

Comprehensive Table of Contents

KEY (book volume in boldface numerals)

- 1**: The World's Water 1998-1999: The Biennial Report on Freshwater Resources
- 2**: The World's Water 2000-2001: The Biennial Report on Freshwater Resources
- 3**: The World's Water 2002-2003: The Biennial Report on Freshwater Resources
- 4**: The World's Water 2004-2005: The Biennial Report on Freshwater Resources
- 5**: The World's Water 2006-2007: The Biennial Report on Freshwater Resources
- 6**: The World's Water 2008-2009: The Biennial Report on Freshwater Resources
- 7**: The World's Water Volume 7: The Biennial Report on Freshwater Resources

A

- ABB, **1**:85, **7**:133
- Abbasids, **3**:184
- Abbott, **6**:27, 32
- Abi-Eshuh, **1**:69, **5**:5
- About Ali ibn Sina, **1**:51
- Abu-Zeid, Mahmoud, **1**:174, **4**:193
- Acceleration, measuring, **2**:306, **3**:324, **4**:331, **7**:347
- Access to water and environmental justice, **5**:124–25, 127, **6**:44. *See also* Conflict/cooperation concerning freshwater; Drinking water, access; Environmental flow; Human right to water; Renewable freshwater supply; Sanitation services; Stocks and flows of freshwater; Withdrawals, water
- Acidification:
 - acid rain, **7**:87
 - and fossil-fuel mining/processing, **7**:73–74, 86, 87
 - mine drainage, **7**:52, 65
 - overview, **7**:47
- Acres International, **1**:85
- Adams, Dennis, **1**:196
- Adaptation to climate change. *See* Climate change, adaptation
- Adaptive capacity, **4**:236
- Adaptive management and environmental flows, **5**:45
- Adriatic Sea, **3**:47
- AES Tiete, **5**:152
- Africa:
 - aquifers, transboundary, **7**:3
 - bottled water, **4**:288, 289, 291, **5**:281, 283
 - cholera, **1**:57, 59, 61–63, 266, 269, **3**:2, **5**:289, 290
 - climate change, **1**:148
 - conflict/cooperation concerning freshwater, **1**:119–24, **5**:7, 9
 - costs of poor water quality, **7**:63
 - dams, **3**:292, **5**:151, **6**:274–78
 - desalination, **2**:94, 97
 - dracunculiasis, **1**:52–55, 272, **3**:274, **5**:295, 296
 - drinking water, **1**:252, 262, **3**:254–55, **5**:240, 241, **6**:65
 - access to, **2**:217, **6**:58, 214–15, **7**:24, 38, 41, 233–35
 - progress on access to, by region, **7**:253
 - droughts, **5**:93, 100
 - economic development derailed, **1**:42
 - environmental flow, **5**:32
 - fog collection as a source of water, **2**:175
 - Global Water Partnership, **1**:169
 - groundwater, **4**:85–86
 - human needs, basic, **1**:47
 - human right to water, **4**:211
 - hydroelectric production, **1**:71, 277–78
 - irrigation, **1**:298–99, **2**:80, 85, 256–57, 265, **3**:289, **4**:296, **5**:299, **6**:324–26, 330–31
 - Millennium Development Goals, **4**:7
 - mortality rate
 - childhood, **6**:279
 - under-5, **6**:279, **7**:259–63
 - Northern
 - drinking water, progress on access to, **7**:253
 - sanitation, progress on access to, **7**:256
 - water quality, satisfaction by country, **7**:291
 - population data/issues, **1**:247, **2**:214
 - reclaimed water, **1**:28, **2**:139
 - renewable freshwater supply, **1**:237–38, **2**:199–200, 217, **3**:239–40, **4**:263–64, **5**:223, 224, **7**:217–18
 - reservoirs, **2**:270, 272, 274
 - river basins in, **6**:289–96
 - rivers, transboundary, **7**:3
 - salinization, **2**:268
 - sanitation services, **1**:257, 264, **3**:263–65, 271, **5**:249–50, 259, **6**:67
 - access to, **7**:243–45
 - progress on access to, **7**:246
 - Sub-Saharan, **6**:65–66, 76–77
 - drinking water, access, **7**:24
 - drinking water, progress on access to, **7**:253
 - sanitation, progress on access to, **7**:256
 - schistosomiasis, **7**:58
 - water quality, satisfaction by country, **7**:290
 - threatened/at risk species, **1**:292–93
 - well-being, measuring water scarcity and, **3**:96
 - withdrawals, water, **1**:242, **2**:205–7, **3**:245–47, **4**:269–70, **5**:230–31, **6**:204
 - by country and sector, **7**:223–25
 - African Development Bank (AfDB), **1**:95–96, 173, **3**:162–63

- Agreements, international:
 amendment and review process, **7:9**
 General Agreement on Tariffs and Trade (GATT), **3:47–52**
 general principles, **7:4–5**
 Great Lakes–St. Lawrence River Basin, **7:165–69**
 joint institutions, role of, **7:9–10**
 North American Free Trade Agreement (NAFTA), **3:47–48, 51–54**
 state/provincial rights within, **7:167–68, 169**
 transboundary waters, **7:2–7, 9, 165–69**
See also Law/legal instruments/regulatory bodies; United Nations
- Agriculture:
 cereal production, **2:64, 4:299–301, 7:109–10**
 conflict/cooperation concerning freshwater, **1:111**
 costs of poor water quality, **7:64**
 cropping intensity, **2:76**
 crop yields and food needs for current/future populations, **2:74–76**
 data problems, **3:93**
 droughts, **5:92, 94, 98, 103**
 impacts in Australia, **7:102–5**
 management in Australia, **7:97, 107–10**
 effects of water quality degradation, **7:62**
 effects on water quality, **7:49–50**
 floods, **5:109**
 groundwater, **4:83, 87, 88–90**
 harvesting technology, **2:77**
 inefficient and wasteful water use, **4:107**
 irrigation
 arable land, **6:324–28**
 area equipped for, by country, **6:329–34**
 basin, **2:82**
 border, **2:82**
 business/industry, water risks, **5:162, 7:23, 26**
 and climate change, **4:174–75, 7:16**
 conflict/cooperation concerning freshwater, **1:110, 7:110–11**
 by continent, **2:264–65**
 by country and region, **1:297–301, 2:255–63, 4:295–96, 5:298–300, 6:324–28, 329–34**
 by crop type, **2:78–80**
 developing countries, **1:24, 3:290, 5:301–2**
 drip, **1:23–24, 2:82, 84, 7:111**
 Edwards Aquifer, **3:74**
 expanding water-resources infrastructure, **1:6**
 furrow, **2:82, 86**
 government involvement, **1:8**
 hard path for meeting water-related needs, **3:2**
 how much water is needed, **2:81–87**
 projections, review of global water resources, **2:45**
 reclaimed water, **2:139, 142, 145–46, 7:54**
 Southeastern Anatolia Project, **3:182**
 sprinkler systems for, **2:82**
 surface, **2:82, 84, 84**
 total irrigated areas, **4:297–98**
 water quality, **2:87**
 water rights, **7:111, 112, 113**
 water-use efficiency, **3:4, 19–20, 7:109–10, 146**
 land availability/quality, **2:70–71, 73–74**
 pricing, water, **1:117, 7:111–12**
 projections, review of global water resources, **2:45–46**
 reclaimed water, **1:28, 29**
 by region, **3:289**
 runoff, **5:128, 305–7, 7:46, 48, 49–50**
 subsidies, **1:24–25, 117, 7:108, 109, 111, 152**
 sustainable vision for the Earth's freshwater, **1:187–88**
 water assessments, **2:46–49, 54–58**
 well-being, measuring water scarcity and, **3:99**
 World Water Forum (2003), **4:203**
See also Food needs for current/future populations
- Aguas Argentinas, **3:78, 4:47**
 Aguas de Barcelona, **3:63**
 Aguas del Aconquija, **3:70**
 AIDS, **6:58, 7:259–63**
 Air quality:
 certified emission credits, **6:51**
 dust storms, **7:105–6**
 fossil-fuel combustion, **7:77, 80, 84, 86**
 AkzoNobel, **6:23**
 Albania, **1:71, 3:47, 7:309**
 Albright, Madeleine K., **1:106**
 Algae, **5:79, 6:83, 95**
 Algeria, **7:75, 309**
 Alkalinization, **7:52**
 Alliance for Water Stewardship, **7:26–27**
 Al-Qaida, **5:15**
 Alstom, **7:133**
 Altamonte Springs (FL), **2:146**
 American Association for the Advancement of Science, **1:149, 4:176**
 American Convention on Human Rights (1969), **2:4, 8**
 American Cyanamid, **1:52**
 American Fare Premium Water, **4:39**
 American Fisheries Society, **2:113, 133**
 American Geophysical Union (AGU), **1:197–98**
 American Rivers and Trout Unlimited (AR & TU), **2:118, 123**
 American Society of Civil Engineers, **5:24**
 American Water/Pridesa, **5:62**
 American Water Works, **3:61**
 American Water Works Association (AWWA), **2:41, 3:59, 4:176, 5:24**
 Amoebiasis, **1:48**
 Amount of water. *See* Stocks and flows of freshwater
 Amphibians, **1:291–96**
 effects of endocrine disruptors, **7:49**

- extinct or extinct in the wild species, **7:56–57, 296–97**
- Anatolia region. *See* Southeastern Anatolia Project
- Angola, **1:119, 121, 2:175, 3:49, 5:9**
dams with Chinese financiers/developers/builders, **7:309**
- Anheuser-Busch, **5:150, 6:24**
- Ankara University, **3:183**
- Antiochus I, **3:184–85**
- Apartheid, **1:158–59**
- Appleton, Albert, **4:52–53**
- Aquaculture, **2:79**
- Aquafina, **4:21**
- Aquarius Water Trading and Transportation, Ltd., **1:201–2, 204**
- Aqua Vie Beverage Corporation, **4:38**
- Aquifers, **6:10**
climate change management issues, **7:2–3**
contamination by fossil-fuel production, **7:51, 76**
Edwards, **3:74–75, 4:60–61**
Ogallala, **3:50**
percent of global freshwater in, **7:3**
transboundary, **7:3**
- Aral Sea, **1:24, 3:3, 39–41, 77, 7:52, 131**
- Archaeological sites, **3:183–89, 191**. *See also* Southeastern Anatolia Project
- Area, measuring, **2:302, 3:320, 4:327, 7:345**
- Argentina, **3:13, 60, 70, 4:40, 47**
arsenic in groundwater, **7:59**
- Arizona, **3:20, 138**
- Army Corps of Engineers, U.S. (ACoE), **1:7–8, 2:132, 3:137, 7:305**
- Arrowhead bottled water, **4:21, 7:161**
- Arsenic, **2:165–73, 3:278–79, 4:87, 5:20, 6:61, 81**
in fly ash, **7:84**
from fossil-fuel production, **7:76, 79**
health effects, **7:59**
- Artemis Society, **3:218**
- Artuqids, **3:188–89**
- Ascariasis, **7:272**
- Ascension Island, **2:175**
- Asia:
agriculture, **4:88–90** (*See also* Asia, irrigation)
aquifers, transboundary, **7:3**
bottled water, **4:18, 41, 291, 5:163, 281, 283**
cholera, **1:56, 58, 61, 266, 269–70, 3:2, 5:289, 290**
climate change, **1:147**
conflict/cooperation concerning freshwater, **1:111**
dams, **3:294–95**
dracunculiasis, **1:272–73, 3:274–75, 5:295, 296**
drinking water, **1:253–54, 262, 3:257–59, 5:243–45, 6:66**
access to, **7:24, 237–38**
progress on access to, **7:253**
Eastern, **7:24, 253**
environmental flow, **5:32–33**
floods, **5:108**
food needs for current/future populations, **2:75, 79**
Global Water Partnership, **1:169**
groundwater, **4:84, 88–90, 96**
human needs, basic, **1:47**
hydroelectric production, **1:71, 278–79**
irrigation, **1:299–300, 2:80, 86, 259–61, 265, 3:289, 4:296, 5:299, 6:326–27, 331–32**
population data/issues, **1:248–49, 2:214**
pricing, water, **1:24, 3:69**
privatization, **3:61**
renewable freshwater supply, **1:238–39, 2:217, 3:240–41, 4:264–65, 5:225, 226, 7:218–19**
reservoirs, **2:270, 272, 274**
river basin, **2:30, 6:289, 296–301**
rivers, transboundary, **7:3**
runoff, **2:23**
salinization, **2:268**
sanitation services, **1:258–59, 264, 3:266–68, 271, 5:252–54, 258–61**
access to, **7:247–48**
progress on access to, **7:256**
Southeastern, **7:24, 253, 262–63**
Southern, **7:24, 253**
supply systems, ancient, **1:40**
threatened/at risk species, **1:293–94**
water access, **2:24, 217**
water quality, satisfaction by country, **7:290**
well-being, measuring water scarcity and, **3:96**
Western, **7:24, 253**
withdrawals, water, **1:243–44, 2:208–9, 3:248–49, 4:272–73, 5:233–34**
by country, **7:226–28**
- Asian Development Bank (ADB), **1:17, 173, 3:118, 163, 169, 4:7, 5:125**
reaction to World Commission on Dams report, **7:138–39**
- Asmal, Kader, **1:160, 3:169**
- Assessments:
AQUASTAT database, **4:81–82, 7:215, 221**
Colorado River Severe Sustained Drought study (CRSSD), **4:166**
Comprehensive Assessment of the Freshwater Resources of the World, **2:10, 3:90**
Dow Jones Indexes, **3:167**
Global Burden of Disease assessment, **7:270**
The High Efficiency Laundry Metering and Marketing Analysis project (THELMA), **4:115**
Human Development Index, **2:165**
Human Development Report, **4:7, 6:74, 7:61**
Human Poverty Index, **3:87, 89, 90, 109–11, 5:125**
hydrologic cycle and accurate quantifications, **4:92–96**
International Journal on Hydropower and Dams, **1:70**

Assessments (*continued*)

International Rice Research Institute (IRRI),
2:75, 76
 intl. river basins, **2:27–35**
 measurements, **2:300–309, 3:318–27,**
4:325–34
 Millennium Ecosystem Assessment, **7:63**
 National Assessment on the Potential
 Consequences of Climate Variability
 and Change, **4:176**
 Palmer Drought Severity Index, **5:93**
 Standard Industrial Classification (SIC),
4:132
 Standard Precipitation Index, **5:93**
 Stockholm Water Symposiums (1995/1997),
1:165, 170
Third Assessment Report, **3:121–23**
 Water-Global Assessment and Prognosis
 (WaterGAP), **2:56**
*Water in Crisis: A Guide to the World's Fresh
 Water Resources*, **2:300, 3:318**
World Health Reports, **4:7**
World Resources Reports, **3:88**
 See also Data issues/problems;
 Groundwater, monitoring/mana-
 gement problems; Projections, review of
 global water resources; Stocks and
 flows of freshwater; Well-being, mea-
 suring water scarcity and

Association of Southeast Asian Nations
 (ASEAN), **1:169**
 Assyrians, **3:184**
 Atlanta (GA), **3:62, 4:46–47**
 description, **6:103**
 per-capita water demand, **6:104–6**
 population growth, **6:103**
 precipitation, **6:104**
 temperature, **6:104**
 wastewater rate structure, **6:118–19**
 water conservation, **6:108–9, 110–12**
 water rate structures, **6:115–16**
 water-use efficiency, **6:108–9**
 Atlantic Salmon Federation, **2:123**
 Atmosphere, harvesting water from the,
2:175–81. See also Outer space, search for
 water in
 Austin (TX), **1:22**
 Australia:
 agriculture
 impact of drought, **7:102–5**
 irrigation, **2:85, 7:97**
 production, 1960–2009, **7:103**
 bottled water, **4:26**
 conflict/cooperation concerning freshwater,
5:10
 desalination, **5:69, 7:114–15**
 drought
 historical background, **7:98, 99**
 impacts, **7:102–6**
 management, **7:106–21, 146–47**
 overview, **7:97, 98–99, 101, 121**

environmental flow, **5:33, 35, 42**
 fossil-fuel production, **7:75**
 globalization and intl. trade of water, **3:45, 46**
 legislation and policy
 Millennium Development Goals, **4:7**
 Water Efficiency Labelling and Standards
 Act, **7:28, 118–19**
 water policy reform, **7:146–47**
 privatization, **3:60, 61**
 reservoirs, **2:270, 272, 274**
 terrorism, **5:16**
 water resources, **2:24, 217, 7:98–99**
 Austria, **3:47**
 Availability, water, **2:24–27, 215–17. See also**
 Conflict/cooperation concerning fresh-
 water; Drinking water, access;
 Environmental flow; Human right to
 water; Renewable freshwater supply;
 Sanitation services; Stocks and flows of
 freshwater; Withdrawals, water
 Azov Sea, **1:77**

B

Babbitt, Bruce, **2:124–25, 128**
 Babylon, ancient, **1:109, 110**
 Bag technology, water, **1:200–205**
 Baker, James, **1:106**
 Bakersfield (CA), **1:29**
 Balfour Beatty, **3:166**
 Balkan Endemic Neuropathy (BEN), **7:89**
 Bangladesh:
 agriculture, **4:88**
 Arsenic Mitigation/Water Supply Project,
2:172
 conflict/cooperation concerning freshwater,
1:107, 109, 118–19, 206–9
 dams with Chinese financiers/developers/
 builders, **7:309**
 drinking water, **3:2**
 floods, **5:106**
 groundwater, **4:88**
 arsenic in, **2:165–73, 6:61, 7:55, 59**
 Rural Advancement Committee, **2:168**
 Banks, Harvey, **1:9**
 Barlow, Nadine, **3:215**
 Basic water requirement (BWR), **1:44–46, 2:10–**
13, 3:101–3
 Bass, **2:123**
 Bath Iron Works, **2:124**
 Bayer, **6:28**
 Beard, Dan, **2:129**
 Bechtel, **3:63, 70**
 Belgium, **5:10**
 Belize, **7:309**
 Benin, **1:55, 7:309, 336**
 Benzene, **6:83**
 Best available technology (BAT), **3:18, 22–23,**
4:104, 5:157, 6:27
 Best practicable technology (BPT), **3:18, 4:104**
 Beverage Marketing Corporation (BMC), **4:18,**
7:157

- BHIP Billiton, **6:23**
 Biodiversity, **7:56–57**
 Biofuel, **7:25, 74**
 Biological oxygen demand (BOD), **6:28, 7:278–81**
 Biologic attacks, vulnerability to, **5:16–22**
 Birds:
 effects of drought, **7:101**
 effects of endocrine disruptors, **7:49**
 effects of fossil-fuel extraction, **7:87, 91**
 extinct or extinct in the wild species, **7:297–98**
 Lesotho Highlands project, **1:98**
 Siberian crane, **1:90**
 Yuma clapper rail, **3:142**
 Birth, premature, **7:259–63**
 Birth asphyxia, **7:259–63**
 Birth defects, **7:58, 59, 259–63**
 Bivalves. *See* Invertebrates, clams;
 Invertebrates, mussels
 Black Sea, **1:77**
 BMW, **6:27**
 Bolivia, **3:68, 69–72, 4:54, 56–57**
 Books, **2:129, 5:14**
 Boron, **5:75, 7:76**
 Bosnia, **1:71**
 Botswana, **1:119, 122–24, 7:309**
 Bottled water:
 bottle and packaging, **4:293–94, 7:158–59**
 brands, leading, **4:21–22, 7:161–62**
 business/industry
 company assessments, **6:23**
 standards/rules, **4:34–35**
 water risks that face, **5:163**
 consumption
 by country, **4:284–86, 5:276–79, 284–86**
 increase in, **7:157**
 per-capita by country, **7:339–40**
 per-capita by region, **4:290–91, 5:171, 282–83**
 by region, **4:287–88, 5:169–70, 280–81**
 share by region, **4:289**
 U.S., **4:288–91, 5:170, 281, 283, 7:157, 158**
 developing countries, **3:44, 45**
 energy considerations
 bottle manufacture, **7:158–59, 164**
 to clean, fill, seal, and label bottles, **7:160–61, 164**
 cooling process, **7:162–63, 164**
 equivalent barrels of oil used, **7:164**
 transport, **7:161–62, 163, 164**
 water processing, **7:159–60, 164**
 environmental issues, **4:41**
 flavor and taste, **4:23–24**
 history and trends, **4:18–22, 7:157**
 hydrogeological assessments of sites for, **6:23**
 intl. standards, **4:35–36**
 labeling, **4:28–31, 7:159, 160–61, 164**
 overview, **4:xvi, 17, 7:88**
 poor, selling water to the, **4:40–41**
 price and cost, **4:22–23**
 recalls, **4:37–40, 5:171–74**
 sales, global, **3:43, 5:169**
 standards/regulations, **4:26–27, 34–37, 5:171, 174**
 summary/conclusions, **4:41**
 U.S., consumption, **4:288–91, 5:170, 281, 283, 7:157, 158**
 U.S. federal regulations
 adulteration, food, **4:32–33**
 enforcement/regulatory action, **4:34**
 good manufacturing practices, **4:32**
 identity standards, **4:27–31**
 sampling/testing/FDA inspections, **4:33–34**
 water quality, **4:31–32**
 U.S., sales and imports in, **3:44, 343, 4:292, 7:157, 158**
 vs. tap water, standards, **4:36–37**
 water quality, **4:17, 25–26, 31–32, 37–40**
 treatment processes, **7:159–60, 161**
 water sources for, **7:159**
 Boundaries:
 managing across, **3:133–34, 7:1**
 transboundary waters and climate change, **7:1–20**
 See also International river basins
 Brazil:
 bottled water, **4:40, 5:170**
 business/industry, water risks, **5:149, 151–52, 7:26, 89**
 cholera, **1:59**
 conflict/cooperation concerning freshwater, **1:107**
 dams, **1:16, 5:134**
 drought, **7:26**
 energy production, **7:26**
 environmental concerns, top, **7:287**
 environmental flow, **5:34**
 human needs, basic, **1:46**
 hydroelectric production, **1:71, 7:129**
 monitoring and privatization, **3:76–77**
 privatization, **3:76–78**
 runoff, **2:23**
 sanitation services, **3:6**
 Three Gorges Dam, **1:89**
 Brine, as a contaminant, **2:107, 5:77–80**
 British Columbia Hydro International (BC Hydro), **1:85, 88**
 British Geological Survey (BGS), **2:169**
 British Medical Association, **4:63–64**
 Bruce Banks Sails, **1:202**
 Bruvold, William, **4:24**
 Burkina Faso, **1:55, 4:211**
 Burma (Myanmar):
 dams with Chinese financiers/developers/builders, **7:130, 132, 133, 310–15**
 Mekong River Basin, **7:14**
 Burns, William, **3:xiv**
 Burundi, **1:62, 7:11, 315–16**
 Business for Social Responsibility, **5:156**

