Freshwater Resources 2005

EarthTrends Data Tables: Freshwater Resources

Sources: Food and Agriculture Organization of the United Nations (FAO), Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Bank.

	Internal Renewable Water Resources (IRWR) {a}				Actual Renewable Water Resources {a}			Water Withdrawals					Industrial Water Pollution (mt/day) {e} 1997-2000
	Ground water Recharge (km^3)	Surface water (km^3)	Overlap (km^3)	Total (km^3) {b}	Total (km^3)	Per Capita (m^3 per person)	Dependency Ratio{c}	Total (million m^3) 2000	Per Capita (m^3 per person) 2000	Sectoral Withdrawals (percent), 2000 {d}			
										Agriculture	Industry	Domestic	
WORLD	**11,357.7**	**40,594**	**10,067**	**43,219**	**55,273**	**8,549**	**..**	**3,802,320**	**633**	**70**	**20**	**10**	**..**
ASIA (EXCL. MIDDLE EAST)	**2,472.0**	**10,985**	**2,136**	**11,192**	**14,582**	**4,079**	**..**	**2,147,506**	**631**	**81**	**12**	**7**	**..**
Armenia	4.2	6	1	9	11	3,450	14	2,954	949	66	4	30	10
Azerbaijan	6.5	6	4	8	30	3,585	73	17,247	2,114	68	28	5	..
Bangladesh	21.1	84	0	105	1,211	8,089	91	79,394	576	96	1	3	273
Bhutan	..	95	..	95	95	40,860	0	420	204	95	1	4	..
Cambodia	17.6	116	13	121	476	32,876	75	4,091	311	98	1	2	..
China	828.8	2,712	728	2,812	2,830	2,206	1	630,289	494	68	26	7	7,060
Georgia	17.2	57	16	58	63	12,481	8	3,607	685	59	21	20	..
India	418.5	1,222	380	1,261	1,897	1,754	34	645,837	635	86	5	8	1,605
Indonesia	455.0	2,793	410	2,838	2,838	12,749	0	82,773	391	91	1	8	662
Japan	27.0	420	17	430	430	3,365	0	88,432	696	62	18	20	1,379
Kazakhstan	6.1	69	0	75	110	7,116	31	35,008	2,238	82	17	2	..
Korea, Dem People's Rep	13.0	66	12	67	77	3,387	13	9,024	405	55	25	20	..
Korea, Rep	13.3	62	11	65	70	1,454	7	18,590	397	48	16	36	299
Kyrgyzstan	13.6	44	11	47	21	3,952	0	10,080	2,048	94	3	3	..
Lao People's Dem Rep	37.9	190	38	190	334	57,638	43	2,993	567	90	6	4	..
Malaysia	64.0	566	50	580	580	23,316	0	9,016	392	62	21	17	154
Mongolia	6.1	33	4	35	35	13,232	0	444	178	52	28	20	..
Myanmar	156.0	875	150	881	1,046	20,870	16	33,224	699	98	1	1	4
Nepal	20.0	198	20	198	210	8,171	6	10,177	433	96	1	3	..
Pakistan	55.0	47	50	52	223	1,415	76	169,384	1,187	96	2	2	..
Philippines	180.0	444	145	479	479	5,884	0	28,520	377	74	9	17	202
Singapore	..	..	..	1	1	139	0	..	..	..	..	..	33
Sri Lanka	7.8	49	7	50	50	2,602	0	12,604	678	95	2	2	81
Tajikistan	6.0	63	3	66	16	2,537	17	11,962	1,965	92	5	4	..
Thailand	41.9	199	31	210	410	6,459	49	87,065	1,429	95	2	2	..
Turkmenistan	0.4	1	0	1	25	5,004	97	24,645	5,308	98	1	2	..
Uzbekistan	8.8	10	2	16	50	1,904	77	58,334	2,342	93	2	5	..
Viet Nam	48.0	354	35	367	891	10,805	59	71,392	914	68	24	8	..
EUROPE	**1,317.9**	**6,223**	**986**	**6,591**	**7,771**	**10,655**	**..**	**400,266**	**581**	**33**	**52**	**15**	**..**
Albania	6.2	23	2	27	42	13,056	35	1,714	551	62	11	27	7
Austria	6.0	55	6	55	78	9,569	29	2,112	261	1	64	35	82
Belarus	18.0	37	18	37	58	5,887	36	2,789	278	30	46	23	..
Belgium	0.9	12	1	12	18	1,770	34	..	..	..	..	..	102
