# Test Wendy 3

Statistics Explained

*Data extracted in January 2022*
*Planned article update: 3 February 2022*

Water is essential for life, it is an indispensable resource for the economy, and also plays a fundamental role in the climate regulation cycle. The management and protection of water resources, of fresh and salt water ecosystems, and of the water we drink and bathe in is therefore one of the cornerstones of environmental protection. This is why the EU's water policy over the past 30 years is focused on the protection of water resources, ensuring that good quality water, in sufficient quantity, is available for all legitimate uses. The state of play is described by the by the fifth implementation report (2019) of the Water Framework Directive (2000), the central piece of environmental legislation concerning European waters. Recent insight about the quality of existing water related EU legislation and perspectives for its future development of is offered by the Fitness check of the Water Framework Directive and related legislation (2019).

This article presents water statistics in the European Union (EU) . It is based on data on freshwater resources , water abstraction , water use and wastewater treatment and disposal.

## Water as a resource

Water resources refer to the freshwater available for use in a territory and include surface waters (lakes, rivers and streams) and groundwater . Renewable water resources are calculated as the sum of internal flow (which is precipitation minus actual evapotranspiration ) and external inflow . Freshwater availability in a country is primarily determined by climate conditions and transboundary water flows (in other words, external inflows), while for total amounts, the size of the country matters. Freshwater resources per inhabitant are considered an important indicator for measuring the sustainability of water resources. When broken down by population, most countries' water resources range between 1 000 and 20 000 $m^3$ per inhabitant, but in water-rich countries an inhabitant's share can be as high as around 29 200;$m^3$ (Croatia) or 45 200 $m^3$ (Norway). According to the World water development report of the United Nations , a country experiences 'water stress' when its annual water resources are below 1 700 $m^3$ per inhabitant; among the EU Member States, this was the case in Poland, Czechia, Cyprus and Malta (where the lowest volume of water resources was recorded, at 164 $m^3$ per inhabitant).

**Renewable freshwater resources - long-term annual average**
(million m³)

| | A. Precipitation | B. Evapotranspiration | C. Internal Flow C=A-B | D. External Inflow | E. Renewable freshwater resources - total E=C+D | F. Renewable freshwater resources per 1000 inhabitants |
|---|---|---|---|---|---|---|
| Belgium | 25 019 | 15 218 | 9 912 | 15 852 | 25 783 | 2.2 |
| Bulgaria | 72 940 | 56 999 | 15 941 | 84 423 | 100 364 | 14.5 |
| Czechia | 54 104 | 38 410 | 15 694 | 575 | 16 260 | 1.5 |
| Denmark | 38 485 | 22 145 | 16 340 | 0 (e) | 16 340 | 2.8 |
| Germany | 307 000 | 190 000 | 117 000 | 71 000 | 188 000 | 2.3 |
| Estonia | 29 018 | : | 12 347 | : | 12 347 | 9.3 |
| Ireland | 87 632 | 38 308 | 49 324 | 3 469 | 52 793 | 10.6 |
| Greece | 115 000 | 55 000 | 60 000 | 12 000 | 72 000 | 6.7 |
| Spain | 333 657 | 226 453 | 107 204 | 0 | 107 204 | 2.3 |
| France | 512 563 | 317 327 | 195 236 | 11 000 | 206 236 | 3.1 |
| Croatia (e) | 63 805 | 42 096 | 24 530 | 93 783 | 118 313 | 29.2 |
| Italy | 273 133 | 147 365 | 125 618 | : | : | |
| Cyprus | 3 030 | 2 709 | 321 | 0 | 321 | 0.4 |
| Latvia | 43 220 | 23 573 | 19 647 | 16 992 | 36 639 | 19.3 |
| Lithuania | 44 886 | 31 584 | 13 854 | 8 413 | 22 267 | 8.0 |
| Luxembourg | 2 030 | 1 125 | 905 | 739 | 1 644 | 2.6 |
| Hungary | 55 707 | 48 174 | 7 533 | 108 897 | 116 430 | 11.9 |
| Malta | 177 | 93 | 85 | 0 | 85 | 0.2 |
| Netherlands | 31 618 | 21 293 | 10 325 | 81 500 | 91 825 | 5.3 |
| Austria | 99 800 | 43 100 | 56 700 | 29 300 | : | : |
| Poland | 195 656 | 142 772 | 52 884 | 7 669 | 60 553 | 1.6 |
| Portugal | 82 164 | 43 571 | 38 593 | 35 000 | 73 593 | 7.1 |
| Romania | 154 630 | 115 432 | 39 198 | 366 | 39 564 | 2.1 |
| Slovenia | 31 746 | 13 150 | 18 596 | 13 496 | 32 092 | 15.3 |
| Slovakia | 37 352 | 24 278 | 13 074 | 67 252 | 80 326 | 14.7 |
| Finland | 222 000 | 115 000 | 107 000 | 3 200 | 110 000 | 19.9 |
| Sweden | 345 334 | 164 857 | 180 549 | 14 834 | 195 383 | 18.9 |
| Norway (e) | 374 833 | 141 052 | 233 781 | 9 467 | 243 247 | 45.2 |
| Switzerland | 61 207 | 21 382 | 39 825 | 12 560 | 52 385 | 6.1 |
| United Kingdom | 287 607 | 127 290 | 161 369 | 6 454 | 172 861 | 2.6 |
| North Macedonia | 19 533 | : | : | 1 014 | : | |
| Serbia | 57 029 | 43 714 | 13 315 | 158 330 | 171 644 | 24.9 |
| Turkey | 503 100 | 275 700 | 227 400 | 6 900 | 234 300 | 2.8 |
| Bosnia and Herzegovina (e) | 55 863 | 25 940 | 29 922 | 2 000 | 31 922 | 9.1 |
| Kosovo * | 763 | 478 | 285 | 11 | 296 | 0.2 |

(:) not available; (e): estimated;
The minimum period taken into account for the calculation of long term averages is 20 years
* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence
*Source:* Eurostat (online data codes: env_wat_res and demo_gind)

eurostat

**Table 1: Renewable freshwater resources - long-term annual average (million $m^3$)**

A number of countries receive a significant proportion of their freshwater resources as external inflow (see Figure 1). Among the EU Member States, Hungary and the Netherlands had the highest dependency on transboundary water resources, as the long-term average of external inflow accounted for 93.5 % and 88.8 % of their total freshwater resources respectively; the share in Serbia was also very high, reaching 92.2 %. In absolute terms (in other words, the volume of water received), the highest values are recorded for countries in the Danube basin: Hungary (108 897 million $m^3$), Croatia (93 783 million $m^3$) and Bulgaria (84 423 million $m^3$) had the highest external inflows among the EU Member States (see Table 1), although Serbia recorded an even higher volume (158 330 million $m^3$). At the other end of the scale, some countries have no or only negligible external inflow of water: the islands of Malta and Cyprus, as well as Spain and Denmark.

