Table FW.3 Major Watersheds of the World

Sources: Various

Major Watersheds	Modeled Watershed Area {a} (km²)	Countries within the Watershed (number)	Average Population Density (per km²)	Percent of Watershed that Is: Crop-land	Forest	Grass-land	Built-up Area {b}	Irrigated Area	Arid Area	Wetlands	Ramsar Sites {c} (number)	Water Available Per Person (m³/ person/ year)	Large Dams in Progress (number)	Degree of River Fragmen-tation {d}
ASIA														
Amu Darya	534,739	5	39	22.4	0.1	57.3	3.7	7.5	72.0	0.0	0	3,211	2	High
Amur	1,929,955	3 e	34	18.4	53.8	8.8	2.6	0.8	15.1	4.4	7	4,917	4	Medium
Brahmaputra	651,335	4 e	178	29.4	18.5	44.7	2.4	3.7	0.0	20.7	1	X	3	X
Chao Phrya	178,785	1	122	44.7	35.4	11.1	9.2	12.5	0.0	8.4	0	1,237	0	High
Ganges	1,016,124	4 e	398	72.4	4.2	13.4	6.3	22.7	26.0	17.7	4	X	5	X
Godavari	319,810	1	203	64.0	6.8	22.5	6.7	11.7	42.9	1.2	0	1,602	0	X
Hong	170,888	2	191	36.3	43.2	15.5	2.1	3.9	0.0	5.4	0	3,083	3	X
Huang He	944,970	1	157	29.5	1.5	60.0	5.9	7.2	37.5	1.1	0	361	7	High
Indigirka	274,818	1	<1	0.0	2.4	69.7	0.1	0.0	0.0	3.0	0	973,515	0	Low
Indus	1,081,718	4	163	30.0	0.4	46.4	4.6	24.1	62.6	4.2	10	830	3	X
Irrawaddy	413,710	3	78	30.5	56.2	9.7	1.9	3.4	0.0	6.3	0	18,614	0	X
Kizil	122,277	1	55	38.0	1.6	52.0	6.4	4.1	84.9	3.4	2	1,171	9	X
Kolyma	679,934	1	<1	0.0	0.7	45.3	0.3	0.0	0.0	1.0	0	722,456	1	Medium
Krishna	226,037	1	263	66.4	2.8	22.7	8.8	16.2	41.3	16.2	0	786	2	X
Kura-Araks	205,037	5	75	54.0	7.1	30.6	6.3	10.7	25.4	0.9	2	1,121	4	High
Lake Balkhash	512,015	2	11	23.2	4.0	61.1	1.5	1.9	91.6	4.7	0	439	0	X
Lena	2,306,743	1	1	1.7	64.7	11.4	0.4	0.0	0.7	0.6	0	161,359	0	Medium
Mahanadi	145,816	1	198	59.5	8.1	26.7	4.9	17.4	0.0	0.2	0	2,171	1	X
Mekong	805,604	6	71	37.8	41.5	17.2	2.1	2.9	0.0	8.7	0	8,934	3	Medium
Narmada	96,271	1	177	76.5	0.8	15.8	6.1	24.0	25.8	0.8	0	2,159	2	X
Ob	2,972,493	4	10	36.9	33.9	16.0	3.0	0.5	42.5	11.2	4	14,937	0	Medium
Salween	271,914	3	22	5.5	43.4	48.3	0.5	0.4	0.0	9.5	0	23,796	1	X
Syr Darya	782,617	4	28	22.2	2.4	67.4	3.2	5.4	88.5	2.0	1	1,171	4	High
Tapti	74,627	1	239	78.3	0.2	14.7	7.6	13.3	63.7	0.8	0	1,107	1	X
Tarim	1,152,448	2	7	2.3	0.0	35.3	0.3	0.6	61.4	16.3	0	754	0	High