Bosnia and Herzegovina	..	..	..	36	38	8,958	5	..	..	..	..	..	..
Bulgaria	6.4	20	6	21	21	2,721	1	10,498	1,296	19	78	3	106
Croatia	11.0	27	1	38	106	23,890	64	..	..	..	..	..	48
Czech Rep	1.4	13	1	13	13	1,286	0	2,566	250	2	57	41	..
Denmark	4.3	4	2	6	6	1,116	0	1,267	238	42	26	32	84
Estonia	4.0	12	3	13	13	9,794	1	163	120	5	39	56	..
Finland	2.2	107	2	107	110	21,093	3	2,478	479	3	84	14	62
France	100.0	177	98	179	204	3,371	12	39,959	674	10	74	16	280
Germany	45.7	106	45	107	154	1,866	31	47,052	572	20	68	12	788
Greece	10.3	56	8	58	74	6,764	22	7,759	712	81	3	16	57
Hungary	6.0	6	6	6	104	10,579	94	7,641	763	32	59	9	147
Iceland	24.0	166	20	170	170	582,192	0	153	543	0	66	34	..
Ireland	10.8	48	10	49	52	13,003	6	1,129	296	0	77	23	42
Italy	43.0	171	31	183	191	3,336	5	44,372	771	45	37	18	495
Latvia	2.2	17	2	17	35	15,507	53	293	124	12	33	55	24
Lithuania	1.2	15	1	16	25	7,276	38	267	76	7	15	78	37
Macedonia, FYR	..	5	..	5	6	..	16	..	..	..	..	..	..
Moldova, Rep	0.4	1	0	1	12	..	91	2,308	539	33	58	9	..
Netherlands	4.5	11	5	11	91	5,608	88	7,944	500	34	60	6	122
Norway	96.0	376	90	382	382	83,919	0	2,185	489	10	67	23	54
Poland	12.5	53	12	54	62	1,598	13	16,201	419	8	79	13	427
Portugal	4.0	38	4	38	69	6,821	45	11,263	1,125	78	12	10	124
Romania	8.3	42	8	42	212	9,512	80	23,176	1,031	57	34	9	..
Russian Federation	788.0	4,037	512	4,313	4,507	31,653	4	76,686	527	18	63	19	1,516
Serbia and Montenegro	3.0	42	1	44	209	..	79	..	..	..	..	..	111
Slovakia	1.7	13	2	13	50	9,266	75	..	..	..	..	..	60
Slovenia	13.5	19	13	19	32	16,080	41	..	..	..	..	..	38
Spain	29.9	110	28	111	112	2,711	0	35,635	874	68	19	13	357
Sweden	20.0	170	19	171	174	19,581	2	2,965	335	9	54	37	101
Switzerland	2.5	40	3	40	54	7,468	24	2,571	359	2	74	24	..
Ukraine	20.0	50	17	53	140	2,898	62	37,523	755	52	35	12	510
United Kingdom	9.8	144	9	145	147	2,474	1	9,541	163	3	75	22	583
MIDDLE EAST & N. AFRICA	**148.8**	**374**	**60**	**518**	**657**	**1,505**	**..**	**324,646**	**807**	**86**	**6**	**8**	**..**
Afghanistan	..	..	..	55	65	2,608	15	23,261	1,087	98	0	2	..
Algeria	1.7	13	1	14	14	443	3	6,074	201	65	13	22	46
Egypt	1.3	1	0	2	58	794	97	68,653	1,013	78	14	8	202
Iran, Islamic Rep	49.3	97	18	129	138	1,970	7	72,877	1,097	91	2	7	..
Iraq	1.2	34	0	35	75	2,917	53	42,702	1,839	92	5	3	..
Israel	0.5	0	0	1	2	255	55	2,041	338	63	7	31	..
Jordan	0.5	0	0	1	1	157	23	1,016	202	75	4	21	16
Kuwait	0.0	0	0	0	0	8	100	445	198	52	3	45	11
Lebanon	3.2	4	3	5	4	1,189	1	1,372	394	67	1	33	15
Libyan Arab Jamahiriya	0.5	0	0	1	1	106	0	4,811	919	89	3	8	..
Morocco	10.0	22	3	29	29	934	0	12,758	438	90	2	8	88
Oman	1.0	1	1	1	1	337	0	1,350	518	91	2	7	5
Saudi Arabia	2.2	2	2	2	2	96	0	17,320	782	89	1	10	..
Syrian Arab Rep	4.2	5	2	7	26	1,441	80	19,947	1,205	95	2	3	15
Tunisia	1.5	3	0	4	5	459	9	2,726	286	82	2	16	46
Turkey	69.0	186	28	227	229	3,171	1	37,519	550	74	11	15	175
United Arab Emirates	0.1	0	0	0	0	49	0	2,306	818	68	9	23	..
Yemen	1.5	4	1	4	4	198	0	6,631	368	95	1	4	..

