Food and Water

Sources: Food and Agriculture Organization of the United Nations, Keele University, World Health Organization, United Nations Children's Fund

	Intensity of Agricultural Inputs				Food Security and Nutrition			Fisheries Production		Water Resources				
	Agricultural Land {a} (1,000 ha) 2003	Fertilizer (kg/ha) 2003	Water (m^3/ha) 2000	Labor (percent of workforce in agriculture) 2004	Calorie Supply, 2003 (kcal/person/day) Total	Calorie Supply, 2003 (kcal/person/day) Percent from Animal Products	Percent of Population That is Under-nourished 2002–2004	Total Production in 2005 (metric tons)	Percent Change Since 1995	Actual Renewable Water Resources {b} Total (km^3)	Actual Renewable Water Resources {b} Per Capita (m^3 per person)	Water Poverty Index 2002	Use of an Improved Water Source (percent of population) 2004 Urban	Use of an Improved Water Source (percent of population) 2004 Rural
World	**4,423,482**	**110**	**..**	**43**	**2,809**	**17**	**14**	**157,531,214**	**26**	**54,228**	**8,210**	**..**	**95**	**73**
Asia (excl. Middle East)	**770,403**	**221**	**..**	**55**	**2,681**	**15**	**15**	**102,480,487**	**51**	**14,514**	**3,948**	**..**	**93**	**76**
Armenia	1,390	19	3,464	11	2,357	19	24	1,033	(47)	11	3,511	54	99	80
Azerbaijan	4,754	8	5,825	25	2,727	14	7	9,016	(18)	30	3,547	..	95	59
Bangladesh	9,019	187	8,999	52	2,193	3	30	2,215,957	100	1,211	8,232	54	82	72
Bhutan	585	..	2,500	94	..	..	..	300	(12)	95	42,035	56	86	60
Cambodia	5,350	4	1,051	69	2,074	9	33	426,000	279	476	32,526	46	64	35
China	554,851	257 c	2,871	64	2,940	22	12	60,630,984	85	2,829	2,125	51	93	67
Georgia	3,006	23	2,006	18	2,646	17	9	3,072	(17)	63	14,406	60	96	67
India	180,000	95	3,289	58	2,473	8	20	6,323,557	26	1,897	1,670	53	95	83
Indonesia	47,600	79	2,250	46	2,891	5	6	6,513,133	48	2,838	12,441	65	87	69
Japan	4,736	366	11,435	3	2,768	21	< 2.5	5,433,436	(28)	430	3,351	65	100	100
Kazakhstan	207,784	6	1,321	16	2,858	25	6	31,589	(37)	110	7,405	58	97	73
Korea, Dem People's Rep	2,950	..	1,771	27	2,178	6	33	712,995	(33)	77	3,403	..	100	100
Korea, Rep	1,902	367	4,651	8	3,035	16	< 2.5	2,711,667	(19)	70	1,448	62	97	71
Kyrgyzstan	10,840	10	6,799	23	3,173	18	4	27	(93)	21	3,821	64	98	66
Lao People's Dem Rep	1,939	..	2,818	76	2,338	7	19	107,800	168	334	53,859	54	79	43
Malaysia	7,870	175	736	16	2,867	18	3	1,424,097	14	580	22,104	67	100	96
Mongolia	130,500	3	196	22	2,250	39	27	366	132	35	12,837	55	87	30