Tigris & Euphrates	765,742	4	57	25.4	1.2	47.7	6.2	9.1	90.9	2.9	0	2,189	19	X
Xun Jiang	409,480	2	194	66.5	9.6	6.1	5.3	5.2	0.0	1.3	0	3,169	10	X
Yalu Jiang	48,331	2	102	41.6	51.2	2.2	2.9	4.4	0.0	1.0	0	3,628	0	High
Yangtze	1,722,193	1	212	47.6	6.3	28.2	3.0	7.1	0.0	3.0	2	2,265	38	Medium
Yenisey	2,554,388	2	3	12.8	39.7	32.4	1.3	0.0	10.9	2.7	1	79,083	1	High
EUROPE														
Dalalven	30,410	1	10	2.3	71.6	3.4	13.5	0.0	0.0	19.1	1	18,476	0	High
Danube	795,656	13 e	102	66.9	18.2	3.2	10.7	5.2	2.6	1.4	47	2,519	11	High
Dnieper	533,966	3	62	86.5	2.2	1.3	8.8	1.8	3.4	5.9	0	1,552	0	High
Dniester	68,627	3	106	82.8	5.2	1.9	9.3	3.8	5.8	1.1	0	1,621	0	X
Don	458,694	2	46	83.1	1.4	5.4	8.8	3.2	33.1	0.5	1	1,422	0	High
Duero	98,258	2	43	67.4	0.6	21.5	9.9	5.6	9.7	0.4	1	4,093	2	High
Ebro	82,587	1 e	34	58.2	5.1	22.1	13.7	10.0	39.8	0.9	4	8,235	5	High
Elbe	148,919	4	170	75.7	2.0	3.2	18.2	1.3	0.0	1.7	11	1,195	0	High
Garonne	53,540	3	61	75.9	6.4	2.1	15.4	4.0	0.0	0.1	0	5,504	0	High
Gläma	41,795	1	27	1.3	46.0	25.0	15.4	0.7	0.0	1.8	3	17,907	0	High
Guadalquivir	52,664	1	73	52.7	0.5	27.2	18.9	10.4	34.6	3.2	3	2,645	1	X
Kemijoki	52,456	3	3	0.3	77.8	11.6	6.2	0.0	0.0	2.9	1	132,939	0	High
Loire	115,282	1	65	83.7	1.6	0.1	14.3	0.7	0.0	0.9	3	3,386	0	Medium
North Dvina	357,075	1	6	11.7	83.4	0.4	3.0	0.0	0.0	1.5	0	48,450	0	Medium
Oder	124,164	3	121	82.3	0.7	2.7	13.3	0.4	0.0	0.3	4	1,271	0	Medium
Pechora	289,532	1	2	0.2	49.5	45.1	1.2	0.0	0.0	5.0	0	215,057	0	Low
Po	76,997	2	214	50.2	13.0	12.7	20.0	16.2	0.0	1.8	9	2,731	1	X
Rhine-Maas	198,735	8	310	64.7	6.8	1.4	25.7	3.3	0.0	1.0	20	1,396	0	Medium
Rhône	100,543	2	100	62.0	11.0	5.3	20.1	4.1	0.0	1.0	3	5,401	0	High
Seine	78,919	1 e	199	79.0	1.6	0.0	19.2	1.4	0.0	0.1	1	965	0	Medium
Tagus	78,467	2	118	46.8	0.1	34.8	16.6	5.2	31.4	1.6	2	2,248	0	High
Ural	244,334	2	14	59.3	2.3	33.4	4.2	0.9	99.6	0.2	0	2,003	0	X
Vistula	180,156	4 e	139	83.2	1.8	2.2	11.7	0.2	0.0	3.2	2	1,367	0	Medium
Volga	1,410,951	2 e	42	60.2	22.5	7.3	8.2	0.4	19.6	1.1	2	4,260	0	High
West Dvina	79,389	3	29	84.8	7.2	0.0	5.5	0.2	0.0	3.4	0	6,626	0	High
Weser	45,138	1	203	78.7	1.8	1.0	18.3	1.7	0.0	0.1	4	1,567	0	High