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	Internal Renewable Water Resources (IRWR) {a}				Actual Renewable Water Resources {a}			Water Withdrawals					Industrial Water Pollution (kg/day) {e} 1997-2000
	Ground water Recharge (km^3)	Surface water (km^3)	Overlap (km^3)	Total (km^3) {b}	Total (km^3)	Per Capita (m^3 per person)	Dependency Ratio{c}	Total (million m^3) 2000	Per Capita (m^3 per person) 2000	Sectoral Withdrawals (percent), 2000 {d}			
										Agriculture	Industry	Domestic	
SUB-SAHARAN AFRICA	**1,548.5**	**3,812**	**1,468**	**3,901**	**5,463**	**6,322**	**..**	**113,361**	**173**	**88**	**4**	**9**	**..**
Angola	72.0	182	70	184	184	13,070	0	343	28	61	16	22	..
Benin	1.8	10	2	10	25	3,585	58	250	40	74	11	15	..
Botswana	1.7	2	1	3	14	8,022	80	140	81	43	19	38	5
Burkina Faso	9.5	8	5	13	13	933	0	780	66	88	0	11	3
Burundi	2.1	4	2	4	4	509	0	234	37	82	1	17	..
Cameroon	100.0	268	95	273	286	17,520	4	985	65	74	8	18	11
Central African Rep	56.0	141	56	141	144	36,912	2	22	6	4	19	77	..
Chad	11.5	14	10	15	43	4,857	65	234	30	80	1	19	..
Congo	198.0	222	198	222	832	217,915	73	39	11	10	30	59	..
Congo, Dem Rep	421.0	899	420	900	1,283	..	30	356	7	31	16	52	..
Côte d'Ivoire	37.7	74	35	77	81	4,794	5	931	59	65	12	23	12
Equatorial Guinea	10.0	25	9	26	26	51,282	0	106	232	1	16	83	..
Eritrea	..	..	..	3	6	1,466	56	304	82	95	1	4	..
Ethiopia	40.0	110	40	110	110	1,519	0	2,648	40	93	6	1	21
Gabon	62.0	162	60	164	164	121,392	0	128	102	40	11	48	..
Gambia	0.5	3	1	3	8	5,472	63	32	24	67	11	22	..
Ghana	26.3	29	25	30	53	2,489	43	520	27	48	15	37	..
Guinea	38.0	226	38	226	226	26,218	0	1,517	187	90	2	8	..
Guinea-Bissau	14.0	12	10	16	31	20,156	48	110	81	91	1	9	..
Kenya	3.0	17	0	20	30	932	33	1,576	52	64	6	30	51
Lesotho	0.5	5	1	5	3	1,678	0	54	30	19	41	40	3
Liberia	60.0	200	60	200	232	66,533	14	107	36	56	15	28	..
Madagascar	55.0	332	50	337	337	18,826	0	14,970	937	96	2	3	..
Malawi	1.4	16	1	16	17	1,401	7	1,005	88	81	5	15	11
Mali	20.0	50	10	60	100	7,458	40	6,930	582	99	0	1	..
Mauritania	0.3	0	0	0	11	3,826	96	1,698	642	88	3	9	..
Mozambique	17.0	97	15	99	216	11,266	54	635	36	87	2	11	10
Namibia	2.1	4	0	6	18	8,921	66	268	142	63	5	33	..
Niger	2.5	1	0	4	34	2,710	90	2,187	204	95	1	4	..
Nigeria	87.0	214	80	221	286	2,252	23	8,004	70	69	10	21	..
Rwanda	3.6	5	4	5	5	613	0	76	10	39	14	48	..
Senegal	7.6	24	5	26	39	3,811	33	1,591	169	90	4	6	8
Sierra Leone	50.0	150	40	160	160	30,960	0	380	86	93	2	5	..
Somalia	3.3	6	3	6	14	1,309	56	3,298	378	100	0	0	..
South Africa	4.8	43	3	45	50	1,106	10	15,306	348	73	10	17	235
Sudan	7.0	28	5	30	65	1,879	77	37,314	1,187	97	1	3	..
Tanzania, United Rep	30.0	80	28	82	91	2,416	10	1,996	57	93	1	6	34
Togo	5.7	11	5	12	15	2,930	22	166	36	47	8	45	..
Uganda	29.0	39	29	39	66	2,472	41	295	13	39	15	45	..
Zambia	47.0	80	47	80	105	9,630	24	1,737	167	76	8	16	..
