

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 supplies, 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 hydroelectricity generation (which is considered an in situ use) is excluded. Water abstractions by major primary uses and water abstractions for public supply, expressed in m³ per capita per day, are given as a complement.

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

Overview

Most OECD countries increased their water abstractions throughout the 1970s in response to demand by the agricultural and energy sectors. In the 1980s, some countries stabilised their abstractions through more efficient irrigation techniques, the decline of water-intensive industries (e.g. mining, steel), increased use of more efficient technologies and reduced losses in pipe networks. Since the 1990s 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.

Indicators of water stress show great variations among and within individual countries. In about 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.

Although at national level most OECD countries show sustainable use of water resources, most still 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.

At world level, it is estimated that, over the last century, the growth in water demand was more than double the rate of population growth, with agriculture being the largest user of water. Since 2000, the use of irrigation water in the OECD area slightly declined compared to agricultural production, but in about half of the OECD countries agricultural water use increased driven by expansion in the irrigated area.

By 2050, global water demand is projected to increase by about 55% due to growing demand from manufacturing, thermal power plants and domestic use (OECD, 2012a).

Comparability

Information on the intensity of the use of water resources can be derived from water resource accounts and is available for most OECD countries. 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, which represent about 15% of the total water abstracted in OECD countries. 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. Data for the United Kingdom refer to England and Wales only. Breaks in time series exist for Estonia, France, Hungary, Luxembourg, Mexico, Turkey and the United Kingdom.

For additional notes, see Annex B.

Sources

OECD Environment Statistics (database), <http://dx.doi.org/10.1787/data-00602-en>.

FAO, AquaStat (database), www.fao.org/nr/water/aquastat/main/index.stm.

The Water Information System for Europe (WISE), <http://water.europa.eu/>.

Further information

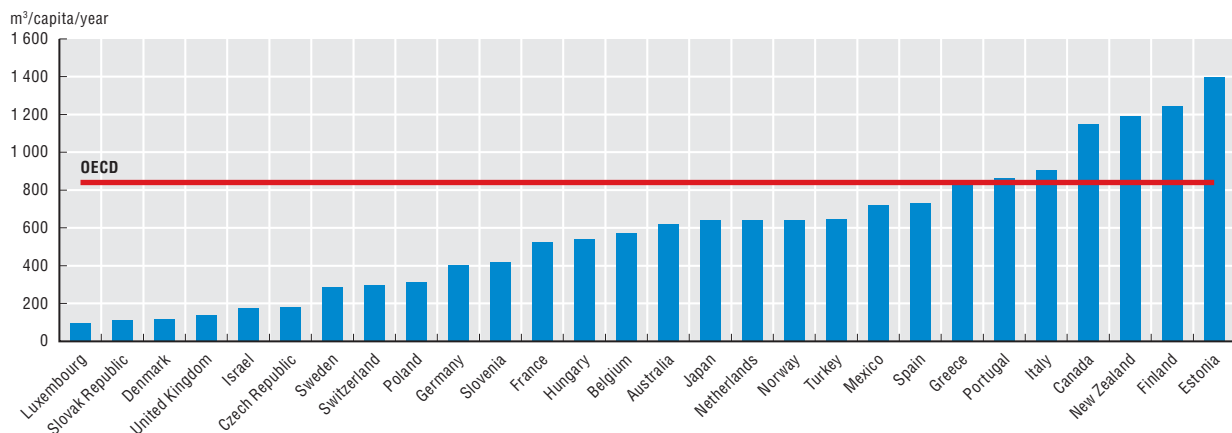
OECD (2014), *Water and Green Growth*, OECD Green Growth Studies, OECD Publishing, Paris, forthcoming.

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

OECD (2012b), "Review of the OECD Environmental Strategy for the First Decade of the 21st Century", OECD, Paris, www.oecd.org/env/50032165.pdf.

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

Figure 1.15. **Gross freshwater abstractions per capita, latest available year**



Source: OECD Environment Statistics (database).