Notes: Percentages presented in this table do not add up to 100 because different sources were used to estimate land cover and land use within watersheds, land cover types overlap, and not all land cover types were accounted for. "0" is either zero or less than one-half the unit of measure. a. Watershed area was digitally derived from elevation data using a geographic information system; thus, area may differ from other published sources. b. Based on stable Nighttime Lights data. These figures overestimate the actual area lit. c. Sites designated as "wetlands of international importance" under the Convention on Wetlands. d. Indicates the level of modification of a river due to dams, reservoirs, interbasin transfers, and irrigation consumption. e. Countries that have <1 percent area in the watershed are excluded. f. Watershed includes intermittent tributaries in northern Chad, Niger, and Algeria. g. Watershed includes intermittent tributaries in Botswana (northern Kalahari Desert). h. Basin excludes the tidal area of the St. Lawrence River.

Table FW.3 Major Watersheds of the World

Sources: Various

Major Watersheds	Modeled Watershed Area {a} (km²)	Countries within the Watershed (number)	Average Population Density (per km²)	Percent of Watershed that Is: Crop-land	Forest	Grass-land	Built-up Area {b}	Irrigated Area	Arid Area	Wetlands	Ramsar Sites {c} (number)	Water Available Per Person (m³/ person/ year)	Large Dams in Progress (number)	Degree of River Fragmen-tation {d}
AFRICA														
Congo	3,730,881	9	15	7.2	44.0	45.4	0.2	0.0	0.0	9.0	3	22,752	0	Medium
Cuanza	149,688	1	24	2.8	16.2	79.6	0.3	0.0	5.8	2.1	0	17,126	0	Medium
Cunene	109,832	2	10	2.6	3.3	90.9	0.1	0.1	15.8	2.9	0	13,216	0	X
Jubba	497,626	3	12	6.6	2.7	87.9	0.2	0.1	71.5	3.5	2	1,076	0	X
Lake Chad {f}	2,497,738	8	12	3.1	0.2	45.2	0.2	0.0	82.8	8.2	1	7,922	0	Low
Lake Turkana	209,096	4	60	20.8	11.9	50.2	0.1	0.3	33.0	5.9	0	4,450	0	X
Limpopo	421,123	4	32	26.3	0.7	67.7	4.5	0.9	47.3	2.8	1	716	0	High
Mangoky	58,851	1	18	4.5	3.3	90.8	0.1	2.3	39.1	0.2	0	19,059	0	Low
Mania	56,118	1	25	2.5	5.7	89.8	0.2	2.6	0.1	0.9	0	25,913	0	Low
Niger	2,261,741	10	32	4.4	0.9	68.6	0.5	0.1	65.4	4.1	6	4,076	1	High
Nile	3,254,853	10	44	10.7	2.0	53.0	1.0	1.4	67.4	6.1	2	2,207	0	High
Ogooué	223,946	4	2	0.8	75.1	21.7	0.5	0.0	0.0	6.2	1	289,401	0	X
Okavango {g}	721,258	4	2	5.5	1.7	91.1	0.2	0.0	75.8	4.1	1	X	0	X
Orange	941,351	4	11	6.0	0.2	85.0	2.2	0.5	77.0	0.8	1	1,050	1	High
Oued Draa	114,544	3	10	0.3	0.2	12.0	0.5	3.2	95.3	0.2	0	2	1	X
Rufiji	204,780	1	21	19.7	2.1	77.4	0.2	0.1	0.0	7.8	0	6,466	0	Low
Senegal	419,575	4	10	4.8	0.1	68.2	0.1	0.0	82.0	3.6	4	5,775	0	High
Shaballe	336,604	2	30	7.1	1.2	87.9	0.1	0.5	80.5	1.8	0	X	0	X
Volta	407,093	6	42	10.4	0.7	85.6	0.5	0.1	59.9	4.6	3	2,054	0	High