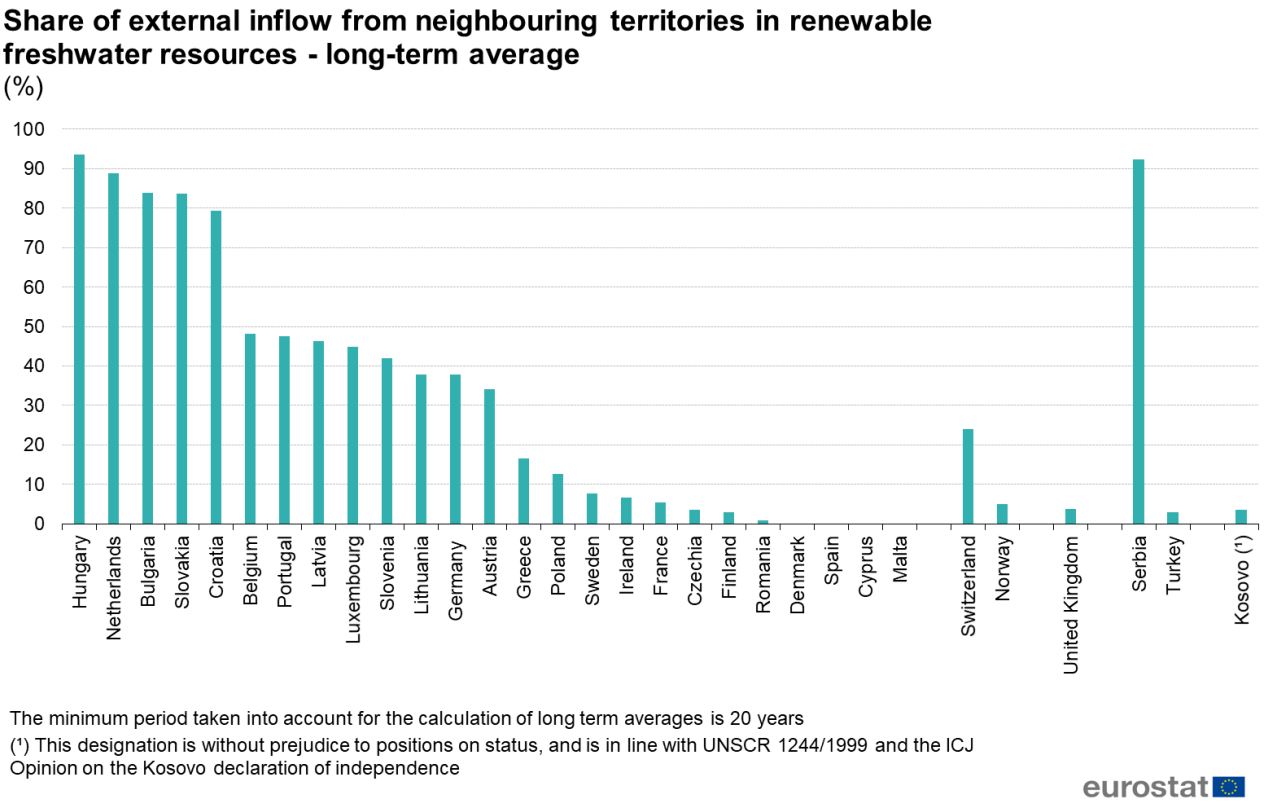



**Figure 1: Share of external inflow from neighbouring territories in renewable freshwater resources - long-term average (%)**

## Water abstraction

There are considerable differences in the amounts of freshwater abstracted within each of the EU Member States, in part reflecting the size of each country and the resources available, but also abstraction practices, climate and the industrial and agricultural structure of each country. Between 2009 and 2019 — see Table 2 for the precise reference period covered for each EU Member State — the total volume of freshwater abstracted rose at its fastest pace in Denmark (+39.8 %), North Macedonia (+52.7nbsp;%) and Turkey (+36.3 %). The largest decreases were recorded in Lithuania (-88.4 %,
due to a reduction of cooling water needs in electricity production), Hungary (-31.5 %) and the Netherlands (-29.1 %).

## Total water abstraction, 2009 - 2019

(million m³)

| | fresh surface water | | fresh groundwater | | non-fresh water | |
|---|---|---|---|---|---|---|
| | 2009 | 2019 | 2009 | 2019 | 2009 | 2019 |
| Belgium (²)(³) | 5 392.8 | 3 771.5 | 612.5 | 629.4 | 0.0 | 0.0 |
| Bulgaria (10) | 5 536.5 | 4 859.6 | 584.3 | 561.7 | 0.4 | 10.4 |
| Czechia | 1 571.5 | 1 147.0 | 375.7 | 359.3 | : | : |
| Denmark | 9.6 | 214.5 | 650.2 | 707.8 | : | : |
| Germany (²)(³)(⁷) | 27 195.0 | 18 362.0 | 5 841.0 | : | : | : |
| Estonia | 1 056.3 | 775.3 | 331.7 | 229.1 | 3.8 | 2.1 |
| Ireland | 561.0 | : | 196.0 | : | : | : |
| Greece (⁸) | 4 409.5 | 3 886.9 | 5 618.5 | 6 228.4 | : | :(c) |
| Spain (⁶) | 29 390.0 | 23 688.6 | 6 732.0 | 5 907.1 | 231.1 | 149.4 |
| France (⁶) | 23 472.6 | 21 183.1 | 6 112.7 | 5 767.7 | 3 951.7 | 5 194.9 |
| Croatia | 261.31(e) | 244.5 | 443.6 | 425.3 | 307.8(e) | 272.1 |
| Italy | : | : | : | : | : | : |
| Cyprus | 39.3 | 67.4 | 145(e) | 135(e) | : | : |
| Latvia | 108.9 | 91.2 | 130.3 | 87.3 | 0.1 | 0.2 |
| Lithuania | 2 251.0 | 117.8 | 159.5 | 162.7 | 2.1 | 63.9 |
| Luxembourg | 20.0 | 26.3 | 27.0 | 23.0 | 0.0 | : |
| Hungary (⁵) | 5 783.9 | 3 718.0 | 526.3 | 606.9 | : | : |
| Malta | 2.62(e) | 2.96(e) | 33.09(e) | 37.94(e) | 497(e) | 186.6 |
| Netherlands (⁶) | 10 395.5 | 6 905.6 | 1 015.3 | 1 187.8 | 3 880.5 | 6 164.7 |
| Austria (⁴)(⁸) | : | : | : | : | 0.0 | 0.0 |
| Poland | 8 931.1 | 7 211.9 | 2 586.2 | 2 550.3 | 208.6 | 225.3 |
| Portugal (¹)(⁴) | : | 2 834.6 | 4 794.0 | 1959.3(b) | : | 1 418.8 |
| Romania | 6 248.0 | 6 264.0 | 628.0 | 705.0 | : | : |
| Slovenia (⁹) | 752.6 | 755.3 | 190.1 | 187.7 | 0.0 | 0.0 |
| Slovakia | 279.8 | 242.5 | 348.3 | 338.7 | : | : |
| Finland | : | : | : | : | : | : |
| Sweden (⁷) | 2 466.0 | : | 345.0 | : | 11 800.0 | : |
| United Kingdom | 6 118.3 | : | 2 162.8 | : | 7 654.0 | : |
| North Macedonia | 885.0 | 1 590.1 | 162.1 | 9.1 | 0.0 | : |
| Albania | : | 799.8 | : | 86.6 | : | : |
| Serbia | 4 114.5 | 5 136.0 | 519.3 | 482.9 | : | : |
| Turkey (⁵) | 32319.1(e) | 44 913.6 | 12811(e) | 16620(e) | : | : |
| Kosovo * (⁷) | 214.5 | 240.3 | : | 18.4 | : | : |