Myanmar	11,293	2	3,109	69	2,912	5		2,217,466	169	1,046	20,313	54	80	77
Nepal	4,217	15	4,043	93	2,483	7	17	42,463	101	210	7,447	54	96	89
Pakistan	27,230	150	7,407	45	2,316	20	24	515,472	(5)	223	1,353	58	96	89
Philippines	12,200	88	1,981	37	2,480	15	18	4,145,044	48	479	5,577	61	87	82
Singapore	0	..	950	0	..	..	..	7,837	(43)	1	135	56	100	..
Sri Lanka	2,356	130	6,283	44	2,416	6	22	164,230	(30)	50	2,372	56	98	74
Tajikistan	4,255	..	10,359	31	1,907	10	56	210	(45)	16	2,392	59	92	48
Thailand	18,487	128	4,300	53	2,425	13	22	3,743,398	4	410	6,280	64	98	100
Turkmenistan	32,966	..	12,554	32	2,840	21	7	15,016	32	25	4,979	70	93	54
Uzbekistan	27,259	..	11,268	25	2,312	17	25	5,425	(61)	50	1,842	61	95	75
Viet Nam	9,537	253	5,974	66	2,617	13	16	3,397,200	130	891	10,310	52	99	80
Europe	**480,665**	**80**	**..**	**8**	**3,354**	**28**	**<2.5**	**16,273,014**	**(15)**	**7,793**	**10,686**	**..**	**100**	**..**
Albania	1,121	70	1,517	46	2,874	28	6	5,275	207	42	13,184	..	99	94
Austria	3,376	221	14	4	3,732	33	< 2.5	2,790	(16)	78	9,455	75	100	100
Belarus	8,885	153	134	11	2,885	27	4	5,050	(18)	58	6,014	61	100	100
Belgium	1,394	..	..	2	3,634	31	< 2.5	25,767	(29)	18	1,751	61	100	100
Bosnia and Herzegovina	2,148	16	..	4	2,668	13	9	9,070	505	38	9,566	..	99	96
Bulgaria	5,326	126	521	6	2,885	24	8	8,579	(32)	21	2,797	63	100	97
Croatia	3,137	108	..	7	2,795	20	7	48,465	139	106	23,161	68	100	100
Czech Rep	4,270	118	18	7	3,308	25	< 2.5	24,697	9	13	1,290	61	100	100
Denmark	2,658	136	236	3	3,472	36	< 2.5	949,625	(54)	6	1,099	61	100	100
Estonia	829	436	9	10	3,222	26	< 2.5	100,136	(25)	13	9,696	..	100	99
Finland	2,246	118	30	5	3,143	37	< 2.5	146,096	(21)	110	20,857	78	100	100
France	29,690	209	200	3	3,623	37	< 2.5	909,483	(6)	204	3,343	68	100	100
Germany	17,001	226	775	2	3,484	31	< 2.5	330,353	9	154	1,862	65	100	100
Greece	8,431	115	1,622	15	3,666	23	< 2.5	198,951	8	74	6,653	66	..	..
Hungary	5,865	102	510	9	3,552	32	< 2.5	21,270	28	104	10,353	61	100	98
Iceland	2,281	..	29	7	3,275	41	< 2.5	1,690,383	4	170	566,667	77	100	100
Ireland	4,370	452	0	9	3,717	32	< 2.5	352,082	(22)	52	12,187	73	100	..
Italy	15,074	150	1,773	4	3,675	26	< 2.5	480,921	(21)	191	3,289	61	100	..
Latvia	1,582	91	21	11	3,014	28	3	151,160	1	35	15,521	..	100	96
Lithuania	2,541	143	7	10	3,372	27	< 2.5	141,798	140	25	7,317	..	..	..
Macedonia, FYR	1,242	22	..	10	2,852	18	5	1,114	(26)	6	3,137	..	..	..