Zambezi	1,332,412	8	18	19.9	4.0	72.0	0.7	0.1	8.8	7.6	1	X	0	High
NORTH & CENTRAL AMERICA														
Alabama-Tombigbee	138,139	1	31	9.1	73.0	0.2	17.4	0.0	0.0	4.0	0	15,832	0	High
Balsas	117,095	1	85	4.1	37.6	46.6	11.5	3.1	12.4	0.0	0	1,650	0	High
Brazos	137,098	1	18	25.0	1.9	58.8	13.8	5.6	80.2	14.8	0	1,288	0	X
Colorado	703,148	2	10	0.9	17.0	74.9	6.9	2.0	89.1	2.5	0	2,105	1	High
Columbia	657,501	2	9	6.4	50.0	35.5	7.3	3.6	48.7	6.3	1	39,474	0	High
Fraser	248,016	2	5	0.4	85.7	6.2	4.1	0.0	2.5	1.7	0	60,950	0	Medium
Hudson	41,906	1	133	0.3	76.3	0.0	22.8	0.0	0.0	15.0	0	3,335	0	Medium
Mackenzie	1,706,388	1	<1	2.6	66.0	14.7	1.9	0.0	0.0	48.9	3	408,243	0	Medium
Mississippi	3,202,185	2	22	35.8	22.2	28.5	12.6	3.1	35.5	20.0	6	8,973	0	High
Nelson-Saskatchewan	1,093,141	2	5	47.4	31.9	6.1	7.1	0.5	21.5	86.8	5	15,167	0	High
Rio Grande	607,965	2	18	5.2	7.5	80.9	6.0	2.6	96.0	2.1	1	621	0	X
Rio Grande de Santiago	136,694	1	111	4.2	36.3	45.0	13.9	9.0	24.9	0.0	0	655	0	High
San Pedro & Usumacinta	78,720	3	28	30.5	58.7	7.6	2.6	0.2	2.8	0.0	1	30,120	0	Medium
Sacramento	78,757	1	32	6.0	48.6	33.3	11.5	11.5	26.5	3.0	0	3,474	0	High
St. Lawrence {h}	1,049,636	2	43	16.4	43.5	0.1	14.5	0.2	0.0	47.2	7	9,095	0	High
Susquehanna	78,672	1	57	7.0	73.3	0.0	19.2	0.0	0.0	4.0	0	9,029	0	Medium
Thelon	239,245	1	<1	0.0	5.6	21.1	0.0	0.0	0.0	11.0	0	14,641,336	0	Low
Yaqui	79,162	2	8	1.9	61.5	33.0	3.0	2.1	99.9	0.0	0	173	0	X
Yukon	847,620	2	<1	0.0	64.0	27.6	0.4	0.0	0.0	27.8	1	1,249,832	0	Low
SOUTH AMERICA														
Amazon	6,145,186	7	4	14.1	73.4	10.2	0.6	0.1	4.0	8.3	3	273,767	0	Medium
Chubut	182,622	2	1	0.6	24.8	67.7	0.6	0.0	61.4	0.0	0	171,362	0	X
Lakes Titicaca & Salar de Uyuni	193,090	3	7	0.6	0.1	89.4	0.9	0.4	65.4	0.0	5	15,980	0	X
Magdalena	263,773	1	78	35.8	37.2	14.8	10.3	2.4	7.2	0.2	0	10,191	3	Medium
Orinoco	953,675	2	17	7.6	50.5	37.8	2.6	0.2	8.5	15.3	0	90,482	3	Medium
Paraná	2,582,704	4	27	43.3	18.1	33.0	4.2	0.5	9.9	10.9	7	8,025	4	High
Parnaíba	322,887	1	10	44.8	5.8	47.4	1.8	0.1	41.7	18.8	0	7,729	0	Medium
Rio Colorado	403,005	2	6	9.7	1.1	71.2	2.0	1.3	71.0	2.0	1	3,196	0	X
São Francisco	617,814	1	19	60.2	3.1	31.8	2.8	0.3	32.0	9.7	0	8,261	0	High
Tocantins	764,213	1	5	61.5	9.9	26.2	1.3	0.0	0.0	19.1	1	103,383	1	Medium
Uruguay	297,211	3	18	42.7	8.2	44.4	3.5	0.3	0.0	3.9	0	32,731	1	High
OCEANIA														
Belyando	146,219	1	1	2.2	3.6	93.5	0.6	1.3	42.6	0.3	1	239,338	0	X
Dawson	152,375	1	1	3.1	20.8	73.2	2.6	1.8	28.3	0.3	0	39,587	0	X
Fly	78,855	2	4	2.4	75.8	18.3	0.3	0.0	0.0	41.7	0	555,800	0	X
Kapuas	88,781	1	20	33.2	64.8	0.2	0.3	0.0	0.0	1.7	1	105,159	0	X
Mahakam	98,194	1	22	17.2	79.4	0.5	1.3	0.0	0.0	7.7	0	135,955	0	X
Murray-Darling	1,050,116	1	2	28.4	8.0	62.1	1.2	1.6	67.1	3.4	9	11,549	0	X
Sepik	80,321	2	10	6.6	76.3	15.1	0.1	0.0	0.0	33.8	0	143,175	0	X