(:) not available; (e): estimated; (s): Eurostat estimate; (b): break in series; '(c): confidential

(¹) Data for 2007 instead of 2009
(²) Surface water: data for 2017 instead of 2019
(³) Groundwater: data for 2018 instead of 2019
(⁴) Data for 2017 instead of 2019
(⁵) Surface water: data for 2018 instead of 2019
(⁶) Data for 2018 instead of 2019
(⁷) Data for 2010 instead of 2009
(⁸) Data for 2011 instead of 2009
(⁹) Non-fresh water: data for 2007 instead of 2009
(10) Non-fresh water: data for 2018 instead of 2019

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence

*Source:* Eurostat (online data code: env_wat_abs)

eurostat

**Table 2: Total water abstraction, 2009 - 2019 (million m³)**

Table 2 also shows the considerable differences between EU Member States as regards the ratio between abstractions from groundwater and surface water resources. Among the EU Member States, surface water abstraction accounted for around 9 times the volume of water abstracted from groundwater resources in Romania and Bulgaria (2019 data). At the other end of the range, the volume of water abstracted from groundwater resources was around 13 times as high as the volume of surface water abstraction in Malta (2019 data, estimated) and 3.3 times in Denmark (2019 data).

Non-freshwater (in other words, sea water and transitional water, such as brackish swamps, lagoons and estuarine areas) is also abstracted in some of the EU Member States (see Table 2). Sweden (11 800 million $m^3$; 2010 data), the Netherlands (6 165 million $m^3$; 2018 data) and France (5 195 million $m^3$; 2018 data) recorded the highest volumes of water abstracted from non-freshwater sources. In Malta, the volume of non-fresh water abstracted even dominates and reaches almost 5 times the volume of fresh water abstracted (2019 data, estimated); is should ne noted that much of this non-fresh water is used for the production of fresh water by desalination.

The long-term development of total freshwater abstraction per inhabitant is shown for selected EU Member States in Figure 3. A comparison of the earliest and latest available annual data between 1990 and 2019 shows that there was a marked decrease in abstraction in many of the Member States, especially those that joined the EU in 2004 or 2007. It is likely that the reduction in abstraction observed in many EU Member States is a result of various factors, including the reduction of water losses through improved maintenance of the networks, the introduction of water-saving household appliances and an increasing level of awareness concerning the cost or value of water and the environmental consequences of wasting it. In smaller countries, the removal of large abstractors, such as the closing-down of the Ignalina nuclear power plant in Lithuania at the end of 2009, can have a marked effect on the curve of total abstraction. The level of abstraction per inhabitant is primarily determined by the dominance of sectors requiring large amounts of water, such as irrigation in agriculture or cooling in electricity generation.

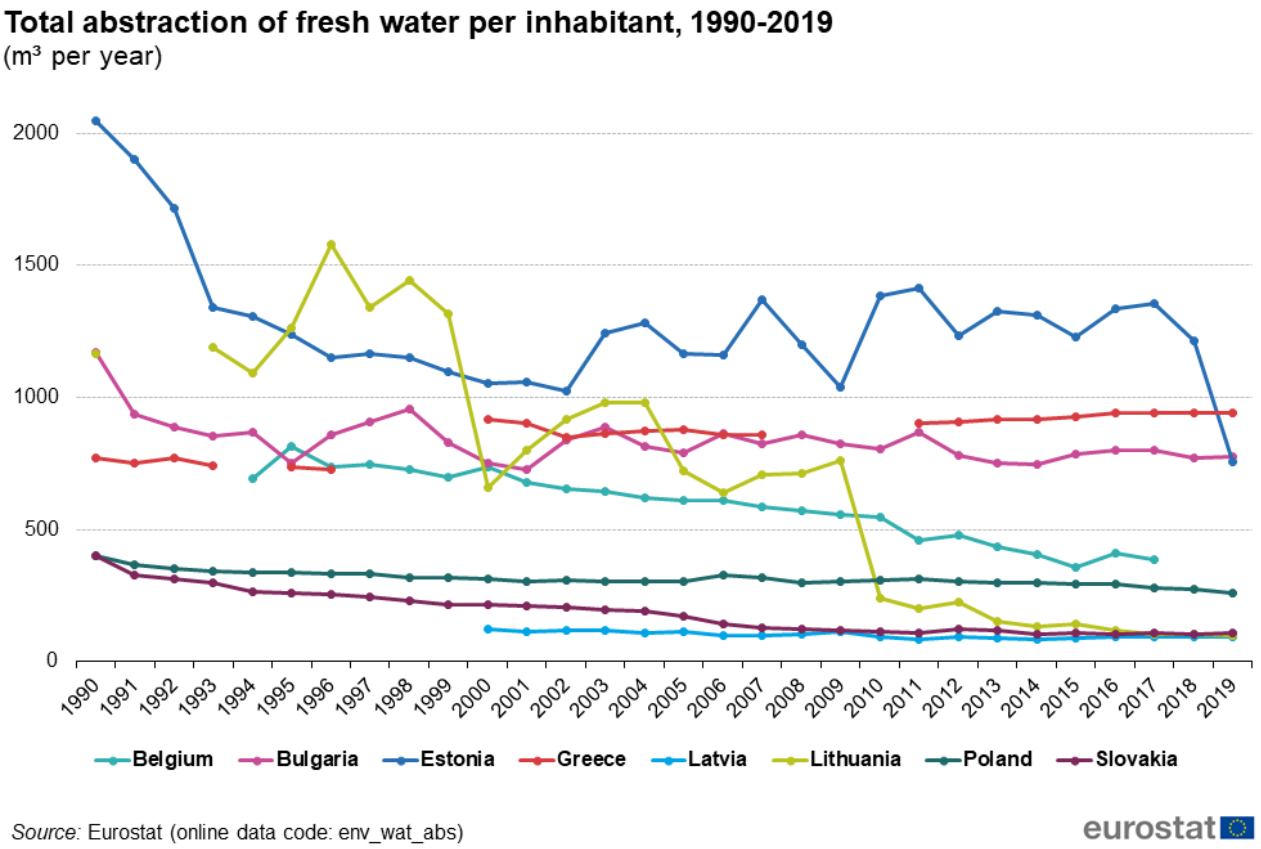



**Figure 2: Total abstraction of fresh water per inhabitant, selected Member States, 1990-2019 ($m^3$ per year)**

## Water uses

The overall use of water resources can be considered sustainable in the long-term in most of Europe. However, specific regions may face problems associated with water scarcity; this is the case particularly in parts of southern Europe, where it is likely that efficiency gains in agricultural water use (as well as other uses) will need to be achieved in order to prevent seasonal water shortages. Regions associated with low rainfall, high population density, or intensive agricultural or industrial activity may also face sustainability issues in the coming years, which could be exacerbated by climate change impacts on water availability and water management practices.

