

# 1. ENVIRONMENTAL TRENDS

## Use of freshwater resources

Freshwater resources are of major environmental, economic and social importance. Their distribution varies widely among and within countries. If a significant share of a country's water comes from transboundary rivers, tensions between countries can arise. In arid regions, freshwater resources may at times be limited to the extent that demand for water can be met only by going beyond sustainable use.

Freshwater abstractions, particularly for public water supply, irrigation, industrial processes and cooling of electric power plants, exert a major pressure on water resources, with significant implications for their quantity and quality. Main concerns relate to overexploitation and inefficient use of water and to their environmental and socio-economic consequences.

### Definitions

The indicator presented here refers to the intensity of use of freshwater resources (or water stress). It is expressed as gross abstractions of freshwater taken from ground or surface waters in % of total available renewable freshwater resources (including water inflows from neighbouring countries), in % of internal resources (i.e. precipitation – evapotranspiration), and per capita. Water used for hydro-electricity generation (which is considered an in situ use) is excluded. Water abstractions by major primary uses and abstractions for public supply, expressed in m<sup>3</sup> per capita per day, are given as complements.

This indicator gives insights into quantitative aspects of water resources, but may hide important variations at sub-national (e.g. river basin) level.

### Overview

Over the last century, the estimated growth in global water demand was more than double the rate of population growth, with agriculture being the largest user of water.

In the 1980s, some countries stabilised their abstractions through more efficient irrigation techniques, the decline of water-intensive industries, increased use of more efficient technologies and reduced losses in pipe networks. Since the mid-1990s, OECD-wide trends in water abstractions have been generally stable. In some countries this is due to increased use of alternative water sources, including water reuse and desalination.

The use of irrigation water in the OECD area slightly declined compared to agricultural production, but in about half of the countries it increased driven by expansion in the irrigated area. In semi-arid areas in North America and the Mediterranean region, ground-water sustains an increasing share of irrigation.

Water stress levels vary greatly among and within countries. Most face seasonal or local water quantity

problems, and several have extensive arid or semi-arid regions where water availability is a constraint on economic development. In more than one-third of OECD countries, freshwater resources are under medium to high stress. In a few countries water resources are abundant and population density is low.

### Comparability

Information on the use of water resources can be derived from water resource account. It is available for most OECD countries, but often incomplete. The definitions and estimation methods employed may vary considerably from country to country and over time. In general, data availability and quality are best for water abstractions for public supply. For some countries the data refer to water permits and not to actual abstractions.

OECD totals are estimates based on linear interpolations to fill missing values, and exclude Chile. Data for the United Kingdom refer to England and Wales only.

Latest year available: data prior to 2009 were not considered.

For additional notes, see the Annex.

### Sources

OECD (2015), "Water: Freshwater Abstractions", *OECD Environment Statistics* (database), <http://dx.doi.org/10.1787/data-00602-en>.

OECD (2014), "Water: Freshwater Resources", *OECD Environment Statistics* (database), <http://dx.doi.org/10.1787/data-00603-en>.

FAO (2015), *AquaStat* (database), [www.fao.org/nr/water/aqua-stat/main/index.stm](http://www.fao.org/nr/water/aqua-stat/main/index.stm).

FAO (2015), *FAOSTAT* (database), <http://faostat3.fao.org>.

### Further information

OECD Work on Water, [www.oecd.org/environment/resources/water.htm](http://www.oecd.org/environment/resources/water.htm).