Notes: Percentages presented in this table do not add up to 100 because different sources were used to estimate land cover and land use within watersheds, land cover types overlap, and not all land cover types were accounted for. "0" is either zero or less than one-half the unit of measure. a. Watershed area was digitally derived from elevation data using a geographic information system; thus, area may differ from other published sources. b. Based on stable nighttime lights data. These figures overestimate the actual area lit. c. Sites designated as "wetlands of international importance" under the Convention on Wetlands. d. Indicates the level of modification of a river due to dams, reservoirs, interbasin transfers, and irrigation consumption. e. Countries that have <1 percent area in the watershed are excluded. f. Watershed includes intermittent tributaries in northern Chad, Niger, and Algeria. g. Watershed includes intermittent tributaries in Botswana (northern Kalahari Desert). h. Basin excludes the tidal area of the St. Lawrence River.

Table FW.3 Major Watersheds of the World

Sources: Watershed area: Center for Remote Sensing and Spatial Analysis (CRSSA) of Cook College, Rutgers University and U.S. Army Corps of Engineers Construction Engineering Research Laboratory, "Major Watershed Basins of the World," World Resources Institute (WRI), ed. GlobalARC GIS CD-ROM Database (CRSSA, New Brunswick, New Jersey, 1996). Number of countries within the watershed: Environmental Systems Research Institute (ESRI) software (ESRI, Redlands, California, 1995). Mean population density: Center for International Earth Science Information Network (CIESIN), WRI, and International Food Policy Research Institute, Gridded Population of the World, Version 2 alpha (Columbia University, Palisades, New York, 2000) available online at: http://sedac.ciesin.org/plue/ gwp. Cropland, forest, and grassland data: U.S. Geological Survey (USGS) and University of Nebraska-Joint Research Center for the European Commission, Global Land Cover Characterization Database, Version 1.2, distributed by USGS Earth Resources Observation System Data Center (USGS, 1997), available online at: http://edcdaac.usgs.gov/ glcc/globe_ int.html. Developed area: National Oceanic and Atmospheric Administration-National Geophysical Data Center (NOAA-NGDC), Nighttime Lights of the World Database (NOAA-NGDC, Boulder, Colorado, 1997). Irrigated area: Center for Environmental Systems Research, University of Kassel, Global Map of Irrigated Areas (University of Kassel, Kassel, Germany, 1999). Arid area: United Nations Environment Programme (UNEP), World Atlas of Desertification Global Aridity Zone Map (UNEP, Nairobi, 1992). Wetlands data: World Conservation Monitoring Centre (WCMC), Biodiversity Map Library Database (WCMC, Cambridge, U.K., 1996). Ramsar sites: Ramsar Convention Bureau, List of Wetlands of International Importance (Ramsar Convention Bureau, Gland, Switzerland, 1997). Water availability: B.M. Fekete, C.J. Vörösmarty, and W. Grabs, Global Composite Runoff Fields Based on Observed River Discharge and Simulated Water Balance, Version 1.0 (University of New Hampshire, Durham, and Global Runoff Data Centre, Koblenz, Germany, 1999). Dams under construction: "1998 World Atlas and Industry Guide," International Journal on Hydropower and Dams (Aqua-Media International, Surrey, U.K., 1998). Degree of fragmentation: unpublished data, Landscape Ecology Group, Umeå University, (Umeå, Sweden, 2000) and M. Dynesius and C. Nilsson, "Fragmentation and Flow Regulation of River Systems in the Northern Third of the World," Science 266:753–762, 1994.