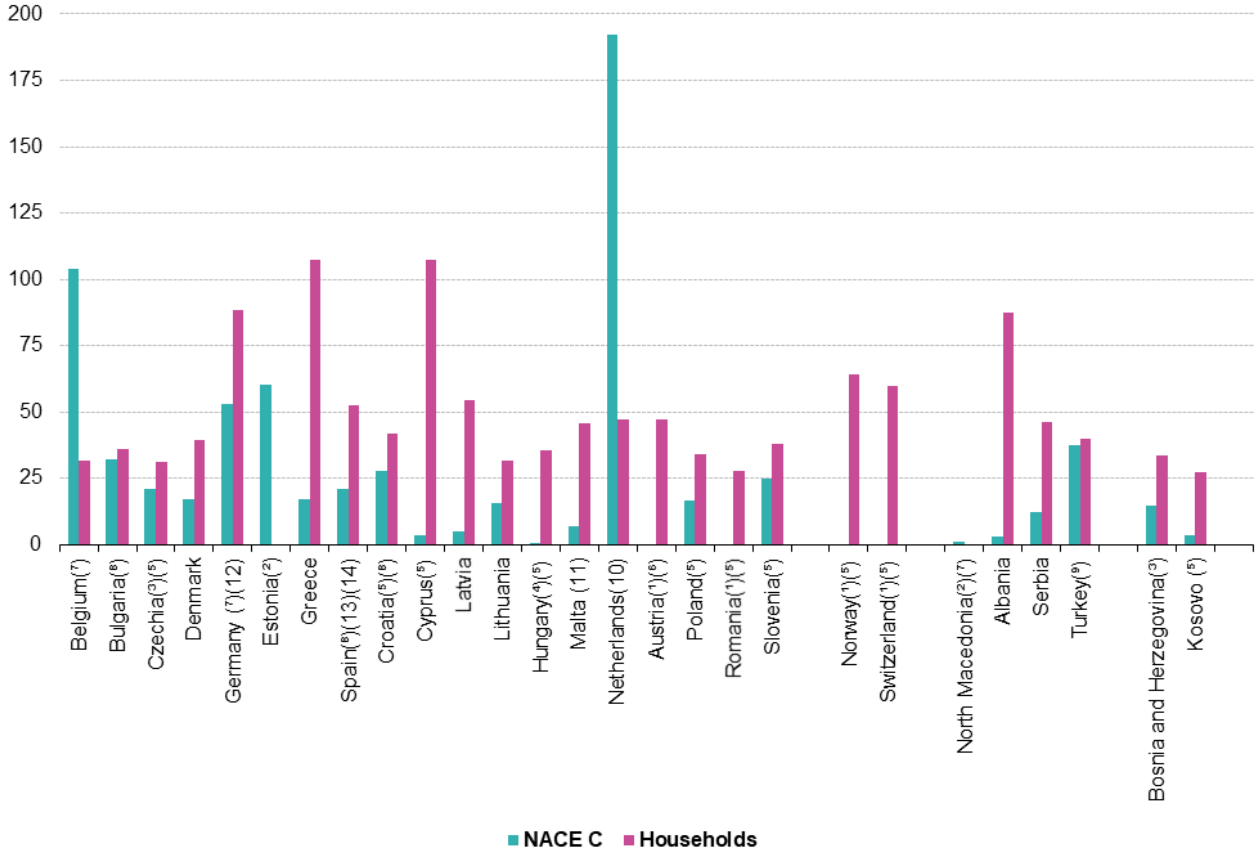
Water is provided either by public water supply (public or private systems with public access) or is self-supplied (for

example, private drills). While the share of the public water supply sector in total water abstraction depends on the economic structure of a given country and can be relatively small, it is nevertheless often the focus of public interest, as it comprises the water volumes that are directly used by the population.

At European level, households and the manufacturing industry (as defined by section C of the classification NACE Rev. 2 ) are both important users of water. However, their relative share varies greatly among European countries: while in the Netherlands and Belgium there is a clear (3-4 fold) dominance of water use by the manufacturing industry compared to the use by households (reflecting in part the relative importance of manufacturing industry in the economy of these countries), it is almost equal in Bulgaria and Turkey. In contrast, in countries with a dominance of the service sector and less industry, the water use by households can outweigh the use by manufacturing by far: Greece (6-fold use by households
compared to NACE C), Cyprus (30-fold) and Latvia (10-fold) are prominent examples among the EU Member States.

**Fresh water use by the manufacturing industry (NACE C) and households, from public water supply and self and other supply, 2019**

m³ per inhabitant




Note: Ireland, France, Italy, Luxembourg, Portugal, Slovakia, Finland, United Kingdom, Iceland: no data available
(1) NACE C - no data available
(2) Households - no data available
(3) NACE C: only self and other water supply
(4) NACE C: only public water supply
(5) Households: only public water supply
(6) 2016 data
(7) 2017 data
(8) 2018 data
(9) NACE C: 2018 data
(10) Households: 2018 data
(11) estimate
(12) Eurostat estimate
(13) NACE C: estimate
(14) self and other supply for households: estimate
*This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence
*Source:* Eurostat (online data codes: env_wat_cat and env_wat_ind and demo_gind)

eurostat

**Figure 3: Fresh water use by the manufacturing industry (NACE C) and households, from public water supply and self and other supply, 2019 (m³ per inhabitant)**

Variation is likewise visible as regards the level of water use from public supply per inhabitant, where for households Greece and Cyprus lead the field among EU Member States with values above 100 m³ per year. On the other hand, Lithuania and Romania manage to get along with roughly a quarter of this top amount! The Netherlands and Belgium recorded the highest values for water use in manufacturing (192 and 174 m³, 2018 and 2017 data, respectively). Overall, the water use by households is much more uniform across Europe than the use by manufacturing, as basic water needs of the population are the same, while the industrial structure, and with that the water intensity of production, varies greatly.

Most EU Member States for which data are available (see Table 3) reported per inhabitant values for household

water use from public water supply to be more or less stable over the last 2 decades (2001-2019). Among the EU Member States, a marked increase could however be observed in Greece, Latvia and Cyprus. While there is no EU Member State with a steep decrease, this can be noted for Switzerland and Albania.