Zimbabwe	5.0	13	4	14	20	1,547	30	2,612	207	86	5	10	..
NORTH AMERICA	**1,670.0**	**4,702**	**1,522**	**6,271**	**6,574**	**19,992**	**..**	**525,267**	**1,663**	**38**	**48**	**14**	**..**
Canada	370.0	2,840	360	2,850	2,902	91,419	2	45,974	1,494	12	69	20	300
United States	1,300.0 f	1,862 f	1,162 f	2,818	3,069	10,333	8	479,293	1,682	41	46	13	2,433
C. AMERICA & CARIBBEAN	**359.4**	**1,050**	**231**	**1,190**	**1,259**	**6,924**	**..**	**100,657**	**603**	**75**	**6**	**18**	**..**
Belize	..	..	..	16	19	71,111	14	125	519	0	89	11	..
Costa Rica	37.3	75	0	112	112	26,447	0	2,677	681	53	17	29	34
Cuba	6.5	32	0	38	38	3,365	0	8,204	732	69	12	19	..
Dominican Rep	11.7	21	12	21	21	2,367	0	3,386	405	66	2	32	..
El Salvador	6.2	18	6	18	25	3,815	30	1,273	205	59	16	25	22
Guatemala	33.7	101	25	109	111	8,788	2	2,005	176	80	13	6	19
Haiti	2.2	11	..	13	14	1,663	7	985	123	94	1	5	..
Honduras	39.0	87	30	96	96	13,513	0	860	133	81	11	8	..
Jamaica	3.9	6	0	9	9	3,513	0	409	159	49	17	34	..
Mexico	139.0	361	91	409	457	4,357	11	78,219	791	77	5	17	291
Nicaragua	59.0	186	55	190	197	35,142	4	1,300	256	83	3	14	..
Panama	21.0	144	18	147	148	46,579	0	824	279	28	5	66	12
Trinidad and Tobago	..	..	..	4	4	2,938	0	305	237	6	27	67	..
SOUTH AMERICA	**3,693.0**	**12,198**	**3,645**	**12,380**	**17,274**	**47,044**	**..**	**164,429**	**474**	**68**	**12**	**19**	**..**
Argentina	128.0	276	128	276	814	20,941	66	29,072	784	74	9	16	..
Bolivia	130.0	277	104	304	623	69,378	51	1,387	167	83	3	13	12
Brazil	1,874.0	5,418	1,874	5,418	8,233	45,573	34	59,298	345	62	18	20	..
Chile	140.0	884	140	884	922	57,639	4	12,539	824	64	25	11	71
Colombia	510.0	2,112	510	2,112	2,132	47,469	1	10,711	254	46	4	50	101
Ecuador	134.0	432	134	432	432	32,747	0	16,980	1,367	82	5	12	33
Guyana	103.0	241	103	241	241	314,211	0	1,642	2,163	97	1	2	..
Paraguay	41.0	94	41	94	336	55,833	72	489	89	72	9	20	..
Peru	303.0	1,616	303	1,616	1,913	69,395	16	20,132	776	82	10	8	..
Suriname	80.0	88	80	88	122	277,904	28	665	1,565	93	3	4	..
Uruguay	23.0	59	23	59	139	40,419	58	3,146	941	96	1	2	21
Venezuela	227.0	700	205	723	1,233	47,122	41	8,368	345	47	7	45	90
OCEANIA	**..**	**1,241**	**20**	**1,693**	**1,693**	**54,637**	**..**	**26,187**	**900**	**72**	**10**	**18**	**..**
Australia	72.0	440	20	492	492	24,708	0	23,932	1,250	75	10	15	94
Fiji	..	..	..	29	29	33,707	0	69	85	78	11	11	6
New Zealand	..	..	..	327	327	83,760	0	2,111	558	42	9	49	48
Papua New Guinea	..	801	..	801	801	137,252	0	75	14	1	43	56	..
Solomon Islands	..	..	..	45	45	91,039	0	..	..	..	..	..	..
DEVELOPED	**3,153.0**	**12,084**	**2,584**	**13,835**	**15,369**	**11,514**	**..**	**1221192.0**	**956**	**46**	**40**	**14**	**..**
DEVELOPING	**8,128.5**	**28,500**	**7,483**	**29,938**	**39,962**	**7,762**	**..**	**2583916.4**	**545**	**81**	**11**	**8**	**..**

