

# Total Renewable Freshwater Supply by Country (2013 Update)

## Description

Average annual renewable freshwater resources are listed by country, updating data table 1 in the previous versions of *The World's Water*. Data in this table from the AQUASTAT database of the Food and Agriculture Organization of the United Nations (FAO) were updated to reflect the most recent data in that database as of May 2013. However, because these data are typically produced by modeling or estimation, rather than measurement, we continue to use data from other sources where appropriate (even if older than data in AQUASTAT). For example, most data for European countries come from the Eurostat data set of the European Union. Data for Timor-Leste and for the Occupied Palestinian Territory (as defined by AQUASTAT) were added in this volume.

Data in this table typically comprise both renewable surface water and groundwater supplies, including surface inflows from neighboring countries. The FAO refers to this as total natural renewable water resources. Flows to other countries are not subtracted from these numbers. All quantities are in cubic kilometers per year (km<sup>3</sup>/yr). These data represent average freshwater resources in a country—actual annual renewable supply will vary from year to year.

## Limitations

These detailed country data should be viewed, and used, with caution. The data come from different sources and were estimated over different periods. Many countries do not directly measure or report internal water resources data, so some of these entries were produced using indirect methods.

Not all of the annual renewable water supply is available for use by the countries to which it is credited here; some flows are committed to downstream users. For example, under treaty requirements, Sudan must pass significant flows downstream to Egypt. Other countries, such as Turkey, Syria, and France, to name only a few, also pass significant amounts of water to other users. The annual average figures hide large seasonal, interannual, and long-term variations.

## Sources

The 2013 update was compiled by P. H. Gleick, Pacific Institute.

When a recent source uses older data previously cited here, we have tried to leave the original citation date and source.

- a. Total natural renewable surface water and groundwater. Typically includes flows from other countries. (FAO: "Natural total renewable water resources.")
- b. Estimates from Belyaev, Institute of Geography, USSR (1987).
- c. Frenken, K., ed. Estimates from UN FAO. 2005. Irrigation in Africa in Figures—Aquastat Survey 2005. Rome, Italy: Food and Agriculture Organization of the United Nations.
- d. Estimates from WRI (1994). See this source for original data source.
- e. Estimates from UN FAO. 1997. Irrigation in the Countries of the Former Soviet Union in Figures. Rome, Italy: Food and Agriculture Organization of the United Nations.
- f. UN FAO. 1999. Irrigation in Asia in Figures. Rome, Italy: Food and Agriculture Organization of the United Nations.
- g. Nix, H. 1995. *Water/Land/Life: The Eternal Triangle*. Canberra, Australia: Water Research Foundation of Australia.
- h. UN FAO. 2000. Irrigation in Latin America and the Caribbean. Rome, Italy: Food and Agriculture Organization of the United Nations.
- i. UN FAO. 2013. AQUASTAT database. Rome, Italy: Food and Agriculture Organization of the United Nations. <http://www.fao.org> (accessed May 1, 2013).
- j. Margat, J./OSS. 2001. Les ressources en eau des pays de l'OSS. Evaluation, utilisation et gestion. UNESCO/Observatoire du Sahara et du Sahel (updating of 1995).
- k. Estimates from UN FAO. 2003. Review of World Water Resources by Country. Rome, Italy: Food and Agriculture Organization of the United Nations (see specific references in this document for more information).
- l. United States Geological Survey revised: conterminous US (2071); Alaska (980); Hawaii (18).
- m. Eurostat, U. Wieland. 2003. Water Resources in the EU and in the Candidate Countries. Statistics in Focus, Environment and Energy, European Communities.
- n. Margat, J., and D. Vallée. 2000. Blue Plan—Mediterranean Vision on Water, Population and the Environment for the 21st Century. France: Sophia Antipolis.
- o. Geres, D. 1998. Water Resources in Croatia. International Symposium on Water Management and Hydraulic Engineering, Dubrovnic, Croatia, September 14–19, 1998.
- p. AQUASTAT website as of November 2005.
- q. Pearce, P. H., F. Bertrand, and J. W. MacLaren. 1985. Currents of Change. Final Report of Inquiry on Federal Water Policy. Ottawa, Canada: Environment Canada.
- r. China Ministry of Water. Annual Report 2007–2008.
- s. Eurostat. 2013. <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=ten00001> (accessed May 1, 2013).
- t. Australian Government National Water Commission. 2005. Australian Water Resources 2005.
- u. Frenken, K., ed. Estimates from UN FAO. 2005. Irrigation in the Middle East Region in Figures. AQUASTAT Survey—2008.

