

# Freshwater Withdrawal by Country and Sector

## Description

The use of water varies greatly from country to country and from region to region. Data on water use by regions and by different economic sectors are among the most sought after in the water resources area. Ironically, these data are often the least reliable and most inconsistent of all water-resources information. This table includes the data available on total freshwater withdrawals by country in cubic kilometers per year and cubic meters per person per year, using national population estimates from approximately the year of withdrawal. The table also gives the breakdown of that water use by the domestic, agricultural, and industrial sectors, in both percentage of total water use and cubic meters per person per year.

Data for a number of countries has been updated in the following table since the previous version of *The World's Water*. UN FAO AQUASTAT recently conducted an irrigation survey in Middle Eastern countries, with which data in this table was updated. Additionally, data for some countries was updated from country-specific sources. The data sources are explicitly identified.

“Withdrawal” typically refers to water taken from a water source for use. It does not refer to water “consumed” in that use. The domestic sector typically includes household and municipal uses as well as commercial and governmental water use. The industrial sector includes water used for power-plant cooling and industrial production. The agricultural sector includes water for irrigation and livestock.

## Limitations

Extreme care should be used when applying these data. They come from a wide variety of sources and are collected using a wide variety of approaches, with few formal standards. As a result, this table includes data that are actually measured, estimated, modeled using different assumptions, or derived from other data. The data also come from different years, making direct intercomparisons difficult. For example, some water-use data are more than twenty years old.

As is noted in past volumes of *The World's Water*, the FAO AQUASTAT dataset, while the most comprehensive single database, contains inadequate information on sources and assumptions and often contains modeled rather than measured values. Data from this database should be used with great care and with appropriate caveats about their quality.

Another major limitation of these data is that they do not include the use of rainfall in agriculture. Many countries use a significant fraction of the rain falling on their territory for agricultural production, but this water use is neither accurately measured nor reported in this set. We repeat our regular call for a systematic reassessment of water-use data and for national and international commitments to collect and standardize this information. We note that budgetary constraints continue to delay any major new data initiatives.

## SOURCES

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- Population data from the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. *World population prospects: The 2008 revision. Total population, both sexes. Estimates 2010*. United Nations. [http://www.un.org/esa/population/publications/wpp2008/wpp2008\\_highlights.pdf](http://www.un.org/esa/population/publications/wpp2008/wpp2008_highlights.pdf)

**Data Table 2.** Freshwater Withdrawal by Country and Sector

Region	Country	Year	Total Freshwater Withdrawal (km <sup>3</sup> /yr)	Per Capita Withdrawal (m <sup>3</sup> /p/yr)	Domestic		Industrial		Agricultural		Source	2010 Population (millions)
					Use (%)	m <sup>3</sup> /p/yr	Use (%)	m <sup>3</sup> /p/yr	Use (%)	m <sup>3</sup> /p/yr		
AFRICA	Algeria	2000	6.07	171	22	38	13	65	23	111	i	35.42
	Angola	2000	0.35	18	23	4	17	60	3	11	i	18.99
	Benin	2001	0.13	14	32	5	23	45	3	6	i	9.21
	Botswana	2000	0.19	96	41	39	18	41	17	39	i	1.98
	Burkina Faso	2000	0.80	49	13	6	1	86	0	42	i	16.29
	Burundi	2000	0.29	34	17	6	6	77	2	26	i	8.52
	Cameroon	2000	0.99	50	18	9	8	74	4	37	i	19.96
	Cape Verde	2000	0.02	39	7	3	2	91	1	36	i	0.51
	Central African Republic	2000	0.03	7	80	5	16	4	3	0	i	4.51
	Chad	2000	0.23	20	17	3	0	83	0	17	i	11.51
	Comoros	1999	0.01	14	48	7	5	47	1	7	i	0.69
	Congo, Democratic Republic (formerly Zaire)	2000	0.36	5	53	3	17	31	1	2	i	67.83
	Congo, Republic of	2000	0.03	8	59	5	29	12	2	1	i	3.76
	Cote D'Ivoire	2000	0.93	43	24	10	12	65	5	28	i	21.57
	Djibouti	2000	0.02	23	84	0	19	16	0	4	i	0.88
	Egypt	2000	68.30	809	8	62	6	86	49	695	i	84.47
Equatorial Guinea	2000	0.11	159	83	132	16	1	25	2	i	0.69	
Eritrea	2004	0.58	111	5	6	0	95	0	105	i	5.22	
Ethiopia	2002	5.56	65	6	4	0	94	0	61	i	84.98	
Gabon	2000	0.12	80	50	40	8	42	6	34	i	1.50	
Gambia	2000	0.03	17	23	4	12	65	2	11	i	1.75	
Ghana	2000	0.98	40	24	10	10	66	4	27	i	24.33	
Guinea	2000	1.51	146	8	11	2	90	3	132	i	10.32	