StatLink <http://dx.doi.org/10.1787/888932976916>

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 cultivated land	
	%	Absolute change	m³/cap/year	% change	m³/ha/year	%	% change
	2011 or latest available	Since the mid-1990s	2011 or latest available	Since the mid-1990s	2011 or latest available	2011	1990-2011
Australia ¹	4	-3	622	-53	2 480	5	39
Austria	..	..	..	..	..	8	76
Belgium ¹	31	-10	572	-30	1 606	3	..
Canada	1	0	1 150	-29	2 400	2	29
Chile	..	..	..	..	12 050	107	104
Czech Republic ¹	12	-5	180	-32	680	1	..
Denmark ¹	4	-1	120	-29	430	17	5
Estonia	15	1	1 398	13	0	1	..
Finland ¹	6	4	1 246	146	0	3	9
France	18	1	526	1	1 170	13	31
Germany	17	-6	400	-25	350	4	10
Greece ¹	13	2	852	16	5 060	43	49
Hungary	5	0	541	-6	270	4	-2
Iceland	..	..	..	..	..	..	..
Ireland	..	..	..	..	..	..	..
Israel	73	-26	176	-46	300	59	23
Italy	31	..	906	..	..	42	32
Japan	20	-2	639	-10	21 550	54	0
Korea ¹	..	..	..	..	..	46	-1
Luxembourg	3	-1	95	-31	..	..	..
Mexico ¹	18	2	721	-10	9 180	23	8
Netherlands ¹	12	5	642	53	170	45	-6
New Zealand ¹	1	..	1 191	..	4 530	114	998
Norway ¹	1	0	643	16	980	11	-2
Poland ¹	19	-2	312	-8	720	1	-51
Portugal ¹	12	..	863	..	6 970	30	7
Slovak Republic ¹	1	-1	110	-58	120	7	..
Slovenia	3	..	418	..	400	4	..
Spain	30	0	728	-14	5 840	21	26
Sweden	1	0	287	-7	378	6	56
Switzerland ¹	4	-1	296	-19	..	13	123
Turkey ¹	20	6	643	15	7 793	22	50
United Kingdom ¹	11	-3	137	-27	1 240	2	-34
United States	..	..	..	..	..	16	14
OECD¹	10	0	840	-5	7 000	15	19