**DATA TABLE 1** Total Renewable Freshwater Supply by Country (2013 Update)

| Region        | Country  | Annual Renewable<br>Water Resources (km <sup>3</sup> /yr) | Year of<br>Estimate | Source of<br>Estimate |
|---------------|--|---|---------------------|-----------------------|
| <b>AFRICA</b> | Algeria  | 11.6  | 2005                | c                     |
|               | Angola   | 148.0   | 2011                | i                     |
|               | Benin  | 25.8  | 2001                | j                     |
|               | Botswana                                       | 12.2  | 2011                | i                     |
|               | Burkina Faso                                   | 12.5  | 2011                | i                     |
|               | Burundi  | 12.5  | 2011                | i                     |
|               | Cameroon                                       | 285.5   | 2003                | k                     |
|               | Cape Verde                                     | 0.3   | 2005                | c                     |
|               | Central African Republic                       | 144.4   | 2005                | c                     |
|               | Chad   | 43.0  | 1987                | b                     |
|               | Comoros  | 1.2   | 2005                | c                     |
|               | Congo  | 832.0   | 1987                | b                     |
|               | Congo, Democratic Republic<br>(formerly Zaire) | 1283  | 2001                | j                     |
|               | Côte d'Ivoire                                  | 81  | 2001                | j                     |
|               | Djibouti                                       | 0.3   | 2005                | c                     |
|               | Egypt  | 57.3  | 2011                | i                     |
|               | Equatorial Guinea                              | 26  | 2001                | j                     |
|               | Eritrea  | 6.3   | 2001                | j                     |
|               | Ethiopia                                       | 122.0   | 2011                | i                     |
|               | Gabon  | 164.0   | 1987                | b                     |
|               | Gambia   | 8.0   | 2005                | c                     |
|               | Ghana  | 53.2  | 2001                | j                     |
|               | Guinea   | 226.0   | 1987                | b                     |
|               | Guinea-Bissau                                  | 31.0  | 2005                | c                     |
|               | Kenya  | 30.7  | 2005                | c                     |
|               | Lesotho  | 3.0   | 2011                | i                     |
|               | Liberia  | 232.0   | 1987                | b                     |
|               | Libya  | 0.6   | 2005                | c                     |
|               | Madagascar                                     | 337.0   | 2005                | c                     |
|               | Malawi   | 17.3  | 2001                | j                     |
|               | Mali   | 100.0   | 2005                | c                     |
|               | Mauritania                                     | 11.4  | 2005                | c                     |
|               | Mauritius                                      | 2.8   | 2005                | c                     |
|               | Morocco  | 29.0  | 2005                | c                     |
|               | Mozambique                                     | 217.1   | 2005                | c                     |
|               | Namibia  | 17.7  | 2005                | c                     |
|               | Niger  | 33.7  | 2005                | c                     |
|               | Nigeria  | 286.2   | 2005                | c                     |
|               | Réunion  | 5.0   | 1988                | k                     |
|               | Rwanda   | 9.5   | 2005                | c                     |
|               | Senegal  | 38.8  | 2011                | i                     |
|               | Sierra Leone                                   | 160.0   | 1987                | b                     |
|               | Somalia  | 14.2  | 2005                | c                     |
|               | South Africa                                   | 51.4  | 2011                | i                     |
|               | Sudan  | 64.5  | 2005                | c                     |
|               | Swaziland                                      | 4.5   | 1987                | b                     |
|               | Tanzania                                       | 96.3  | 2011                | i                     |