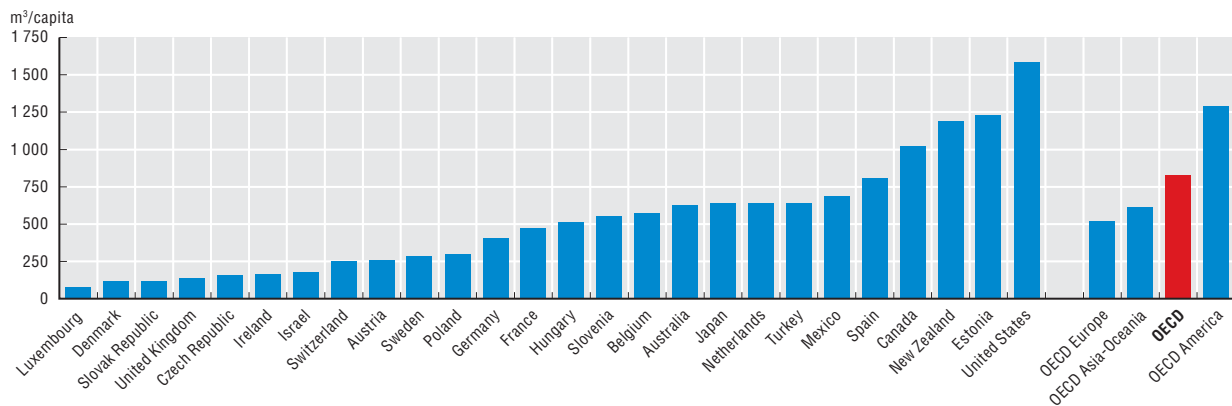
OECD (2015), "Water Resources Allocation: Sharing Risks and Opportunities", *OECD Studies on Water*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264229631-en>.

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United Nations WWAP (World Water Assessment Programme) (2015), *The United Nations World Water Development Report 2015: Water for a Sustainable World*, Paris, UNESCO.

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

Figure 1.17. Gross freshwater abstractions per capita



Source: OECD (2015), "Water: Freshwater Abstractions", OECD Environment Statistics (database).

StatLink <http://dx.doi.org/10.1787/888933261841>

Table 1.5. Freshwater resources and abstractions

	Intensity of use of freshwater resources						Irrigation			
	Abstractions as % of available resources			Abstractions per capita			Abstractions per area of irrigated land	Irrigated area as % of arable land		
	%	Absolute change		m³/capita/year	% change		m³/ha/year	%	% change	
		2013 or latest	Since 1990		Since 2000	Since 1990			Since 2000	2013 or latest
Australia	3.6	..	-2.1	630	..	-45	2 480	5	41	7
Austria	2.9	..	..	260	..	..	150	8	77	27
Belgium	31.0	..	-6.8	570	..	-22	..	3	-25	-25
Canada	1.0	-0.3	..	1 030	-36	..	1 730	2	24	14
Chile	..	..	..	..	..	..	..	62	64	19
Czech Republic	10.3	..	-1.7	160	..	-16	780	1	12	-6
Denmark	4.0	-3.7	-0.5	120	-52	-14	220	18	8	-8
Estonia	13.2	-12.8	1.3	1 230	-40	15	0	1	20	36
Finland	..	..	..	..	..	..	0	3	9	-24
France	15.7	-4.0	-1.4	470	-29	-15	1 120	13	30	0
Germany	17.2	-6.9	-2.6	400	-30	-12	280	5	39	34
Greece	..	..	..	..	..	..	5 060	42	48	23
Hungary	4.3	-1.1	-1.3	510	-16	-21	1 270	4	-3	-24
Iceland	..	..	..	..	..	..	..	..	..	..
Ireland	1.5	..	..	170	..	..	..	..	..	..
Israel	50.2	-16.5	-14.5	180	-54	-36	..	58	22	20
Italy	..	..	..	..	..	..	..	41	28	21
Japan	19.7	-1.8	-1.3	640	-11	-7	21 540	54	0	-1
Korea	..	..	..	..	..	..	..	45	-4	-2
Luxembourg	2.6	..	-1.1	80	..	-43	..	..	..	..
Mexico	17.3	..	2.4	690	..	-1	9 450	25	7	1
Netherlands	11.7	3.0	2.0	640	21	15	47	46	-3	-12
New Zealand	1.1	..	0.4	1 190	..	45	4 120	111	965	503
Norway	..	..	..	..	..	..	..	11	-2	-27
Poland	17.8	-6.2	-1.2	300	-26	-6	820	1	-58	38
Portugal	..	..	..	..	..	..	6 960	30	7	-9
Slovak Republic	0.8	-1.8	-0.7	120	-71	-46	240	6	-59	-47
Slovenia	3.6	..	..	550	..	..	330	3	256	105
Spain	33.6	0.4	0.7	810	-15	-11	6 150	22	33	10
Sweden	1.4	-0.1	0.0	290	-17	-5	380	6	57	24
Switzerland	3.8	-1.3	-1.1	250	-37	-30	2 220	15	151	68
Turkey	20.0	..	..	640	..	..	7 790	22	49	22
United Kingdom	11.0	-6.0	-5.0	137	-42	-36	1 240	2	-35	-63
United States	19.8	1.1	0.3	1 580	-15	-7	6 010	17	17	10
<b>OECD</b>	<b>9.9</b>	<b>0.3</b>	<b>0.0</b>	<b>829</b>	<b>-13</b>	<b>-8</b>	<b>6 821</b>	<b>15</b>	<b>19</b>	<b>9</b>
OECD America	9.4	0.4	0.2	1 291	-19	-10	6 990	15	15	8
OECD Asia-Oceania	9.6	0.1	-0.8	616	-9	-12	11 516	12	17	8
OECD Europe	11.5	-0.1	0.1	518	-11	-5	4 966	16	28	10