Moldova, Rep	2,528	7	353	20	2,729	16	11	5,001	137	12	2,783	49	97	88
Netherlands	1,923	580	2,850	3	3,495	30	< 2.5	617,383	18	91	5,539	69	100	100
Norway	1,040	186	261	4	3,511	31	< 2.5	3,203,476	7	382	81,886	77	100	100
Poland	16,169	108	94	20	3,366	26	< 2.5	192,854	(58)	62	1,601	56	100	..
Portugal	3,812	122	3,503	11	3,747	29	< 2.5	218,866	(20)	69	6,485	65	..	..
Romania	14,800	37	1,333	13	3,582	23	< 2.5	13,352	(81)	212	9,837	59	91	16
Russian Federation	216,277	10	108	9	3,118	22	3	3,356,327	(24)	4,507	31,764	63	100	88
Serbia {d}	5,595	434	..	17	2,703	35	9	7,022	82	209	19,870	..	99	86
Slovakia	2,236	92	..	8	2,779	27	7	2,648	(26)	50	9,276	71	100	99
Slovenia	510	334	..	1	2,954	31	3	2,763	(7)	32	16,219	69	..	..
Spain	29,154	119	1,324	6	3,421	28	< 2.5	1,071,178	(25)	112	2,557	64	100	100
Sweden	3,166	118	96	3	3,208	36	< 2.5	262,239	(36)	174	19,131	72	100	100
Switzerland	1,525	178	114	4	3,545	34	< 2.5	2,689	(2)	54	7,354	72	100	100
Ukraine	41,355	13	588	13	3,054	20	< 2.5	274,210	(36)	140	3,066	..	99	91
United Kingdom	16,956	306	47	2	3,450	31	< 2.5	842,271	(17)	147	2,449	72	100	100
Middle East & N. Africa	**460,345**	**77**	**..**	**30**	**3,116**	**11**	**6**	**3,894,801**	**29**	**657**	**1,398**	**..**	**94**	**79**
Afghanistan	38,048	..	2,839	66	..	..	..	1,000	(23)	65	2,015	..	63	31
Algeria	39,956	5	481	23	3,055	10	4	126,628	19	14	423	50	88	80
Egypt	3,409	535	17,928	31	3,356	8	4	889,302	118	58	759	58	99	97
Iran, Islamic Rep	63,012	60	4,057	25	3,096	9	4	527,912	43	138	1,931	60	99	84
Iraq	10,019	..	6,791	8	..	..	..	32,970	7	75	2,490	..	97	50
Israel	552	2,329	3,019	2	3,554	21	< 2.5	26,555	26	2	240	54	100	100
Jordan	1,004	619	1,905	10	2,680	10	6	1,071	80	1	148	46	99	91
Kuwait	154	0	19,167	1	3,061	18	5	5,222	(40)	0	7	54	..	..
Lebanon	329	102	2,771	3	3,164	17	3	4,601	5	4	1,206	56	100	100
Libyan Arab Jamahiriya	15,450	28	1,648	5	3,337	11	< 2.5	46,342	34	1	99	..	..	..
Morocco	30,376	53	1,141	33	3,098	7	6	947,777	10	29	895	46	99	56
Oman	1,080	88	15,375	34	..	..	..	150,744	8	1	369	59	..	..
Saudi Arabia	173,798	113	4,074	7	2,840	15	4	74,778	55	2	93	53	97	..
Syrian Arab Rep	13,824	62	3,537	26	3,057	14	4	16,980	46	26	1,314	55	98	87
Tunisia	9,784	21	434	23	3,247	11	< 2.5	111,818	33	5	442	51	99	82
Turkey	40,644	77	1,056	43	3,328	12	3	545,673	(17)	229	3,051	57	98	93
United Arab Emirates	559	237	6,356	4	3,238	23	< 2.5	90,570	(14)	0	31	52	100	100
Yemen	17,734	3	3,787	46	2,020	8	38	263,000	144	4	184	44	71	65