*continues*

DATA TABLE 1 *continued*

| Region                                       | Country                  | Annual Renewable<br>Water Resources (km <sup>3</sup> /yr) | Year of<br>Estimate | Source of<br>Estimate |
|--|--------------------------|---|---------------------|-----------------------|
|  | Togo                     | 14.7  | 2001                | j                     |
|  | Tunisia                  | 4.6   | 2005                | c                     |
|  | Uganda                   | 66.0  | 2005                | c                     |
|  | Zambia                   | 105.2   | 2001                | j                     |
|  | Zimbabwe                 | 20.0  | 1987                | b                     |
| <b>NORTH<br/>AND<br/>CENTRAL<br/>AMERICA</b> | Antigua and Barbuda      | 0.1   | 2000                | h                     |
|  | Bahamas                  | 0.0   | 2011                | i                     |
|  | Barbados                 | 0.1   | 2003                | k                     |
|  | Belize                   | 18.6  | 2000                | h                     |
|  | Canada                   | 2902.0  | 2011                | i                     |
|  | Costa Rica               | 112.4   | 2000                | h                     |
|  | Cuba                     | 38.1  | 2000                | h                     |
|  | Dominica                 | nd  | nd                  |                       |
|  | Dominican Republic       | 21.0  | 2000                | h                     |
|  | El Salvador              | 25.2  | 2001                | j                     |
|  | Grenada                  | nd  | nd                  |                       |
|  | Guatemala                | 111.3   | 2000                | h                     |
|  | Haiti                    | 14.0  | 2000                | h                     |
|  | Honduras                 | 95.9  | 2000                | h                     |
|  | Jamaica                  | 9.4   | 2000                | h                     |
|  | Mexico                   | 457.2   | 2000                | h                     |
|  | Nicaragua                | 196.7   | 2000                | h                     |
|  | Panama                   | 148.0   | 2000                | h                     |
|  | St. Kitts and Nevis      | 0.02  | 2000                | h                     |
|  | Trinidad and Tobago      | 3.8   | 2000                | h                     |
|  | United States of America | 3069.0  | 1985                | l                     |
| <b>SOUTH<br/>AMERICA</b>                     | Argentina                | 814.0   | 2000                | h                     |
|  | Bolivia                  | 622.5   | 2000                | h                     |
|  | Brazil                   | 8233.0  | 2000                | h                     |
|  | Chile                    | 922.0   | 2000                | h                     |
|  | Colombia                 | 2132.0  | 2000                | h                     |
|  | Ecuador                  | 424.0   | 2011                | i                     |
|  | Guyana                   | 241.0   | 2000                | h                     |
|  | Paraguay                 | 336.0   | 2000                | h                     |
|  | Peru                     | 1913.0  | 2000                | h                     |
|  | Suriname                 | 122.0   | 2003                | k                     |
|  | Uruguay                  | 139.0   | 2000                | h                     |
|  | Venezuela                | 1233.2  | 2000                | h                     |
| <b>ASIA</b>                                  | Afghanistan              | 65.3  | 2011                | i                     |
|  | Bahrain                  | 0.1   | 2008                | u                     |
|  | Bangladesh               | 1227.0  | 1999                | f                     |
|  | Bhutan                   | 78.0  | 2011                | i                     |
|  | Brunei                   | 8.5   | 2011                | i                     |
|  | Cambodia                 | 476.1   | 1999                | f                     |
|  | China                    | 2738.8  | 2008                | r                     |
|  | India                    | 1911.0  | 2011                | i                     |
|  | Indonesia                | 2019.0  | 2011                | i                     |
|  | Iran                     | 137.5   | 2008                | u                     |