Major watersheds included in the table represent major river systems in the world and smaller river systems of regional significance. The basins in this table account for approximately 56 percent of the world's land area.

Most of the data in this table were obtained through geographic information system analysis of multiple datasets. The base data layer used for geographic definition of the watersheds was a 5-minute resolution dataset (1/20th of a degree of latitude/longitude) of major basins. There are some limitations associated with the scale of these base data: watershed boundaries are coarse, and some smaller basins and small tributaries are not identified. Basins were edited by WRI to capture some features such as deltas. Sub-basins were then aggregated to include all tributaries of the major river systems. Summary statistics for each watershed were digitally extracted by overlaying the basin map onto other existing digital datasets.

Modeled watershed area was estimated to a resolution of 1 square kilometer. These values only reflect horizontal extent (slopes are not accounted for) and may underestimate total land surface in the drainage area. Intermittent tributaries are included in most cases; for example, the northern part of the Kalahari Desert in Botswana within the Okavango basin is included, as well as many of the intermittent tributaries within the Lake Chad watershed. The tidal area of the St. Lawrence River is excluded. Water surface of rivers and lakes (e.g., the Great Lakes in the St. Lawrence River watershed) are included in the drainage area.

Countries within the watershed were identified using updated 1995 country boundaries from ESRI. Countries included in each basin are listed below in descending order as to their share of the basin (i.e., countries with more land within a basin are listed first). The countries listed may differ from other published sources due to the coarseness of the watershed boundaries. Amu Darya: Afghanistan, Uzbekistan, Tajikistan, Turkmenistan, and