a. Although data were obtained from FAO in 2004, they are long-term averages originating from multiple sources and years. For more information, please consult the original source at http://www.fao.org/waicent/faoinfo/agricult/agl/aglw/aquastat/water_res/index.htm. **b.** At the country level, Total Internal Renewable Water Resources = Surface Water + Groundwater - Overlap. Regional and global totals represent a sum of available country-level data. **c.** Dependency Ratio is the percentage of total renewable water resources originating outside the country. **d.** Sectoral withdrawal data may not add up to 100 because of rounding. **e.** The average daily industrial discharge of organic water pollutatants, in metric tons, between the years 1997 and 2000 is calculated by WRI based on the available data within that timeframe. **f.** Data do not include Alaska and Hawaii.

Technical Notes

DEFINITIONS AND METHODOLOGY

Internal Renewable Water Resources (IRWR) include the average annual flow of rivers and the recharge of groundwater (aquifers) generated from endogenous precipitation--precipitation occurring within a country's borders. IRWR are measured in cubic kilometers per year (km^3/year).

Groundwater Recharge is the total volume of water entering aquifers within a country's borders from endogenous precipitation and surface water flow. Groundwater resources are estimated by measuring rainfall in arid areas where rainfall is assumed to infiltrate into aquifers. Where data are available, groundwater resources in humid areas have been considered as equivalent to the base flow of rivers.