**Household water use from public water supply, 2001-2019**
($m^3$ per inhabitant)

| | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 | 2015 | 2017 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| Belgium | 40.3 | 38.9 | 14.2 | 13.8 | 13.5 | 13.3 | 32.3 | 31.7 | 31.5 | : |
| Bulgaria (1) | 34.1 | 34.5 | 33.7 | 36.7 | 36.4 | 36.2 | 35.9 | 36.0 | 36.3 | 36.2 |
| Czechia | 33.2 | 33.8 | 33.2 | 33.9 | 31.8 | 31.0 | 30.2 | 30.2 | 30.6 | 31.3 |
| Denmark (14) | 46.8 | 44.1 | 43.9 | 42.8 | 42.4 | 42.3 | 43.0 | 37.2 | 39.6 | 39.6 |
| Germany (7)(9)(12)(15) | 45.9 | : | 45.5 | : | 43.7 | 44.4 | 43.9 | 44.4 | 44.2 | : |
| Estonia | : | : | : | : | : | : | : | : | : | : |
| Ireland | : | : | : | : | : | : | : | : | : | : |
| Greece | 30.6 | 36.0 | 39.0 | 35.7 | : | 91.9 | 93.1 | 94.3 | 106.8 | 107.2 |
| Spain (1) | 61.4 | 61.7 | 61.2 | 63.7 | 61.5 | 54.6 | 51.9 | 52.8 | 53.1 | 52.2 |
| France | : | : | : | : | : | : | : | : | : | : |
| Croatia | 42.1 | 42.2 | 42.1 | 43.7 | 42.6 | 42.6 | 44.6 | 42.7 | 41.2 | 42.0 |
| Italy | : | : | : | : | : | : | : | 60.7 | : | : |
| Cyprus (1) | 82.7 | 91.6 | 95.7 | 92.9 | 83.8 | 91.9 | 90.7 | 94.3 | 106.8 | 105.8 |
| Latvia | 34.8 | 43.5 | 37.8 | 41.3 | 38.8 | 39.7 | 37.7 | 36.3 | 47.7 | 50.3 |
| Lithuania | : | 23.5 | : | : | 19.4 | 19.4 | 22.0 | 23.6 | 24.8 | 25.9 |
| Luxembourg | : | : | : | : | : | : | : | 74.0 | : | : |
| Hungary | 36.6 | 39.0 | 36.8 | 37.4 | 35.9 | 34.1 | 33.5 | 34.0 | 34.8 | 35.7 |
| Malta (11) | 40.8 | 40.0 | 39.1 | 44.5 | 39.6 | 41.9 | 43.6 | 42.2 | 42.0 | 40.5 |
| Netherlands (18) | 49.5 | 50.3 | 48.4 | 48.2 | 47.7 | 46.8 | 46.7 | 46.9 | 45.7 | 47.2 |
| Austria (2)(5)(8)(10)(16) | 44.0 | 43.9 | : | : | 45.5 | 45.4 | : | : | 43.1 | : |
| Poland | 34.3 | 33.2 | 31.9 | 31.5 | 31.3 | 31.6 | 31.3 | 32.6 | 32.2 | 34.0 |
| Portugal | : | : | 44.7 | 52.1 | 58.6 | : | : | : | : | : |
| Romania (6) | 44.6 | 33.1 | 25.6 | : | : | 29.9 | 29.4 | 25.2 | 26.3 | 27.6 |
| Slovenia | 44.0 | 46.1 | 42.4 | 43.6 | 41.9 | 40.6 | 38.2 | 38.0 | 38.2 | 38.1 |
| Slovakia | : | : | : | : | : | : | : | : | : | : |
| Finland | : | : | : | : | : | : | : | : | : | : |
| Sweden (5) | 59.1 | 58.7 | 52.9 | : | : | 51.9 | : | 49.8 | : | : |
| Norway (13)(17) | 66.0 | 65.9 | 74.9 | 77.1 | 77.1 | 69.5 | 62.0 | 65.8 | 64.3 | 64.1 |
| Switzerland | 90.0 | 97.2 | 89.0 | 81.4 | 74.0 | 69.9 | 65.5 | 63.5 | 61.1 | 59.7 |
| Albania | : | : | : | : | : | : | : | : | 98.5 | 63.3 |
| Serbia | 47.2 | 49.3 | 51.3 | 48.1 | 46.5 | 44.2 | 45.3 | 44.7 | 45.1 | 46.4 |
| Turkey (1)(2)(3)(4)(5)(8) | : | : | : | : | 29.9 | 32.0 | 34.2 | 32.0 | 38.3 | 26.1 |
| Bosnia and Herzegovina | : | : | 28.6 | 28.6 | 30.3 | 29.9 | 28.5 | 30.1 | 33.2 | 30.5 |
| Kosovo* | : | : | : | : | : | 23.8 | 24.0 | 28.2 | 27.5 | 27.4 |

(:) not available

(1) Data for 2018 instead of 2019
(2) Data for 2016 instead of 2017
(3) Data for 2014 instead of 2015
(4) Data for 2012 instead of 2013
(5) Data for 2010 instead of 2011
(6) Data for 2012 instead of 2011
(7) Data for 2010 instead of 2009
(8) Data for 2008 instead of 2009
(9) Data for 2004 instead of 2005
(10) Data for 2002 instead of 2003
(11) estimate
(12) 2011: estimate
(13) 2005-2009: estimate
(14) 2005-2009: Eurostat estimate
(15) 2017: Eurostat estimate
(16) 2009: Eurostat estimate
(17) 2011-2013: Eurostat estimate
(18) 2019: provisional

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence

*Source:* Eurostat (online data codes: env_wat_cat and demo_gind)

eurostat

**Table 3: Household water use from public water supply, 2001-2019 ($m^3$ per inhabitant)**

Self and other water supply is a major source of water for the manufacturing sector in several EU Member States as highlighted in Table 3. In the Netherlands, for example, self and other water supply accounted for 3 183 million $m^3$ of water use in 2018, while public supply only accounted for 132 million $m^3$. Similarly in Poland, where the figures were 611 million $m^3$ and 16.4 million $m^3$, respectively (2019 data). Likewise, the volume of water use from self and other water supplies was 24 times as high as that from public supply in in Latvia (2019), and 38 times in Turkey (2018).