- Business/industry, water risks:
 assessment of, **6:23, 7:25–34**
 China, **5:147, 149, 160, 165**
 climate change, **5:152**
 costs of poor water quality on production, **7:64**
 developing countries, **5:150**
 energy and water links, **5:150, 151–52**
 India, **5:146, 147, 165**
 management
 best available technology, **5:157**
 companies, review of specific, **5:153–55, 7:26–27**
 continuous improvement, commit to, **5:158**
 five motivations, **7:23**
 global trends that affect, **7:24–25**
 hydrological/social/economic/political factors, **5:153, 156, 7:24–30**
 partnerships, form strategic, **5:158**
 public disclosure (*See* Corporate reporting)
 report performance, measure and, **5:157–58**
 risks factored into decisions, **5:157, 6:27–28**
 stakeholder issues, **5:145, 6:24, 7:26–27, 40–41**
 strategies for policies/goals/targets, **5:156–57, 7:34–42**
 supply chain
 availability/reliability of, **5:146, 7:26**
 company reporting of, **6:24, 7:27**
 overview, **5:145–46, 7:28–29**
 performance evaluation, **7:35–37**
 privatization, public opposition to, **5:152–53**
 public's role in water policy, **5:150–51**
 summary/conclusions, **5:163–65**
 supply-chain vulnerability, **5:149, 7:26**
 water quality, **5:146–49**
 working collaboratively with, **5:156, 6:24**
 water accounting tools, **7:32–34, 146**
 water industry
 bottled water (*See* Bottled water, business/industry)
 desalination, **5:161**
 disinfection/purification of drinking water, **5:159**
 distribution, infrastructure for, **5:160–61**
 efficiency, improving water use, **5:161–62**
 high-quality water, processes requiring, **5:147–48, 160**
 irrigation, **5:162**
 overview, **5:158–59**
 revenue and growth in U.S., **5:303–4**
 utilities, water, **5:162–63, 7:28**
 wastewater treatment, **5:153, 159–60**
 organic contaminants by industry, **7:279–81**
 overview, **7:23, 25–34, 50–51**
 public perception, **7:26–27**
 water footprint, **7:30–34**
 Business sector, **3:22–24, 169–70. See also**
 Bottled water, business/industry;
 Companies; Corporate reporting;
 Privatization; Water conservation,
 California commercial/industrial water
 use
 Bussi, Antonio, **3:70**
 Byzantines, **3:184**
- C
 Cadbury, **7:37**
 Calgon, **3:61**
 California:
 agriculture, **4:89**
 Bakersfield, **1:29**
 bottled water, **4:24**
 business/industry, water risks, **5:158, 6:162**
 California Central Valley Project, **4:173**
 California Regional Assessment Group, **4:176**
 climate change (*See* Climate change,
 California)
 conflict/cooperation concerning freshwater,
1:109
 dams, **1:75, 2:120–23**
 desalination, **1:30, 32, 5:51, 52, 63–69, 71, 73, 74**
 East Bay Municipal Utilities District, **1:29**
 economics of water projects, **1:16**
 efficiency, improving water-use, **1:19**
 environmental justice, **5:122–23**
 floods, **5:111**
 fog collection as a source of water, **2:175**
 food needs for current/future populations,
2:87
 groundwater, **4:89**
 industrial water use, **1:20–21**
 Irvine Ranch Water District, **4:124–25**
 Kesterson National Wildlife Refuge, **7:47–48**
 Metropolitan Water District of Southern
 California, **1:22**
 Monterey County, **2:151**
 Orange County, **2:152**
 Pomona, **2:138**
 privatization, **3:73**
 projections, review of global water resources, **2:43**
 reclaimed water
 agriculture, **1:29, 2:142–46**
 drinking water, **2:152**
 first state to attempt, **2:137–38**
 groundwater recharge, **2:151**
 health issues, **2:154–55**
 Irvine Ranch Water District, **2:147**
 Kelly Farm marsh, **2:149**
 San Jose/Santa Clara Wastewater
 Pollution Control Plant, **2:149–50**

- uses of, **2:141–45**
- West Basin Municipal Water District, **2:148–49**
- San Francisco Bay, **3:77, 4:169, 183, 5:73**
- Santa Barbara, **5:63–64**
- Santa Rosa, **2:145–46**
- soft path for meeting water-related needs, **3:20–22, 24–25**
- subsidies, **1:24–25**
- toilets, energy-efficient, **1:22**
- twentieth-century water-resources development, **1:9**
- Visalia, **1:29**
- water conservation (*See under* Water conservation)
- Western Canal Water District, **2:121**
- See also* Legislation, California
- California-American Water Company (Cal AM), **5:74**
- Cambodia, **7:14, 59, 130, 316–17**
- Camdessus, Michael, **4:195–96**
- Cameroon, **1:55, 5:32, 7:317–18**
- Campylobacter jejuni*, **7:57**
- Canada:
 - adaptation in, **6:46**
 - availability, water, **2:217**
 - bottled water, **4:25, 26, 39, 288, 289, 291, 5:281, 283**
 - Canadian International Development Agency, **2:14**
 - cholera, **1:266, 270**
 - climate change, **1:147, 148**
 - conflict/cooperation concerning freshwater, **5:6, 8**
 - dams, **1:75, 3:293**
 - data problems, **3:93**
 - dracunculiasis, **1:52**
 - drinking water, **1:253, 3:256, 5:242**
 - environmental concerns, top, **7:287, 288**
 - environmental flow, **5:34**
 - Export Development Corporation, **6:141**
 - fog collection as a source of water, **2:179**
 - fossil-fuel production
 - data, **7:75**
 - natural gas, **7:79**
 - tar sands, **7:78, 79, 87, 88, 91–92**
 - General Agreement on Tariffs and Trade, **3:50**
 - Great Lakes Basin, intl. agreements, **7:165–69**
 - groundwater, **4:86**
 - hydroelectric production, **1:71, 74, 278, 7:129**
 - intl. river basin, **2:33**
 - irrigation, **1:299, 2:265, 3:289, 4:296, 5:299**
 - mortality rate, under-5, **7:260**
 - North American Free Trade Agreement, **3:51–54**
 - Overseas/Official Development Assistance by, **7:274**
 - population data/issues, **1:247, 2:214**
 - renewable freshwater supply, **1:238, 2:200, 217, 3:240, 4:264**
 - 1985, **7:218**
 - reservoirs, **2:270, 272, 274**
 - runoff, **2:23**
 - salinization, **2:268**
 - sanitation services, **1:258, 3:265, 272, 7:245**
 - threatened/at risk species, **1:293**
 - withdrawals, water, **1:242, 2:207, 3:247, 4:271**
 - 2006, **7:225**
 - World Water Council, **1:172**
- Canary Islands, **3:46**
- Cancer, **6:81, 7:58, 59**
- Cap and trade market and environmental flows, **5:42**
- Cape Verde Islands, **2:175**
- Carbon dioxide, **1:138, 139, 3:120, 215, 4:160, 164**
- and natural gas production, **7:80**
- Carbon Disclosure Project (CDP), **7:41**
- Caribbean:
 - dams, **3:293–94**
 - drinking water, **1:253, 262, 3:255–57, 5:241, 242**
 - access to, **7:24, 235–36**
 - progress on access to, **7:253**
 - groundwater, **4:86**
 - hydroelectric production, **1:278**
 - irrigation, **6:334**
 - population data/issues, **1:247–48, 2:214**
 - sanitation, **1:258, 3:265–66, 271, 5:250, 251, 259**
 - access to, **7:245–46**
 - progress on access to, **7:256**
 - threatened/at risk species, **1:293**
 - water quality, satisfaction by country, **7:290–91**
- Caribbean National Forest, **5:34**
- Caspian Sea, **1:77**
- Catley-Carlson, Margaret, **4:xii–xiv**
- Cellatex, **5:15**
- Centers for Disease Control and Prevention (CDC), **1:52, 55, 57, 7:305**
- Central African Republic, **7:318**
- Central America:
 - availability, water, **2:217**
 - cholera, **1:266, 270, 271**
 - dams, **3:165, 293–94**
 - drinking water, **1:253, 3:255, 256, 5:241–42, 7:235–36**
 - environmental flow, **5:34**
 - groundwater, **4:86**
 - hydroelectric production, **1:278**
 - irrigation, **1:299, 2:265, 4:296, 6:328, 334**
 - mortality rate, under-5, **7:260–61**
 - population data, total/urban, **1:247–48**
 - renewable freshwater supply, **1:238, 2:200, 217, 3:240, 4:264, 5:224**
 - by country, **7:218**

- Central America (*continued*)
 reservoirs, **2:270, 272, 274**
 rivers and aquifers, transboundary, **7:3**
 salinization, **2:268**
 sanitation services, **1:258, 3:265–66, 5:250–51, 7:245–46**
 threatened/at risk species, **1:293**
 withdrawals, water, **1:242–43, 2:207, 3:247, 4:271, 5:231–32**
 by country, **7:225**
See also Latin America
- Centre for Ecology and Hydrology, **3:110–11**
- Centro de Investigaciones Sociales
 Alternativas, **2:179**
- CEO Water Mandate, **7:34**
- Cereal production, **2:64, 4:299–301**
- Certified emission credits (CECs), **6:51**
- Chad, **1:55, 7:264**
- Chakraborti, Dipankar, **2:167**
- Chalecki, Elizabeth L., **3:xiv**
- Chanute (KS), **2:152**
- Chemical attacks, vulnerability to, **5:16–22**
- Chemical oxygen demand, **6:28**
- Chiang Kai-shek, **5:5**
- Childhood mortality:
 by cause, **6:279–88, 7:257–63**
 by country, **6:279–88, 7:257–63, 264–69**
 infant, by country, **7:264–69**
 limitations in data and reporting, **7:257–58, 264**
 under-5, **6:279–88, 7:257–63**
 from water-related disease, **6:58, 7:57–58, 61–62**
- Children:
 infant brands of bottled water, **4:28**
 responsibility for water collection, **7:61**
See also Birth listings
- Chile:
 arsenic in groundwater, **7:59**
 cholera, **1:59**
 environmental concerns, top, **7:287**
 environmental flow, **5:34, 37**
 fog collection as a source of water, **2:177–78**
 General Agreement on Tariffs and Trade, **3:49**
 privatization, **3:60, 66, 78**
 subsidies, **4:57–58**
- China:
 agriculture, **2:86, 4:88, 90**
 algae outbreaks, **6:83**
 Beijing, **6:90**
 benzene contamination, **6:83**
 bottled water, **4:21, 40, 5:170**
 business/industry, water risks that face, **5:147, 149, 160, 165**
 business/industry water use, **5:125, 6:81, 7:27–28**
 cancer rates in, **6:81**
 climate change in, **6:87–88**
 cost of water pollution, **7:64**
 dams, **1:69, 70, 77, 78, 81, 5:15–16, 133, 134, 6:91**
 construction overseas, **7:133–35, 308–38**
 hydroelectric production, **1:71, 6:92, 7:129, 130**
 internal concern over, **7:135–36**
 on intl. rivers, **7:130–33**
 overview, **7:127–28, 140**
 and the World Commission on Dams, **3:170–71, 7:128–29, 136–40**
See also under Dams, specific; Three Gorges Dam
 desalination, **6:93**
 diarrhea-related illness in, **6:85**
 diseases, water-related, **6:85**
 drinking water
 shortage of, **6:86**
 standards for, **6:94**
 droughts, **5:97, 6:86–87, 7:131–32**
 economic growth in, **6:79**
 economics of water projects, **1:16, 6:95–96**
 environment
 grassroots efforts, **6:80**
 pollution in, **6:79, 81–82**
 protections for, **6:94–95**
 top concerns, **7:287, 288**
 water-related disasters, **6:82–83**
 environmental flow, **5:32**
 Environmental Impact Assessment law, **6:96**
 floods, **5:106, 6:84–87**
 food needs for current/future populations, **2:74**
 foreign investment in water markets, **6:92**
 fossil-fuel production, **7:75, 82**
 glaciers in, **6:87–88**
 globalization and intl. trade of water, **3:46**
 Great Wall of China, **6:86**
 groundwater, **2:87, 3:2, 50, 4:79, 82, 83, 88, 90, 96–97, 5:125, 6:85–86**
 arsenic in, **6:81, 7:59**
 fluoride in, **6:81**
 Guangdong Province, **6:85**
 human needs, basic, **1:46**
 Jilin Province, **6:83**
 nongovernmental organizations in, **6:89–90, 96**
 North China Plains, **6:85–86, 90**
 politics, **6:88–90**
 population, **6:79**
 privatization, **3:59, 60**
 protests in, **6:97**
 provinces, **6:82**
 public-private partnerships in, **6:92–93**
 Qinghai-Tibetan Plateau, **6:88**
 rivers, **6:79, 81–82, 84, 88, 90, 7:55** (*See also under* Rivers, specific)
 sanitation services, **5:124, 147**
 Songhua River disaster, **6:83**
 South-to-North Water Transfer Project, **6:91**
 State Environmental Protection Administration (SEPA), **6:80–81, 94**
 wastewater treatment plants in, **6:92**
 water

- availability of, **6:83–85**
- average domestic use of, **1:46**
- basic requirement, **2:13**
- centralized management of, **6:89**
- effects of climate change, **6:87–88**
- efficiency improvements, **6:93–94**
- expanding the supply of, **6:91–93**
- industrial use, **5:125, 6:81**
- politics affected by, **6:88–90**
- pollution of, **6:79, 97**
- pricing of, **1:25**
- public participation efforts, **6:96–97**
- quality of, **6:80–82**
- quantity of, **6:83–85**
- regional conflicts over, **6:90–91**
- shortage of, **6:86**
- surface, **6:81**
- sustainable management of, **6:97**
- water use per unit of GDP, **6:93**
- water laws in, **6:88–89**
- wetlands in, **6:86, 88**
- withdrawals, water, **3:316–17, 6:85–86, 7:27–28**
- Xiluodu hydropower station, **6:92**
- China International Capital Corporation (CICC), **6:142**
- Chitale, Madhav, **1:174**
- Chlorination, **1:47, 60, 4:39, 5:159**
- Cholera, **1:48, 56–63, 265–71, 3:2, 5:287–92**
 - epidemic diarrheal diseases caused by, **7:57**
 - See also Vibrio; Vibrio cholerae*
- Cincinnati Enquirer*, **5:171**
- CIPM Yangtze Joint Venture, **1:85**
- Clams, **3:142–43**
- Clark Atlanta University, **3:62**
- Clementine* spacecraft, **1:197, 3:212–13**
- Climate change:
 - adaptation
 - Adaptation Fund, **6:51**
 - Adaptation Policy Framework, **6:48**
 - assessments, **6:47–49**
 - community participation in, **6:49**
 - costs of, **6:50–51, 53**
 - definition of, **6:45**
 - demand-side options, **6:46**
 - economic cost of, **6:50–51**
 - equity issues for, **6:51–52**
 - funding for, **6:52**
 - general circulation models, **6:47**
 - Interagency Climate Change Adaptation Task Force, **7:153**
 - mainstreaming of, **6:47**
 - national adaptation programs of action, **6:48–49**
 - options for, **6:45–46**
 - Oxfam Adaptation Financing Index, **6:52**
 - participation in, **6:49**
 - supply-side options, **6:46**
 - air temperature increase, predicted, **7:53**
 - Bibliography, The Water & Climate*, **4:xvii, 232–37**
 - business/industry, water risks, **5:152**
 - California (*See* Climate change, California)
 - changes occurring yet?, **1:145–48**
 - China, **6:87–88**
 - Colorado River Basin, **1:142, 144, 4:165–67, 7:16–18**
 - costs of, **6:50–51**
 - desalination, **5:80–81**
 - developing countries' vulnerability to, **6:45, 51, 54**
 - droughts, **5:112–13, 6:44, 7:8–9, 54, 101–2**
 - ecological effects, **4:171–72**
 - environmental flow, **5:45**
 - environmental justice, **5:136–37**
 - floods, **5:112–13, 7:9**
 - food needs for current/future populations, **2:87–88**
 - groundwater affected by, **4:170, 6:43**
 - hydrologic cycle, **1:139–43, 5:117**
 - hydrologic extremes, **6:43–44**
 - hydrologic impacts of, **6:48**
 - impacts of fossil-fuel extraction/processing, **7:84–85**
 - IPCC (*See* Law/legal instruments/regulatory bodies, Intergovernmental Panel on Climate Change)
 - Meking River Basin, **7:14–15**
 - Nile River Basin, **7:12–13**
 - overview, **1:137–39, 7:1**
 - precipitation, **1:140–41, 146–47, 4:159, 166, 6:40, 87**
 - recommendations and conclusions, **1:148–50**
 - reliability, water-supply, **5:74**
 - renewability of resources affected by, **6:9**
 - societal impacts, **1:144–45**
 - summary of, **6:53–54**
 - surface water effects, **6:43, 7:53–54**
 - sustainable vision for the Earth's freshwater, **1:191**
 - and the Three Gorges Dam, **6:146–47**
 - transboundary water management issues, **7:1–2, 7–20**
 - vulnerability to, **6:44–45, 51, 54**
 - water demand and, **6:44, 7:150**
 - water policy reform which addresses, **7:153**
 - water quality and, **4:167–68, 6:44, 7:53–54**
 - water resources affected by, **6:43–44**
 - See also* Greenhouse effect; Greenhouse gases
- Climate change, California, **1:144–45, 4:175–83, 232**
 - overview, **4:xvii, 157–58**
 - policy
 - economics/pricing/markets, **4:180–81**
 - information gathering/reducing uncertainty, **4:182–83**
 - infrastructure, existing, **4:175–77**
 - institutions/institutional behaviors, new, **4:181–82**