Surface Water produced internally includes the average annual flow of rivers generated from endogenous precipitation (precipitation occurring within a country's borders). Natural incoming flow originating from outside a country's borders are not included in the total. Surface water resources are usually computed by measuring or assessing total river flow occurring in a country on a yearly basis.

Overlap is the volume of water resources common to both surface and groundwater. It is subtracted when calculating IRWR to avoid double counting. Two types of exchanges create overlap: contribution of aquifers to surface flow, and recharge of aquifers by surface run-off. In humid temperate or tropical regions, the entire volume of groundwater recharge typically contributes to surface water flow. In karstic domains (regions with porous limestone rock formations), a portion of groundwater resources are assumed to contribute to surface water flow. In arid and semi-arid countries, surface water flows recharge groundwater by infiltrating through the soil during floods. This recharge is either directly measured or inferred by characteristics of the aquifers and piezometric levels.

Total Internal Renewable Water Resources is the sum of surface and groundwater resources minus overlap.

Actual Renewable Water Resources, gives the maximum theoretical amount of water actually available for each country, although in reality a portion of this water may be inaccessible to humans. Actual renewable water resources are defined as the sum of internal renewable resources (IRWR) and external renewable resources (ERWR). This takes into consideration the quantity of flow reserved to upstream and downstream countries through formal or informal agreements or treaties and possible reduction of external flow due to upstream water withdrawals. External renewable water resources (ERWR) are the portion of the country's renewable water resources which is not generated within the country. The ERWR include inflows from upstream countries (groundwater and surface water), and part of the water of border lakes or rivers.

Per Capita Actual Renewable Water Resources are measured in cubic meters per person per year (m^3/person/year). Per capita actual water resources were calculated by WRI using the United Nations Population Division's World Population Prospects: The 2002 Revision. For more information about the collection methodology and reliability of the UN population data, please refer to the technical notes in the Deomgraphics and Education data table.

Dependency Ratio is the percentage of total renewable water resources originating outside of the country. This indicator can be used to compare how different countries depend on external water resources. The dependency ratio may theoretically vary between 0 and 100 percent. A country with a dependency ratio equal to zero does not receive any water from neighboring countries. A country with a dependency ratio equal to 100 percent receives all its water from external sources without producing any. This ratio does not consider the possible allocation of water to downstream countries.

Water Withdrawals (annual), measured in million cubic meters, is the gross amount of water extracted from any source, either permanently or temporarily, for a given use. It can be either diverted towards distribution networks or directly used. It includes consumptive use, conveyance losses, and return flow. Total water withdrawal is the sum of estimated water use by the agricultural, domestic, and industrial sectors.

Per Capita Annual Withdrawals were calculated using national population data from the United Nations Population Division for the year 2000.

Sectoral Withdrawals, expressed as a percentage, refers to the proportion of water used for one of three purposes: agriculture, industry, and domestic uses. All water withdrawals are allocated to one of these three categories.
Agriculture uses of water primarily include irrigation and, to a lesser extent, livestock maintenance.
Industry uses include cooling machinery and equipment, producing energy, cleaning and washing goods produced as ingredients in manufactured items, and as a solvent.
Domestic uses include drinking water plus water withdrawn for homes, municipalities, commercial establishments, and public services (e.g. hospitals).

Most Freshwater resources data were provided by AQUASTAT, a global database of water statistics maintained by the Food and Agriculture Organization of the United Nations (FAO). AQUASTAT collects its information from a number of sources--national water resources and irrigation master plans; national yearbooks, statistics and reports; reports from FAO; international surveys; and, results from surveys made by national or international research centres. In most cases, the information was analyzed to ensure consistency between the different data collected for a given country.

When possible, cross-checking of information between countries was used to improve assessment in countries where information was limited. When several sources give different or contradictory figures, preference was always given to information collected at national or sub-national level. This preference is based on the assumption that no regional information can be more accurate than studies carried out at the country level. In general, official rather than unofficial sources were used. In the case of shared water resources, a comparison between countries was made to ensure consistency at river-basin level.