**Water use in the manufacturing industry (NACE C) by supply category, 2003 - 2019**
(million m³)

| | Public water supply | | | | | Self and other water supply | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2003 | 2007 | 2011 | 2015 | 2019 | 2003 | 2007 | 2011 | 2015 | 2019 |
| Belgium | 96.5 | 128.8 | 128.1 | 88.6 | : | 1 216.9 | 2 295.2 | 1 974.7 | 997.3 | : |
| Bulgaria (1) | 51.0 | 48.3(e) | 34.8(e) | 31.5(e) | 31.6(e) | 303.5 | 305.2(e) | 175.3(e) | 186.3(e) | 193.4 |
| Czechia | : | : | : | : | : | : | 303.8 | 234.0 | 226.7 | 222.2 |
| Denmark | : | : | 38.7 | 45.2 | 41.0 | : | : | 66.9 | 54.5 | 60.1 |
| Germany (6) | : | : | 372.3(e) | 355.7 | : | : | : | 4565.8(e) | 4 060.0 | : |
| Estonia (5) | : | : | 7.2 | 7.9 | 9.7 | : | 25.5 | 21.6 | 28.0 | 70.1 |
| Ireland | : | : | : | : | : | : | : | : | : | : |
| Greece | : | : | 73.4 | 73.4 | 120.5 | : | : | 116.1 | 116.1 | 65.0 |
| Spain (1) | 424.0(e) | 393.6 | 310.0(e) | 317.5 | 359.8(e) | 1338.3(e) | 888.2 | 723.4(e) | 624.7 | 624.7(e) |
| France | : | : | : | : | : | : | : | : | : | : |
| Croatia | 12.8 | 12.8 | 11.9 | 11.0 | 11.3 | 95.4 | 101.2 | 106.6 | 97.0 | 101.2 |
| Italy (3) | : | : | 300.8 | 323.8 | : | : | : | 4 947.6 | 3 418.6 | : |
| Cyprus (1) | 2.7 | 2.5 | 2.4 | 1.9 | 2.0 | 15.9 | 3.7 | 2.3 | 1.3 | 1.2 |
| Latvia | 0.8 | 1.3 | 0.9 | 0.5 | 0.4 | 30.1 | 20.8 | 18.3 | 13.8 | 9.7 |
| Lithuania (5) | 8.5 | 9.8 | 7.9 | 9.2 | 10.7 | : | 31.6 | 30.7 | 31.1 | 32.7 |
| Luxembourg | : | : | : | : | : | : | : | : | 1.9 | : |
| Hungary | : | 6.8(s) | 7.3 | 6.3 | 8.4 | : | : | : | : | : |
| Malta | 2.4(e) | 1.9(e) | 1.9(e) | 2.0(e) | 2.4(e) | 1.0(e) | 1.0(e) | 1.0(e) | 1.0(e) | 1.0(e) |
| Netherlands (1) | 149.7 | 143.0 | 133.6 | 128.3 | 132.0 | 3 995.1 | 3 451.2 | 3 613.0 | 2 909.0 | 3 182.6 |
| Austria | : | : | : | : | : | : | : | : | : | : |
| Poland | 19.4 | 19.0 | 13.2 | 18.7 | 16.4 | 616.3 | 685.2 | 652.2 | 640.6 | 610.8 |
| Portugal | : | 8.7 | : | : | : | : | : | : | : | : |
| Romania | : | : | : | : | : | : | : | : | : | : |
| Slovenia | 12.8 | 12.1 | 8.8 | 9.3 | 10.6 | : | : | : | 40.8 | 41.7 |
| Slovakia | : | : | : | : | : | : | : | : | : | : |
| Finland | : | : | : | : | : | : | : | : | : | : |
| Sweden (4) | 90.0 | : | 107.0 | 53.0 | : | 1 906.0 | : | 2 071.0 | 1 729.0 | : |
| Norway | 89.7 | 191.5(e) | : | : | : | 791.0 | 999.8(e) | : | : | : |
| Switzerland (3) | : | : | 76.5(e) | : | : | : | : | 592.2(e) | : | : |
| Albania | : | : | : | : | 5.3 | : | : | : | : | 3.0 |
| Serbia | 33.1 | 28.6 | 13.9 | 13.5 | 14.5 | 130.0 | 142.8 | 130.1 | 107.5 | 71.7 |
| Turkey (1)(2)(4)(5)(6) | 50.3 | 62.3 | 74.5 | 44.4 | 80.3 | 1 173.3 | 1 301.4 | 1 615.0 | 2 353.9 | 3 032.8 |
| Bosnia and Herzegovina | : | : | : | : | : | : | : | 58.8 | 66.2 | 51.9 |
| Kosovo* | : | : | 5.5 | 4.8 | 6.1 | : | : | : | : | : |

(:) not available; (e) estimated data; (s): Eurostat estimate

(1) 2018 data instead of 2019 data
(2) 2014 data instead of 2015 data
(3) 2012 data instead of 2011 data
(4) 2010 data instead of 2011 data
(5) 2008 data instead of 2007 data (Estonia: only for self and other water supply)
(6) 2004 data instead of 2003 data (Germany: only for public water supply)

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence

*Source:* Eurostat (online data code: env_wat_ind)

eurostat

**Table 4: Water use in the manufacturing industry (NACE C) by supply category, 2003 - 2019 (million m³)**

## Wastewater treatment and disposal

Overall, there is a development towards a higher proportion of the population being connected to wastewater treatment. Table 5 presents information on the proportion of the population connected to at least secondary wastewater treatment plants, which typically is an acceptable level on environmental protection unless the receiving waters are in a sensititve area. This share has been generally increasing over the past decades and was above 80 % in 15 of the EU Member States for which recent data are available (mixed reference years). The share of the population connected to at least secondary wastewater treatment plant even rose to 95 % and above in 7 Member States (Denmark, Germany, Greece, Luxembourg, the Netherlands, Austria and Sweden (mixed reference years)), as well as Switzerland and the United Kingdom. At the other end of the range, less than one in two households were connected to at least secondary urban wastewater treatment plants in Cyprus (2005 data), Malta, Romania and Croatia (all 2019 data), while the same was also true in Iceland (2010 data), Albania, Serbia, and Bosnia and Herzegovina. Over the time span shown (2001 - 2019), several countries managed to achieve a drastic increase in the coverage of their wastewater treatment, e.g. Hungary (from 29.1 % to 80.3 %) and Slovenia (from 15.5 % to 69 %).

**Share of the population connected to at least secondary urban wastewater treatment, 2001–2019**
(%)

| | 2001 | 2003 | 2005 | 2007 | 2009 | 2011 | 2013 | 2015 | 2017 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Belgium** | 45.7 | 51.4 | 54.4 | 68.7 | 72.8 | 77.2 | 79.1 | 81.9 | 83.3 | 84.3 |
| **Bulgaria** | 37.4 | 37.9 | 38.3 | 39.7 | 42.7 | 53.6 | 54.5 | 60.6 | 63.2 | 64.5 |
| **Czechia** | : | 70.6 | 72.8 | 73.0 | 75.7 | 78.0 | 79.8 | 80.7 | 82.3 | 82.6 |
| **Denmark (2)** | 87.0 | 88.0 | : | : | 93.2 | 93.8 | 95.7 | 96.5 | 97.3 | 97.5 |
| **Germany (9)** | 92.6 | : | 97.3 | 91.9 | : | 95.5 | 95.4 | 95.8 | 96.0 | : |
| **Estonia** | 69.0 | 71.0 | 78.0 | 83.5 | 84.5 | 81.1 | 82.1 | 82.6 | 82.9 | 83.5 |
| **Ireland** | 29.0 | : | : | 59.0 | 71.0 | 58.2 | 59.4 | 60.6 | 61.6 | 61.9 |
| **Greece (10)** | : | : | : | 85.0 | 87.4 | 88.2 | 92.9 | 93.4 | 94.8 | 94.8 |
| **Spain (1)(2)(4)(5)(7)(8)(9)(10)** | 80.0 | 88.0 | : | 88.0 | 88.0 | : | 88.7 | 84.7 | 86.6 | 86.6 |
| **France (3)(10)** | 77.3 | : | 79.5 | : | : | 79.8 | 80.5 | 80.2 | 79.8 | 79.3 |
| **Croatia** | : | : | : | : | : | 36.9 | 36.9 | 36.9 | 36.9 | 36.9 |
| **Italy (5)(7)** | : | : | 54.2 | : | 57.5 | : | 57.6 | 59.6 | : | : |
| **Cyprus** | 15.9 | 22.9 | 29.8 | : | : | : | : | : | : | : |
| **Latvia** | 49.0 | 55.1 | 62.5 | 62.2 | 60.1 | 67.4 | 69.1 | 73.4 | 77.1 | 80.1 |
| **Lithuania** | : | 27.6 | 47.5 | : | : | 65.1 | 64.3 | 72.3 | 73.8 | 76.5 |
| **Luxembourg** | : | 88.1 | : | : | : | 90.9 | 96.3 | 96.6 | 97.0 | 98.1 |
| **Hungary** | 29.1 | 38.9 | 41.7 | 49.8 | 52.1 | 70.9 | 72.7 | 76.5 | 79.1 | 80.3 |
| **Malta** | 11.5 | 13.2 | 13.2 | 8.4 | 15.0 | 92.0 | 91.8 | 0.0 | 14.9 | 15.5 |
| **Netherlands (4)(5)** | 98.4 | 98.6 | 99.0 | 99.1 | 99.3 | 99.4 | 99.4 | 99.4 | 99.5 | 99.5 |
| **Austria (3)(4)(5)(6)(7)(8)(9)** | 86.0 | 89.0 | 88.9 | 91.8 | 92.7 | 93.9 | 94.5 | 95.0 | 99.8 | 99.8 |
| **Poland** | 52.1 | 55.5 | 58.1 | 61.8 | 64.1 | 65.5 | 70.2 | 72.6 | 73.5 | 74.4 |
| **Portugal** | : | 32.0 | 42.6 | 51.0 | 55.8 | : | : | : | 84.6 | : |
| **Romania** | : | : | 16.9 | : | : | 31.7 | 36.1 | 39.7 | 46.5 | 49.4 |
| **Slovenia** | 15.5 | 19.9 | 32.1 | 48.8 | 52.9 | 54.4 | 55.2 | 57.4 | 67.2 | 69.0 |
| **Slovakia** | : | : | : | : | : | : | : | : | 65.0 | 68.1 |
| **Finland (2)(8)** | 81.0 | 81.0 | : | : | : | 83.0 | 83.0 | 85.0 | : | 85.0 |
| **Sweden (1)** | 94.0 | 94.0 | 94.0 | 94.0 | 94.0 | 94.0 | 95.0 | 95.0 | 95.0 | : |
| **Iceland (5)(6)** | 0.0 | 1.0 | 2.0 | : | 2.0 | 1.0 | : | : | : | : |
| **Norway** | 62.9 | 64.2 | 65.7 | 51.1 | 51.5 | 54.2 | 52.7 | 53.4 | 60.8 | 67.3 |
| **Switzerland (2)(6)** | 96.0 | 96.0 | 97.0 | : | : | 98.0 | 98.0 | : | : | : |
| **United Kingdom (6)(8)** | 98.0 | 99.0 | 99.0 | : | 97.0 | 99.5 | : | 100.0 | : | : |
| **Albania** | : | : | : | : | : | : | : | 8.0 | 7.3 | 31.8 |
| **Serbia** | 4.8 | 5.4 | 6.4 | 6.9 | 8.9 | 8.9 | 9.4 | 10.8 | 12.6 | 13.1 |
| **Turkey (6)(7)** | 19.2 | 21.1 | 28.5 | 31.1 | 35.2 | 37.6 | 42.0 | 55.4 | 60.5 | 60.8 |
| **Bosnia and Herzegovina (10)** | 9.9 | 10.0 | 10.0 | 10.0 | 10.7 | 11.1 | 11.7 | 11.8 | 29.6 | 29.6 |