1. See Annex B for country notes.

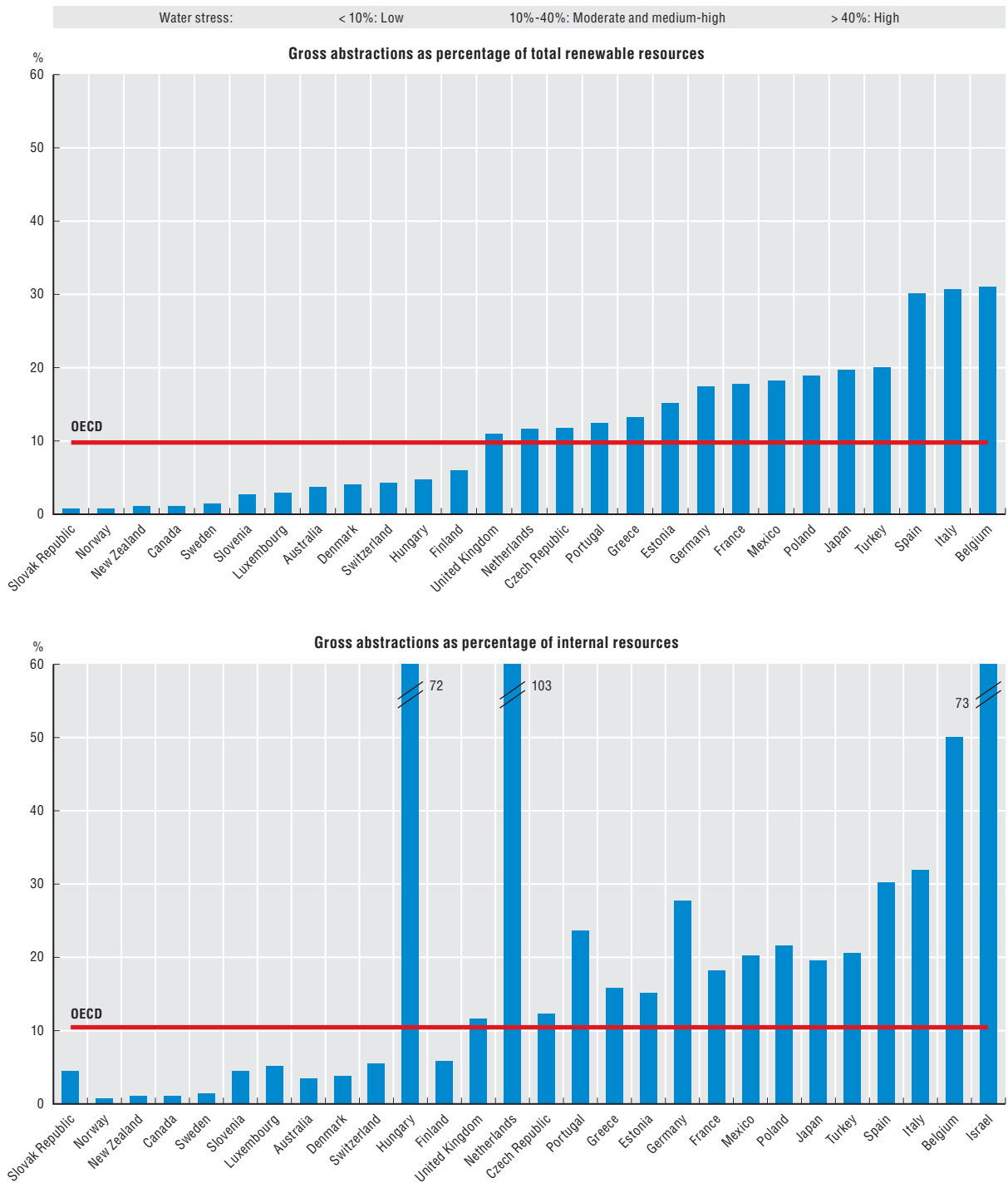
Source: OECD Environment Statistics (database); FAO, AquaStat (database).

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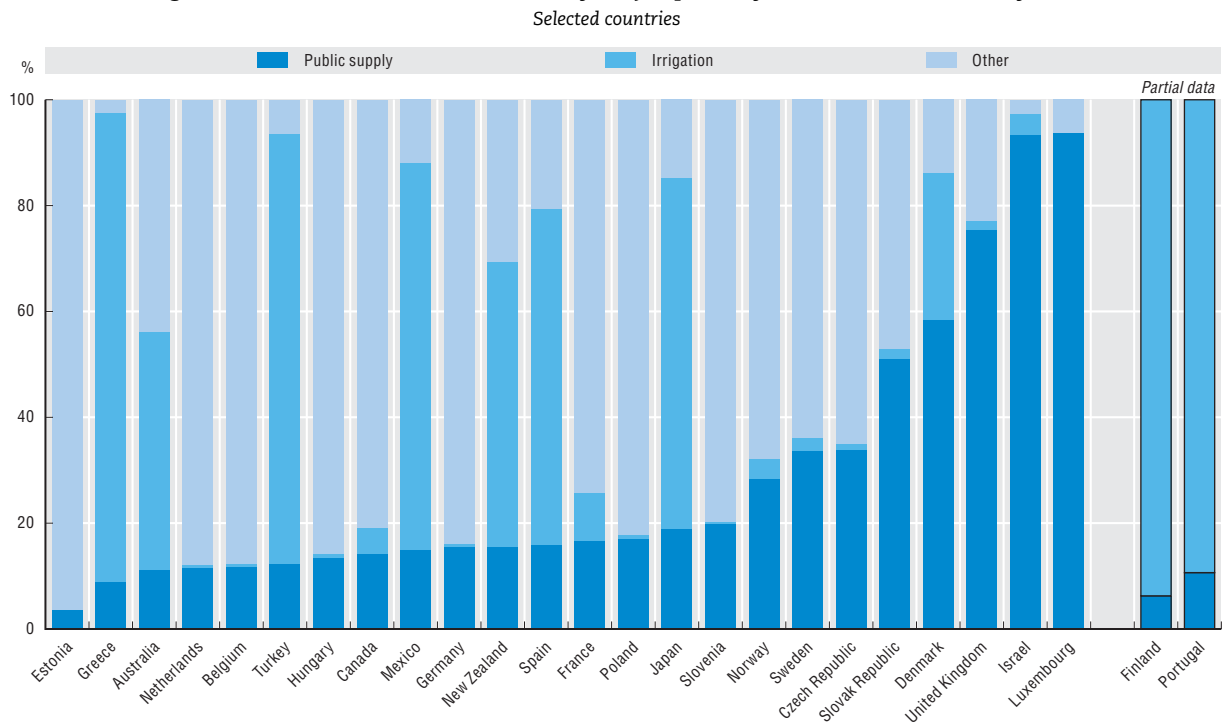
Figure 1.16. Intensity of use of freshwater resources