Industrial Water Pollution, shown here in average metric tons per day is measured by biochemical oxygen demand (BOD), which refers to the amount of oxygen, in kilograms per day (kg/day), that bacteria in water will consume in breaking down waste. For example, an overload of sewage in natural waters exhausts the water's dissolved oxygen content. Low levels of dissolved oxygen in water can impact the health of aquatic resources and ecosystems. BOD is a standard water-treatment test that determines the difference between the final dissolved oxygen concentration and the initial dissolved oxygen concentration. This difference represents the oxygen consumed (or BOD) in breaking down the organic materials in the sample.

A 1998 World Bank study carried out by Hettige, Mani, and Wheeler used plant and sector-level information on organic discharge (measured by BOD) and employment from 13 national environmental protection agencies and sector-level information on output and employment from the United Nations Industrial Development Organization (UNIDO). Their economic analysis found that the ratio of BOD to employment in each industrial sector is about the same across countries. This finding allowed the authors to estimate BOD intensities per unit of employment across countries and over time. Multiplying these estimates by sectoral employment numbers from UNIDO's industry database for 1980 to 1998 provides sectoral emissions, which were then used to calculate daily emissions of organic water pollutants (BOD) per day. These data were later updated through 2000 using the same methodology. For further information, please refer to the Hettige, Mani, and Wheeler print publication, which is availabile online at:
http://www.worldbank.org/nipr/work_paper/kuznet/kuznets.pdf.

FREQUENCY OF UPDATE BY DATA PROVIDERS
AQUASTAT was developed by the Food and Agriculture Organization of the United Nations in 1993; data have been available on-line since 2001. Most freshwater data are not available in a time series, and the global data set contains data collected over a time span of up to 30 years. AQUASTAT updates their website as new data become available, or when FAO conducts special regional studies. Most data updates include revisions of of past data. *World Development Indicators* is updated and published annually by The World Bank.

DATA RELIABILITY AND CAUTIONARY NOTES

While AQUASTAT represents the most complete and careful compilation of country-level water resources statistics to date, the primary information on which it relies is of variable quality. Information sources are various but rarely complete. Some governments will keep internal water resources information confidential because they are competing for water resources with bordering countries. Many instances of water scarcity are highly localized and are not reflected in national statistics. In addition, the accuracy and reliability of information vary greatly among regions, countries, and categories of information, as does the year in which the information was gathered. As a result, no consistency can be ensured among countries on the duration and dates of the period of reference. All data should be considered order-of-magnitude estimates.

Groundwater Recharge is sometimes overestimated in arid areas and underestimated in humid areas.

Actual Renewable Water Resources vary with time. Exchanges between countries are complicated when a river crosses the same border several times. Part of the incoming water flow may thus originate from the same country in which it enters, making it necessary to calculate a "net" inflow to avoid double counting of resources. In addition, the water that is actually accessible to humans for consumption is often much smaller than the total renewable water resources indicated in the data table.

Actual Renewable Water Resources Per Capita contains water resources data from a different set of years than the population data used in the calculation. While the water resources data are usually long-term averages, inconsistencies may arise when combining it with 2002 population data. For more information about the collection methodology and reliability of the UN population data, please refer to the Demographics and Education table.

Industrial Water Pollution focuses on organic water pollution resulting from industrial activities only. Organic matter can also come from sources that are not as easily identifiable as those associated with industrial activities. Such sources are known as non-point sources and some examples include agricultural runoff and livestock operations. These non-point sources can contribute significantly to the oxygen demand in water and are not represented by the data displayed here. Water pollution tends to be sensitive to local conditions. As such, the national level data may not reflect the quality of water in specific locations. BOD is typically measured in a laboratory environment, where it is difficult to reproduce ambient conditions like temperature, sunlight, and water movement; therefore the measurement should be considered an estimate.

SOURCES

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