Note: See the Annex for country notes.

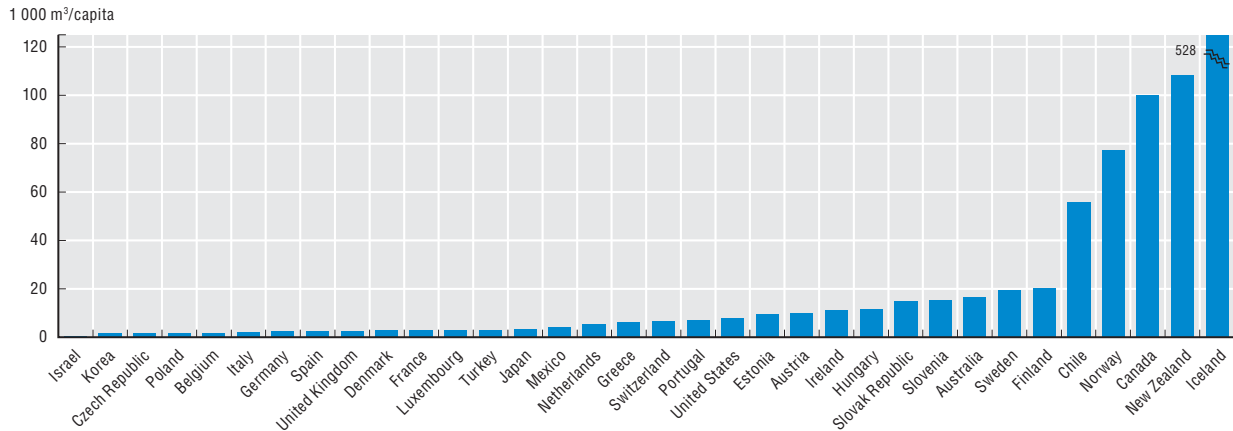
Source: FAO (2015), FAOSTAT database; OECD (2015), "Water: Freshwater Abstractions", "Water: Freshwater Resources", OECD Environment Statistics (database).