	Intensity of Agricultural Inputs				Food Security and Nutrition			Fisheries Production		Water Resources				
					Calorie Supply, 2003 (kcal/person/day)					Actual Renewable Water Resources {b}			Use of an Improved Water Source (percent of population) 2004	
	Agricultural Land {a} (1,000 ha) 2003	Fertilizer (kg/ha) 2003	Water (m^3/ha) 2000	Labor (percent of workforce in agriculture) 2004	Total	Percent from Animal Products	Percent of Population That is Under-nourished 2002–2004	Total Production in 2005 (metric tons)	Percent Change Since 1995	Total (km^3)	Per Capita (m^3 per person)	Water Poverty Index 2002	Urban	Rural
Sub-Saharan Africa	**1,046,854**	**11**	**..**	**61**	**2,272**	**7**	**30**	**5,925,170**	**31**	**5,463**	**6,957**	**..**	**81**	**43**
Angola	57,590	2	64	71	2,089	8	35	240,000	95	184	10,909	41	75	40
Benin	3,467	1	22	50	2,574	4	12	38,407	(13)	25	2,765	39	78	57
Botswana	25,980	..	211	44	2,196	13	32	132	(34)	14	8,215	57	100	90
Burkina Faso	10,900	5	168	92	2,516	5	15	9,007	13	13	890	42	94	54
Burundi	2,345	0	168	90	1,647	2	66	14,200	(33)	4	442	40	92	77
Cameroon	9,160	6	102	55	2,286	6	26	142,682	51	286	16,920	54	86	44
Central African Rep	5,149	..	1	69	1,932	12	44	15,000	7	144	34,787	44	93	61
Chad	48,630	..	54	71	2,147	7	35	70,000	(22)	43	4,174	39	41	43
Congo	10,547	..	7	37	2,183	7	33	58,448	27	832	196,319	57	84	27
Congo, Dem Rep	22,800	..	14	61	1,606	2	74	222,965	40	1,283	20,973	46	82	29
Côte d'Ivoire	19,900	12	88	45	2,644	4	13	55,866	(21)	81	4,315	46	97	74
Equatorial Guinea	334	..	4	68	..	..	..	3,500	52	26	49,336	68	45	42
Eritrea	7,532	2	515	76	1,520	6	75	4,027	13	6	1,338	37	74	57
Ethiopia	31,769	5	487	81	1,858	5	46	9,450	48	110	1,355	35	81	11
Gabon	5,160	2	101	33	2,671	11	5	43,941	9	164	114,766	62	95	47
Gambia	779	..	69	78	2,288	6	29	32,000	35	8	5,019	48	95	77
Ghana	14,735	3	107	56	2,680	5	11	393,428	11	53	2,314	45	88	64
Guinea	12,450	1	850	82	2,447	4	24	96,571	42	226	23,042	52	78	35
Guinea-Bissau	1,630	..	263	82	2,051	7	39	6,200	(2)	31	18,430	48	79	49
Kenya	26,512	79	200	74	2,155	13	31	149,378	(23)	30	839	47	83	46
Lesotho	2,334	..	30	38	2,626	4	13	46	15	3	1,693	43	92	76
Liberia	2,602	..	101	66	1,930	3	50	10,000	13	232	67,207	..	72	52
Madagascar	27,550	2	4,089	73	2,056	8	38	144,900	19	337	17,186	48	77	35
Malawi	4,440	20	362	81	2,125	3	35	59,595	11	17	1,285	38	98	68
Mali	39,479	..	1,262	79	2,237	10	29	101,098	(24)	100	6,981	41	78	36
Mauritania	39,750	..	3,000	52	2,786	18	10	247,577	366	11	3,511	50	59	44
Mozambique	48,580	8	133	80	2,082	2	44	43,751	62	216	10,531	45	72	26
Namibia	38,820	1	260	38	2,290	16	24	552,812	(3)	18	8,658	60	98	81
Niger	38,500	0	143	87	2,170	5	32	50,058	1,271	34	2,257	35	80	36
Nigeria	72,600	7	179	30	2,714	3	9	579,537	58	286	2,085	44	67	31
Rwanda	1,935	..	89	90	2,071	3	33	8,186	142	5	551	39	92	69
Senegal	8,157	13	860	72	2,374	9	20	405,264	11	39	3,225	45	92	60
Sierra Leone	2,845	..	636	60	1,943	4	51	145,993	125	160	27,577	42	75	46
Somalia	44,071	..	3,074	69	..	..	..	30,000	7	14	1,620	..	32	27
South Africa	99,640	51	499	8	2,962	13	< 2.5	830,369	42	50	1,048	52	99	73
Sudan	134,600	4	2,166	57	2,260	20	26	63,608	41	65	1,707	49	78	64
Tanzania, United Rep	48,100	9	926	79	1,959	6	44	354,351	(4)	91	2,291	48	85	49
Togo	3,630	7	29	57	2,358	3	24	29,267	139	15	2,272	46	80	36