- Climate change, California (*continued*)
 monitoring, hydrologic and environmental, **4**:183
 moving from science to demand management/conservation/efficiency, **4**:179–80
 new supply options, **4**:178–79
 overview, **4**:175
 planning and assessment, **4**:178
 reports recommending integration of science/water policy, **4**:176
 science
 evaporation and transpiration, **4**:159–60
 groundwater, **4**:170
 lake levels and conditions, **4**:168–69
 overview, **4**:158–59, 172–73
 precipitation, **4**:159
 sea level, **4**:169–70
 snowpack, **4**:160–61
 soil moisture, **4**:167
 the state of the ecosystems, **4**:171–72
 storms/extreme events and variability, **4**:161–63
 temperature, **4**:159
 water quality, **4**:167–68
 summary/conclusions, **4**:183–84
 systems, managed water resource
 agriculture, **4**:174–75
 hydropower and thermal power generation, **4**:173–74
 infrastructure, water supply, **4**:173
 Clinton, Bill, **2**:127, 134
 Clothes washing. *See* Laundry
 Coal:
 energy content, **7**:75
 extraction and processing, **7**:73, 74, 82–84, 90
 production data, **7**:75, 82
 transport, **7**:83–84
 water consumed and energy production, **7**:25
 Coastal zones:
 consequences of poor water quality, **7**:55–56
 development and desalination, **5**:80
 erosion, **7**:46
 floods, **5**:104, 108
 legislation, **5**:80
 Coca-Cola, **4**:21, 38, **5**:146, 163, **6**:31–32
 beverage transport, **7**:161
 bottle development, **7**:158–59
 environmental justice, **5**:127
 water consumption and reputation, **7**:26
 Cogeneration systems and desalination, **2**:107
 Colombia, **1**:59, **3**:60, **5**:12, **7**:318
 Colorado, **4**:95–96, **7**:52
 Colorado River:
 climate change, **1**:142, 144, **4**:165–67, **7**:16–18
 conflict/cooperation concerning freshwater, **1**:109, 111, **7**:6–7
 dams, **7**:52 (*See also* Dams, specific, Glen Canyon Dam; Dams, specific, Hoover Dam)
 delta characteristics, **3**:139–43, **6**:130
 dependence of Las Vegas on, **5**:74
 fisheries, **1**:77
 hydrology, **3**:135–37, **7**:15
 institutional control of, **3**:134
 intl. agreements, **7**:6, 8–9, 15–16
 legal framework (“Law of the River”), **3**:137–39, **7**:15, 17
 restoration opportunities, **3**:143–44
 salinity, **7**:6–7
 Salton Sea inflows, **6**:129, 132
 summary/conclusions, **3**:144–45
 vegetation, **3**:134, 139–42
 wildlife, **1**:77, **3**:134
 Columbia River Alliance, **2**:133
 Comets (small) and origins of water on Earth, **1**:193–98, **3**:209–10, 219–20
 Commagenian kings, **3**:185
 Commercial sector, **3**:22–24, 169–70. *See also* Business/industry, water risks; Privatization; Water conservation, California commercial/industrial water use
 Commissions. *See* International listings; Law/legal instruments/regulatory bodies; United Nations; World listings
 Commodification, **3**:35
 Commonwealth Development Corporation, **1**:96
 Commonwealth of Independent States:
 drinking water, progress on access to, **7**:253
 water quality, satisfaction by country, **7**:290–91
 Communities:
 agricultural, loss of farms due to drought, **7**:104–5
 consequences of poor water quality, **7**:61–62
 engagement (*See* Public participation)
 impacts of fossil-fuel extraction/processing, **7**:87–88, 91–92
 risks of privatization, **3**:68, 79
 Community structure. *See* Biodiversity; Extinct species; Introduced/invasive species; Threatened/at risk species
 Companies:
 bottled water (*See* Bottled water, business/industry)
 continuous improvement commitment by, **6**:32
 current water use, **6**:22
 decision making, **6**:27–28
 environmental management system, **6**:32
 history, **6**:17–18
 recommendations for, **6**:37–38
 stakeholder issues, **5**:145, **6**:24, **7**:26–27
 strategic partnerships, **6**:31–32, **7**:40
 supply chain involvement, **6**:24
 sustainable practices, **7**:23
 water management, **6**:20

- water performance data published by, **6:28**
 water-policy statement, **6:25–26**
See also Corporate reporting
- Company, **2:126**
- Compaore, Blaise, **1:52**
- Concession models, privatization and, **3:66–67**
- Conferences/meetings, international. *See*
 International listings; Law/legal instru-
 ments/regulatory bodies; United
 Nations; World listings
- Conflict/cooperation concerning freshwater:
 dispute-resolution procedures, **7:7**, 168
 droughts, **5:99**, **7:8–9**
 economic/social development context,
7:176
 environmental deficiencies and resource
 scarcities, **1:105–6**
 geopolitics and intl./transboundary waters,
2:35–36, **7:1**
 historical background (*See* Water Conflict
 Chronology)
 human right to water, **2:3**
 inequities in water distribution/use/develop-
 ment, **1:111–13**
 instrument/tool of conflict, water as an,
1:109–10
 military/political goal, water as a, **1:108–9**,
7:1, 176
 military target, water as a, **1:110–11**, **7:176**
- Non-Navigational Uses of International
 Watercourses (*See* Convention of the
 Law of the Non-Navigational Uses of
 International Watercourses)
 overview, **1:107**, **3:2–3**, **5:189–90**, **7:1**
 privatization, **3:xviii**, 70–71, 79, **4:54**, 67
 reducing the risk of conflict, **1:113–15**
 security analysis, shift in intl., **1:105**
 summary/conclusions, **1:124**
 sustainable vision for the Earth's freshwater,
1:190
See also Terrorism; *specific countries*
- Congo, Democratic Republic of the, **5:9**
 dams with Chinese financiers/developers/
 builders, **7:133**, 318
 infant mortality rate, **7:266**
 Nile River Basin, **7:10**, 11
- Congo, Republic of the:
 dams with Chinese financiers/developers/
 builders, **7:133**, 333
 infant mortality rate, **7:264**, 265
 location, **7:11**
- Conoco-Phillips, **6:23**
- Conservation. *See* Environmental flow; Soft
 path for water; Sustainable vision for the
 Earth's freshwater; Twenty-first century
 water-resources development; Water
 conservation
- Consumption/consumptive use, **1:12**, 13,
3:103, **6:7**, 117. *See also* Projections,
 review of global water resources;
 Withdrawals, water
- Contracts, privatization and, **4:65–67**
- Convention of the Law of the Non-
 Navigational Uses of International
 Watercourses (1997), **1:107**, 114, 124,
 210–30, **2:10**, 36, 41–42, **3:191**, **5:35**
- China's vote against, **7:129**
 critical importance of, **7:19**
 overview, **7:4–5**
- Conventions, international legal/law. *See*
 International listings; Law/legal instru-
 ments/regulatory bodies; United
 Nations; World listings
- Cook Islands, **3:118**
- Cooling and CII water use, **4:135**
- Copper, **7:59–60**
- Corporate issues. *See also* Bottled water, busi-
 ness/industry; Business/industry, water
 risks; Companies; Corporate reporting;
 Privatization; Water conservation,
 California commercial/industrial water use
- Corporate reporting:
 bottled water, **6:23**
 continuous improvement, **6:32**
 current water use, **6:22**
 history, **6:17–18**
 non-financial reports, **6:18–20**
 recommendations for, **6:37–38**
 stakeholder consultations and engagement,
6:24
 strategic partnerships, **6:31–32**
 summary of, **6:36–37**
 supply chain involvement, **6:24**
 sustainability reports, **6:18**, 20
 water management, **6:20**, **7:40–41**
 water performance (*See* Water performance
 reporting)
 water-policy statement, **6:25–26**
 water risk-assessment programs, **6:23–24**
- Costa Rica, **5:34**
- Costs. *See* Economy/economic issues
- Côte d'Ivoire, **1:55**, **4:65–67**, **7:319**
- Councils. *See* Law/legal instruments/regulato-
 ry bodies
- Court decisions and conflict/cooperation con-
 cerning freshwater, **1:109**, 120. *See also*
 Law/legal instruments/regulatory bod-
 ies; Legislation
- Covenant, the Sword, and the Arm of the Lord
 (CSA), **5:21–22**
- Covenants. *See* Law/legal instruments/regula-
 tory bodies; United Nations
- Crane, Siberian, **1:90**
- Crayfish, **7:56**
- Critical Trends*, **3:88**
- Croatia, **1:71**
- Crocodiles, **7:56**
- Cryptosporidium*, **1:48**, **2:157**, **4:52**, **5:2**, 159,
7:47
- Cucapá people, **3:139**
- Cultural importance of water, **3:40**
- Curacao, **2:94–95**

- Current good manufacturing practice (CGMP), **4**:27
- CW Leonis, **3**:219–20
- Cyanide, **5**:20
- Cyberterrorism, **5**:16, **6**:152, **7**:176
- Cyprus, **1**:202–4, **2**:108
- Cyrus the Great, **1**:109
- D**
- Dams:
- Africa, **3**:292, **5**:151, **6**:274–78
 - business/industry, water risks, **5**:151
 - China (*See* China, dams)
 - by continent and country, **3**:291–99
 - debate, new developments in the, **1**:80–83
 - economic issues, **1**:16, **2**:117–19, 122–24, 127, 129–30
 - development and construction by China, **7**:133–35
 - private-sector funding, **1**:82
 - environmental flow, **5**:32–34
 - environmental impacts
 - impact statements, **7**:134–35
 - overview, **7**:130
 - threatened/at risk species due to, **3**:3, **7**:154
 - environmental/social impacts, **1**:15, 75–80, 83
 - floods, **5**:106
 - Gabcikovo-Nagymaros project, **1**:109, 120
 - grandiose water-transfer plans, **1**:74–75
 - Korean peninsula, **1**:109–10
 - large
 - historical background, **1**:69
 - total worldwide, **7**:127
 - U.S. begins construction of, **1**:69–70
 - opposition to, **1**:80–82, **7**:127, 132, 134–36
 - by owner, **6**:272–73
 - power generation (*See* Hydroelectric production)
 - primary purposes of, **6**:270–71
 - runoff, humanity appropriating half of the world's, **5**:29
 - safety data, **6**:236–38
 - social impacts
 - displaced people, **1**:77–80, 85, 90, 97–98, 281–87, **5**:134, 151
 - Sudan, **7**:133, 134
 - U.S., **7**:154
 - environmental justice, **5**:133–36
 - schistosomiasis outbreaks, **1**:49, **7**:58
 - by the Tennessee Valley Authority, **7**:153
 - terrorism risks, **5**:15–16
 - twentieth-century water-resources development, **1**:6
 - World Water Forum (2003), **4**:193
 - See also* World Commission on Dams
 - Dams, removing/decommissioning:
 - case studies, completed removals
 - Edwards, **2**:xix, 123–25
 - Maisons-Rouges and Saint-Etienne-du-Vigan, **2**:125
 - Newport No. 11, **2**:125–26
 - Quaker Neck, **2**:126
 - Sacramento River valley, **2**:120–23
 - economics, **2**:118–19
 - hydroelectric production, **1**:83
 - 1912 to present, **2**:275–86, **6**:239–69
 - overview, **2**:xix, 113–14
 - proposed
 - Elwha and Glines Canyon, **2**:127–28
 - Glen Canyon, **2**:128–31
 - Pacific Northwest, network of dams in, **2**:131–34
 - Peterson, **2**:128
 - Savage Rapids, **2**:128
 - Scotts Peak, **2**:126–27
 - purpose for being built no longer valid, **2**:117
 - renewal of federal hydropower licenses, **2**:114–15
 - safety issues, **2**:130
 - by state, **6**:265–69
 - states taking action, **2**:117–18
 - summary/conclusions, **2**:134
 - twentieth century by decade, **3**:301–2
 - by year, **6**:265–69
 - Dams, specific:
 - American Falls, **7**:153
 - Aswan, **7**:12
 - Ataturk, **1**:110, **3**:182, 184, 185
 - Auburn, **1**:16
 - Bakun, **1**:16
 - Balbina, **5**:134
 - Banqiao, **5**:15–16
 - Batman, **3**:187
 - Belinga, **7**:134–35
 - Birecik, **3**:185, 186–87
 - Bonneville, **1**:69
 - Chixoy, **3**:13
 - Cizre, **3**:189–90
 - Condit, **2**:119
 - Edwards, **1**:83, **2**:xix, 119, 123
 - Elwha, **1**:83
 - Farakka Barrage, **1**:118–19
 - Fort Peck, **1**:69
 - Fort Randall, **1**:70
 - Garrison, **1**:70, **5**:123
 - Gezhou, **6**:142
 - Gibe, **7**:134
 - Glen Canyon, **1**:75–76, **2**:128–31
 - Glines Canyon, **1**:83
 - Gorges, **5**:133
 - Grand Coulee, **1**:69
 - Hetch Hetchy, **1**:15, 80–81
 - Hoa Binh, **5**:134
 - Hoover, **1**:69, **3**:137
 - Ice Harbor, **2**:131–34
 - Ilisu, **3**:187–89, 191
 - Imperial, **7**:7
 - Itaipu, **1**:16
 - Kalabagh, **1**:16
 - Karakaya, **3**:182, 184

- Kariba, **5**:134
 Katse, **1**:93, 95
 Keban, **3**:184
 Kenzua, **7**:153
 Koyna, **1**:77
 Laguna, **3**:136
 Little Goose, **2**:131–34
 Lower Granite, **2**:131–34
 Lower Monumental, **2**:131–34
 Manitowoc Rapids, **2**:119
 Merowe, **7**:133–34
 Morelos, **3**:138, 142, **7**:7
 Myitsone, **7**:132–33
 Nam Theun I, **1**:16
 Nujiang, **7**:135
 Nurek, **1**:70
 Oahe, **1**:70
 Pak Mun, **5**:134
 Peterson, **2**:128
 Pubugou, **7**:136
 Quaker Neck, **2**:126
 Sadd el-Kafara, **1**:69
 St. Francis, **5**:16
 Salling, **2**:119
 Sandstone, **2**:119
 Sapta Koshi High, **1**:16
 Sardar Sarovar, **5**:133
 Savage Rapids, **2**:119, 128
 Sennâr, **7**:58
 Shasta, **1**:69, **5**:123, **7**:153
 Shimantan, **5**:15–16
 Snake River, **2**:131–33
 Ta Bu, **5**:134
 Tantangara, **7**:114
 Three Gorges Dam (*See* Three Gorges Dam)
 Tiger Leaping Gorge, **6**:89, **7**:135
 Welch, **2**:118
 Woolen Mills, **2**:117–19
 Xiaowan, **7**:131
 Yacyreta, **3**:13
 Yangliuhu, **7**:135
 Yangtze River, **7**:46, 129
See also China, dams, construction overseas;
 Lesotho Highlands project;
 Southeastern Anatolia Project
- Dasani bottled water, **4**:21
 Data issues/problems:
 climate change, **4**:183
 conversions/units/constants, **2**:300–309, **3**:318–
 27, **4**:325–34, **5**:319–28, **7**:75, 341–50
 global water resources, projections, **2**:40–42
 groundwater, **4**:97–98
 need for data and water policy reform, **7**:152
 open access to information, **4**:70–73
 polls, **7**:283, 286
 urban commercial/industrial water use in
 California, **4**:139–40, 148–50, 152–53
 urban residential water use in California,
 4:108–9
 well-being, measuring water scarcity and,
 3:93
- da Vinci, Leonardo, **1**:109
 Decision making:
 joint, for transboundary waters, **7**:13, 167
 open/democratic, **4**:70–73
 precautionary principle, **7**:167
 water risks factored into, **6**:27–28
 Declarations. *See* Law/legal instruments/regu-
 latory bodies; United Nations
 Deer Park, **4**:21
 Deltas, river, **3**:xix. *See also* Colorado River;
 International river basins
 Demand management, **4**:179–80, **7**:153–54.
 See also Water-use efficiency;
 Withdrawals, water
 de Melo, Carlos, **3**:6
 Demographic health surveys (DHS), **6**:61
 Dengue fever, **3**:2
 Denmark, **1**:52
 Density, measuring, **2**:304, **3**:327, **4**:329, 334,
 7:345, 350
 Desalination:
 advantages and disadvantages, **5**:66–76
 Australia, **5**:69, **7**:114–15
 business/industry, water risks, **5**:161
 California, **1**:30, 32, **5**:51–52, 63–69, 71, 73,
 74
 capacity by country/process/source of
 water, **1**:131, 288–90, **2**:287–90, **5**:58–60
 capacity statistics, **5**:56–57, 59–60, 308–17
 China, **6**:93
 climate change, **5**:80–81, **7**:16
 concentrate disposal, **2**:107
 economic issues, **1**:30, **2**:95, 105–9, **5**:62–63,
 66, 68–73
 energy use/reuse, **2**:107, **5**:69–71, 75–76
 environmental effects of, **5**:76–80
 global status of, **5**:55–58
 health, water quality and, **5**:74–75
 history and current status, **2**:94–98, **5**:54
 intakes, water, impingement/entrainment,
 5:76–77
 Nauru, **3**:118
 oversight process, regulatory and, **5**:81–82
 overview, **1**:29–30, **2**:93–94, **5**:51–53
 plants
 capacity of actual/planned, **5**:308–17
 Tampa Bay, **2**:108–9, **5**:61–63, **6**:123–25
 processes
 freezing, **2**:104
 ion-exchange methods, **2**:104
 membrane
 electrodialysis, **2**:101–2
 overview, **2**:101
 reverse osmosis (*See* Reverse osmosis)
 membrane distillation, **2**:104–5
 overview, **2**:103–4
 solar and wind-driven systems, **2**:105–6
 thermal
 multiple-effect distillation, **2**:99–100
 multistage flash distillation, **2**:96, 100
 overview, **2**:98–99

- Desalination, processes, thermal (*continued*)
 vapor compression distillation, **2:100–101**
 reliability value of, **5:73–74**
 salt concentrations of different waters, **2:94, 5:53**
 source of water/process, capacity by, **5:56–57, 59–60**
 summary/conclusions/recommendations, **2:109–10, 5:82–86**
 technologies used, **5:54–55**
 U.S., **5:58–63**
- Desertification, Australia, **7:105–6**
- Deutsche Morgan Grenfell, **1:96**
- Developing countries:
 agriculture, **1:24**
 irrigation, **3:290, 4:297–98, 5:301–2**
 bottled water, **4:40–41**
 business/industry, water risks, **5:150**
 cholera, **1:56**
 climate change vulnerability of, **6:44–45, 51, 54**
 dams, **1:82**
 diseases, water-related, **5:117**
 dracunculiasis, **1:51**
 drinking water, **1:261–62**
 economic development derailed, **1:42**
 education and expertise in water quality, **7:66**
 efficiency, improving water-use, **1:19**
 food needs for current/future populations, **2:69**
 industrial water use, **1:21**
 Pacific Islands, **5:136**
 population increases and lack of basic water services, **3:2**
 privatization, **3:79, 4:46**
 sanitation services, **1:263–64**
 toilets, energy-efficient, **1:22**
 unaccounted for water, **4:59**
See also Environmental justice; *specific countries*
- Development:
 economic/social, as context for water conflicts, **7:176** (*See also* Water Conflict Chronology)
 the right to, **2:8–9**
 technology, **7:67**
- Diageo's Water of Life, **7:38**
- Diarrhea, **1:48, 4:8, 11, 6:58, 75, 85**
 disability adjusted life year (DALY), **7:272**
 morbidity, **7:58**
 mortality, **7:57–58, 272**
 childhood, under-5, **7:259–63**
- Dioxins, **7:48, 60**
- Diphtheria, **7:272**
- Disability-adjusted life year (DALY), **4:9, 276–77, 7:57, 270–72**
- Discrimination, environmental, **5:118–19**. *See also* Environmental justice
- Diseases, water-related, **1:186–87**
 amoebiasis, **1:48**
 ascariasis, **7:272**
 Balkan Endemic Neuropathy, **7:89**
Campylobacter jejuni, **7:57**
 in China, **6:85**
 cholera, **1:48, 56–63, 265–71, 3:2, 5:287–92**
 dams, removing/decommissioning, **2:130**
 death, **4:9–10, 6:58, 73**
 and disability-adjusted life year from, **4:276–77, 7:57, 270–72**
 limitations in data and reporting, **7:270–71**
 dengue fever, **3:2**
 diarrhea (*See* Diarrhea)
 diphtheria, **7:272**
 dysentery, **1:42, 4:64**
 emerging diseases/pathogens, **2:155, 7:49**
 encephalitis, **7:47**
 environmental justice, **5:128–29**
 failure, **3:2, 5:117**
 fecal coliform bacteria, **7:52–53**
 Guinea worm (*See* Dracunculiasis)
 hepatitis, **7:58**
 hookworm, **7:61, 272**
 malaria, **1:49–50, 6:58, 7:259–63**
 meningitis, **7:47**
 outbreaks in U.S., **4:308–12**
 overview, **1:47–50, 274–75, 7:47, 57–58**
 poliomyelitis, **7:272**
 roundworm, **7:61–62**
 schistosomiasis, **1:48, 49, 7:58, 272**
Shigella, **7:57**
 trachoma, **1:48, 7:272**
 trichuriasis, **7:272**
 trypanosomiasis, **7:272**
 typhoid, **1:48, 7:57, 58**
 waterborne *vs.* water-based, **7:57–58**
 whipworm, **7:61**
See also Millennium Development Goals
- Dishwashers, **4:109, 116, 6:106**
- Displaced people. *See* Dams, social impacts, displaced people
- Dolphins, **1:77, 90, 3:49, 50, 7:56**
- Dow Jones Indexes, **3:167**
- Downstream users, **5:37**. *See also* Human right to water
- Dracunculiasis (Guinea worm), **1:39, 48–56, 272–73, 3:273–77, 5:293–97**
 host zooplankton, **7:58**
 overview, **7:47**
- Dressler, Alexander, **1:194**
- Drinking water, access:
 collection distance, **7:231**
 collection the responsibility of children/women, **7:61**
 corporate efforts to improve, **7:38, 41**
 costs of, **6:73**
 by country, **1:251–55, 3:252–60, 5:237–46, 6:211–20**
 urban and rural, 1970–2008, **7:230–40**
 defining terms, **4:28, 7:230–31**
 developing countries, **1:261–62, 7:62**