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Data Table 2. continued

Region	Country	Year	Total Freshwater Withdrawal (km <sup>3</sup> /yr)	Per Capita Withdrawal (m <sup>3</sup> /p/yr)	Domestic		Industrial		Agricultural		Domestic		Industrial		Agricultural		2010 Population (millions)
					Use (%)	(m <sup>3</sup> /p/yr)	Use (%)	(m <sup>3</sup> /p/yr)	Use (%)	(m <sup>3</sup> /p/yr)	Use (%)	(m <sup>3</sup> /p/yr)	Use (%)	(m <sup>3</sup> /p/yr)	Use (%)	(m <sup>3</sup> /p/yr)	
	Guinea-Bissau	2000	0.18	109	13		5		82	14		5		90		i	1.65
	Kenya	2003	2.74	67	17		4		79	11		2		53		i	40.86
	Lesotho	2000	0.05	24	40		40		20	10		10		5		i	2.08
	Liberia	2000	0.11	27	27		18		55	7		5		15		i	4.10
	Libya	2000	4.27	652	14		3		83	91		20		541		i	6.55
	Madagascar	2000	14.96	743	3		2		96	21		12		710		i	20.15
	Malawi	2000	1.01	64	15		5		80	9		3		51		i	15.69
	Mali	2000	6.55	492	9		1		90	44		5		442		i	13.32
	Mauritania	2000	1.70	505	9		3		88	45		14		446		i	3.37
	Mauritius	2000	0.61	470	25		14		60	120		67		284		a	1.30
	Morocco	2000	12.60	389	10		3		87	39		12		339		i	32.38
	Mozambique	2000	0.63	27	11		2		87	3		1		23		i	23.41
	Namibia	2000	0.3	136	24		5		71	33		6		96		i	2.212
	Niger	2000	2.18	137	4		0		95	5		0		130		i	15.89
	Nigeria	2000	8.01	51	21		10		69	11		5		35		i	158.26
	Rwanda	2000	0.15	15	24		8		68	4		1		10		i	10.28
	Senegal	2002	2.22	173	4		3		93	7		5		161		i	12.86
	Sierra Leone	2000	0.38	65	5		3		92	3		2		60		i	5.84
	Somalia	2003	3.30	352	0		0		99	2		0		351		i	9.36
	South Africa	2000	12.50	248	31		6		63	77		15		156		i	50.49
	Sudan	2000	37.32	864	3		1		97	23		6		835		i	43.19
	Swaziland	2000	1.04	865	2		1		97	17		9		839		i	1.20
	Tanzania	2000	5.18	115	10		0		89	12		0		102		i	45.04
	Togo	2000	0.17	25	53		2		45	13		1		11		i	6.78