Uganda	12,462	1	17	78	2,360	6	19	427,575	105	66	2,133	44	87	56
Zambia	35,289	..	250	67	1,975	5	46	70,125	(6)	105	8,726	50	90	40
Zimbabwe	20,550	33	990	60	2,004	8	47	15,452	(7)	20	1,520	53	98	72
North America	**484,646**	**103**	**..**	**2**	**3,739**	**28**	**<2.5**	**6,872,348**	**1**	**5,576**	**16,558**	**..**	**100**	**100**
Canada	67,505	52	104	2	3,605	26	< 2.5	1,255,821	33	2,902	88,336	78	100	99
United States	416,902	118	1,111	2	3,754	28	< 2.5	5,396,735	(6)	2,071	6,816	65	100	100
C. America & Caribbean	**141,861**	**61**	**..**	**22**	**2,902**	**17**	**11**	**2,040,714**	**5**	**1,259**	**6,653**	**..**	**96**	**84**
Belize	152	263	303	30	2,876	22	4	14,548	37	19	66,268	66	100	82
Costa Rica	2,865	339	2,724	18	2,813	20	5	46,378	92	112	25,157	67	100	92
Cuba	6,655	13	1,409	13	3,286	11	< 2.5	52,387	(49)	38	3,368	..	95	78
Dominican Rep	3,696	..	1,404	14	2,281	15	29	12,086	(40)	21	2,295	59	97	91
El Salvador	1,704	56	854	27	2,556	13	11	43,317	178	25	3,546	56	94	70
Guatemala	4,652	87	819	44	2,227	9	22	16,756	40	111	8,410	59	99	92
Haiti	1,590	..	846	60	2,109	8	46	8,310	50	14	1,599	35	52	56
Honduras	2,936	41	484	28	2,373	14	23	48,580	61	96	12,755	60	95	81
Jamaica	513	3	704	19	2,690	15	9	18,766	(34)	9	3,520	58	98	88
Mexico	107,300	68	2,210	19	3,171	19	5	1,449,535	3	457	4,172	58	100	87
Nicaragua	6,976	30	502	17	2,291	11	27	40,897	241	197	34,416	58	90	63
Panama	2,230	39	334	18	2,287	24	23	222,756	7	148	44,266	67	99	79
Trinidad and Tobago	133	502	164	8	2,788	17	10	13,414	16	4	2,925	59	92	88
South America	**579,599**	**109**	**..**	**16**	**2,886**	**21**	**9**	**18,316,451**	**(9)**	**17,274**	**44,816**	**..**	**96**	**65**
Argentina	128,747	42	747	9	2,959	28	3	933,902	(21)	814	20,591	61	98	80
Bolivia	37,087	4	371	43	2,219	18	23	7,090	12	623	65,358	63	95	68
Brazil	263,600	140	562	15	3,146	21	7	1,008,066	54	8,233	43,028	61	96	57
Chile	15,242	215	3,470	15	2,872	22	4	5,453,882	(31)	922	55,425	69	100	58
Colombia	42,051	196	1,083	18	2,567	16	13	181,074	8	2,132	45,408	66	99	71
Ecuador	7,249	82	4,686	23	2,641	19	6	486,023	(20)	432	31,739	67	97	89
Guyana	1,740	20	3,137	16	2,764	16	8	53,980	12	241	320,479	76	83	83
Paraguay	24,836	69	119	33	2,524	18	15	23,100	9	336	52,133	56	99	68
Peru	21,210	73	3,832	28	2,579	13	12	9,421,130	5	1,913	66,431	64	89	65
Suriname	89	93	9,254	18	2,697	12	8	40,191	209	122	268,132	75	98	73
Uruguay	14,955	99	2,141	12	2,883	27	< 2.5	125,953	(0)	139	39,612	67	100	100
Venezuela	21,640	129	1,166	7	2,272	15	18	492,210	(3)	1,233	44,545	65	85	70
Oceania	**459,109**	**61**	**..**	**19**	**..**	**..**	**..**	**1,582,359**	**39**	**1,693**	**52,674**	**..**	**96**	**83**
Australia	439,500	46	356	4	3,135	33	< 2.5	307,392	23	492	23,911	62	100	100
Fiji	460	12	175	38	2,974	17	5	41,597	39	29	33,159	62	43	51
New Zealand	17,235	280	266	9	3,199	32	< 2.5	640,845	2	327	79,893	69	100	..
Papua New Guinea	1,050	101	1	72	..	..	..	250,582	536	801	131,011	55	88	32
Solomon Islands	117	..	..	72	2,260	7	21	28,658	(55)	45	89,044	..	94	65
Developed	**1,827,874**	**86**	**..**	**6**	**3,328**	**26**	**<2.5**	**30,234,605**	**(13)**	**14,450**	**10,637**	**..**	**100**	**93**
Developing	**2,604,477**	**131**	**..**	**53**	**2,675**	**14**	**17**	**127,153,044**	**42**	**39,837**	**7,580**	**..**	**91**	**71**