- disinfection and purification, **5:159**
- fluoride, **4:87**
- funding of, **6:73**
- “improved,” use of term, **7:230–31, 251–52**
- intl. organizations, recommendations by, **2:10–11**
- lack of, **6:44, 53**
- limitations in data and reporting, **6:61–62, 7:231, 251–52**
- Overseas/Official Development Assistance, **7:273–77**
- reclaimed water, **2:151–52**
- by region, **6:65–67, 230–32, 7:24, 251–53**
- rural areas, **6:70–71** (*See also* Drinking water, access, by country)
- statistics regarding, **6:44, 7:24, 61**
- twentieth-century water-resources development, **3:2**
- urban areas, **6:70–71, 7:97** (*See also* Drinking water, access, by country)
- well-being, measuring water scarcity and, **3:96–98**
- World Health Organization, **4:208**
- World Water Forum (2003), **4:202**
- See also* Health, water issues; Human right to water; Millennium Development Goals; Soft path for water; Water quality; Well-being, measuring water scarcity and; *specific contaminants*
- Droughts, **1:142, 143, 4:163, 203–4, 6:44**
 - agricultural effects, **5:92, 94, 98, 103, 7:102–5**
 - Atlanta (GA), **6:108**
 - Australia, **7:97–121, 146–47**
 - beginning of, determination, **5:93**
 - causes, **5:95–96, 7:8, 98, 100**
 - China, **5:97, 6:86–87, 7:131–32**
 - defining terms, **5:92, 7:99–100**
 - disturbances promoting ecosystem diversity, **5:91**
 - ecological effects, **5:92, 7:54, 100–101**
 - economy/economic issues, **5:91–92, 98, 103**
 - effects of, **5:95–99**
 - fires, **5:98, 102, 7:105**
 - forecasting, **7:109, 146**
 - future of, **5:112–13**
 - management
 - agricultural, **7:107–14**
 - crisis management, **5:99, 111, 7:8–9, 97, 100, 106–7**
 - impact and vulnerability assessment, **5:100–101**
 - mitigation and response, **5:101–3**
 - monitoring and early warning, **5:99–100, 7:20**
 - national policy development, **7:106–7, 112**
 - public participation, **7:116–17**
 - risk management, **5:99, 7:109**
 - water market/water trading, **7:110, 111–14, 146**
 - National Drought Mitigation Center, **5:94**
 - overview, **5:91–92**
 - short-lived or persistent, **5:93**
 - summary/conclusions, **5:113–14**
 - transboundary agreements, **7:8–9, 12–13, 15**
 - urban areas, **5:98, 7:114–21**
 - U.S., **5:93, 6:44**
- DuPont, **1:52**
- Dust Bowl (1930s), **5:93**
- Dutch Water Line strategy, **5:5**
- Dynamics, water, **2:218**
- Dysentery, **1:42, 4:64**
- E
- Early Warning Monitoring to Detect Hazardous Events in Water Supplies, **5:2, 20**
- Earthquakes. *See* Seismic activity
- Earths’ water, origins of the, **1:93–98, 3:209–12**
- Earth Water, **5:163**
- East Bay Municipal Utilities District (EBMUD), **5:73**
- East Timor, **5:9**
- Economy/economic issues:
 - access to water, **5:125, 7:67**
 - bag technology, water, **1:200, 204–5**
 - bottled water, **4:17, 22–23**
 - budgets, U.S. federal agency water-related, **7:303–7**
 - cholera, **1:60**
 - Colorado River, **3:143**
 - conflict/cooperation concerning freshwater, **5:15**
 - cost effectiveness, **4:105**
 - costs of climate change, **6:50–51**
 - costs of poor water quality, **7:63–65**
 - dams, **1:82, 2:117–19, 122–24, 127, 129–30, 132**
 - desalination, **1:30, 2:95, 105–9, 5:62–63, 66, 68–73**
 - developing countries, **1:42**
 - droughts, **5:91–92, 98, 103**
 - economic development, as context in water conflicts, **7:176**
 - economic good, treating water as an, **3:xviii, 33–34, 37–38, 58, 4:45**
 - economies of scale, and hard path for meeting water-related needs, **3:8**
 - efficiency, economic, **4:104, 105**
 - environmental flow, **5:32, 40–43**
 - financial assistance, **6:74**
 - fishing, **2:117**
 - floods, **5:91–92, 108, 109**
 - Global Water Partnership, **1:171**
 - human needs, basic, **1:46–47**
 - human right to water, **2:13–14**
 - industrial water use, **1:21, 7:67**
 - intl. water meetings, **5:183**
 - Lesotho Highlands project, **1:95–97, 99**
 - Millennium Development Goals, **4:6–7, 7:64**
 - overruns, water-supply project, **3:13**
 - Overseas/Official Development Assistance, **4:6, 278–83, 5:262–72, 7:273–77**

Economy/economic issues (*continued*)

Pacific Island developing countries, **3:127**
 privatization, **3:77, 4:53–60**
 productivity of water, U.S., **4:321–24**
 rebates and incentives for water conservation, **6:110–12, 7:119, 121**
 reclaimed water, **2:156, 159, 7:121**
 revenue/growth of the water industry, **5:303–4**
 sanitation services, **5:273–75**
 soft path for meeting water-related needs, **3:5, 6–7, 12–15, 23–25, 7:150**
 Southeastern Anatolia Project, **3:182, 187, 190–91**
 subsidies
 agriculture, **1:24–25, 117, 7:108, 109, 152**
 desalination, **5:69**
 engineering projects, large-scale, **1:8**
 government and intl. organizations, **1:17, 7:67**
 privatization, **3:70–72, 4:50, 53–60**
 twenty-first century water-resources development, **1:24–25**
 supply-side solutions, **1:6**
 tariffs, water, **6:312–23**
 terrorism, **5:20**
 Three Gorges Dam, **1:86–89**
 twentieth-century water-resources development, end of, **1:16–17**
 urban commercial/industrial water use in California, **4:140–43, 151–52**
 urban residential water use in California, **4:107–8**
 water policy reform, **7:152–53**
 water scarcity effects on, **6:45**
 withdrawals, water, **3:310–17**
 World Commission on Dams, **3:158, 162–64, 167–69**
 World Water Forum (2003), **4:195–96**
See also Business/industry, water risks; Environmental justice; Globalization and international trade of water; Pricing, water; Privatization; World Bank

Ecosystems:
 classification of impacts, three-tier, **7:52**
 climate change, **4:171–72**
 community structure (*See* Biodiversity; Extinct species; Introduced/invasive species; Threatened/at risk species)
 costs of poor water quality, **7:63**
 dams and water withdrawals destroying, **3:3**
 environmental flow, **5:30–31**
 impacts of fossil-fuel extraction/processing, **7:84–87**
 impacts of water quality degradation factors, **4:168, 7:46–49, 52, 54–57**
 privatization, **4:51–53, 7:146**
 reclaimed water, **2:149–50**
 reserve, and nature's right to water, **7:145**
 restoration/protection, **7:66, 146**
 World Water Forum (2003), **4:203**

See also Environmental flow; Environmental issues; Fish; Soft path for water; Sustainable vision for the Earth's freshwater

Ecuador, **1:59, 71, 2:178–79, 3:49, 5:124**
 dams with Chinese financiers/developers/builders, **7:319**
 fossil-fuel production, **7:88**

Education:
 effects of inadequate sanitation on, **6:58, 7:61**
 Save Water and Energy Education Program, **4:114**
 in water quality, **7:66**
 in water supply and sanitation, **7:277**
 Edwards Manufacturing Company, **2:124**
 Eels, **2:123**
 Egypt, **1:118, 2:26, 33, 4:18, 40, 5:163**
 decline in infant mortality rate, **7:264**
 Nile River Basin, **7:11**
 Eighteen District Towns project, **2:167**
 Electricity. *See* Hydroelectric production
 El Niño/Southern Oscillation (ENSO), **1:139, 143, 147, 3:119, 4:162, 5:95, 106**
 and the Millennium Drought in Australia, **7:98**

Encephalitis, **7:47**
 Endocrine disruptors, **7:49, 59, 60**
 End use of water as a social concern, **3:7, 8–9**

Energy issues:
 bottled water, **7:157–64**
 business/industry, water risks, **5:150, 151–52**
 desalination, **2:107, 5:69–71, 75–76**
 droughts, **5:98**
 Energy Department, U.S., **1:23, 4:115**
 energy efficiency, **3:xiii, 7:84, 162**
 measuring energy, **2:308, 3:326, 4:333, 7:75, 349**
 power generation
 by fossil fuel type, **7:75**
 retirement of aging power plants, **7:84–85**
 thermal pollution from, **7:85**
 and water consumption, **7:25, 26, 31, 73, 74–75**
 tap water, **7:163**
 transportation method, **7:162**
 unit conversions, **7:75**
 water treatment, **7:60**

Engineering projects, large-scale. *See* Dams; Twentieth-century water-resources development

England:
 cholera, **1:56**
 desalination, **2:94**
 droughts, **5:92**
 eutrophication, **7:63**
 human right to water, **4:212**
 Lesotho Highlands project, **1:96**
 Office of Water Services, **4:64–65**
 privatization, **3:58, 60, 61, 78, 4:62–65**
 sanitation services, **5:129–31**

- Southeastern Anatolia Project, **3:191**
 World Commission on Dams, **3:162, 170**
See also United Kingdom
- Enron, **3:63**
- Environment*, **2:182**
- Environmental flow:
 characteristics of hydrologic regimes, **5:31**
 economics/finance, **5:40–43**
 General Accounting Office, **5:119**
 legal framework, **5:34–37**
 policy implementation, **5:43–45**
 projects in practice, **5:32–34**
 science of determining, **5:38–40**
 summary/conclusions, **5:45–46**
 water quality link, **5:40**
 World Commission on Dams' recommendations, **5:30**
- Environmental Impact Assessment (EIA), **6:96, 7:31–32**
- Environmental issues:
 bottled water, **4:41**
 change, global, **1:1**
 contaminants in water (*See* Wastewater; Water quality; *specific contaminants*)
 as context for business/industry water risk, **7:29**
 dams/reservoirs, **1:15, 75–80, 83, 91**
 desalination, **5:76–80**
 ecological impacts (*See* Ecosystems)
 environmental flow, **5:32–34**
 environmental justice, **5:117–42**
 Lesotho Highlands project, **1:98**
 nature's right to water, **7:145**
 reclaimed water, **2:149–50**
 shrimp/tuna and turtle/dolphin disputes, **3:49, 50**
 sustainable vision for the Earth's freshwater, **1:188–90**
 Three Gorges Dam, **1:89–9, 6:142**
 top concerns around the world, **7:285–88**
 top environmental concerns of U.S. public, **7:282–84**
 twentieth-century water-resources development, end of, **1:12, 15–16**
 U.S., **6:339–41, 7:282–84**
- Environmental justice:
 climate change, **5:136–37**
 Coca-Cola, **5:127**
 dams, **5:133–36**
 discrimination, environmental, **5:118–19**
 environmentalism of the poor, **5:123–24**
 Environmental Justice Coalition for Water, **5:122–23**
 good governance, **5:138–41**
 history of movement in U.S., **5:119–20, 122–23**
 human right to water, recognition/implementation, **5:137–38**
 intl. context, **5:118**
 overview, **5:117–18**
 principles of, **5:120–22**
 privatization, **5:131–33**
 sanitation services, **5:127–31**
 summary/conclusions, **5:141–42**
 water access, **5:124–25, 127**
 water quality, **5:127–29**
 women and water, **5:126, 134, 7:61, 89**
- Environmental management system, **6:32**
- Eritrea, **5:95, 7:11**
- Ethanol, **7:74**
- Ethiopia, **1:55, 4:211, 5:95, 97**
 dams with Chinese financiers/developers/builders, **7:133, 134, 319–20**
 drinking water, access to, **6:71–73, 7:41**
 Nile River Basin, **7:11**
 sanitation, **6:71–73**
- Ethos Water, **5:163**
- Europa Orbiter*, **3:218**
- Europe:
 aquifers, transboundary, **7:3**
 availability, water, **2:217**
 bottled water, **4:22, 25, 288, 289, 291, 5:163, 281, 283**
 per-capita consumption, **7:340**
 cholera, **1:56, 267, 270, 5:289, 290**
 dams, **3:165, 292–93**
 drinking water, **5:159, 245–46, 7:239–40**
 Eco-Management and Audit Scheme, **6:18**
 environmental flow, **5:33**
 European Convention on Human Rights (1950), **2:4, 8**
 European Union Development Fund, **1:96**
 European Union Water Framework Directive (2000), **7:25, 147–49**
 food needs for current/future populations, **2:69**
 globalization and intl. trade of water, **3:45, 47**
 Global Water Partnership, **1:169**
 groundwater, **4:84–85**
 human right to water, **4:209, 214**
 hydroelectric production, **1:71, 279–80**
 irrigation, **1:301, 2:261–62, 265, 3:289, 6:332–33**
 Lesotho Highlands project, **1:96**
 mortality rate, under-5, **7:261–62**
 Overseas/Official Development Assistance by countries and institutions in, **7:274**
 population data/issues, **1:249–50, 2:214**
 privatization, **3:58, 60, 61**
 renewable freshwater supply, **1:239–40, 2:201–2, 217, 3:241–42, 4:265–66, 5:225–26**
 by country, **7:219–20**
 reservoirs, **2:270, 274**
 river basins, **6:289, 301–06**
 transboundary, **2:29–31, 7:3**
 salinization, **2:268**
 sanitation services, **3:272, 5:255, 7:249–50**
 threatened/at risk species, **1:294–95, 7:56**
 waterborne diseases, **1:48**
 water quality, satisfaction by country, **7:290–**

Europe (*continued*)

withdrawals, water, **1:244**, **2:209–11**, **3:249–50**, **4:273–75**, **5:235–36**
by country, **7:228–29**

Evaporation of water into atmosphere, **1:141**, **2:20**, **22**, **83**, **4:159–60**, **6:43**, **107**

reduction in drought management, **7:110**

Evian bottled water, **7:162**

Excreta. *See* Fecal contamination

Ex-Im Bank, **1:88–89**, **3:163**

Export credit agencies (ECAs), **3:191**

Extinct species:

freshwater animal species, **7:292–302**

rates for fauna from continental North America, **4:313–14**

See also Threatened/at risk species

F

Faucets, **4:117**, **6:106**, **7:28**

Fecal contamination, **1:47–48**, **7:52–53**, **57–58**

Fedchenko, Alexei P., **1:51**

Fertilizer. *See* Agriculture, runoff

Field flooding, **2:82**, **86**

Fiji, **3:45**, **46**, **118**, **7:320**

Fiji Spring Water, **7:162**

Films:

and portrayals of terrorism, **5:14**

water in the, **7:171–74**

Filtration, water, **1:47**, **5:55**, **7:159–60**, **161**

Finn, Kathy, **4:69–70**

Fire, and drought, **5:98**, **102**, **7:105**

First Peoples. *See* Indigenous populations

Fish:

aquaculture, **2:79**

bass, **2:123**

carp, **2:118**

climate change, **4:168**

Colorado River, **3:142**

dams, removing/decommissioning, **2:118**, **123**, **126**, **128**, **131–33**

dams/reservoirs affecting, **1:77**, **83**, **90**, **98**, **2:117**, **6:142–43**

percent of North American species threatened, **7:154**

desert pupfish, **3:142**

droughts, **5:98**, **102**

eels, **2:123**

endocrine disruptors, **7:49**

extinct or extinct in the wild species, **7:294–96**

floods, **5:109**

food needs for current/future populations, **2:79**

fossil-fuel extraction affecting, **7:87**, **91**

herring, **2:123**

largest number of species, countries with, **2:298–99**

pesticides, **5:305–7**

Sacramento River, **2:120–21**

salmon, **1:77**, **2:117**, **120–21**, **123**, **128**, **132**, **133**, **3:3**

sturgeon, **1:77**, **90**, **2:123**

threatened/at risk species, **1:291–96**, **3:3**, **39–40**, **142**

due to dams, **7:154**

due to mining drainage, **7:52**

percent of U.S. species, **7:56**

tuna, **3:49**, **50**

Floods, **1:142–43**, **4:162–63**, **203–4**, **302–7**, **5:104–9**

Australia, **7:97**

causes, **5:106**, **7:9**

China, **6:84–87**, **144**

control, **5:110–12**

definition, **5:104–5**

disturbances promoting ecosystem health, **5:91**, **7:134**

economy/economic issues, **5:91–92**

effects of, **5:106–10**

flash, **5:104**

frequency, calculation, **5:105**

future of, **5:112–13**

Johnstown Flood of 1889, **5:16**

management, **5:110–12**

Meking River Basin, **7:14–15**

overview, **5:91–92**

summary/conclusions, **5:113–14**

Three Gorges Dam protection against, **6:144**

transboundary agreements, **7:9**

Florida:

Altamonte Springs, **2:146**

desalination, **2:108–9**, **5:60–63**, **69**, **6:123–25**

reclaimed water, **2:146–47**

St. Petersburg, **2:146–47**

Tampa Bay, **2:108–9**, **5:61–63**, **6:123–25**

Flow-limited resources, **6:6**

Flow rates, **2:305–6**, **3:104**, **324**, **4:168**, **172**, **331**.

See also Hydrologic cycle; Stocks and flows of freshwater

measuring, **7:346–47**

Fluoride, **4:87**, **6:81**

Fog collection as a source of water, **2:175–81**

Fondo Ecuatoriano Canadiense de Desarrollo, **2:179**

Food:

access, impacts of fossil-fuel extraction/processing, **7:91**

adulteration, **4:32–33**

BOD emissions by country, **7:279–81**

diets, regional, **2:64–66**

fish, **2:79**

genetically-modified, **7:110**

meat consumption, **2:68–69**, **72**, **79–80**

rice, **2:74–79**

wheat, **2:75**

Food needs for current/future populations:

climate change, **2:87–88**

cropping intensity, **2:76**

crop yields, **2:74–76**

eaten by humans, fraction of crop production, **2:76–77**

- inequalities in food distribution/consumption, **2:64**, 67–70
 - kind of food will people eat, what, **2:68–70**
 - land availability/quality, **2:70–71**, 73–74
 - need and want to eat, how much food will people, **2:67–68**
 - overview, **2:65**
 - people to feed, how many, **2:66–67**
 - production may be unable to keep pace with future needs, **2:64**
 - progress in feeding Earth's population, **2:63–64**
 - summary/conclusions, **2:88**
 - water needed to grow food (*See* Agriculture, irrigation)
 - Force, measuring, **2:306**, **3:324**, **4:331**, **7:347**
 - Foreign Affairs*, **3:xiii**
 - Fossil fuels. *See* Petroleum and fossil fuels
 - Fossil groundwater, **6:9–10**
 - France:
 - conflict/cooperation concerning freshwater, **5:15**
 - dams
 - Three Gorges Dam, **1:89**
 - World Commission on Dams, **3:159**
 - dracunculiasis, **1:52**
 - environmental concerns, top, **7:287**
 - globalization and intl. trade of water, **3:45**
 - Global Water Partnership, **1:171**
 - human right to water, **4:209**
 - Lesotho Highlands project, **1:96**
 - privatization, **3:60**, 61
 - Frank, Louis A., **1:194–98**, **3:209–10**
 - French Polynesia, **3:118**
 - Freshwater:
 - percent of global in aquifers, **7:3**
 - percent of global in the Great Lakes, **7:165**
 - See also* Drinking water; Lakes; Renewable freshwater supply; Rivers; Withdrawals, water
 - Furans, **7:48**, 60
 - Future, the. *See* Projections, review of global water resources; Soft path for water; Sustainable vision for the Earth's freshwater; Twenty-first century water-resources development
- G**
- Gabon, **7:133**, 134–35, 321
 - Galileo* spacecraft, **3:217**, 218
 - Gambia, **4:211**, **7:321**
 - Gap, **5:156**
 - Gardens, **1:23**, **4:122–23**, **7:115**, 116
 - Gases. *See* Greenhouse gases; Natural gas
 - Gaziantep Museum, **3:186**, 187
 - GEC Alstom, **1:85**
 - GE Infrastructure, **5:159–61**
 - General circulation models (GCMs), **3:121–23**, **4:158**, 159, 162, 167, **6:41–42**, 47
 - General Electric, **1:85**, **7:133**
 - Geophysical Research Letters, **1:194**
 - Georgia (country), **7:321**
 - Georgia (state). *See* Atlanta
 - Germani, Gianfranco, **1:203**
 - Germany:
 - conflict/cooperation concerning freshwater, **5:5**, 7
 - dams
 - Three Gorges Dam, **1:88**, 89
 - World Commission on Dams, **3:159**, 170
 - environmental concerns, top, **7:287**
 - fossil-fuel production, **7:75**
 - intl. river basin, **2:29**
 - Lesotho Highlands project, **1:96**
 - privatization, **3:61**
 - terrorism, **5:20**
 - Ghana, **1:46**, 52, 54, **7:321–22**
 - Giardia*, **1:48**, **2:157**, **4:52**, **7:47**, 57
 - Gleick, Peter, **3:xiii–xiv**, **5:124**
 - Glen Canyon Institute, **2:130**
 - Glennon, Robert, **7:xiii–xiv**
 - Global Environmental Facility (GEF), **6:51–52**
 - Global Environmental Management Initiative (GEMI), **7:33**, 34
 - Global Environmental Outlook*, **3:88**
 - Global Environment Monitoring System/Water Programme (GEMS/Water), **7:50**, 53
 - Globalization and international trade of water:
 - business/industry, water risks, **5:151**
 - defining terms
 - commodification, **3:35**
 - economic good, **3:37–38**
 - globalization, **3:34–35**
 - private/public goods, **3:34**
 - privatization, **3:35**
 - social good, **3:36–37**
 - General Agreement on Tariffs and Trade, **3:48–51**
 - North American Free Trade Agreement, **3:47–48**, 51–54
 - overview, **3:33–34**, 41–42
 - raw or value-added resource, **3:42–47**
 - rules, intl. trading regimes, **3:47–48**
 - social and economic good, water managed as both, **3:38–40**
 - World Water Forum (2003), **4:192**, 193
 - Global Reporting Initiative (GRI), **5:158**, **6:18**
 - G3 Guidelines, **7:41**
 - Sustainability Reporting Guidelines, **6:28–29**
 - Water Protocol, **6:28**, 36
 - Global Water Partnership (GWP), **1:165–72**, 175, 176, **5:183**, **6:73**
 - The Goddess of the Gorges*, **1:84**
 - Goh Chok Tong, **1:110**
 - Goodland, Robert, **1:77**
 - Good manufacturing practice (GMP), **4:32**, 33
 - Gorbachev, Mikhail, **1:106**
 - Gorton, Slade, **2:134**
 - Government/politics:
 - business/industry water risk and, **7:30**
 - droughts, **5:92**, 94–95, 103, **7:106–7**