Source: OECD Environment Statistics (database).

StatLink <http://dx.doi.org/10.1787/888932976935>

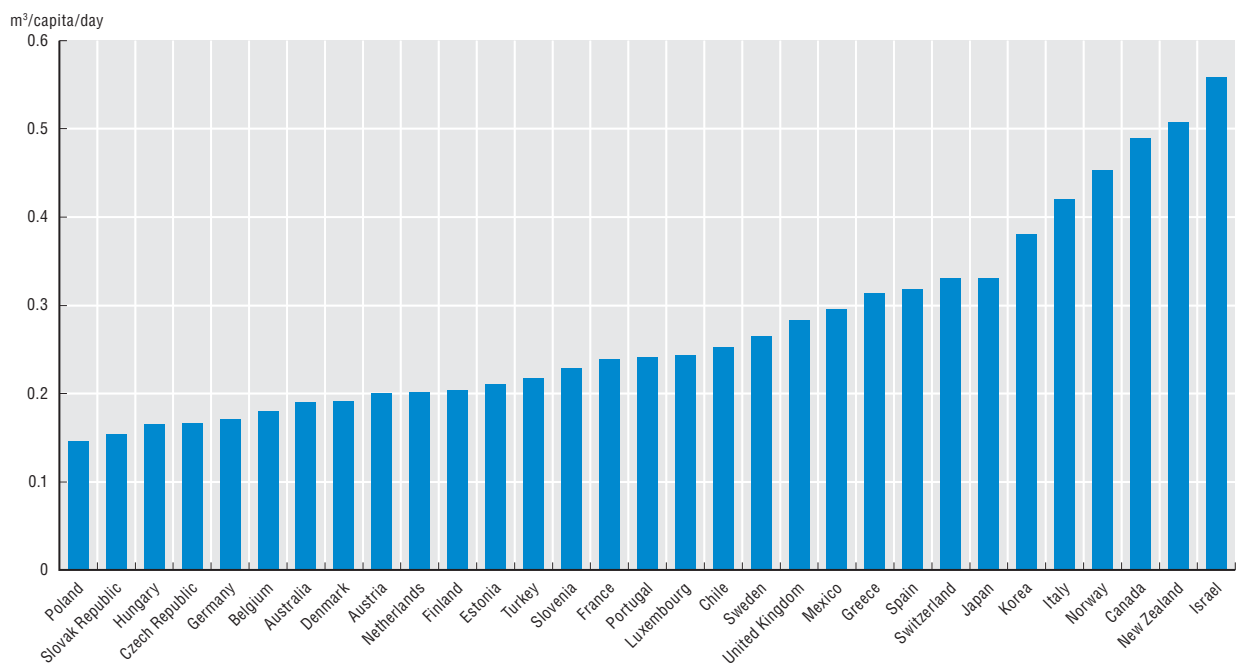
Figure 1.17. **Freshwater abstractions by major primary uses, latest available year**



Source: OECD Environment Statistics (database).

StatLink <http://dx.doi.org/10.1787/888932976954>

Figure 1.18. **Abstractions for public supply per capita, 2010 or latest available year**



Source: OECD Environment Statistics (database).

StatLink <http://dx.doi.org/10.1787/888932976973>



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