Tunisia	2000	2.64	254	14	4	82	36	10	209	i	10.37
Uganda	2002	0.30	9	43	17	40	4	2	4	i	33.80
Zambia	2000	1.74	131	17	7	76	22	9	100	i	13.26
Zimbabwe	2002	4.21	333	14	7	79	47	23	263	i	12.64
<b>NORTH AND CENTRAL AMERICA</b>											
Antigua and Barbuda	1990	0.005	56	60	20	20	34	11	11	e	0.09
Barbados	2000	0.09	351	33	44	22	117	155	77	i	0.26
Belize	2000	0.15	479	7	73	20	34	350	96	i	0.313
Canada	2006	45.08	1,330	20	69	12	260	913	157	k	33.89
Costa Rica	2003	0.54	116	—	—	—	0	0	0	l	4.64
Cuba	2000	8.20	732	19	12	69	139	89	503	i	11.20
Dominica	1996	0.02	256	—	—	—	—	—	—	f	0.07
Dominican Republic	2000	3.39	332	32	2	66	106	6	219	i	10.23
El Salvador	2000	1.28	207	25	16	59	51	33	123	i	6.19
Guatemala	2000	2.01	140	6	13	80	9	19	112	i	14.38
Haiti	2000	0.99	97	5	1	94	4	1	92	i	10.19
Honduras	2000	0.86	113	8	12	80	9	14	90	i	7.62
Jamaica	2000	0.41	150	34	17	49	51	25	73	i	2.73
Mexico	2008	79.80	721	14	9	77	101	67	553	i	110.65
Nicaragua	2000	1.30	223	15	2	83	33	4	185	i	5.82
Panama	2000	0.82	234	67	5	28	157	12	66	i	3.51
Saint Lucia	1997	0.01	75	—	—	—	—	—	—	e	0.17
Saint Vincent and the Grenadines	1995	0.01	92	—	—	—	—	—	—	e	0.11
Trinidad and Tobago	2000	0.31	231	68	26	6	157	60	13	i	1.34
United States of America	2005	482.20	1,518	13	46	41	193	699	626	g	317.64
<b>SOUTH AMERICA</b>											
Argentina	2000	29.19	718	17	9	74	122	68	531	i	40.67
Bolivia	2000	1.44	144	13	7	81	19	10	116	i	10.03
Brazil	2006	58.07	297	28	17	55	83	52	162	i	195.42
Chile	2000	12.55	732	11	25	64	83	184	465	i	17.13
Colombia	2000	10.71	231	50	4	46	116	9	106	i	46.30

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Data Table 2. continued

Region	Country	Year	Total Freshwater Withdrawal (km <sup>3</sup> /yr)	Per Capita Withdrawal (m <sup>3</sup> /p/yr)	Domestic		Industrial		Agricultural		Domestic Use	Industrial Use	Agricultural Use	Source	2010 Population (millions)
					(%)	m <sup>3</sup> /p/yr	(%)	m <sup>3</sup> /p/yr	(%)	m <sup>3</sup> /p/yr					
	Ecuador	2000	16.98	1,233	12	154	5	65	82	1014	154	65	1014	i	13.77
	Guyana	2000	1.64	2,154	2	36	1	19	98	2111	36	19	2111	i	0.76
	Paraguay	2000	0.49	76	20	15	8	6	71	54	15	6	54	i	6.46
	Peru	2000	20.13	682	8	57	10	69	82	557	57	69	557	i	29.50
	Suriname	2000	0.67	1,278	4	57	3	37	93	1183	57	37	1183	i	0.52
	Uruguay	2000	3.15	934	2	22	1	11	96	901	22	11	901	i	3.37
	Venezuela	2000	8.37	288	6	17	7	20	47	137	17	20	137	i	29.04
<b>ASIA</b>															
	Afghanistan	2000	23.26	799	2	14	0	0	98	785	14	0	785	i	29.12
	Armenia	2006	2.83	915	30	274	4	40	66	601	274	40	601	o	3.09
	Azerbaijan	2005	12.21	1,367	4	55	19	260	76	1039	55	260	1039	o	8.93
	Bahrain	2003	0.36	442	50	221	6	27	45	199	221	27	199	o	0.81
	Bangladesh	2008	35.87	253	10	25	2	5	88	222	25	5	222	i	141.82
	Bhutan	2000	0.43	607	5	30	1	7	94	571	30	7	571	i	0.71
	Brunei	1994	0.09	221	—	—	—	—	—	—	—	—	—	d	0.41
	Cambodia	2000	4.08	271	1	3	0	0	98	265	3	0	265	i	15.05
	China	2007	578.9	425	12	52	23	99	63	266	52	99	266	n	1,361.76
	Cyprus	2000	0.21	239	27	65	1	3	71	170	65	3	170	j	0.88
	Georgia	2005	1.62	384	22	85	13	50	65	250	85	50	250	o	4.22
	India	2010	761.00	627	7	46	2	14	90	567	46	14	567	i	1,214.46
	Indonesia	2000	82.78	356	8	28	1	2	91	325	28	2	325	i	232.52
	Iran	2004	93.30	1,243	7	85	1	12	92	1143	85	12	1143	o	75.08
	Iraq	2000	66.00	2,097	7	147	15	315	79	1657	147	315	1657	o	31.47
	Israel	2004	1.95	268	36	97	6	16	58	156	97	16	156	o	7.29