|                                    |        |      |      |
|------------------------------------|--------|------|------|
| Iraq                               | 89.9   | 2011 | i    |
| Israel                             | 1.8    | 2008 | u    |
| Japan                              | 430.0  | 1999 | f    |
| Jordan                             | 0.9    | 2008 | u    |
| Korea Democratic People's Republic | 77.1   | 1999 | f    |
| Korea Republic                     | 69.7   | 1999 | f    |
| Kuwait                             | 0.02   | 2008 | u    |
| Laos                               | 333.6  | 2003 | k    |
| Lebanon                            | 4.5    | 2008 | u    |
| Malaysia                           | 580.0  | 1999 | f    |
| Maldives                           | 0.03   | 1999 | f    |
| Mongolia                           | 34.8   | 1999 | f    |
| Myanmar                            | 1168.0 | 2011 | i    |
| Nepal                              | 210.2  | 1999 | f    |
| Oman                               | 1.4    | 2008 | u    |
| Pakistan                           | 247.0  | 2011 | i    |
| Palestinian Territory, Occupied    | 0.8    | 2011 | i    |
| Philippines                        | 479.0  | 1999 | f    |
| Qatar                              | 0.1    | 2008 | u    |
| Saudi Arabia                       | 2.4    | 2008 | u    |
| Singapore                          | 0.6    | 1975 | d    |
| Sri Lanka                          | 52.8   | 2011 | i    |
| Syria                              | 16.8   | 2008 | u    |
| Taiwan                             | 67.0   | 2000 | p    |
| Thailand                           | 438.6  | 2011 | i    |
| Turkey                             | 211.6  | 2011 | i    |
| United Arab Emirates               | 0.2    | 2008 | u    |
| Vietnam                            | 884.0  | 2011 | i    |
| Yemen                              | 2.1    | 2008 | u    |
| <b>EUROPE</b>                      |        |      |      |
| Albania                            | 41.7   | 2001 | n    |
| Austria                            | 84.0   | 2007 | s    |
| Belgium                            | 20.0   | 2007 | s    |
| Bosnia and Herzegovina             | 37.5   | 2003 | k    |
| Bulgaria                           | 107.2  | 2010 | s    |
| Croatia                            | 105.5  | 1998 | m, o |
| Cyprus                             | 0.3    | 2007 | s    |
| Czech Republic                     | 16.0   | 2007 | s    |
| Denmark                            | 16.3   | 2007 | s    |
| Estonia                            | 12.3   | 2007 | s    |
| Finland                            | 110.0  | 2007 | s    |
| France                             | 186.3  | 2007 | s    |
| Germany                            | 188.0  | 2007 | s    |
| Greece                             | 72.0   | 2007 | s    |
| Hungary                            | 116.4  | 2007 | s    |
| Iceland                            | 170.0  | 2007 | s    |
| Ireland                            | 51.0   | 2013 | s    |
| Italy                              | 175.0  | 2007 | s    |
| Luxembourg                         | 1.6    | 2007 | s    |
| Macedonia                          | 6.4    | 2001 | n    |
| Malta                              | 0.07   | 2005 | s    |
| Netherlands                        | 89.7   | 2007 | s    |

*continues*

DATA TABLE 1 *continued*

| Region         | Country            | Annual Renewable<br>Water Resources (km <sup>3</sup> /yr) | Year of<br>Estimate | Source of<br>Estimate |
|----------------|--------------------|---|---------------------|-----------------------|
|                | Norway             | 384.0   | 2013                | s                     |
|                | Poland             | 63.1  | 2007                | s                     |
|                | Portugal           | 73.6  | 2007                | s                     |
|                | Romania            | 42.3  | 2013                | s                     |
|                | Serbia-Montenegro* | 208.5   | 2003                | k                     |
|                | Slovakia           | 80.3  | 2013                | s                     |
|                | Slovenia           | 32.1  | 2007                | s                     |
|                | Spain              | 111.1   | 2007                | s                     |
|                | Sweden             | 186.2   | 2013                | s                     |
|                | Switzerland        | 53.5  | 2007                | s                     |
|                | United Kingdom     | 164.0   | 2013                | s                     |
| <b>FORMER</b>  | Armenia            | 7.8   | 2008                | u                     |
| <b>SOVIET</b>  | Azerbaijan         | 34.7  | 2008                | u                     |
| <b>UNION</b>   | Belarus            | 58.0  | 1997                | e                     |
|                | Estonia            | 12.8  | 1997                | e                     |
|                | Georgia            | 63.3  | 2008                | u                     |
|                | Kazakhstan         | 107.5   | 2011                | i                     |
|                | Kyrgyzstan         | 23.6  | 2011                | i                     |
|                | Latvia             | 33.7  | 2011                | i                     |
|                | Lithuania          | 24.5  | 2007                | s                     |
|                | Moldova            | 11.7  | 1997                | e                     |
|                | Russia             | 4508.0  | 2011                | i                     |
|                | Tajikistan         | 21.9  | 2011                | i                     |
|                | Turkmenistan       | 24.8  | 2011                | i                     |
|                | Ukraine            | 139.5   | 1997                | e                     |
|                | Uzbekistan         | 48.9  | 2011                | i                     |
| <b>OCEANIA</b> | Australia          | 336.1   | 2005                | t                     |
|                | Fiji               | 28.6  | 1987                | b                     |
|                | New Zealand        | 397.0   | 1995                | g                     |
|                | Papua New Guinea   | 801.0   | 1987                | b                     |
|                | Solomon Islands    | 44.7  | 1987                | b                     |
|                | Timor-Leste        | 8.2   | 2011                | i                     |

\*Referred to as Yugoslavia in previous volumes of *The World's Water*.