- Government/politics (*continued*)
 environmental justice, **5:138–41**
 human right to water, **2:3**
 irrigation, **1:8**
 military/political goal, water as a, **1:108–9, 7:176**
 military target, water as a, **7:176**
 privatization, **3:68, 4:60–73**
 subsidies, **1:17, 7:108, 109, 111, 152**
 twentieth-century water-resources development, **1:7–8, 17**
 water policy reform, common components, **7:144**
 World Commission on Dams report, **3:170–71, 7:139–40**
See also Climate change, California, policy; Conflict/cooperation concerning freshwater; Human right to water; Law/legal instruments/regulatory bodies; Legislation; Stocks and flows of freshwater; *specific countries*
- Grains:
 production, **2:64, 299–301**
 rice, **2:74–79**
 wheat, **2:75, 4:89**
- Grand Banks, **1:77**
- Grand Canyon, **1:15, 2:138, 146**
- Granite State Artesian, **4:39**
- Grants Pass Irrigation District (GPID), **2:128**
- Great Lakes. *See under* Lakes, specific
- Greece:
 ancient water systems, **2:137**
 bag technology, water, **1:202, 204, 205**
 conflict/cooperation concerning freshwater, **5:5**
 hydroelectric production, **1:71**
 supply systems, ancient, **1:40**
- Greenhouse effect, **1:137, 138, 3:126, 4:171, 6:39**. *See also* Climate change listings; Greenhouse gases
- Greenhouse gases, **6:40–43, 53, 7:80, 84**
- Gross national product (GNP) and water withdrawals, **3:310–17**
- Groundwater. *See also* Aquifers
 arsenic in, **2:165–73, 3:278–79, 4:87, 6:61, 7:59**
 climate change, **4:170, 6:43**
 consequences of poor water quality, **4:83, 87, 7:55**
 contamination by fossil-fuel production, **7:51, 76, 79**
 data problems, **3:93**
 food needs for current/future populations, **2:87**
 fossil, **6:9–10**
 General Agreement on Tariffs and Trade, **3:49–50**
 hard path for meeting water-related needs, **3:2**
 monitoring/management problems agriculture, **4:88–90**
 analytical dilemma, **4:90–97**
 challenges in assessments, **4:80–81**
 conceptual foundations of assessments, **4:80**
 data and effective management, **4:97–98**
 extraction and use, **4:81–88**
 overview, **4:79**
 overextraction, **5:125, 128, 7:54, 55**
 Pacific Island developing countries, **3:116–18**
 pesticides, **5:307**
 privatization, **3:77, 4:60–61**
 public ownership rights and privatization, **3:74**
 reclaimed water, **2:150–51**
 reliability, water-supply, **5:74, 7:55**
 stocks and flows of freshwater, **2:20**
 well-being, measuring water scarcity and, **3:104**
- Groupe DANONE, **7:41**
- Guatemala, **3:13**
- Guidelines for Drinking-Water Quality* (WHO), **4:26–27, 31**
- Guinea, **3:76, 7:322**
- Guinea worm. *See* Dracunculiasis
- Gulf of California, **3:141, 142**
- Gulf of Mexico, **1:77, 7:73**
- Guyana, **7:323**
- Gwembe Tonga people, **5:134**
- H
- Habitat loss:
 droughts, **5:98, 103, 109**
 fossil-fuel extraction/processing, **7:85, 87**
- Habitat restoration:
 ecosystems, **2:149–50, 7:66, 146**
 rivers, **2:xix, 127, 3:143–44**
 Salton Sea, **6:131–37**
- Habitat simulation as environmental flow methodology, **5:39**
- Haiti, **1:46**
- Halogen Occultation Experiment (HALOE), **1:196**
- Hamidi, Ahmed Z., **1:110**
- Harcourt, Mike, **1:88**
- Hardness, measuring, **2:309, 3:327, 4:334, 7:350**
- Hard path for meeting water-related needs, **3:xviii, 2, 6:13–14**. *See also* Soft path for water; Twentieth-century water-resources development
- Harran, **3:185**
- Harvard School of Public Health, **4:9**
 Global Burden of Disease assessment, **7:270**
- Hazardous waste landfills, **5:119, 124**
- Health:
 and high concentrations of metals, **7:59–60**
 and high concentrations of nutrients, **7:58–59**
 hunger and malnutrition, **2:70, 6:58, 7:57–58**
 maternal, **6:58**

- and persistent organic pollutants, 7:48, 60
 - water issues
 - arsenic (*See* Groundwater, arsenic in)
 - costs of poor water quality, 7:63–64
 - desalination, 5:74–75
 - diseases (*See* Diseases, water-related)
 - droughts, 5:102
 - floods, 5:109
 - fluoride, 4:87
 - human needs for water, basic, 1:42–47
 - privatization, 4:47
 - reclaimed water, 2:152–56
 - summary/conclusions, 1:63–64
 - The Heat is On* (Gelbspan), 5:136
 - Helmut Kaiser, 5:161
 - Hepatitis, 7:58
 - Herodotus, 1:109
 - Herring, 2:123
 - Historic flow as environmental flow methodology, 5:39
 - Hittites, 3:184
 - HIV, 6:58, 7:259–63
 - Hoecker, James, 2:124
 - Holistic approaches to environmental flow methodology, 5:39
 - Holland. *See* Netherlands
 - Holmberg, Johan, 1:166, 175
 - Honduras, 1:71, 4:54–55
 - Hong Kong, 3:46, 313–15
 - Hookworm, 7:61, 272
 - Hoppa, Gregory, 3:217
 - Human Development Report, 4:7, 6:74, 7:61
 - Human rights and international law, 2:4–9
 - Human right to water:
 - barriers to, 4:212–13
 - defining terms, 2:9–13
 - environmental flow, 5:37
 - failure to meet, consequences of the, 2:14–15
 - is there a right?, 2:2–3
 - laws/covenants/declarations, 2:4–9, 7:36, 251
 - legal obligations, translating rights into, 2:3, 13–14
 - overview, 4:207–8
 - Prior Appropriation Doctrine, 5:37
 - progress toward acknowledging, 4:208–11
 - services, access to basic water, 2:1–2
 - summary/conclusions, 2:15
 - why bother?, 4:214
 - See also* Environmental justice; Law/legal instruments/regulatory bodies, International Covenant on Economic, Social, and Cultural Rights
 - Hungary, 1:109, 120
 - Hunger. *See* Health, hunger and malnutrition
 - Hurrian Kingdom, 3:183
 - Hurricane Katrina, 5:24, 110
 - Hydraulic geometry as environmental flow methodology, 5:39
 - Hydroelectric production:
 - California, 4:173–74
 - capacity, countries with largest installed, 1:72, 276–80, 7:129
 - China, 6:92
 - Colorado River, 4:165
 - dams, removing/decommissioning, 1:83
 - electricity generation data, 7:73–74, 130
 - Glen Canyon Dam, 2:129–30
 - grandiose water-transfer schemes, 1:74–75
 - percentage of electricity generated with hydropower, 1:73–74
 - by region, 1:70–71
 - Snake River, 2:132–33
 - Southeastern Anatolia Project, 3:182
 - Three Gorges Dam, 1:84, 6:140
 - transboundary water agreements, 7:6, 132
 - water consumption and energy generation, 7:25
 - well-being, measuring water scarcity and, 3:103
 - Hydro Equipment Association (HEA), 3:166–67
 - Hydrogen sulfide, 7:76, 80
 - Hydrologic cycle:
 - climate change, 1:139–43, 4:183, 5:117
 - desalination, 2:95, 5:52
 - droughts, 5:94
 - quantifications, accurate, 4:92–96
 - stocks and flows of freshwater, 2:20–27
 - See also* Environmental flow
 - Hydrologic extremes, 6:43–44
 - Hydro-Quebec International, 1:85
- I
- Iceland, 1:71
 - Idaho Rivers United, 2:133
 - Identity standards and bottled water, 4:27–31
 - India:
 - agriculture, 4:88, 89
 - basic water requirement, 2:13
 - bottled water, 4:22, 25, 40
 - business/industry, water risks that face, 5:146, 147, 165
 - Chipko movement, 5:124
 - cholera, 1:61
 - conflict/cooperation concerning freshwater, 1:107, 109, 118–19, 206–9, 5:13, 15
 - Cauvery River Basin, 7:3
 - PepsiCo and Coca-Cola, 7:26
 - dams, 1:70, 78, 81, 5:133
 - displaced people due to, 1:78
 - World Commission on Dams, 3:159, 170, 7:139
 - Dhaka Community Hospital, 2:170
 - dracunculiasis, 1:53, 55
 - economics of water projects, 1:16, 17
 - environmental concerns, top, 7:287, 288
 - environmental justice, 5:124, 127
 - floods, 5:106
 - fossil-fuel production, 7:75, 88, 89
 - groundwater, 3:2, 50, 4:82, 83, 88–90, 92–95, 5:125, 128

- India, groundwater (*continued*)
 arsenic in, **2:165–73, 4:87, 7:59**
 overextraction, **7:55**
 human right to water, **4:211**
 hydroelectric production, **7:5, 129**
 industrial water use, **1:21**
 intl. river basin, **2:27**
 irrigation, **2:85, 86**
 renewable water availability in, **6:83**
 sanitation services, **5:128**
 water use, domestic, **1:46**
- Indian Ocean Dipole, **7:98**
- Indicators/indices, water-related, **3:87**.
See also Well-being, measuring water scarcity and
- Indigenous populations, **5:123, 124, 7:91–92**.
See also Environmental justice
- Indonesia:
 bottled water, **5:170**
 cholera, **1:58**
 climate change, **1:147**
 dams with Chinese financiers/developers/builders, **7:323**
 fossil-fuel production, **7:75**
 General Agreement on Tariffs and Trade, **3:49**
 human needs, basic, **1:46**
 pricing, water, **1:25, 3:69**
- Industrial sculptures, **5:219, 220**
- Industrial water treatment, **5:160**
- Industrial water use, **1:20–21, 5:124–25**. *See also* Business/industry, water risks; Projections, review of global water resources; Water conservation, California commercial/industrial water use
- Infrared Space Observatory*, **3:220**
- Insects:
 extinct or extinct in the wild species, **7:293–94**
 stone fly, **7:56**
 as vectors for water-related diseases, **1:49–50, 4:8–9**
- Institute of Marine Aerodynamics, **1:202**
- Integrated water planning, **1:17, 3:21**. *See also* Global Water Partnership
- Intensity, water, **3:17–19**
- Inter-American Development Bank, **3:163**
- Interferometry, **3:221**
- International alliances/conferences/meetings, time to rethink large, **5:182–85**. *See also* Law/legal instruments/regulatory bodies
- International Association of Hydrological Sciences (IAHS), **5:183**
- International Bottled Water Association (IBWA), **4:26, 34, 5:174**
- International Council of Bottled Water Association (ICBWA), **4:26**
- International Drinking Water Supply and Sanitation Decade (1981–90), **3:37**
- International Food Policy Research Institute (IFPRI), **2:64**
- International Freshwater Conference in Bonn (2001), **3:xviii**
- International Hydrological Program (IHP), **5:183**
- International Law Association (ILA), **5:35, 7:4**
- International Law Commission, **1:107**
- International Maize and Wheat Improvement Center, **2:75**
- International river basins:
 Africa, **6:289–96**
 Asia, **2:30, 6:289, 296–301**
 assessments, **2:27–35, 7:2–3**
 climate change and management issues, **7:2–10**
 by country, **2:247–54, 6:289–311**
 Europe, **6:289, 301–06**
 fraction of a country's area in, **2:239–46**
 geopolitics, **2:35–36**
 North America, **6:289, 306–08, 7:165–69** (*See also* Colorado River)
 South America, **6:289, 308–11**
 of the world, **2:219–38**
- International Rivers Network, **7:308**
- International Union for Conservation of Nature (IUCN), **7:292–302**. *See also* World Conservation Union
- International Water Association (IWA), **5:182**
- International Water Ltd., **3:70**
- International Water Management Institute (IWMI), **3:197, 4:88, 108**
- International Water Resources Association (IWRA), **1:172, 5:183, 7:19**
- Internet, **1:231–34, 2:192–96, 3:225–35**. *See also* Websites, water-related
- Introduced/invasive species, **7:48**
- Invertebrates:
 clams, **3:142–43**
 crayfish, **7:56**
 effects of acid rain, **7:87**
 extinct or extinct in the wild species, **7:292, 298–302**
 mercury in, **7:59**
 mussels, **7:56**
 shrimp, **3:49, 50, 141, 142**
- Iran, **1:58, 5:8**
 dams with Chinese financiers/developers/builders, **7:323**
 fossil-fuel production, **7:75, 79**
- Iraq, **1:59, 110–11, 118, 5:13, 15–16**
- Irrigation. *See* Agriculture, irrigation; Gardens; Lawns
- ISO 14001, **6:32**
- Israel:
 conflict/cooperation concerning freshwater, **1:107, 109, 110–11, 115–16, 5:6, 7, 10, 14–15**
 desalination, **5:51, 69, 71, 72**
 drip irrigation, **1:23**
 environmental flow, **5:33**
 globalization and intl. trade of water, **3:45**

- reclaimed water, **1**:25, 29, **2**:138, 142
 terrorism, **5**:21
 well-being, measuring water scarcity and, **3**:98
 Italy, **3**:47, 61, **5**:11
- J**
 Japan:
 conflict/cooperation concerning freshwater, **5**:5
 dracunculiasis, **1**:52, 53
 environmental flow, **5**:42
 industrial water use, **1**:20
 Overseas/Official Development Assistance by, **7**:274
 reclaimed water, **2**:139, 140, 158–59
 soft path for meeting water-related needs, **3**:23
 World Commission on Dams, **3**:159
 Jarboe, James E., **5**:4
 Jefferson, Thomas, **2**:94
Jerusalem Post, **5**:71
 Joint Monitoring Programme (WHO), **6**:60, 73, **7**:230, 241
 Jolly, Richard, **2**:3, **4**:196
 Jordan, **1**:107, 109, 115–16, **2**:33, **5**:12, 33
 JPMorgan, **7**:27, 134
 Jupiter's moons, search for water on, **3**:217–18
- K**
 Kansas, Chanute, **2**:152
 Kantor, Mickey, **3**:51–52
 Kazakhstan, **7**:75, 323
 Kennebec Coalition, **2**:123
 Kennebec Hydro Developers, **2**:124
 Kennedy, John F., **2**:95
 Kenya:
 dams with Chinese financiers/developers/builders, **7**:323–24
 dracunculiasis, **1**:53, 55
 droughts, **5**:92, 99
 effects of dam on Lake Turkana, **7**:134
 environmental concerns, top, **7**:287
 fog collection as a source of water, **2**:175
 food needs for current/future populations, **2**:76–77
 Nile River Basin, **7**:11
 sanitation services, **1**:42
 Kerogen, **7**:79
 Khan, Akhtar H., **1**:39, **4**:71
 King, Angus, **2**:123
 Kiribati, **3**:118
 Kirin, **6**:27
 Kitchens and CII water use, **4**:135, 137
 Kokh, Peter, **3**:218
 Korea, **7**:274
 Korean peninsula, **1**:53, 109–10
 Korean War, **1**:110
 Kosovo, **5**:9
 Kruger National Park, **1**:120–23, **5**:32
- Kurdish Workers' Party (PKK), **5**:22
 Kuwait, **1**:111, **2**:94, 97, **4**:18, **5**:69, 160, 163
 fossil-fuel production, **7**:75
 Kyoto Protocol, **6**:51
 Kyrgyzstan, **7**:324
- L**
 Labeling and bottled water, **4**:28–31, **7**:159, 160–61, 164
 Lagash-Umma border dispute, **5**:5
 Lakes, **4**:168–69, **7**:55
 Lakes, specific:
 Cahuilla, **6**:129
 Chad, **1**:111, 148
 Chapala, **3**:77
 Great Lakes, **1**:111, **3**:50, **7**:165–69
 Kostonjärvi, **5**:33
 Mead, **3**:137, 140, **7**:8–9, 17
 Mono, **5**:37, 41
 Oulujärvi, **5**:33
 Powell, **1**:76, **2**:129, 130, **7**:8–9, 17
 Taihu, **6**:95
 Turkana, **7**:134
 Land availability/quality, agricultural, **2**:70–71, 73–74
 Landscape design, **1**:23, **4**:122–23, 135, 137–38, **6**:107
 Land-use management and floods, **5**:111–12
 La Niña, **3**:119, **5**:95, **7**:98
 Lao People's Democratic Republic, **7**:14, 324–27
 Laos, **1**:16, 71, **7**:130
 La Paz-El Alto, **3**:68, 69–72
 Laser leveling, agriculture and, **3**:20
 Las Vegas (NV):
 description, **6**:103
 per-capita water demand, **6**:104–6
 population growth, **6**:103
 precipitation, **6**:104
 temperature, **6**:104
 wastewater rate structure, **6**:118–19
 water conservation, **6**:107–8, 110–12
 water rate structures, **6**:115–17
 and water supply reliability, **5**:74
 water-use efficiency, **6**:107–8
 Latin America:
 bottled water, **4**:40
 cholera, **1**:56, 57, 59–61, **3**:2
 climate change, **1**:147
 dams, **1**:77, 81
 drinking water, **1**:262, **6**:65
 access to, **7**:24, 253
 human needs, basic, **1**:47
 hydroelectric production, **1**:71
 irrigation, **2**:86
 population, **2**:214
 sanitation, **1**:264, **3**:271, **5**:259
 progress on access to, **7**:256
 water quality, satisfaction by country, **7**:290–91
 See also Central America; South America

- Laundry:
 emerging technologies, **5:219**, 220
 The High Efficiency Laundry Metering and Marketing Analysis project (THELMA), **4:115**
 laundry water and CII water use, **4:138**
 washing machines, **1:23**, **4:114–16**, **5:219**, 220
- Lavelin International, **1:85**
- Law/legal instruments/regulatory bodies:
 Agenda 21, **5:34**
 Agreement on Technical Barriers to Trade (TBT), **4:35**
 Agreement on the Application of Sanitary and Phytosanitary Measures (SPS), **4:35**
 Appalachian Regional Commission, **7:307**
 Beijing Platform of Action, **2:8**
 Berlin Conference Report (2004), **5:35**
 Berlin Rules (2004), **7:5**
 Bonn Declaration (2001), **3:173**, 178–80
 Boundary Waters Treaty (1909), **7:167**, 168
 Budapest Treaty, **7:5**
 Bureau of Government Research (BGR), **4:69–70**
 Cairo Programme of Action, **2:8**
 California Bay-Delta Authority, **4:181**
 California Coastal Commission (CCC), **5:2**
 California Department of Water Resources, **1:9**, 29, **3:11**, **4:170**, 232
 California Energy Commission, **4:157**, 176, 232, **5:76**, 232
 Climate and Water Panel, **1:149**
 Climate Change and Water Intra-governmental Panel, **7:153**
Code of Federal Regulations (CFR), **4:31–32**
 Codex Alimentarius Commission (CAC), **4:26**, 35–36
 Colorado River, **3:137–39**
 Consortium for Energy Efficiency (CEE), **4:115**
 Consultative Group on International Agricultural Research (CGIAR), **3:90**
 Convention of the Rights of the Child (1989), **2:4**, 9, **4:209**
 Convention on Biological Diversity (CBD), **3:166**, **5:34**
 Copenhagen Declaration, **2:8**
 Corporate Industrial Water Management Group, **5:157**
 Declaration on the Right to Development (1986), **2:4**
 Dublin Conference (1992), **1:24**, 165–66, 169, **3:37**, 58, 101, **5:34**
 Earth Summit (1992), **3:38**, 88, 101, **5:137**
 Emergency Management and Emergency Preparedness Office, **5:24**
 environmental flow, **5:34–37**
 Environmental Modification Convention (1977), **1:114**, **5:4**
- European Convention on Human Rights (1950), **2:4**, 8
- European Union Water Framework Directive (2000), **7:25**, 147–49
- Federal Bureau of Investigation (FBI), **5:24**
- Federal Emergency Management Agency (FEMA), **5:24**, 96–97
- Federal Energy Regulatory Commission (FERC), **1:83**, **2:123–24**, 126, **5:36**
- Federal Maritime Commission, **7:307**
- First National People of Color Environmental Leadership Summit (1991), **5:120**
- Food and Agricultural Organization (*See under* United Nations)
- Ganges Water Agreement (1977), **1:119**
- General Agreement on Tariffs and Trade, **3:47–52**
- Geneva Conventions, **1:114**, **5:4**
- Global Water Partnership (GWP), **1:165–72**, 175, 176, **5:183**
- Great Lakes–St. Lawrence River Basin Sustainable Water Resources Agreement (2005), **7:165**, 167–68
- Great Lakes–St. Lawrence River Basin Water Resources Compact (2008), **7:165**, 167–69
- Great Lakes–St. Lawrence River Basin Water Resources Council, **7:168**
- groundwater, **4:95–96**
- Hague Declaration (2000), **3:173–77**, **4:2**, **5:139**, 140
- Harmon Doctrine, **7:4**
- Helsinki Rules (1966), **1:114**, **7:4**
- human rights and intl. law, **2:4–9**
- India–Bangladesh, **1:107**, 119, 206–9
- Interagency Climate Change Adaptation Task Force, **7:153**
- Intergovernmental Panel on Climate Change (IPCC), **1:137**, 138, 140, 145, 149, **3:120–23**, **5:81**, 136, **6:39–40**, 45
 Fourth Assessment Report, **7:7**
- International Boundary and Water Commission, **7:17**, 307
- International Commission on Irrigation and Drainage (ICID), **5:183**
- International Commission on Large Dams (ICOLD), **1:70**
- International Court of Justice, **7:5**, 7
- International Covenant on Economic, Social, and Cultural Rights, **2:4**, **4:208**
 actors other than states, obligations of, **4:231**
 Article 2 (1), **2:6–7**
 Article 11, **2:7**
 Article 12, **2:7**
 Declaration on the Right to Development, **2:9**
 implementation at national level, **4:228–30**
 introduction, **4:216–18**