Japan	2000	88.43	696	20	18	62	137	124	435	i	127.00
Jordan	2005	0.94	145	31	4	65	45	6	95	o	6.47
Kazakhstan	2000	35.00	2,222	2	17	82	38	367	1817	i	15.75
Korea Democratic	2000	9.02	376	20	25	55	75	95	207	i	23.99
People's Republic											
Korea Republic	2002	25.47	525	26	12	62	136	63	326	i	48.50
Kuwait	2002	0.91	299	44	2	54	132	6	162	o	3.05
Kyrgyz Republic	2000	10.08	1,816	3	3	94	57	56	1703	i	5.55
Laos	2000	3.00	466	4	6	90	20	26	420	i	6.44
Lebanon	2005	1.31	308	29	11	60	89	34	185	o	4.25
Malaysia	2000	9.02	323	17	21	62	54	68	201	i	27.91
Maldives	1987	0.003	10	98	2	0	9	0	0	d	0.31
Mongolia	2000	0.44	163	20	27	52	33	44	84	i	2.70
Myanmar	2000	33.23	658	1	1	98	8	4	646	i	50.50
Nepal	2000	10.18	341	3	1	96	10	2	329	i	29.85
Oman	2003	1.32	455	10	1	88	45	5	400	o	2.91
Pakistan	2008	183.50	993	5	1	94	52	8	933	i	184.75
Palestine (Occupied	2005	0.42	95	48	7	45	46	7	43	o	4.41
Palestinian Territory)											
Philippines	2006	78.9	843	7	9	83	62	80	701	i	93.62
Qatar	2005	0.44	294	39	2	59	115	6	174	o	1.51
Saudi Arabia	2006	23.67	902	9	3	88	81	27	793	o	26.25
Singapore	1975	0.19	39	45	51	4	18	20	2	b	4.84
Sri Lanka	2000	12.61	618	2	2	95	15	15	588	i	20.41
Syria	2003	16.69	742	9	4	88	67	30	653	o	22.51
Tajikistan	2000	11.96	1,690	4	5	92	63	79	1549	i	7.07
Thailand	2007	57.31	841	5	5	90	40	41	760	i	68.14
Turkey	2003	40.10	530	15	11	74	78	58	393	o	75.71
Turkmenistan	2000	24.65	4,762	2	1	98	81	36	4645	i	5.18
United Arab Emirates	2005	4.00	849	15	2	83	127	17	705	o	4.71
Uzbekistan	2000	58.34	2,099	5	2	93	100	43	1956	i	27.79