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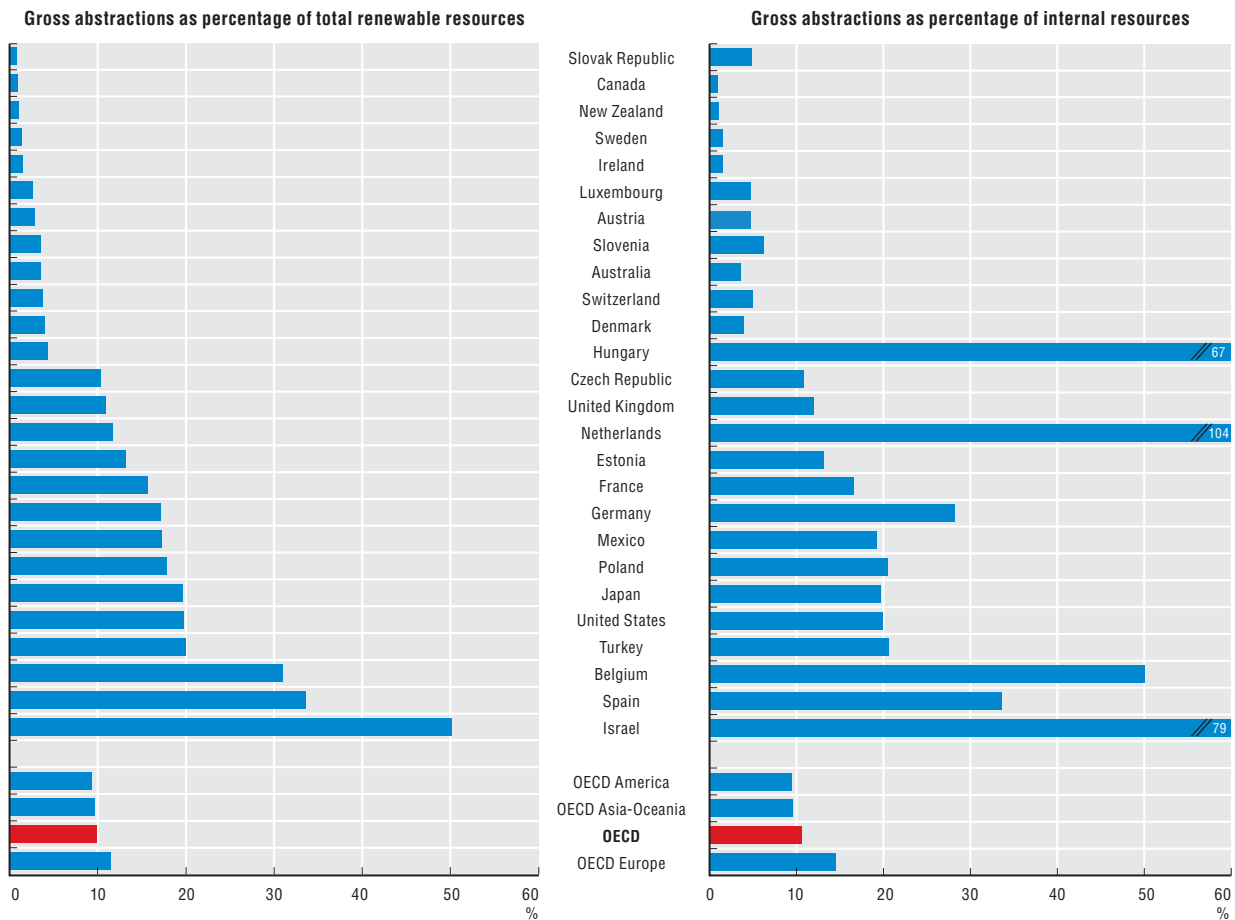
Figure 1.18. Total renewable freshwater resources per capita, long-term annual average values



Source: OECD (2015), "Water: Freshwater Resources", OECD Environment Statistics (database).

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Figure 1.19. Intensity of use of freshwater resources, 2013 or latest available year

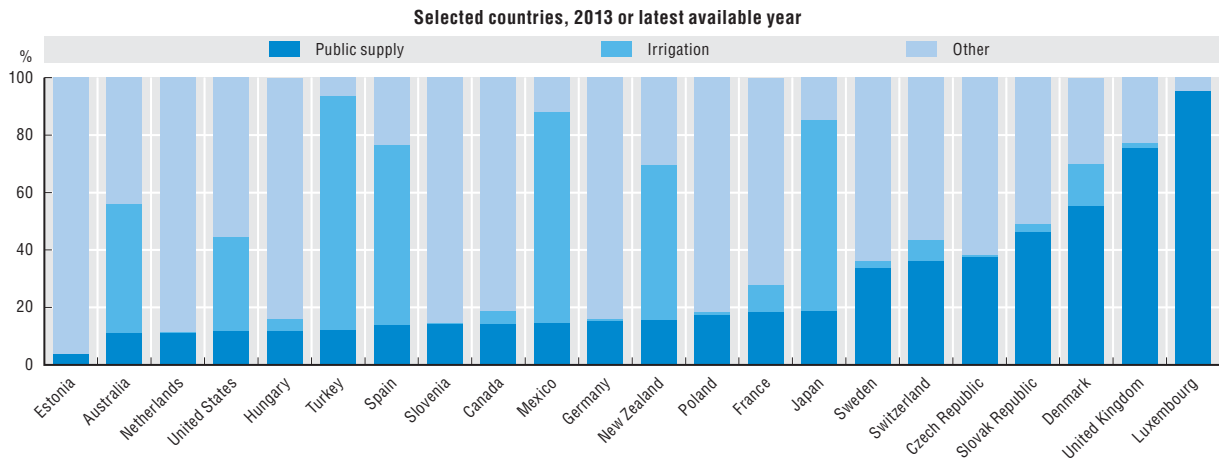


\* Water stress: < 10%: low; 10-20%: medium-high; > 40%: high.