- normative content of the right of water, **4:218–21**
special topics of broad application, **4:220–21**
states parties' obligations, **4:222–26**
violations, **4:226–28**
- International Joint Commission, **3:50, 7:167, 168, 307**
- intl. law, role of, **1:114–15**
- intl. waters, **5:182–85, 7:9–10, 165–69**
- Israel-Jordan Peace Treaty (1994), **1:107, 115–16**
- Joint Declaration to Enhance Cooperation in the Colorado River Delta, **3:144**
- Kyoto Protocol, **5:137**
- Kyoto Third World Water Forum (2003), **5:183**
- Mar del Plata Conference (1977), **1:40, 42, 2:8, 10, 47, 4:209, 5:183, 185**
- Massachusetts Water Resources Authority, **3:20**
- Mekong River Basin Agreement (1995), **7:13**
- Mekong River Commission (MRC), **1:82, 3:165, 5:35, 7:13, 15**
- Minute 306, **3:144–45**
- National Rainwater and Graywater Initiative, **7:120**
- National Water Commission (Australia), **7:107, 113, 118**
- National Water Commission (U.S.), **7:152**
- Natural Resources Council of Maine, **2:123**
- Nile Basin Initiative, **7:12**
- Nile River Basin Commission, **7:12**
- Nile Waters Treaty (1959), **7:11–13**
- Non-Navigational Uses of International Watercourses (*See* Convention of the Law of the Non-Navigational Uses of International Watercourses)
- North American Free Trade Agreement (NAFTA), **3:47–48, 51–54**
- North American Water and Power Alliance (NAWAPA), **1:74**
- OECD (*See* Organization for Economic Cooperation and Development)
- Okavango River Basin Commission (OKACOM), **1:122, 124**
- Organisation for African Unity (OAU), **1:120**
overview, **1:155, 7:66–67**
- Ramsar Convention, **3:166, 5:34, 7:110**
- Russian Federation Water Code, **7:149**
- Secretariat, Global Water Partnership's, **1:170–71**
- Snake River Dam Removal Economics Working Group, **2:132**
- South African Department of Water Affairs and Forestry, **1:96**
- South Asian Association for Regional Cooperation (SAARC), **1:118**
- Southern Africa Development Community (SADC), **1:156–58, 169, 3:165**
- Southwest Florida Water Management District (SWFWMD), **2:108, 5:62**
- Stockholm Convention on Persistent Organic Pollutants, **7:60**
- Surface Transportation Board, **7:307**
- Surface Water Treatment Rule (SWTR), **4:52**
- Swedish International Development Agency (SIDA), **1:165, 170, 171, 2:14, 3:162**
- Third World Centre for Water Management, **5:139**
- Upper Occoquan Sewage Authority, **2:152**
- U.S. Agency for International Development (USAID), **1:44, 2:10, 14, 6:51, 7:306**
- U.S. Bureau of Reclamation (BoR), **1:7, 69, 88, 2:128, 3:137, 4:10, 6:135**
Colorado River Basin policy, **7:17**
Mekong River Basin policy, **7:13**
water policy reform, **7:152**
- U.S. Congress, **7:307**
- U.S. Department of Agriculture, **7:305**
- U.S. Department of Commerce, **7:305**
- U.S. Department of Defense, **7:305**
- U.S. Department of Health and Human Services, **5:24**
- U.S. Department of Homeland Security, **5:23, 7:305**
- U.S. Department of Housing and Urban Development, **4:117, 7:305**
- U.S. Department of Interior, **2:123, 127, 7:305–6**
- U.S. Department of Justice, **7:306**
- U.S. Department of Labor, **7:306**
- U.S. Department of State, **7:306**
- U.S. Department of the President, **7:306**
- U.S. Department of Transportation, **7:306**
- U.S. Environmental Protection Agency (EPA), **2:123, 152, 4:37, 52, 5:23, 24**
water-related budget, **7:307**
- U.S. Fish and Wildlife Service, **2:126, 128**
- U.S. Food and Drug Administration (FDA), **4:26, 37, 40, 5:171**
water-related budget, **7:305**
- U.S. Mexico Treaty on the Utilization of the Colorado and Tijuana Rivers, **3:138**
- U.S. National Park Service, **2:117, 127**
- U.S. National Primary Drinking Water Regulation (NPDWR), **3:280–88**
- Vienna Declaration, **2:8**
- Water Aid and Water for People, **2:14**
- Water Environment Federation (WEF), **3:78, 4:62, 5:182–83**
- Water Law Review Conference (1996), **1:161**
- Water Sentinel Initiative, **5:23**
- Water Supply and Sanitation Collaborative Council (WSSCC), **2:3, 13–14, 5:138, 7:230, 241**
- See also See also American listings; Bottled water, U.S. federal regulations; International listings; Environmental justice; National listings; World listings*

- Lawns, **1:23, 4:122–23, 7:115, 116**
 Law of Conservation of Energy, **6:7**
 Lead, **7:59**
 Leak rates, **4:109, 117–18**
 Leases and environmental flows, **5:42**
 Leasing contracts, **3:66, 5:42**
 Least Developed Countries Fund (LDCF),
 6:51–52
 Lebanon, **1:115**
 Lechwe, Kafue, **5:32**
 Lecornu, Jacques, **1:174**
 Legislation:
 Australia. Water Efficiency Labelling and
 Standards Act, **7:28, 118–19**
 California
 Central Valley Project Improvement Act,
 5:36, 7:152
 Coastal Act, **5:80**
 Water Conservation in Landscaping Act of
 1990, **4:120–21**
 Israel. Water Law of 1959, **5:35**
 Japan. River Law of 1997, **5:35**
 South Africa
 Act 54 of 1956, **1:93, 160**
 Apartheid Equal Rights Amendment
 (ERA), **1:158–59**
 National Water Act of 1998, **7:145**
 National Water Law of 1998, **5:35, 37**
 Switzerland. Water Protection Act of 1991,
 5:35
 U.S.
 Bioterrorism Act of 2002, **5:23**
 Clean Air Act, **4:68**
 Clean Water Act (1972), **1:15, 4:68, 5:36,**
 7:24, 144
 Electric Consumers Protection Act, **5:36**
 Elwha River Ecosystem and Fisheries
 Restoration Act of 1992, **2:127**
 Endangered Species Act of 1973, **1:15, 5:37**
 Federal Energy Policy Act (1992), **1:21,**
 7:28
 Federal Food, Drug, and Cosmetic Act,
 4:27
 Federal Power Act, **5:36**
 Federal Reclamation Act of 1902, **1:8**
 Federal Wild and Scenic Rivers Act of
 1966, **1:15**
 Flood Control Act of 1936, **1:16**
 National Environmental Policy Act of
 1969/1970, **2:130, 5:36**
 National Water Commission Act, **7:143–44**
 National Wild and Scenic Rivers Act of
 1997, **2:120, 5:36**
 Nutrition Labeling and Education Act of
 1990, **4:28**
 Public Health, Security, and Bioterrorism
 Preparedness and Response Act of
 2002, **5:23**
 Safe Drinking Water Act of 1974, **1:15,**
 3:280, 4:27
 Saline Water Conversion Act of 1952,
 2:94, 95
 Secure Water Act (2009), **7:152**
 Water Desalination Act, **2:95**
 Water Resources Development Act,
 7:166, 167
 Le Moigne, Guy, **1:172, 174**
 Length, measuring, **2:301, 3:319, 4:326, 7:342**
 Lesotho, **3:159–60**
 Lesotho Highlands project:
 chronology of events, **1:100**
 components of, **1:93, 95**
 displaced people, **1:97–98**
 economic issues, **1:16**
 financing the, **1:95–97**
 impacts of the, **1:97–99**
 Kingdom of Lesotho, geographical charac-
 teristics of, **1:93, 94**
 Lesotho Highlands Development Authority,
 1:96, 98
 management team, **1:93**
 opposition to, **1:81, 98, 99**
 update, project, **1:99–101**
 Levees and flood management, **5:111**
 Levi Strauss, **5:156**
 Li Bai, **1:84**
 Liberia, **1:63, 7:264**
 Licenses for hydropower dams, **2:114–15,**
 123–24
 Life cycle assessment (LCA), **7:32–34, 158**
 Linnaeus, **1:51**
 Living with Water (Netherlands), **6:49**
 Louisiana, New Orleans, **4:67–70**
 Lovins, Amory B., **3:xiii–xiv**
 Low-energy precision application (LEPA),
 1:23
Lunar Prospector spacecraft, **1:197, 3:213**
- M**
 Macedonia, **1:71, 5:10**
 Machiavelli, **1:109**
 Madagascar, **7:327**
 Malaria, **1:49–50, 6:58, 7:259–63**
 Malawi, **4:22**
 Malaysia:
 conflict/cooperation concerning freshwater,
 1:110
 dams with Chinese financiers/developers/
 builders, **7:327–28**
 data, strict access to water, **2:41**
 economics of water projects, **1:16**
 floods, **5:106**
 globalization and intl. trade of water, **3:46**
 hydroelectric production, **1:71**
 prices, water, **3:69**
 privatization, **3:61**
 Singapore, water disputes with, **1:22**
 Maldives, **5:106, 7:264**
 Mali, **1:52–53, 55, 7:328**
 Mallorca, **3:45, 46**

- Malnutrition. *See* Health, hunger and malnutrition
- Mammals:
dolphins, **1:77, 90, 3:49, 50, 7:56**
extinct or extinct in the wild species, **7:297–98**
- Manila Water Company, **4:46**
- Mao Tse-tung, **1:85**
- Mariner 4*, **5:175, 177**
- Marion Pepsi-Cola Bottling Co., **4:38**
- Mars, water on:
exploration, **3:214–17**
future Mars missions, **5:180**
history, **5:178–80**
instrumental analyses, **5:178**
missions to Mars, **5:175–78**
overview, **5:175**
visual evidence of, **5:177–78**
- Mars Climate Orbiter*, **2:300**
- Mars Express*, **5:178**
- Mars Global Surveyor* (MGS), **3:214, 5:177**
- Marshall Islands, **3:118, 5:136**
- Mars Odyssey*, **3:xx**
- Mars Orbital Camera* (MOC), **3:215, 5:178**
- Mars Reconnaissance Orbiter*, **5:180**
- Mass, measuring, **2:304, 7:345**
- Mauritania, **1:55, 4:82**
- Maximum available savings (MAS), **3:18, 4:105**
- Maximum cost-effective savings (MCES), **3:18, 24, 4:105**
- Maximum practical savings (MPS), **3:18, 24, 4:105**
- Maytag Corporation, **1:23**
- McDonald's, **6:24**
- McKernan, John, **2:123**
- McPhee, John, **2:113**
- Measles, **7:259–63**
- Measurements, water, **2:25, 300–309, 3:318–27, 4:325–34. See also** Assessments; Well-being, measuring water scarcity and
- Media. *See* Books; Films
- Mediterranean Region, Eastern:
mortality rate, under-5, **7:261**
- Mediterranean Sea, **1:75, 77**
- Medusa Corporation, **1:204**
- Meetings/conferences, international. *See* International listings; Law/legal instruments/regulatory bodies; United Nations; World listings
- Meningitis, **7:47**
- Merck, **6:27**
- Mercury:
as a contaminant from energy production, **7:50, 52**
and fossil fuel production, **7:82, 83, 84, 88, 91**
health impacts, **7:59**
in measurement of pressure, **7:348**
terrorism, water contamination with, **7:194**
- Metals, as contaminants, **4:168**
ecological effects, **7:47–48**
fossil-fuel production, **7:76, 79, 86**
health effects, **7:59–60**
industrial wastewater, **7:50**
mining, **7:52**
road runoff, **7:53**
- Meteorites, water-bearing, **3:210–12, 216**
- Methane, **1:138, 139, 7:80, 81–82, 89**
- Methemoglobinemia (blue-baby syndrome), **7:58**
- Mexico:
bottled water, **4:40, 5:170**
Colorado River, **3:134, 137, 138, 141, 144–45**
intl. agreements, **7:6, 8–9, 15–16**
environmental concerns, top, **7:287, 288**
environmental flow, **5:37**
fossil-fuel production, **7:75**
groundwater, **4:82, 83, 96, 5:125**
arsenic in, **7:59**
hydroelectric production, **1:71**
irrigation, **3:289, 7:16**
monitoring efforts, **3:76–77**
North American Free Trade Agreement, **3:51–54**
privatization, **3:60**
sanitation services, **3:272**
surface water, effects of climate change, **6:43**
water-use efficiency, improving, **1:19**
- Middle East:
bottled water, **4:288, 289, 291, 5:281, 283**
conflict/cooperation concerning freshwater, **1:107, 109, 111, 115–18, 2:182, 5:15**
desalination, **2:94, 97, 5:54, 55, 57, 58, 68–69**
dracunculiasis, **1:272–73, 3:274–75, 5:295, 296**
environmental flow, **5:33**
groundwater, **4:82, 85, 5:125**
irrigation, **2:87**
reclaimed water, **1:28, 2:139**
water quality, satisfaction by country, **7:290–91**
See also Mediterranean Region, Eastern; Southeastern Anatolia Project; *specific countries*
- Military goal/tool, water as a, **1:108–9, 7:176. See also** Conflict/cooperation concerning freshwater; Terrorism
- Military target, water as a, **1:110–11, 7:176. See also** Conflict/cooperation concerning freshwater; Terrorism
- Millennium Development Goals (MDGs), **6:57–78**
commitments to achieving the goals, **4:2, 6–7**
creation of, **6:57**
diseases, water-related
classes of, four, **4:8–9**
future deaths from, **4:10, 12–13**
measures of illness/death, **4:9–11**

- Millennium Development Goals, diseases,
 water related (*continued*)
 mortality from, **4:9–10, 6:58, 73**
 overview, **4:7–8**
 drinking water, access to
 baseline conditions, **6:62**
 description of, **6:58**
 Ethiopia, **6:71–73**
 goals, **6:211, 7:230**
 limitations in data and reporting, **6:61–62, 7:231, 251–52**
 need for, **6:63**
 population growth effects on, **6:63**
 progress by region, **6:65–67, 230–32, 7:251–53**
 progress on, **6:62–70**
 targets for, **4:2–5, 6:62**
 economic return on meeting, **7:64**
 funding of, **6:73**
 future of, **6:73–75**
 overview, **4:xv, 1, 6:57**
 progress measurements, **6:60–62**
 projections for meeting, **4:13–14**
 sanitation
 baseline conditions, **6:62**
 description of, **6:58**
 Ethiopia, **6:71–73**
 limitations in data and reporting, **6:61–62, 7:242, 254–55**
 need for, **6:63**
 population growth effects on, **6:63**
 prioritizing of, **6:75**
 progress by region, **6:67–70, 233–35, 7:254–56**
 targets for, **4:2–5, 6:62**
 in urban areas, **6:70–71**
 summary/conclusions, **4:14, 6:77**
 targets for, **6:57–58, 233**
 technology improvements, **6:60**
 within-country disparities, **6:77**
 Mineral water, **4:29**
 Mining:
 fossil fuels, **6:33, 7:73–74, 83, 85–86, 89**
 processes, **7:73–74**
 water footprint, **7:31**
See also Petroleum and fossil fuels
 Ministerial statements/declarations at global
 water conferences, **5:184–85. See also**
 Law/legal instruments/regulatory bodies
 Minoan civilization, **1:40, 2:137**
 Mohamad, Mahathir, **1:110**
 Mokaba, Peter, **1:123**
 Moldavia, **5:8**
 Mongolia, **7:328**
 Monitoring:
 drought, joint intl., **5:99–100, 7:20**
 and privatization, **3:75–77, 81–82, 4:59–60, 62–65 (See also** Groundwater, monitoring/management problems)
The Monkey Wrench Gang (Abbey), **2:129, 5:14**
 Monterey County (CA), **2:151**
 Moon, search for water on the, **3:212–14**
 Morocco, **7:328**
 Mortality, childhood. *See* Childhood mortality
 Mothers of East Los Angeles, **1:22**
 Mount Pelion, **4:39**
 Movies. *See* Films
 Mozambique, **1:63, 119–21, 5:7, 7:328–29**
 Mueller, Robert, **5:4**
 Muir, John, **1:80–81**
 Municipal water, **1:29, 4:29, 5:73, 6:101**
 Myanmar. *See* Burma (Myanmar)
- N
 Nalco, **3:61**
 Namibia:
 conflict/cooperation concerning freshwater,
1:119, 122–24
 fog collection as a source of water, **2:175**
 Lesotho Highlands project, **1:98–99**
 reclaimed water, **1:28, 2:152, 156–58**
 Narmada Project, **1:17**
 National Academy of Sciences, **1:28, 2:155, 166**
 National adaptation programs of action
 (NAPAs), **6:48–49**
 National Aeronautics and Space
 Administration (NASA), **5:96, 178. See**
also Outer space, search for water in
 National Arsenic Mitigation Information
 Centre, **2:172**
 National Council of Women of Canada, **3:78, 4:62**
 National Drought Policy Commission, **5:95**
 National Environmental Protection Agency of
 China, **1:92**
 National Fish and Wildlife Foundation, **2:124**
National Geographic, **3:89**
 National Institute of Preventative and Social
 Medicine, **2:167**
 National Marine Fisheries Service, **2:128, 132**
 National Radio Astronomy Observatory, **3:221**
 Native Americans. *See* Indigenous populations
 Natural gas:
 consumption in the U.S., **7:80**
 energy content, **7:75**
 extraction/processing, **7:74, 75, 79–80, 81**
 production by country, **7:75**
 unconventional reservoirs, **7:80–82**
 water consumption and energy generation,
7:25
 Natural Springs, **4:38**
 Nature's right to water, **7:145**
 Nauru, **3:45, 46, 118**
 Needs, basic water, **1:185–86, 2:10–13, 4:49–51. See also** Drinking water, access; Health, water issues; Human right to water; Sanitation services; Well-being, measuring water scarcity and
 Negev desert, **4:89**
 Nepal:
 arsenic in groundwater, **4:87**
 bottled water, **4:22–23**