a. Includes arable and permanent cropland and permanent pasture. **b.** Although water data were obtained from FAO in 2007, they are long-term averages originating from multiple sources and years.
c. Data from 2002. **d**. Data for Serbia include the country of Montenegro (these countries were a single nation from 2003 to 2006).

Food and Water: Technical Notes

DEFINITIONS AND METHODOLOGY

Agricultural Land, in thousand hectares, is the total area of all arable and permanent cropland and permanent pasture. Arable land includes land under annual crops, temporary meadows, kitchen gardens, and land fallow for less than 5 years. Abandoned land resulting from shifting cultivation is not included. Permanent cropland is cultivated with crops that occupy the land for long periods and need not be replanted after each harvest, including land under trees grown for wood or timber. Permanent pasture is the amount of land used permanently (5 years or more) for herbaceous forage crops, either cultivated or growing wild (wild prairie or grazing land). Data on land use are reported by country governments, in surveys distributed by the Food and Agriculture Organization of the United Nations (FAO).

Fertilizer intensity measures the mass in kilograms of the nutrients nitrogen, potash, and phosphate consumed annually per hectare of arable and permanent cropland. Some countries report data based on the fertilizer year; that is, 2003 data actually encompassed July 1, 2003, to June 30, 2004. Data are collected through the FAO fertilizer questionnaire, with support from the Ad Hoc Working Party on Fertilizer Statistics.

Water intensity measures, in cubic meters, the annual volume of water used in the agricultural sector per hectare of arable and permanent cropland. Water use for agriculture is defined as the water withdrawals that are attributed to the agricultural sector, used primarily for irrigation. WRI calculates water intensity by dividing water use data by the extent of agricultural land, using statistics from FAO's AQUASTAT information system in the FAOSTAT database. To estimate agricultural water use, an assessment has to be made both of irrigation water requirements and of water withdrawals for agriculture. AQUASTAT collects its information from a number of sources, including national water resources and irrigation master plans; national yearbooks, statistics, and reports; reports from FAO; international surveys; and surveys made by national or international research centers.