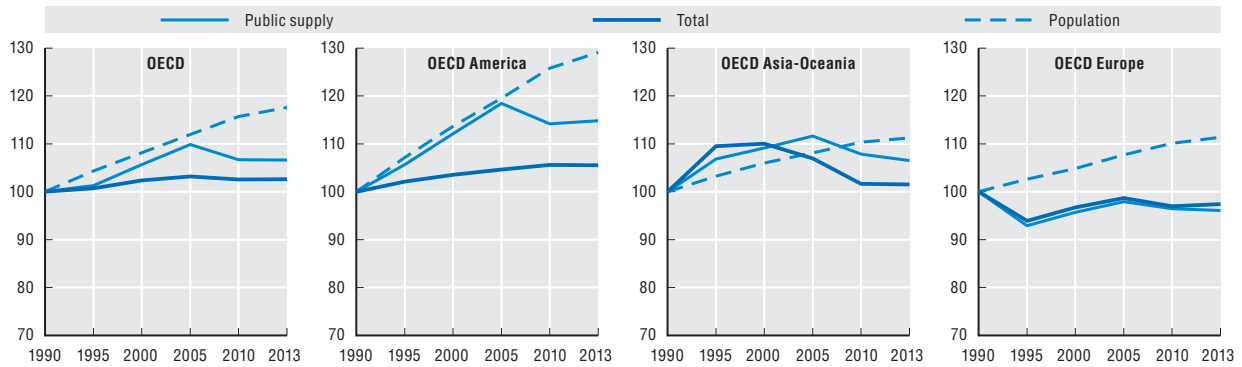
Source: OECD (2015), "Water: Freshwater Abstractions", OECD Environment Statistics (database); OECD (2015), "Water: Freshwater Resources", OECD Environment Statistics (database).

StatLink <http://dx.doi.org/10.1787/888933261866>

Figure 1.20. Freshwater abstractions by major primary uses

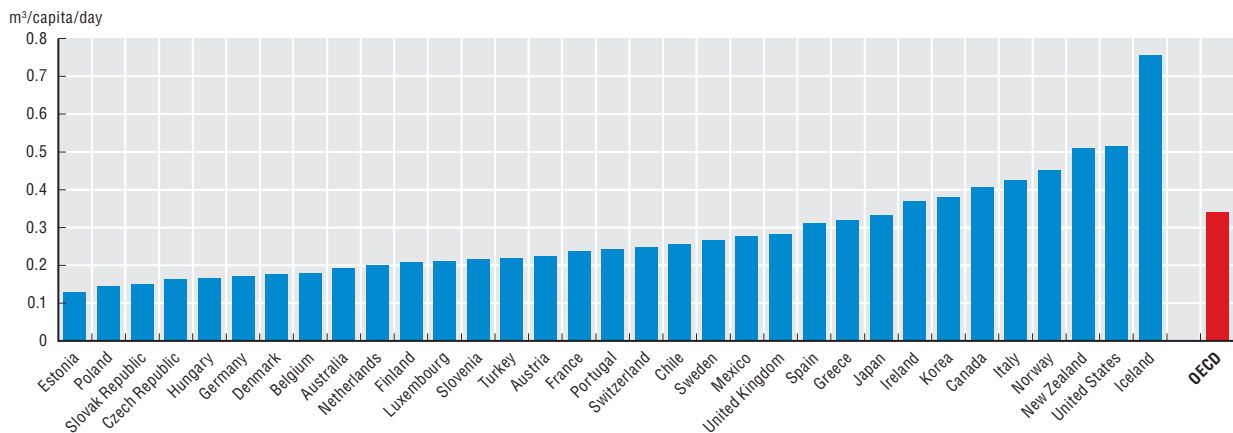


Trends in freshwater abstraction, 1990 = 100



Source: OECD (2015), "Water: Freshwater Abstractions", OECD Environment Statistics (database); OECD (2015), OECD Historical Population Data and Projections Statistics (database). StatLink <http://dx.doi.org/10.1787/888933261871>

Figure 1.21. Abstractions for public supply per capita, 2013 or latest available year



Source: OECD (2015), "Water: Freshwater Abstractions", OECD Environment Statistics (database).

StatLink <http://dx.doi.org/10.1787/888933261884>



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