- conflict/cooperation concerning freshwater, **5:11**
 - dams, **1:16**, **71**, **81**
 - with Chinese financiers/developers/builders, **7:329–30**
 - World Commission on Dams, **3:160**
 - hydropower potential, **7:6**
 - irrigation, **2:86**
 - Nestle, **4:21**, **40**, **41**, **5:163**
 - bottled water, **7:158**, **161–62**
 - Netherlands, **5:5**
 - arsenic in groundwater, **2:167**
 - climate change, **4:158**, **232**
 - dracunculiasis, **1:52**
 - fossil-fuel production, **7:75**
 - Global Water Partnership, **1:169**
 - Living with Water strategy, **6:49**
 - Millennium Development Goals, **4:7**
 - open access to information, **4:72–73**
 - public-private partnerships, **3:66**
 - Neufeld, David, **1:197**
 - Neutron Spectrometer, **3:213**
 - The New Economy of Water* (Gleick), **4:47**
 - New Hampshire, **2:118**
 - New Orleans (LA), **4:67–70**
 - New Orleans City Business*, **4:69**
 - New Orleans Times Picayune*, **4:69**
 - Newton Valley Water, **4:38**
 - New York (NY), **4:51–53**
 - New Yorker*, **2:113**
 - New York Times*, **2:113**, **5:20**
 - New Zealand:
 - bottled water, **4:26**
 - climate change, **5:136**
 - environmental flow, **5:33**
 - globalization and intl. trade of water, **3:45**, **46**
 - privatization, **3:61**
 - reservoirs, **2:270**, **272**, **274**
 - Niger, **7:264**, **331**
 - Nigeria, **1:52**, **55**, **5:41**
 - dams with Chinese financiers/developers/builders, **7:331**
 - environmental concerns, top, **7:287**
 - fossil-fuel production, **7:74**, **77**, **91**
 - Nike, **5:156**, **6:24**, **27**
 - Nitrogen compounds, effects on human health, **7:58–59**. *See also* Agriculture, runoff; Nutrients
 - Nitrous oxide, **1:138**, **139**
 - Nongovernmental organizations (NGOs), **1:81**, **3:157**, **4:198**, **205–6**, **6:31**, **52**, **74**, **89–90**, **96**. *See also specific organizations*
 - corporate partnerships with, **7:40**
 - Nonrenewable resources, **6:6–7**, **15**
 - Nordic Water Supply Company, **1:202–5**
 - North America:
 - irrigation, **6:328**, **334**
 - river basins, **6:289**, **306–08**
 - transboundary waters, **7:3**, **165–69**
 - Northstar Asset Management, **7:36**
 - Norway, **1:52**, **89**, **3:160**
 - fossil-fuel production, **7:75**
 - hydroelectric production, **7:129**
 - Nuclear power, water consumption and energy generation, **7:25**
 - Nutrients:
 - cycling/loading, **1:77**, **4:172**, **5:128**
 - effects of high concentrations on human health, **7:58–59**
 - enrichment/eutrophication, **7:46**, **49–50**, **58–59**, **63**
 - O
 - Oak Ridge Laboratory, **1:23**, **4:115**
 - Oberti Olives, **3:22–23**
 - Oceania:
 - bottled water, **4:288**, **289**, **291**, **5:281**, **283**
 - cholera, **1:267**, **270**, **5:289**, **290**
 - dams, **3:295**
 - drinking water, **1:254–55**, **262**, **3:259–60**, **5:245**, **6:65**
 - access to, **7:24**, **239**
 - progress on access to, **7:253**
 - groundwater, **4:86**
 - hydroelectric production, **1:71**, **280**
 - irrigation, **1:301**, **2:263**, **265**, **3:289**, **4:296**, **5:299**, **6:328**, **334**
 - Overseas/Official Development Assistance by, **7:274**
 - population data/issues, **1:250**, **2:214**
 - privatization, **3:61**
 - renewable freshwater supply, **1:240**, **2:202**, **217**, **3:242**, **4:266**, **5:227**
 - by country, **7:220**
 - salinization, **2:268**
 - sanitation services, **1:259–60**, **264**, **3:268–69**, **272**, **5:254–55**, **261**
 - access to, **7:249**
 - threatened/at risk species, **1:295–96**
 - water access, **2:24**, **217**
 - withdrawals, water, **1:244**, **2:211**, **3:251**, **4:275**, **5:236**
 - by country, **7:229**
- See also* Pacific Island developing countries
- Ogoni people, **5:124**
- Oil:
 - extraction and refining (*See* Petroleum and fossil fuels)
 - oil production by country, **7:75**
 - peak (*See* Peak oil)
 - spills, **7:73**, **74**, **77**, **87**, **90**
 - substitutes for, **6:8–9**, **12**
 - transport of, **6:14–15**, **7:74**, **91**
 - vs.* water, **6:3–9**, **14**
- Oil shale, **7:75**, **78–79**
- Olivero, John, **1:196**
- Oman, the Sultanate of, **2:179–80**, **7:331**
- Ontario Hydro, **1:88**
- Orange County (CA), **2:152**
- Order of the Rising Sun, **5:20**

- Organic contaminants:
 bioaccumulation and bioconcentration, **7:48, 60**
 BOD emissions by country/industry, **7:278–81**
 emerging, **7:48**
 health effects, **7:60**
 industrial wastewater, **7:50, 51**
See also Persistent organic pollutants;
 Pesticides
- Organization for Economic Cooperation and Development (OECD):
 description of, **2:56, 3:90, 91, 164, 4:6**
 water tariffs, **6:312–19**
See also Overseas/Official Development Assistance
- Orion Nebula, **3:220**
- Outer space, search for water in:
 clouds, interstellar, **3:219–20**
 Earth's water, origin of, **3:209–12**
 exploration plans, **3:216–17**
 Jupiter's moons, **3:217–18**
 Mars, **3:214–17, 5:175–80**
 moon, the, **3:212–14**
 solar system, beyond our, **3:218–19**
 summary/conclusions, **3:221–22**
 universe, on the other side of the, **3:220–21**
- Overseas/Official Development Assistance (ODA), **4:6, 278–83, 5:262–72**
 water supply and sanitation
 by donating country, **7:273–74**
 by subsector, **7:275–77**
- Oxfam Adaptation Financing Index, **6:52**
- Ozguc, Nimet, **3:185**
- Ozone, for bottled water, **7:159, 161**
- P**
- Pacific Institute:
 bottled water, **4:24**
 climate change, **4:232, 234, 236**
 privatization, **4:45–46, 193–94, 5:132–33**
 urban residential water use in California, **4:105**
 Water Conflict Chronology, **2:182, 4:238, 7:1**
- Pacific Island developing countries (PIDCs):
 climate change
 overview, **3:xix**
 precipitation, **3:115–16, 124–25**
 projections for 21st century, **3:121–23**
 science overview, **3:119–21**
 sea-level rise, **3:124**
 severe impacts of, **5:136**
 storms and temperatures, **3:125**
- freshwater resources
 description and status of, **3:115–18**
 overview, **3:113–14**
 threats to, **3:118–19**
- profile of, **3:115**
 summary/conclusions, **3:125–27**
 terrain of, **3:116**
See also Oceania
- Pacific Region, Western:
 mortality rate, under-5, **7:263**
- Packard Humanities Institute, **3:187**
- Pakistan:
 agriculture, **4:88, 89**
 bottled water, **4:40**
 conflict/cooperation concerning freshwater, **5:10, 13, 15**
 dams
 with Chinese financiers/developers/builders, **7:331–33**
 World Commission on Dams, **3:160**
 dracunculiasis, **1:53**
 groundwater, **4:82, 88, 89**
 Orangi Pilot Project, **4:71–72**
 sanitation services, **4:71–72**
- Palau, **3:118**
- Palestinians, **1:109, 118, 5:6, 10, 13–15**
- Panama, **3:160**
- Papua New Guinea, **7:333**
- Paraguay, **3:13**
- Parasites. *See* under Diseases, water-related
- Partnerships:
 public-private, **3:74–75, 4:60–73, 193–94, 7:40**
 strategic corporate, **6:31–32**
- Pathogenic organisms. *See* Diseases, water-related
- Peak oil:
 concept of, **6:2–3**
 definition of, **6:1–2**
 summary of, **6:14**
- Peak water:
 description of, **6:8**
 ecological, **6:10–12, 15**
 fossil groundwater, **6:9–10**
 limitations of term, **6:15**
 summary of, **6:15**
 utility of, **6:9–14**
- Pennsylvania, **2:118**
- Pepsi and PepsiCo, **4:21, 5:146, 6:27, 7:26, 36, 161**
- Permitting, wastewater, **4:150**
- Perrier bottled water, **4:21, 38, 40, 41, 5:151**
- Persian Gulf War, **1:110, 111**
- Persians, **3:184**
- Persistent organic pollutants (POP), **7:48, 60.**
See also Organic contaminants
- Peru, **1:46, 59–60, 2:178–79**
- Pesticides, **5:20, 7:48, 60.** *See also* Agriculture, runoff
- PET, **4:39, 41**
- Petroleum and fossil fuels:
 case studies, **7:90–92**
 climate change caused by burning of, **6:9, 40–43, 53, 7:80, 84**
 energy content, **7:75**
 impacts of contamination
 drinking water, **7:88–89**
 economic, **7:64–65**
 freshwater ecosystems, **7:84–87**

- health effects, **7:51–52, 57**
- human communities, **7:87–88**
- overview, **7:92–93**
- water quality, **7:51, 73–74, 76–84**
- mining process (*See* Mining, fossil fuels)
- oil spills, **7:73, 74, 77, 87, 90**
- origins of, **6:4**
- water consumption and energy generation, **7:25, 26, 31, 73, 74–75**
- Pets, purchased food going to feed, **2:77**
- Pharmaceutical contaminants, **7:49, 51**
- Philippines:
 - bottled water, **4:40**
 - cholera, **1:63**
 - conflict/cooperation concerning freshwater, **5:11**
 - dams, **1:71**
 - with Chinese financiers/developers/builders, **7:333**
 - World Commission on Dams, **3:161**
 - environmental concerns, top, **7:287**
 - loss of tourism revenue due to water pollution, **7:64**
 - mining spill, **7:62, 65**
 - prices, water, **3:69**
 - privatization, **3:60, 61, 66, 4:46**
- Pinchot, Gifford, **1:80–81**
- Pluto, **3:220**
- Pneumonia, **7:259–63**
- Poland, **3:66, 160–61, 4:38**
 - fossil-fuel production, **7:75**
- Poland Spring bottled water, **4:21, 7:162**
- Polar* satellite, **3:209–10**
- Poliomyelitis, **7:272**
- Politics. *See* Government/politics
- Pollution. *See* Environmental issues
- Pollution prevention, **7:65**
- Polychlorinated biphenyls (PCBs), **7:48, 60**
- Polycyclic aromatic hydrocarbons (PAH), **7:89**
- Polyethylene terephthalate (PET), **7:158–59**
- Pomona (CA), **2:138**
- Population issues:
 - by continent, **2:213–14**
 - developing countries lacking basic water services, **3:2**
 - diseases, projected deaths from water-related, **4:12–13**
 - displaced people (*See* Dams, social impacts, displaced people)
 - drinking water access, **6:63, 68**
 - expanding water-resources infrastructure, **1:6**
 - food needs, **2:63–64, 66–67**
 - forced relocation, **6:145–46**
 - growth
 - 0–2050, **2:212**
 - 2000–2020, **4:10**
 - effects on water quality, **7:53**
- Millennium Development Goals (MDGs)
 - affected by, **6:63**
- Pacific Island developing countries, **3:118**
 - sanitation, **6:63**
 - total and urban population data, **1:246–50**
 - withdrawals, water, **1:10, 12, 13, 3:308–9**
- Portugal, **1:71**
- Poseidon Resources, **2:108**
- Poseidon Water Resources, **5:61**
- Postel, Sandra, **1:111**
- Poverty, **4:40–41, 5:123–24, 6:58, 7:61–62**. *See also* Developing countries; Environmental justice
- Power, measuring, **2:308, 3:326, 4:333, 7:349**
- Power generation. *See* Hydroelectric production; Nuclear power; Solar energy; Wind energy
- Precipitation:
 - acid rain, **7:87**
 - Atlanta (GA), **6:104**
 - China, **6:87**
 - climate change, **1:140–41, 146–47, 4:159, 166, 6:40, 87**
 - Las Vegas (NV), **6:104**
 - Pacific Island developing countries, **3:115–16, 124–25**
 - rainwater catchment, **7:120–21**
 - Seattle (WA), **6:104**
 - snowfall/snowmelt, **1:142, 147, 4:160–61**
 - Standard Precipitation Index, **5:93**
 - stocks and flows of freshwater, **2:20, 22**
 - and use of term “withdrawal,” **7:222**
- Precision Fabrics Group, **1:52**
- Pressure, measuring, **2:307, 3:325, 4:332, 7:348**
- Preston, Guy, **4:50**
- Pricing, water:
 - agricultural irrigation, **7:111–12**
 - Australia, **7:111–12, 118**
 - block, **1:26, 4:56**
 - bottled water, **4:22–23**
 - climate change, **4:180–81**
 - households in different/cities/countries, **3:304**
 - Jordan, **1:117**
 - market approach, **1:27, 7:111**
 - peak-load, **1:26**
 - privatization, **3:69–71, 73, 4:53–55**
 - rate structures (*See* Water rate structures)
 - seasonal, **1:26**
 - tier, **1:26**
 - twentieth-century water-resources development, **1:24–28**
 - urban areas, **1:25–27, 4:124–25, 150**
 - and water policy reform, **7:153**
 - See also* Economy/economic issues, subsidies
- Private goods, **3:34**
- Privatization:
 - business/industry, water risks that face, **5:152–53**
 - conflict/cooperation concerning freshwater, **3:xviii, 70–71, 79, 4:54, 67**
 - defining terms, **3:35**
 - drivers behind, **3:58–59**

Privatization (*continued*)

economic issues, **3:70–72, 4:50, 53–60**
 environmental justice, **5:131–33**
 failed, **3:70**
 forms of, **3:63–67, 4:47, 48**
 history, **3:59–61**
 opposition to, **3:58**
 overview, **3:57–58, 4:xvi, 45–46**
 players involved, **3:61–63**
 principles and standards
 can the principles be met, **4:48–49**
 economics, use sound, **3:80–81, 4:53–60**
 overview, **3:79, 4:47–48, 7:106**
 regulation and public oversight, government, **3:81–82, 4:60–73**
 social good, manage water as a, **3:80, 4:49–53**
 risks involved
 affordability questions, pricing and, **3:69–73**
 dispute-resolution process, weak, **3:79**
 ecosystems and downstream water users, **3:77**
 efficiency, water, **3:77–78**
 government, usurping responsibilities of, **3:68**
 irreversible, privatization may be, **3:79**
 local communities, transferring assets out of, **3:79**
 monitoring, lack of, **3:75–77**
 overview, **3:67–68**
 public ownership, failing to protect, **3:74–75**
 underrepresented communities, bypassing, **3:68**
 water quality, **3:78**
 sanitation services, **5:273–75**
 summary/conclusions, **3:82–83, 4:73–74**
 update on, **4:46–47**
 World Water Forum (2003), **4:192, 193–94**
 Procter & Gamble, **5:157, 6:27**
 Productivity, water, **3:17–19**
 Progressive Habitat Development Alternative, **6:135**
 Projections, review of global water resources:
 Alcamo et al. (1997), **2:56–57**
 analysis and conclusions, **2:58–59**
 data constraints, **2:40–42**
 defining terms, **2:41**
 Falkenmark and Lindh (1974), **2:47–49**
 Gleick (1997), **2:54–55**
 inaccuracy of past projections, **2:43–44**
 Kalinin and Shiklomanov (1974) and De Mare (1976), **2:46–47**
 L'vovich (1974), **2:44–47**
 Nikitopoulos (1962, 1967), **2:44**
 overview, **2:39–40**
 Raskin et al. (1997, 1998), **2:55–56**
 Seckler et al. (1988), **2:57–58**
 Shiklomanov (1993, 1998), **2:50–53**
 in 2002, **3:xvii–xviii**

World Resources Institute (1990) and Belyaev (1990), **2:49–50**
See also Sustainable vision for the Earth's freshwater
 Public Citizen, **4:69**
 Public goods, **3:34**
 Public Limited Companies (PLC), **4:72–73**
 Public participation:
 business/industry water management, **7:37–38**
 climate change adaptation, **6:49**
 drought management, **7:116–17**
 education and expertise in water quality, **7:66**
 Great Lakes–St. Lawrence River Basin Water Resources Compact, **7:169**
 sustainable vision, **1:82, 7:24–25**
 water decision making, **5:150–51, 6:96–97**
 Public perception:
 environmental concerns around the world, top, **7:285–88**
 environmental concerns of U.S. public, top, **7:282–84**
 satisfaction with water quality, by country, **7:289–91**
 terrorism, **5:2–3**
 water risks of business/industry, **7:26–27**
 Public-private partnerships, **3:74–75, 4:60–73, 193–94, 6:92**
 Public Trust Doctrine, **5:37**
 Puerto Rico, **3:46, 5:34**
 Pupfish, desert, **3:142**
 Pure Life, **4:40**
 Purified water, **4:29**

Q

Qatar, **7:75**
 Qinghai-Tibetan Plateau, **6:88**
 Quality of life (QOL), **3:88–96, 6:61**
 Quantitative measures of water availability/use, **2:25**

R

Race and environmental discrimination, **5:118**. *See also* Environmental justice
 Radiative forcing, **3:120**
 Radioactive contaminants, **7:52, 73**
 Rail, Yuma clapper, **3:142**
 Rainfall. *See under* Precipitation
 Rand Water, **1:95, 96**
 Rates:
 wastewater (*See* Wastewater, rates for)
 water (*See* Pricing, water; Water rate structures)
 Raw or value-added resource, water traded as a, **3:42–47**
 Reagan, Ronald, **2:95**
 Rebates, for water conservation, **6:110–12, 7:119, 121**
 Reclaimed water:
 agricultural water use, **2:139, 142, 145–46**

- Australia, **7:114**, 120–21
 blackwater, **7:120**
 California (*See* California, reclaimed water)
 costs, wastewater, **2:159**
 defining terms, **2:139**
 environmental and ecosystem restoration, **2:149–50**
 food needs for current/future populations, **2:87**
 graywater, **7:120**
 groundwater recharge, **2:150–51**
 health issues, **2:152–56**
 Israel, **1:25**, 29, **2:138**, 142
 Japan, **2:139**, 140, 158–59
 Namibia, **2:152**, 156–58
 overview, **1:28–29**, **2:137–38**, **7:60**
 potable water reuse, direct/indirect, **2:151–52**
 primary/secondary/tertiary treatment, **2:138**
 processes involved, **2:140**
 summary/conclusions, **2:159–61**
 urban areas, **1:25**, **2:146–49**, **4:151**, **7:114**
 uses, wastewater, **2:139**, 141–42
- Recreation:
 costs of poor water quality, **7:64**
 effects of water restriction policies, **7:115–16**
 tourism, **7:64**
- Red List of Threatened Species (IUCN), **7:292–302**
- Regulatory bodies. *See* Law/legal instruments/regulatory bodies
- Rehydration therapy, cholera and, **1:57**
- Reliability, desalination and water-supply, **5:73–74**
- Religious importance of water, **3:40**
- Renewable freshwater supply:
 by continent, **2:215–17**
 by country, **1:235–40**, **2:197–202**, **3:237–42**, **4:261–66**, **5:221–27**, **6:195–201**, **7:215–20**
 fossil groundwater, **6:9–10**
 globalization and intl. trade of water, **3:39**
 Overseas/Official Development Assistance, **7:273–77**
- Renewable resources, **6:6–7**
- Reptiles:
 crocodiles, **7:56**
 extinct or extinct in the wild species, **7:298**
 threatened, **1:291–96**, **7:56**
 turtles, **3:49**, 50
- Reservoirs:
 built per year, number, **2:116**
 climate change, **1:142**, 144–45
 environmental issues, **1:75**, 77, 91
 Mars, **3:215–16**
 number larger than 0.1 km by continent/time series, **2:271–72**
 orbit of Earth affected by, **1:70**
 sediment, **1:91**, **2:127**, **3:136**, 139, **4:169**
 seismic activity induced by, **1:77**, 97, **6:144–45**
 total number by continent/volume, **2:270**
 twentieth-century water-resources development, **1:6**
 U.S. capacity, **1:70**
 U.S. volume, **2:116**
 volume larger than 0.1km by continent/time series, **2:273–74**
See also Dams
- Reservoirs, specific:
 Diamond Valley, **3:13**
 Imperial, **3:136**
 Itaipú, **1:75**
 Mesohora, **1:144**
 Occoquan, **2:152**
- Restrooms and CII water use, **4:135**, 136
- Reuse, water. *See* Reclaimed water
- Revelle, Roger, **1:149**
- Reverse osmosis (RO):
 bottled water treatment, **7:159–60**, 161
 and desalination, **2:96**, 102–3, **5:51**, 55, 57, 58, 60, 72
 energy requirements, **7:161**
- Rhodesia, **5:7**
- Rice, **2:74–79**
- Right to water. *See* Human right to water; Nature's right to water
- Risk assessment, dams and, **3:153**, **7:137**
- Risk management, droughts and, **5:99**
- Rivers:
 climate change, **1:142**, 143, 145, 148, **7:2–10**
 consequences of poor water quality, **7:54–55**
 dams' ecological impact on, **1:77**, 91
 deltas, **3:xix**
 development, Overseas/Official Development Assistance, **7:277**
 Federal Wild and Scenic Rivers Act of 1966, **1:15**
 floods, **5:104**, **7:14–15**
 flow rates, **2:305–6**, **3:104**, 324, **4:168**, 172, 331
 National Wild and Scenic Rivers Act of 1997, **2:120**, **5:36**
 pollution and large-scale engineering projects, **1:6**
 restoration, **2:xix**, 127, **3:143–44**
 runoff, **1:142**, 143, 148, **2:222–24**, **4:163–67**, **5:29**
 Rhine River Basin, **7:10**
 transboundary (*See* International river basins)
 wastewater dumping into, **6:82**
See also Environmental flow; Stocks and flows of freshwater; Sustainable vision for the Earth's freshwater
- Rivers, specific:
 Abang Xi, **1:69**
 Agrio, **7:65**
 Allier, **2:125**
 Amazon, **1:75**, 111, **2:32**, **7:56**
 American, **1:16**
 Amu Darya, **3:3**, 39–40, **7:52**

Rivers, specific (*continued*)