Table FW.3 Major Watersheds of the World

Kyrgyzstan. Amur: Russia, China, and Mongolia. Brahmaputra: China, India, Bangladesh, and Bhutan. Chao Phrya: Thailand. Ganges: India, Nepal, China, and Bangladesh. Godavari: India. Hong: Viet Nam and China. Huang He: China. Indigirka: Russia. Indus: Pakistan, India, Afghanistan, and China. Irrawaddy: Myanmar, China, and India. Kizil: Turkey. Kolyma: Russia. Krishna: India. Kura-Araks: Azerbaijan, Iran, Georgia, Armenia, and Turkey. Lake Balkhash: Kazakhstan and China. Lena: Russia. Mahanadi: India. Mekong: Laos, Thailand, China, Cambodia, Viet Nam, and Myanmar. Narmada: India. Ob: Russia, Kazakhstan, China, and Mongolia. Salween: China, Myanmar, and Thailand. Syr Darya: Kazakhstan, Kyrgyzstan, Uzbekistan, and Tajiskistan. Tapti: India. Tarim: China and Kyrgyzstan. Tigris and Euphrates: Iraq, Turkey, Iran, and Syria. Xun Jiang: China and Viet Nam. Yalu Jiang: China and Dem. People's Rep. Korea. Yangtze: China. Yenisey: Russia and Mongolia. Dalalven: Sweden. Danube: Romania, Hungary, Yugoslavia, Austria, Germany, Slovakia, Bosnia and Herzegovina, Bulgaria, Croatia, Ukraine, Czech Republic, Slovenia, and Moldova, and with less than 1 percent of the basin area: Switzerland, Italy, Poland, and Albania. Dnieper: Ukraine, Belarus, and Russia. Dniester: Ukraine, Moldova, and Poland. Don: Russia and Ukraine. Duero: Spain and Portugal. Ebro: Spain. Elbe: Germany, Czech Republic, Austria, and Poland. Garonne: France, Spain, and Andorra. Gläma: Norway. Guadalquivir: Spain. Kemijoki: Finland, Norway, and Russia. Loire: France. North Dvina: Russia. Oder: Poland, Czech Republic, and Germany. Pechora: Russia. Po: Italy and Switzerland. Rhine-Maas: Germany, France, Switzerland, Belgium, Netherlands, Luxembourg, Austria, and Liechtenstein. Rhône: France and Switzerland. Seine: France. Tagus: Spain and Portugal. Ural: Kazakhstan and Russia. Vistula: Poland, Ukraine, Belarus, and Slovakia. Volga: Russia and Kazakhstan. West Dvina: Belarus, Russia, and Latvia. Weser: Germany. Congo: Dem. Rep. Congo, Central African Republic, Angola, Rep. Congo, Tanzania, Zambia, Cameroon, Burundi, and Rwanda. Cuanza: Angola. Cunene: Angola and Namibia. Jubba: Kenya, Ethiopia, Somalia. Lake Chad: Chad, Niger, Central African Republic, Nigeria, Algeria, Sudan, Cameroon, and Libya. Lake Turkana: Ethiopia, Kenya, Sudan, and Uganda. Limpopo: South Africa, Botswana, Mozambique, and Zimbabwe. Mangoky: Madagascar. Mania: Madagascar. Niger: Mali, Nigeria, Niger, Algeria, Guinea, Cameroon, Burkina Faso, Benin, Côte d'Ivoire, and Chad. Nile: Sudan, Ethiopia, Egypt, Uganda, Tanzania, Kenya, Democratic Republic of Congo, Rwanda, Burundi, and Eritrea. Ogooué: Gabon, Rep. Congo, Cameroon, and Equatorial Guinea. Okavango: Botswana, Namibia, Angola, and Zimbabwe. Orange: South Africa, Namibia, Botswana, and Lesotho. Oued Draa: Morocco, Algeria, and Western Sahara (occupied by Morocco). Rufiji: Tanzania. Senegal: Mali, Mauritania, Senegal, and Guinea. Shaballe: Ethiopia and Somalia. Volta: Burkina Faso, Ghana, Mali, Togo, Côte d'Ivoire, and Benin. Zambezi: Zambia, Angola, Zimbabwe, Mozambique, Malawi, Botswana, Tanzania, and Namibia. Alabama-Tombigbee: United States. Balsas: Mexico. Brazos: United States. Colorado: United States and Mexico. Columbia: United States and Canada. Fraser: Canada and United States. Hudson: United States. Mackenzie: Canada. Mississippi: United States and Canada. Nelson-Saskatchewan: Canada and United States. Rio Grande: United States and Mexico. Rio Grande de Santiago: Mexico. San Pedro and Usumacinta: Mexico, Guatemala, and Belize. Sacramento: United States. St. Lawrence: Canada and United States. Susquehanna: United States. Thelon: Canada. Yaqui: Mexico and United States. Yukon: United States and Canada. Amazon: Brazil, Peru, Bolivia, Colombia, Ecuador, Venezuela, and Guyana. Chubut: Argentina and Chile. Lakes Titicaca and Salar de Uyuni: Bolivia, Peru and Chile. Magdalena: Colombia. Orinoco: Venezuela and Colombia. Paraná: Brazil, Argentina, Paraguay, and Bolivia. Parnaíba: Brazil. Rio Colorado: Argentina and Chile. São Francisco: Brazil. Tocantins: Brazil. Uruguay: Brazil, Uruguay, and Argentina. Belyando: Australia. Dawson: Australia. Fly: Papua New Guinea and Indonesia. Kapuas: Indonesia. Mahakam: Indonesia.
Murray-Darling: Australia. Sepik: Papua New Guinea and Indonesia.

Average population density was extracted from a 2.5-minute resolution population map. Basins were overlaid on population data, and the population density was calculated for each basin. Data are presented as the number of people per square kilometer.

The USGS Global Land Cover Characterization database with the International Geosphere Biosphere Programme (IGBP) classification was used to identify the extent of different land cover types within each basin.