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Data Table 2. continued

Region	Country	Year	Total Freshwater Withdrawal (km <sup>3</sup> /yr)	Per Capita Withdrawal (m <sup>3</sup> /p/yr)	Domestic			Industrial			Agricultural			2010 Population (millions)		
					Use (%)	m <sup>3</sup> /p/yr	Source	Use (%)	m <sup>3</sup> /p/yr	Source	Use (%)	m <sup>3</sup> /p/yr	Source			
	Vietnam	2000	71.39	802	8	62	194	546	68	24	2	11	194	546	i	89.03
	Yemen	2000	3.40	140	8	11	3	126	90	2	3	11	3	126	o	24.26
<b>EUROPE</b>	Albania	2000	1.71	540	27	144	60	335	62	11	11	144	60	335	i	3.17
	Austria	1999	3.67	438	35	154	280	4	1	64	4	154	280	4	j	8.39
	Belarus	2000	2.79	291	23	68	137	88	30	47	30	68	137	88	i	9.59
	Belgium	1998	7.44	695	13	93	594	9	1	85	1	93	594	9	h	10.70
	Bulgaria	2003	6.92	923	3	28	722	173	19	78	19	28	722	173	j	7.50
	Czech Republic	2002	1.91	183	41	75	105	4	2	57	2	75	105	4	j	10.41
	Denmark	2002	0.67	122	32	39	31	52	42	26	26	39	31	52	j	5.48
	Estonia	2002	1.41	1,053	56	586	415	52	5	39	39	586	415	52	j	1.34
	Finland	1999	2.33	436	14	59	365	12	3	84	3	59	365	12	j	5.35
	France	2000	33.16	529	16	83	394	52	10	74	10	83	394	52	j	62.64
	Germany	2001	38.01	463	12	57	314	92	20	68	20	57	314	92	j	82.06
	Greece	1997	8.70	778	16	127	25	626	81	3	3	127	25	626	j	11.18
	Hungary	2001	21.03	2,109	9	195	1237	677	32	59	32	195	1237	677	j	9.97
	Iceland	2003	0.17	516	34	176	340	1	0	66	0	176	340	1	j	0.33
	Ireland	1994	1.18	257	23	58	199	0	0	77	0	58	199	0	j	4.59
	Italy	1998	41.98	699	18	127	256	315	45	37	37	127	256	315	j	60.10
	Latvia	2003	0.25	112	55	61	37	14	12	33	12	61	37	14	j	2.24
	Lithuania	2003	3.33	1,023	78	798	158	67	7	15	7	798	158	67	j	3.26
	Luxembourg	1999	0.06	116	42	49	52	15	13	45	13	49	52	15	j	0.49
	Macedonia	2000	2.27	1,111	—	—	—	—	—	—	—	—	—	—	j	2.04
	Malta	2000	0.02	49	74	36	0	12	25	1	1	36	0	12	j	0.41

Moldova	2000	2.31	646	10	58	33	65	372	213	i	3.58
Netherlands	2001	8.86	532	6	60	34	33	319	180	j	16.65
Norway	1996	2.40	494	23	67	10	112	331	52	h	4.86
Poland	2002	11.73	308	13	79	8	40	243	26	j	38.04
Portugal	1998	11.09	1,033	10	12	78	99	125	809	j	10.73
Romania	2003	6.50	307	9	34	57	26	105	175	j	21.19
Russian Federation	2000	76.68	546	19	63	18	102	347	97	i	140.37
Slovakia	2003	1.04	192	—	—	—	—	—	—	j	5.41
Slovenia	2002	0.90	444	—	—	—	—	—	—	j	2.02
Spain	2002	37.22	821	13	19	68	111	152	559	j	45.32
Sweden	2002	2.68	288	37	54	9	106	157	26	j	9.29
Switzerland	2002	2.52	332	24	74	2	80	245	6	j	7.59
Ukraine	2000	37.53	826	12	35	52	100	292	433	i	45.43
United Kingdom	1994	11.75	190	22	75	3	41	143	6	c	61.90
<b>OCEANIA</b>											
Australia	2010	59.84	2,782	15	10	75	409	279	2093	m	21.51
Fiji	2000	0.07	82	14	14	71	11	11	58	i	0.85
New Zealand	2000	2.11	490	48	9	42	235	46	206	i	4.30
Papua New Guinea	1987	0.10	15	56	43	1	8	6	0	b	6.89
Solomon Islands	1987			40	20	40				b	0.54

**Notes:**

Figures may not add to totals due to independent rounding.

Population data: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. World population prospects: the 2008 revision. Total population, both sexes. Estimates 2010. United Nations. [http://esa.un.org/unpd/wpp2008/all-wpp-indicators\\_components.htm](http://esa.un.org/unpd/wpp2008/all-wpp-indicators_components.htm)

U.S. data include freshwater only; previous data included saline water.

China data include Hong Kong.