(:) not available

(1) data for 2000 instead of 2001
(2) data for 2002 instead of 2003
(3) data for 2004 instead of 2005
(4) data for 2006 instead of 2007
(5) data for 2008 instead of 2009
(6) data for 2010 instead of 2011
(7) data for 2012 instead of 2013
(8) data for 2014 instead of 2015
(9) data for 2016 instead of 2017
(10) data for 2018 instead of 2019

estimate: BE 2001-2009; BG 2015-2019; DK 2001-2003; DE 2011, 2015; LU 2015 - 2019; HU 2005-2019; AT 2001, 2007-2011, 2017-2019; RO 2005; FI 2003, 2011, 2013; SE 2005-2013; CH; UK 2001-2005, 2015; AL 2015-2017; TR 2005, 2015-2019; BA 2005, 2015-2019

Eurostat estimate: AT 2003

break in series: MT 2011

*Source:* Eurostat (online data code: sdg_06_20)

eurostat

**Table 5: Share of the population connected to at least secondary urban wastewater treatment, 2001–2019 (%)**

The residual of wastewater treatment is sewage sludge . While the amount of sludge generated per inhabitant depends on many factors and hence is quite variable, the nature of this sludge – rich in nutrients, but also often loaded with high concentrations of pollutants such as heavy metals – has led countries to seek different pathways for its disposal, as illustrated in Figure 5.

