262316>



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