Labor intensity refers to the percentage of the total labor force economically active in agriculture, hunting, forestry, or fishing. The International Labor Organization (ILO) defines economically active as "all persons of either sex who furnish the supply of labour for the production of economic goods and services." The ILO derives the labor estimates from population censuses and sample surveys. When country data are missing, the ILO estimates figures from similar neighboring countries or by using special models of activity rates. FAO provided the annual figures used for these calculations through interpolating and extrapolating the ILO's decennial series.

Calorie Supply, Total refers to the amount of available food per person per day, expressed in kilocalories. **Percent from Animal Products** refers to the percent of available food that is derived from animal products, including all types of meat and fish; animal fats and fish oils; edible offal; milk, butter, cheese, and cream; and eggs and egg products. FAO compiles statistics on apparent food consumption based on supply/utilization accounts (SUAs) maintained in FAOSTAT, its on-line statistical service. FAO derives caloric values by applying food composition factors to the quantities of the processed commodities.

Percent of Population That is Undernourished refers to the proportion of the population with food intake that is continuously below a minimum dietary energy requirement for maintaining a healthy life and carrying out light physical activity. Data represent country averages over a 3-year period from 2002 to 2004. FAO estimates the number of undernourished individuals using calculations of the amount of food available in each country and a measure of inequality in distribution derived from household income/ expenditure surveys. The total undernourished population is calculated as the number of people who fall below a minimum energy requirement, which is estimated by sex and age group based on a reference body weight. This minimum energy requirement varies by country but typically averages between 1,750 and 2,030 kilocalories per person daily.

Fisheries Production data refer to both the nominal catch (capture) and the harvest (aquaculture) of fish, crustaceans, mollusks, aquatic mammals, and other aquatic animals taken for commercial, industrial, recreational, and subsistence purposes from marine, brackish, and inland waters. Statistics for aquatic plants are excluded from country totals. Data include all quantities caught and harvested for both food and feed purposes but exclude catch discarded at sea. Production of fish, crustaceans, and mollusks is expressed in live weight, the nominal weight of the aquatic organisms at the time of harvest. Most fisheries statistics are collected by FAO from questionnaires sent to national fisheries agencies. When these data are missing or considered unreliable, FAO estimates fishery production based on regional fishery organizations, project documents, industry magazines, or statistical interpolations.

Actual Renewable Water Resources gives the maximum theoretical amount of water annually available for each country in cubic kilometers. **Per Capita Actual Renewable Water Resources** gives the maximum theoretical amount of water annually available, on a per person basis, in cubic meters. Actual renewable water resources are defined as the sum of internal renewable resources (IRWR) and external renewable resources (ERWR), taking 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 abstraction. IRWR are composed of the average annual flow of rivers and recharge of groundwater (aquifers) generated from endogenous (internal) precipitation. ERWR are the portion of the country's renewable water resources that is not generated within the country, including inflows from upstream countries and a portion of border lakes or rivers.

Per capita water resources data are calculated by WRI using 2000 population estimates (or other appropriate year as indicated in footnotes) from the UN Population Division. Water resources data were compiled by the FAO from a number of sources: national water resources and irrigation master plans; national yearbooks, statistics, and reports; reports from FAO; international surveys; and surveys made by national or international research centers.

The **Water Poverty Index (WPI)** measures, for a given country, the impact of water scarcity and water provision on human populations. The WPI is a number between 0 and 100, where a low score indicates water poverty and a high score indicates good water provision. The WPI is the culmination of an interdisciplinary approach that combines both the physical quantities relating to water availability and the socioeconomic factors relating to poverty to produce an indicator that addresses the diverse factors that affect water resource management. The index is composed of five component indices: resources, access, capacity, use, and environment.