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The land cover database is derived from 1-kilometer resolution satellite data spanning April 1992 through March 1993. Percent cropland indicates the percentage of the basin defined as cropland or a crop/natural vegetation mosaic. Percent forest indicates the percentage of the basin defined as evergreen needleleaf forest, evergreen broadleaf forest, deciduous needleleaf forest, deciduous broadleaf forest, or mixed forest. Percent grassland includes IGBP classes defined as open shrublands, closed shrublands, woody savannas, savannas, and grasslands. Percent built-up area was estimated from a 1-kilometer by 1-kilometer resolution map derived from nighttime imagery from the Defense Meteorological Satellite Program Operational Linescan System of the United States. The dataset contains the locations of stable lights, including frequently observed light sources such as gas flares at oil drilling sites. Time-series analysis is used to exclude transient light sources such as fires and lightning. The extent of "lit" area may be slightly overestimated due to the sensor's resolution and factors such as reflection from water and other surface features. It is a good indicator of the spatial distribution of settlements and infrastructure, but should not be interpreted as a measure of population density. (The mean settlement size required to produce enough light to be detected is much greater in developing countries than in industrialized countries because of differences in energy consumption.) The Nighttime Lights of the World data are more highly correlated with measures of economic activity and energy consumption and are, therefore, considered a measure of relative development within the watershed. The percent built-up area was calculated by dividing the area within a watershed indicated as "lit" by the total area of the watershed.

Percent irrigated area indicates the percentage of the basin that has irrigated agriculture. This percentage was calculated by overlaying the boundaries of the major watersheds on an irrigated area map developed by the University of Kassel. The map is a 0.5° by 0.5° grid depicting the percentage of the area equipped for irrigation in 1995. The map was derived by combining information from large-scale irrigation maps, and national, subnational, and drainage basin level data on irrigated area. It was assumed that the irrigated areas are evenly distributed across each grid cell.

Percent arid area indicates the percentage of the basin that falls in an area defined as semiarid, arid, or hyperarid on the World Atlas of Desertification Global Aridity Zone Map. This map is based on an aridity index derived from the ratio of mean annual precipitation to the mean annual potential evapotranspiration.

Percent wetlands was calculated by dividing the sum of the areas of wetlands within the basin by the total watershed area. It includes all areas designated as wetlands in the Biodiversity Map Library Database.

Ramsar sites are sites designated as "wetlands of international importance" according to the terms of the Convention on Wetlands (Ramsar, Iran, 1971). Spatial accuracy of the coordinates varies from one site to another. For more information on Ramsar sites, please refer to the Sources and Technical Notes of Data Table BI.1.

Water available per person indicates the amount of total runoff available per person in each river basin. These estimates are based on a global runoff distribution database developed by the University of New Hampshire and the Global Runoff Data Centre. Water availability per person was calculated by dividing the total runoff available in a basin by the total number of people in that basin. Estimates are in cubic meters per person per year. The runoff distribution database has a spatial resolution of 0.5° and was calculated based on basin boundaries defined by the University of New Hampshire. The population database used was a 2.5-minute resolution population map from CIESIN and WRI for the years 1990 and 1995 (CIESIN and WRI, 1999).

Large dams in progress includes dams at least 60 meters high that were under construction in 1998. The approximate location of the dams was referenced based on continental-scale maps. Because of the lack of detailed dam location (i.e., geographical coordinates) and the coarseness of the watershed boundaries, some dams that fall near the watershed boundaries may be included in the adjacent watershed by referencing error.

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Degree of river fragmentation indicates the level of modification of a river system due to dams, reservoirs, interbasin transfers, and irrigation consumption. Irrigation consumption refers to the water that is evaporated as a result of irrigation, but excludes the amount of water returned to the river after irrigation. River systems were classified into three levels of fragmentation: high, medium, and low. These categories are based on the number of dams in the main river channel and tributaries, the level of flow regulation, and the length of the main-channel segment without dams in relation to the entire length of the river. Generally, rivers with low fragmentation do not have dams in the main channel, and, if present, dams on tributaries do not change the river's discharge by more than 2 percent. Rivers with high fragmentation may have more than three-quarters of their main channels dammed or may have dams that substantially change the annual discharge. For more detailed information on the analysis, please refer to the original source.

Given the scale in the delineation of watershed boundaries and other datasets used in the production of this table, these figures should be used with caution.