

## ABSTRACTIONS OF FRESHWATER

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.

### Definition

Water abstractions refer to freshwater taken from ground or surface water sources, either permanently or temporarily, and conveyed to the place of use. If the water is returned to a surface water source, abstraction of the same water by the downstream user is counted again in compiling total abstractions: this may lead to double counting.

### 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 declined slightly 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, groundwater 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.

Mine water and drainage water are included, whereas water used for hydroelectricity generation (which is considered an *in situ* use) is normally excluded.

Data are for gross abstractions of freshwater taken from ground or surface waters and per capita

### 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.

### Sources

- OECD (2016), "Water", OECD Environment Statistics (database).
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### Further information

#### Analytical publications

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- OECD (2015), *Water Resources Allocation: Sharing Risks and Opportunities*, OECD Publishing.
- OECD (2015), *OECD Studies on Water*, OECD Publishing.
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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.

#### Websites

- Environmental indicators, modelling and outlooks, [www.oecd.org/env/indicators-modelling-outlooks](http://www.oecd.org/env/indicators-modelling-outlooks).
- The water challenge: OECD's response, [www.oecd.org/water](http://www.oecd.org/water).

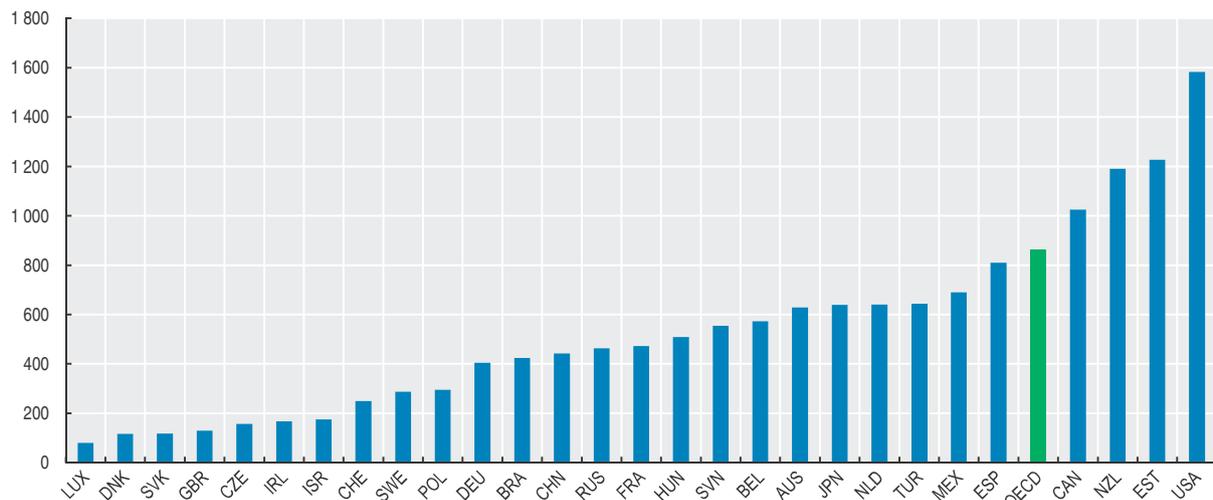


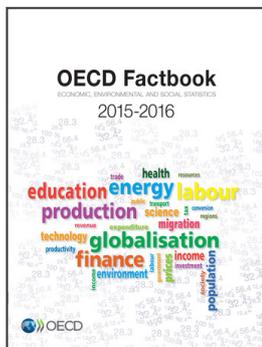
## ABSTRACTIONS OF FRESHWATER

## Water abstractions

|                    | Water abstractions per capita<br>m <sup>3</sup> per capita |       |       |       |       |                               | Total abstractions<br>millions m <sup>3</sup> |         |         |         |         |                               |
|--------------------|--|-------|-------|-------|-------|-------------------------------|---|---------|---------|---------|---------|-------------------------------|
|                    | 1985   | 1990  | 1995  | 2000  | 2005  | 2013 or latest available year | 1985  | 1990    | 1995    | 2000    | 2005    | 2013 or latest available year |
| Australia          | 925  | ..    | 1 337 | ..    | 958   | 629                           | 14 600  | ..      | 24 071  | ..      | 19 336  | 14 060                        |
| Austria            | 473  | 496   | 434   | ..    | ..    | ..                            | 3 580   | 3 807   | 3 449   | ..      | ..      | ..                            |
| Belgium            | ..   | ..    | 814   | 735   | 610   | 572                           | ..  | ..      | 8 248   | 7 536   | 6 389   | 6 176                         |
| Canada             | ..   | ..    | 1 612 | ..    | 1 301 | 1 025                         | ..  | ..      | 47 250  | ..      | 41 955  | 35 351                        |
| Chile              | ..   | ..    | ..    | ..    | ..    | ..                            | ..  | ..      | ..      | ..      | ..      | ..                            |
| Czech Republic     | 356  | 350   | 266   | 187   | 190   | 157                           | 3 679   | 3 623   | 2 743   | 1 918   | 1 949   | 1 650                         |
| Denmark            | 333  | 245   | 169   | 136   | 119   | 117                           | 1 705   | 1 261   | 887     | 726     | 644     | 652                           |
| Estonia            | ..   | 2 049 | 1 239 | 1 066 | 1 168 | 1 227                         | ..  | 3 215   | 1 780   | 1 471   | 1 578   | 1 631                         |
| Finland            | 816  | 471   | 506   | ..    | ..    | ..                            | 4 000   | 2 347   | 2 586   | ..      | ..      | ..                            |
| France             | 631  | 665   | ..    | 554   | 554   | 472                           | 34 887  | 37 687  | ..      | 32 715  | 33 872  | 30 006                        |
| Germany            | ..   | ..    | 531   | ..    | ..    | 404                           | ..  | ..      | 43 374  | ..      | ..      | 33 036                        |
| Greece             | 553  | 774   | 731   | 909   | 870   | ..                            | 5 496   | 7 862   | 7 770   | 9 924   | 9 654   | ..                            |
| Hungary            | 588  | 607   | 579   | 648   | 489   | 509                           | 6 267   | 6 293   | 5 976   | 6 621   | 4 929   | 5 051                         |
| Iceland            | 464  | 655   | 617   | 580   | 558   | ..                            | 112   | 167     | 165     | 163     | 165     | ..                            |
| Ireland            | ..   | ..    | ..    | ..    | 193   | 167                           | ..  | ..      | ..      | ..      | 799     | 757                           |