Use of an Improved Water Source measures the total proportion of the population with access to an improved drinking water source. An improved water source includes any of the following: household connections, public standpipes, boreholes, protected dug wells, protected springs, and rainwater collection. Improved water sources are more likely to provide safe drinking water than unimproved sources but are not a direct measure of "safe" drinking water. Examples of unimproved water sources include unprotected wells and springs, surface water, vendor-provided water, tanker-provided water, and bottled water if it is not consistently available in sufficient quantities. Both urban and rural access are shown here. Any person not inhabiting an area classified as urban is counted in the rural population. The definition of an urban area varies slightly from country to country; the smallest urban agglomerations typically have a population between 2,000 and 10,000 people. Data are collected by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) using a variety of household survey instruments, including the Demographic Health Surveys, Multiple Indicator Cluster Surveys, Living Standards Measurement Studies, and World Health Surveys.

FREQUENCY OF UPDATE BY DATA PROVIDERS

Land, fertilizer, labor, nutrition, and fisheries data are updated annually by FAO. Water resources data are updated intermittently as new values become available. The Water Poverty Index was created by the Center for Ecology and Hydrology in 2002 and has not been updated. The Use of Improved Water Source data set is a Millennium Development Indicator and is updated every 1–3 years to measure a country's progress toward the Millennium Development Goals.

DATA RELIABILITY AND CAUTIONARY NOTES

Agricultural Land: Data are compiled from various sources, so definitions and coverage do not always conform to FAO recommendations and may not always be completely consistent across countries.

Fertilizer: Data are excluded for some countries with a relatively small area of cropland, such as Iceland and Singapore. In these cases, the calculation of fertilizer consumed per hectare of cropland yields an unreliable number.

Labor: Values vary widely among and within countries according to labor scarcity, production technologies, and costs of energy and machinery. The annual figures for total number of agricultural workers were obtained by interpolating and extrapolating past trends (1950–2000), taken from ILO decennial population series. As a result, fluctuations in the labor force may not be captured in annual figures. Labor intensity may be overestimated in countries with substantial fishing or forestry industries, since the total agricultural labor force includes some workers engaged in these activities.

Calorie Supply: Figures shown here represent only the average calorie supply available for the population as a whole and do not necessarily indicate what is actually consumed by individuals. Even if data are used as approximations of per capita consumption, it is important to note that there is considerable variation in consumption among individuals. Food supply data are only as accurate as the underlying production, trade, and utilization data.

Percent of Population That is Undernourished: Food balance sheets provide data for the available food supply, not specific consumption, so waste and other losses are not accounted for. Also, since production statistics are typically available only for major food crops, non-commercial or subsistence-level production is not always included. Crops that are either continuously or selectively harvested, such as cassava and plantains, may not be accurately accounted for, and subsistence hunting of wild game and insects is typically ignored. Data for 2002–2004 are preliminary. In all likelihood, these numbers will change in future revisions as estimates are refined.

Total Fisheries Production: FISHSTAT provides the most extensive global time series of fishery statistics since 1950. However, country-level data are often submitted with a 1–2 year delay. Statistics from smaller artisanal and subsistence fisheries are sparse. While these figures provide a good overview of regional trends, data should be used with caution and supplemented with estimates from regional organizations, academic literature, expert consultations, and trade data. For more information, consult *Fishery Statistics Reliability and Policy Implications*, published by the FAO Fisheries Department.

Water Resources: While AQUASTAT represents the most complete and careful compilation of water resources statistics to date, freshwater data are generally of poor quality. Sources of information vary but are rarely complete. Access to information on water resources is still sometimes restricted for reasons related to political sensitivity at the regional level. 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.

Water Poverty Index: The WPI focuses public attention on the important issue of water scarcity and allows individuals to quickly understand the degree of water stress in a country. However, the freshwater data used to build this index are incomplete and frequently incomparable across countries; users of this index should always treat these numbers as order-of-magnitude estimates.

Use of an Improved Water Source: These data have become more reliable as WHO and UNICEF shift from provider-based information (national census estimates) to consumer-based information (survey data). Nonetheless, comparisons among countries should be made with care. Definitions of urban and rural are not consistent across countries. The assessment does not account for intermittent or poor quality of water supplies.

SOURCES

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