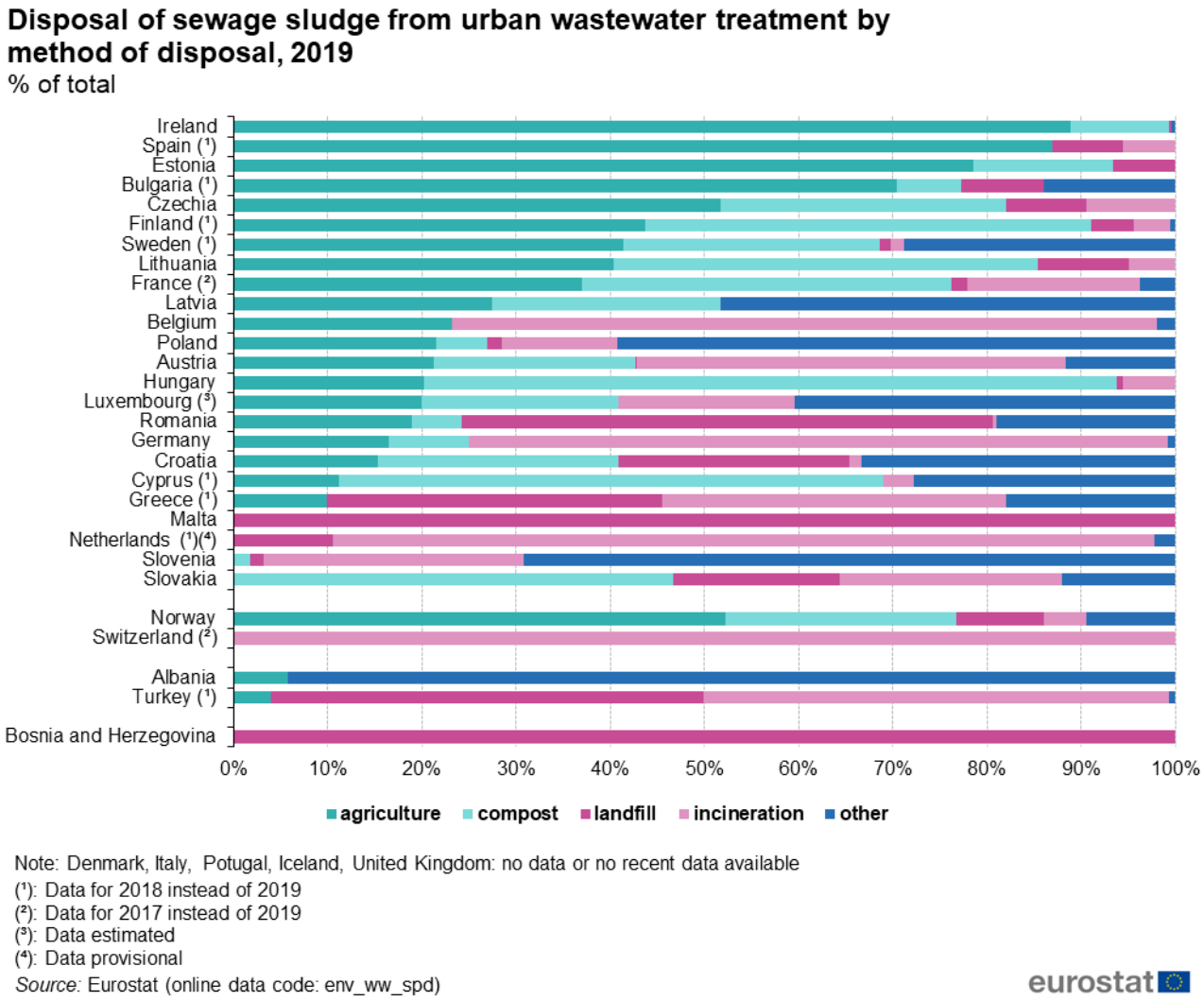



**Figure 4: Disposal of sewage sludge from urban wastewater treatment by method of disposal, 2019 (% of total)**

Typically, four different types of disposal make up a considerable share of the total volume of sewage sludge treated (2019 data unless otherwise stated): more than 80% of the total was used as fertiliser for agricultural use in two EU Member States — Spain (87 %, 2018 data) and Ireland (89 %,). A different way of making use of the nutrients in the sludge is composting; this was prevalent with more than 50% in Hungary and Cyprus. Alternative forms of sewage disposal may be used to reduce or eliminate the spread of pollutants on agricultural or gardening land; these include incineration and landfill. As there are more and more environmental concerns about the latter, incineration is increasingly the method of choice: While the Netherlands (87 %, 2018), Belgium (75 %), Germany (74 %), Austria (46 %) and Greece (37 %), as well as Switzerland (100%) reported incineration as their principal form of treatment for disposal, discharge into controlled landfills was practiced as the principal type of treatment only in Malta, Bosnia and Herzegovina (in these countries it is the sole form of treatment), and Romania (56 %).

## Source data for tables and graphs

- Water statistics: tables and figures

## Data sources

Many of the water statistics produced by Eurostat have been used in the context of the development of EU legislation relating to water, as well as for environmental assessments, which in turn can give rise to new data needs.

Water statistics are collected through the inland waters section of the joint OECD /Eurostat questionnaire which is

an established data collection yielding long time series, but which can also be adapted to meet the demands of relevant policy frameworks. It currently reports on the following:

- freshwater resources in groundwater and surface water - these can be replenished by precipitation and external inflow (water flowing into a country from other territories);
- water abstraction - a major pressure on resources, although a large part of the water abstracted for domestic, industrial (including energy production) or agricultural use may be returned to the environment and its water bodies (although often as wastewater with impaired quality);
- water use - analysed by supply category and by industrial activities;
- the share of the population connected to wastewater treatment plants - which gives an overview of the development status of the infrastructure, in terms of quantity and quality, that is available for the protection of the environment from pollution by wastewater;
- sewage sludge production and disposal - an inevitable product of wastewater treatment processes, its impact on the environment depends on the methods chosen for its processing and disposal;
- generation and discharge of wastewater - pollutants present in wastewater have different source profiles and, similarly, the efficiency of treatment of any pollutant varies according to the method applied[1]

## Context

### Water policies: floods, droughts and other challenges

The central element of European water policy is a Directive for ' Community action in the field of water policy ' (2000/60/EC) — often referred to as the Water Framework Directive (WFD) — which aims to achieve a good ecological and chemical status of European waters. Together with its daughter legislation ( Directive 0118/2006 and Directive 0060/2007 ), the WFD focused on water management at the level of (in most cases transboundary) hydrological catchments (river basins). An important step in the course of its implementation involved establishing river basin management plans. The latest state of play is summarised in the Commission's implementation report of February 2019 (COM(2019) 95 final).

In a Communication ' Addressing the challenge of water scarcity and droughts ' (COM(2007) 414 final), the European Commission identified an initial set of policy options to be taken regionally, nationally and across the EU to address water scarcity within the EU. This set of proposed policies, which was reviewed and further developed by 2012, aimed to move the EU towards a water-efficient and water-saving economy, as both the quality and availability of water are considered as major concern in many regions.

In a Fitness check of the EU Water Framework Directive and related legislation (2019) , the Commission identified strengths and weaknesses of the existing legislation and explored the need for possible amendments.

### Wastewater

In an effort to reduce pollutants discharged into the environment with wastewater, the EU has implemented legislation on urban wastewater treatment (Directive 1991/271/EC). The pollution of rivers, lakes and groundwater and water quality is affected by human activities such as industrial production, household discharges, or arable farming; a report on the protection of waters against pollution by nitrates from agricultural sources (COM(2007) 120 final) was released in March 2007.

Another aspect of water quality relates to coastal bathing waters. The European Commission and the EEA present an annual bathing water report . The latest of these always covers information of the preceding year and shows that more than 95 % of the EU's bathing waters met the minimum water quality standards.

### Blueprint to safeguard Europe's water resources

These policy perspectives up to 2050 were developed in the ' Blueprint to safeguard Europe's water resources ' (COM/2012/0673) which integrates the results of a policy review concerning: water scarcity and droughts; an analysis of the implementation of river basin management under the WFD; a review of the vulnerability of

[1] Discharges from cooling water are not regarded as wastewater in water statistics.

environmental resources (such as water, biodiversity and soil) to climate change impacts and man-made pressures; and a review of the whole of the EU's water policy framework in the light of the European Commission's 'better regulation' approach. The blueprint is closely related to the Europe 2020 strategy and, in particular, to the resource efficiency roadmap (COM(2011) 571). However, the blueprint covers a longer time span, through to 2050, and is expected to drive EU water policy over the long term. As part of the blueprint there are a number of policy reviews assessing implementation.

## Other articles

- Agri-environmental indicator - irrigation
- Waste statistics

## Main tables

- Water

## Database

- Water

## Publications

- Energy, transport and environment statistics, 2019 edition

## Methodology

- Water statistics on national level (ESMS metadata file — env_nwat_esms)

## Dedicated Section

- Water

## Legislation

- The Water Framework Directive Directive 0060/2000 , central piece of European water-related legislation
- Summaries of EU legislation: Good-quality water in Europe (EU Water Directive)
- Report on the implementation of the Water Framework Directive (2000/60/EC) and the Floods Directive (2007/60/EC) - Second River Basin Management Plans, First Flood Risk Management Plans COM(2019) 95 final
- Fitness check of the Water Framework Directive and related legislation
- Communication 'A blueprint to safeguard Europe's water resources' (COM(2012) 673 final)
- Summaries of EU legislation: EU water resources protection plan
- Communication 'Addressing the challenge of water scarcity and droughts in the European Union' (COM(2007) 414 final)
- Summaries of EU legislation: Addressing water scarcity and droughts in the EU
- Directive 2007/60/EC of 23 October 2007 on the assessment and management of flood risks
- Summaries of EU legislation: Flood-risk management in the EU

- Directive 2006/118/EC of 12 December 2006 on the protection of groundwater against pollution and deterioration
- Summaries of EU legislation: Protection of groundwater against pollution

- Directive 91/271/EEC of 1 May 1991 concerning urban wastewater treatment
- Summaries of EU legislation: Urban waste water treatment

## External links

- European Commission - Environment - Water
- European Environment Agency - Water themes and data
- OECD - Environment - Managing Water for All
- WISE (Water Information System for Europe)
- World Health Organization - Water
- European Federation of National Associations of Water Services
- AQUASTAT database on water resources and uses

*View this article online at*
*http://ec.europa.eu/eurostat/statistics-explained/index.php/Water_statistics*