| Israel             | ..   | 382   | 327   | 275   | 249   | 176                           | ..  | 1 780   | 1 812   | 1 727   | 1 728   | 1 340                         |
| Italy              | ..   | ..    | ..    | ..    | ..    | ..                            | ..  | ..      | ..      | ..      | ..      | ..                            |
| Japan              | 720  | 719   | 708   | 685   | 653   | 639                           | 87 209  | 88 906  | 88 881  | 86 972  | 83 427  | 81 454                        |
| Korea              | 455  | 480   | 525   | ..    | 607   | ..                            | 18 580  | 20 570  | 23 670  | ..      | 29 198  | ..                            |
| Luxembourg         | 183  | ..    | 138   | ..    | ..    | 80                            | 67  | ..      | 57      | ..      | ..      | 43                            |
| Mexico             | ..   | ..    | 780   | 698   | 714   | 690                           | ..  | ..      | 73 672  | 70 428  | 76 508  | 81 651                        |
| Netherlands        | ..   | ..    | ..    | ..    | 707   | 640                           | ..  | ..      | ..      | ..      | 11 546  | 10 724                        |
| New Zealand        | ..   | ..    | ..    | ..    | ..    | 1 191                         | ..  | ..      | ..      | ..      | ..      | 5 201                         |
| Norway             | 488  | ..    | ..    | ..    | 619   | ..                            | 2 025   | ..      | ..      | ..      | 2 864   | ..                            |
| Poland             | 441  | 399   | 338   | 314   | 302   | 295                           | 16 408  | 15 164  | 12 924  | 11 994  | 11 521  | 11 242                        |
| Portugal           | 200  | ..    | ..    | ..    | ..    | ..                            | 2 003   | ..      | ..      | ..      | ..      | ..                            |
| Slovak Republic    | 399  | 399   | 258   | 217   | 169   | 118                           | 2 061   | 2 116   | 1 386   | 1 171   | 907     | 637                           |
| Slovenia           | ..   | ..    | ..    | ..    | 461   | 554                           | ..  | ..      | ..      | ..      | 923     | 1 156                         |
| Spain              | 1 204  | ..    | 845   | 907   | 876   | 809                           | 46 250  | ..      | 33 288  | 36 525  | 38 029  | 37 349                        |
| Sweden             | 356  | 347   | 309   | 303   | 291   | 287                           | 2 970   | 2 968   | 2 725   | 2 688   | 2 631   | 2 690                         |
| Switzerland        | 409  | 397   | 365   | 357   | 337   | 249                           | 2 646   | 2 665   | 2 571   | 2 564   | 2 507   | 1 983                         |
| Turkey             | 387  | 500   | 542   | 648   | 620   | 642                           | 19 400  | 28 073  | 33 482  | 43 650  | 44 684  | 46 956                        |
| United Kingdom     | ..   | ..    | ..    | ..    | 174   | 129                           | ..  | ..      | ..      | ..      | 10 324  | 8 214                         |
| United States      | 1 953  | 1 852 | 1 750 | 1 710 | 1 634 | 1 583                         | 464 737                                       | 462 250 | 466 118 | 482 558 | 482 972 | 489 528                       |
| EU 28              | ..   | ..    | ..    | ..    | ..    | ..                            | ..  | ..      | ..      | ..      | ..      | ..                            |
| OECD               | 988  | 949   | 928   | 901   | 872   | 860                           | ..  | ..      | ..      | ..      | ..      | ..                            |
| Brazil             | ..   | ..    | ..    | ..    | 305   | 424                           | ..  | ..      | ..      | ..      | 56 019  | 83 300                        |
| China              | ..   | ..    | ..    | ..    | 426   | 442                           | ..  | ..      | ..      | ..      | 561 100 | 608 660                       |
| India              | ..   | ..    | ..    | ..    | ..    | ..                            | ..  | ..      | ..      | ..      | ..      | ..                            |
| Indonesia          | ..   | ..    | ..    | ..    | ..    | ..                            | ..  | ..      | ..      | ..      | ..      | ..                            |
| Russian Federation | ..   | ..    | ..    | ..    | 518   | 463                           | ..  | ..      | ..      | ..      | 74 366  | 66 296                        |
| South Africa       | ..   | ..    | ..    | ..    | ..    | ..                            | ..  | ..      | ..      | ..      | ..      | ..                            |

 1 2 <http://dx.doi.org/10.1787/888933336789>

 Water abstractions  
 m<sup>3</sup>/capita, 2013 or latest available year

 1 2 <http://dx.doi.org/10.1787/888933335712>



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