- Amur, **7**:131
 Apple, **2**:118
 Athabasca, **7**:87, 91–92
 AuSable, **2**:119
 Beilun, **7**:131
 Bhagirathi, **1**:16
 Boac, **7**:65
 Brahmaputra, **1**:107, 111, 118–19, 206–9, **6**:290
 watershed within China, **7**:131
 Butte Creek, **2**:120–23
 Carmel, **5**:74
 Cauvery, **1**:109, **2**:27, **7**:3
 Clyde, **2**:125–26
 Colorado (*See* Colorado River)
 Columbia, **3**:3, **7**:9, 18
 Congo, **1**:75, 111, 156, **2**:31, 32–33
 Crocodile, **1**:123
 Danube, **1**:109, **2**:31, **5**:33, 111, **7**:5
 Elwha, **2**:117, 127–28
 Emory, **7**:84
 Euphrates, **1**:109–11, 118, **2**:33, **3**:182, 183–87, **6**:290
 Ganges, **1**:107, 111, 118–19, 206–9, **4**:81, **6**:290
 threatened/at risk species, **7**:56
 watershed within China, **7**:131
 Gila, **3**:139, 140
 Gordon, **2**:126–27
 Hai He, **6**:82, 90
 Han, **1**:109–10
 Har Us Nur, **7**:131
 Hsi/Bei Jiang, **7**:131
 Ili/Junes He, **7**:131
 Incomati, **1**:120–23
 Indus, **1**:16, 77, 111, **7**:131
 Irrawaddy, **7**:131, 132–33
 Jinsha, **6**:92
 Jordan, **1**:107, 109, 111, 115–16, **2**:31, **5**:33
 Juma, **6**:90
 Kennebec, **2**:117, 123–25, **5**:34
 Kettle, **2**:119
 Kissimmee, **5**:32
 Kosi, **7**:6
 Kromme, **5**:32
 Laguna Salada, **3**:139
 Lamoille, **2**:128
 Lancang, **6**:88, **7**:130–32 (*See also* Rivers, specific, Mekong)
 Lerma, **3**:77
 Letaba, **1**:123
 Limpopo, **1**:120–23
 Logone, **5**:32
 Loire, **2**:117, 125
 Lower Snake, **2**:131–34
 Luvuvhu, **1**:123
 Mahaweli Ganga, **1**:16, **5**:32
 Malibamats'o, **1**:93
 Manavgat, **1**:203, 204–5, **3**:45, 47
 Manitowoc, **2**:119
 Maputo, **1**:121
 McCloud, **5**:123
 Meghna, **6**:290, **7**:131
 Mekong, **1**:111, **7**:9, 13–15, 14, 130–32
 Merrimack, **2**:118
 Meuse, **5**:15
 Milwaukee, **2**:117–19
 Mississippi, **2**:32, 33, **3**:13, **5**:110, 111
 Missouri, **3**:13
 Mooi, **4**:51
 Murray-Darling, **5**:33, 42
 decline in water flow due to drought, **7**:102
 ecological effects of drought, **7**:100–101
 location, **7**:99
 water management, **7**:110–11, 146–47
 water markets, **7**:110–14, 146
 Murrumbidgee, **7**:113
 Narmada, **5**:133
 Neuse, **2**:126
 Niger, **1**:55, 111, **2**:31, 85, **7**:88
 Nile, **1**:77, 111, **2**:26, 32–33, **3**:10–11, **5**:111
 effects of water contamination on fisheries, **7**:62
 hydrology, **7**:10
 intl. agreements, **7**:5–6, 10–13
 oil spills, **7**:77
 Nujiang, **6**:89
 Ob, **7**:131
 Okavango, **1**:111, 119, 121–24
 Olifants, **1**:123, **7**:64
 Orange, **1**:93, 98–99, 111, **7**:52
 Orontes, **1**:111, 115
 Pamehac, **5**:34
 Paran, **1**:111, **3**:13
 Patauxent, **5**:34
 Po, **5**:111
 Prairie, **2**:118
 Puerco, **7**:52
 Pu-Lun-To, **7**:131
 Red/Song Hong, **7**:131
 Rhine, **5**:111, **7**:5, 10
 Rhone, **3**:45, 47
 Rio Grande, **1**:111, **5**:41, **7**:4, 8
 Rogue, **2**:119, 128
 Sabie, **5**:32
 Sacramento, **2**:120–23, **4**:164, 167, 169, **5**:34, 111
 St. Lawrence, **7**:165, 167–69
 Salween (Nu), **7**:131, 132
 San Joaquin, **4**:164, 169
 Senegal, **1**:111, **2**:85
 Shingwedzi, **1**:123
 Sierra Nevada, **4**:164
 Snake, **2**:131–34, **3**:3
 Songhua, **6**:83
 Spöl, **5**:33
 Sujfun, **7**:131
 Suzhou, **5**:32
 Syr Darya, **3**:3, 39–40, **7**:52
 Tarim, **5**:32, **7**:131
 Temuka, **5**:33

- Theodosia, **5:34**
 Tigris, **1:69**, 111, 118, **2:33**, **3:182**, 187–90, **6:290**
 Tumen, **7:131**
 Vaal, **1:95**, **7:52**
 Volga, **1:77**
 Wadi Mujib, **5:33**
 Waitaki, **5:33**
 White Salmon, **2:119**
 Yahara, **2:118**
 Yalu, **7:131**
 Yangtze, **5:133**, **6:81**, 86, 88, 91, 143–44 (*See also* Dams, specific, Yangtze River)
 threatened/at risk species, **7:56**
 Yarlung Sangpo/Siang, **7:134**
 Yarmouk, **1:109**, 115–16
 Yellow, **5:5**, 15–16, 111, **6:86**, 91
 Zambezi, **1:111**
 Zhang, **6:90**
 Zhujiang, **6:86**
See also China, dams, construction abroad;
 Dams, by continent and country;
 Lesotho Highlands project
The Road not Taken (Frost), **3:1**
 Roads:
 reduction of water percolation due to, **7:53**
 runoff from, **7:53**, 77
 Roaring Springs/Global Beverage Systems, **4:39**
 Rodenticides, **5:20**
 Rome, ancient, **1:40**, **2:137**, **3:184**
 Roome, John, **1:99**
 Roosevelt, Franklin, **1:69**
 Roundworm, **7:61–62**
 Runoff:
 agricultural, **5:128**, 305–7, **7:46**, 48, 49–50
 effects of climate change, **6:43**, **7:10**
 river, **1:142**, 143, 148, **2:22–24**, **4:163–67**, **5:29**
 effects of climate change, **7:10**
 from roads and parking lots, **7:53**, 77
 stormwater, **7:53**, 76, 77–78
 Rural areas:
 development and the World Water Forum, **4:203**
 drinking water, **6:70–71** (*See also* Drinking water, access, by country)
 sanitation services, **6:70–71** (*See also* Sanitation services, access by country)
 Russell, James M., III, **1:196**
 Russia:
 dams, **1:75**, 77
 environmental concerns, top, **7:287**, 288
 fossil-fuel production, **7:75**
 groundwater, **5:125**
 hydroelectric production, **1:71**, **7:129**
 irrigation, **4:296**
 threatened/at risk species, **1:77**
 water policy reform, **7:149**
 See also Soviet Union, former
 Rwanda, **1:62**, **7:11**, 264
 RWE/Thames, **5:162**
- S
 SABMiller, **7:36**
 Safeway Water, **4:39**
 Saint Lucia, **7:264**
 St. Petersburg (FL), **2:146–47**
 Salinization:
 climate change, **4:168**, 169–70, **7:8**, 54
 continental distribution, **2:268**
 by country, **2:269**
 ecological effects, **7:47**
 from fossil-fuel production, **7:76**
 groundwater, **4:87**, **7:55**
 salt concentrations of different waters, **2:21**, 94
 soil fertility, **2:73–74**
 See also Desalination
 Salmon, **1:77**, **2:117**, 120–21, 123, 128, 132, 133, **3:3**
 Salton Sea:
 air-quality monitoring, **6:137**
 background of, **6:129**
 Bureau of Reclamation, **6:135**
 California water transfers, **6:129–31**
 Colorado River inflows, **6:129**, 132
 Imperial Irrigation District, **6:130**
 inflows, **6:129–33**
 location of, **6:127–28**
 restoration of, **6:131–37**
 salinity of, **6:128**, 137
 seismic activity, **6:135**
 Salton Sea Authority (SSA), **6:134**
 Salt water, **6:5**
 Samoa, **3:118**
 Samosata, **3:184–85**
 Samsat, **3:184–85**
 San Francisco Bay, **3:77**, **4:169**, 183, **5:73**
San Francisco Chronicle, **4:24**
 Sanitation services:
 access by country, **1:256–60**, **3:261–69**, **5:247–55**, **6:221–29**, **7:241–50**
 childhood mortality and, **6:58**, **7:57–58**, 61–62
 costs of, **6:73**
 developing countries, **1:263–64**, **7:62**
 diarrhea reduction through, **6:75**, **7:58**
 economic return on investments in, **7:63–64**
 education services affected by, **6:58**, **7:61**
 environmental justice, **5:127–31**
 falling behind, **1:39–42**, **5:117**, 124
 funding of, **6:73**
 importance of, **6:58**
 “improved,” use of term, **7:241**, 254
 inadequate, **6:58**
 intl. organizations, recommendations by, **2:10–11**
 investment in infrastructure projects with private participation, **5:273–75**
 limitations in data and reporting, **6:61–62**, **7:242**, 254–55
 maternal health affected by, **6:58**

- Sanitation services (*continued*)
- nongovernmental organization resources for, **6:74**
 - Overseas/Official Development Assistance, **4:282–83, 7:273–77**
 - people without, total and percentage world-wide, **7:52**
 - poverty eradication and, **6:58**
 - prioritizing of, **6:75**
 - by region, **3:270–72, 5:256–61, 6:67–70, 233–35, 7:24, 254–56**
 - rural areas, **6:70–71**
 - twentieth-century water-resources development, **3:2**
 - urban areas, **6:70–71**
 - well-being, measuring water scarcity and, **3:96–98**
 - within-country disparities in, **6:77**
 - women and access to water, **5:126**
 - World Health Organization, **4:208, 6:62**
 - World Water Forum (2003), **4:202, 205**
 - See also* Health, water issues; Human right to water; Millennium Development Goals; Soft path for water; Well-being, measuring water scarcity and
- San Jose/Santa Clara Wastewater Pollution Control Plant, **2:149–50**
- San Pellegrino bottled water, **4:21**
- Santa Barbara (CA), **5:63–64**
- Santa Rosa (CA), **2:145–46**
- Sapir, Eddie, **4:69**
- Sargon of Assyria, **1:110**
- Sasol, **7:39**
- Saudi Arabia:
- desalination, **2:94, 97**
 - dracunculiasis, **1:52**
 - fossil-fuel production, **7:75**
 - groundwater, **3:50**
 - intl. river basin, **2:33**
 - pricing, water, **1:24**
- Save the Children Fund, **4:63**
- Save Water and Energy Education Program (SWEEP), **4:114**
- Saving Water Partnership (SWP), **6:109**
- SCA, **6:27**
- Schistosomiasis, **1:48, 49, 7:58, 272**
- School of Environmental Studies (SOES), **2:167, 171**
- Scientific American*, **3:89**
- Seagram Company, **3:61**
- Sea-level rise, **3:124, 4:169–70, 7:8, 54**
- Seattle (WA):
- description, **6:103**
 - per-capita water demand, **6:104–6**
 - population growth, **6:104**
 - precipitation, **6:104**
 - temperature, **6:104**
 - wastewater rate structure, **6:118–19**
 - water conservation, **6:109, 110–12**
 - water rate structures, **6:115–17**
 - water-use efficiency, **6:109**
- Sedimentation:
- dams/reservoirs and, **1:91, 2:127, 3:136, 139, 4:169**
 - ecological effects, **7:46, 53, 85**
 - of wetlands, **7:56**
- Seismic activity, **5:106**
- caused by filling reservoirs, **1:77, 97, 6:144–45**
 - Salton Sea, **6:135**
 - San Andreas fault, **6:135**
 - Three Gorges Dam, **6:144–45**
- Seljuk Turks, **3:184, 188**
- Senegal, **1:55**
- Serageldin, Ismail, **1:166**
- Serbia, **7:333**
- Services, basic water. *See* Drinking water, access; Health, water issues; Human right to water; Municipal water; Sanitation services
- Servicio Nacional de Meteorología e Hidrología, **2:179**
- Sewer systems, condominial, **3:6**. *See also* Sanitation services
- Shad, **2:123**
- Shady, Aly M., **1:174**
- Shaping the 21st Century project, **3:91**
- Shigella*, **7:57**
- Shoemaker, Eugene, **1:196**
- Showerheads, **4:109, 114, 6:106, 7:28**
- Shrimp, **3:49, 50, 141, 142**
- Siemens, **7:133**
- Sierra Club, **1:81**
- Singapore:
- access to water, strict, **2:41**
 - conflict/cooperation concerning freshwater, **1:110**
 - desalination, **2:108, 5:51**
 - toilets, energy-efficient, **1:22**
 - water-use efficiency, **4:58–60**
- Skanska, **3:167**
- Slovakia, **1:109, 120**
- Slovenia, **1:71**
- SNC, **1:85**
- Snow. *See under* Precipitation
- Snow, John, **1:56–57**
- Social goods and services, **3:36–37, 80, 4:49–53**
- Société de distribution d'eau de la Côte d'Ivoire (SODECI), **4:66**
- Société pour l'aménagement urbain et rural (SAUR), **4:66**
- Socioeconomic issues, **5:94, 7:29–30**
- Soft Energy Paths* (Gleick), **3:xiii**
- Soft path for water:
- definition of, **6:13, 101**
 - description of, **6:12–14, 7:150**
 - economies of scale in collection/distribution, **3:8**
 - efficiency of use, definitions/concepts
 - agriculture, **3:19–20**
 - businesses, **3:22–24**

- conservation and water-use efficiency, **3:17**
- maximum practical/cost-effective savings, **3:23**
- municipal scale, **3:20–22**
- overview, **3:16–17**
- poem, **5:219**
- productivity and intensity, water, **3:17–19**
- social objectives, establishing, **3:17**
- emerging technologies, **5:23–24**
- end-use technology, simple, **3:8–9**
- how much water is really needed, **3:4**
- moving forward
 - overview, **3:25–26**
 - step 1: identifying the potential, **3:26–27**
 - step 2: identifying barriers, **3:27–28**
 - step 3: making social choices, **3:28–29**
 - step 4: implementing demand management programs, **3:29**
- myths about
 - cost-effective, efficiency improvements are not, **3:12–15**
 - demand management is too complicated, **3:15–16**
 - market forces, water demand is unaffected by, **3:9**
 - opportunities are small, efficiency, **3:9**
 - real, conserved water is not, **3:10–11**
 - risky, efficiency improvements are, **3:11–12**
- overview, **3:30**, xviii
- redefining the energy problem, **3:xiii**
- sewer systems, condominal, **3:6**
- user participation, **3:5**, 6
- vs.* hard path, **3:3**, 5–7, **6:13–14**
- See also* Sustainable vision for the Earth's freshwater
- Soil:
 - changes, **1:141–42**, 148, **4:167**
 - climate change and moisture, **4:167**
 - compaction, **7:83**
 - degradation by type/cause, **2:266–67**
 - dust storms, **7:105–6**
 - erosion, **7:46**, 79, 105–6
 - food needs for current/future populations, **2:71**, 73–74
 - hard path for meeting water-related needs, **3:2**
- Solar energy:
 - desalination and, **2:105–6**
 - as flow-limited resource, **6:6–7**
 - water consumption and energy generation, **7:25**
- Solar radiation powering climate, **1:138**
- Solon, **5:5**
- Somalia, **5:106**
- Sonoran Desert, **3:142**
- South Africa:
 - bottled water, **4:22**
 - conflict/cooperation concerning freshwater, **1:107**, 119–21, 123–24, **5:7**, 9
 - dams, **1:81**, **3:161**, **7:52**
 - Development Bank of South Africa, **1:95**, 96
 - drinking water, access to, **7:145**
 - environmental flow, **5:32**, 35, 37, 42
 - fossil-fuel production, **7:75**
 - human right to water, **2:9**, **4:211**
 - hydrology, **1:156–58**
 - introduced/invasive species, **7:48**
 - legislation and policy
 - Apartheid Equal Rights Amendment (ERA), **1:158–59**
 - Constitution and Bill of Rights, **1:159–60**, **2:9**
 - General Agreement on Tariffs and Trade, **3:49**
 - National Water Conservation Campaign, **1:164–65**
 - review process for, **1:160–64**
 - water policy reform, **7:145–46**
 - White Paper on Water Supply, **1:160**
 - loss of tourism revenue due to water pollution, **7:64**
 - mining, **7:65**
 - privatization, **3:60**, **4:49–51**
 - sanitation services, **7:145**
 - South African Department of Water Affairs and Forestry, **1:96**
 - threatened/at risk species, **7:56**
 - See also* Lesotho Highlands project
- South America:
 - aquifers, transboundary, **7:3**
 - availability, water, **2:217**
 - bottled water, **4:18**, 289, 291, **5:163**, 281, 283
 - cholera, **1:266**, 270, 271
 - dams, **1:75**, **3:293**
 - drinking water, **1:253**, **3:257**, **5:243**, **7:236–37**
 - environmental flow, **5:34**
 - groundwater, **4:86**
 - hydroelectric production, **1:278**
 - irrigation, **1:299**, **2:80**, 259, 265, **3:289**, **4:296**, **5:299**, **6:327**, 333
 - mortality rate, under-5, **7:260–61**
 - population data, total/urban, **1:248**
 - privatization, **3:60**
 - renewable freshwater supply, **1:238**, **2:200–201**, 217, **3:240**, **4:264**, **5:224**
 - by country, **7:218**
 - reservoirs, **2:270**, 272, 274
 - river basins, **6:289**, 308–11
 - rivers, transboundary, **7:3**
 - runoff, **2:23**
 - salinization, **2:268**
 - sanitation services, **1:258**, **3:266**, **5:252**, **7:246–47**
 - threatened/at risk species, **1:293**
 - withdrawals, water, **1:243**, **2:207–8**, **3:247–48**, **4:271–72**, **5:232–33**
 - by country, **7:225–26**
 - See also* Latin America

- Southeastern Anatolia Project (GAP):
 archaeology in the region, **3:183**
 Euphrates River, developments on the, **3:183–87**
 overview, **3:181–83**
 summary/conclusions, **3:190–91**
 Tigris River, developments along the, **3:187–90**
- Southern Bottled Water Company, **4:39**
- Soviet Union, former:
 cholera, **1:58**
 climate change, **1:147**
 dams, **1:70, 3:293**
 environmental movement, **1:15**
 intl. river basin, **2:29, 31**
 irrigation, **1:301, 2:263, 265, 3:289, 4:296**
 renewable freshwater supply, **4:266, 7:220**
 withdrawals, water, **1:244, 2:211, 3:250–51**
See also Russia
- Spain:
 agriculture, **4:89**
 conflict/cooperation concerning freshwater, **5:5**
 dams
 hydroelectric production, **1:71**
 Three Gorges Dam, **1:89**
 World Commission on Dams, **3:161**
 environmental flow, **5:33**
 globalization and intl. trade of water, **3:45, 47**
 groundwater, **4:89**
 mining, **7:65**
- Sparkling water, **4:30, 7:158**. *See also* Bottled water
- Special Climate Change Fund (SCCF), **6:51–52**
- Spectrometer, neutron, **3:213**
- Spectroscopy, telescopic, **5:175**
- Spiritual issues. *See* Religious importance of water
- Spragg, Terry, **1:203–5**
- Spring water, **4:30, 7:161–62, 163**. *See also* Bottled water
- Sri Lanka, **1:69, 2:86, 3:161–62**
 dams, **5:134, 7:334**
 environmental flow, **5:32**
 floods, **5:106**
- Starbucks, **5:163, 7:26**
- State Environmental Protection Administration (SEPA), **6:80–81, 94**
- Stationarity, **6:45**
- Statoil, **6:23**
- Stock-limited resources, **6:6–7**
- Stocks and flows of freshwater:
 flows of freshwater, **2:22–24**
 hydrologic cycle, **2:20–27**
 major stocks of water on Earth, **2:21–22**
 overview, **2:19–20**
 summary/conclusions, **2:36–37**
 transboundary agreement strategies, **7:8**
See also International river basins
- Stone & Webster Company, **2:108, 5:61**
- Storage volume relative to renewable supply (S/O), **3:102**
- Storm frequency/intensity, changes in, **1:142–43, 4:161–63**
- Stormwater runoff, **7:53, 76**
- Streams, **5:305–7**
 effects of poor water quality on, **7:54–55**
 impacts of fossil-fuel extraction/processing, **7:85, 87**
- Strong, Maurice, **1:88**
- Structure of Scientific Revolutions* (Kuhn), **1:193**
- Stunting, **6:58**
- Sturgeon, **1:77, 90, 2:123**
- Submillimeter Wave Astronomy Satellite* (SWAS), **3:219–20**
- Subsidies. *See* Economy/economic issues
- Substitutes, **6:8–9**
- Sudan, **1:55, 2:26, 5:7, 13**
 dams with Chinese financiers/developers/builders, **7:133, 334–35**
 and the Nile River Basin, **7:11**
 schistosomiasis and dam construction, **7:58**
- Suez Lyonnaise des Eaux, **3:61–63, 4:46**
- Supervisory Control and Data Acquisition (SCADA), **5:16**
- Supply-chain management policies and programs, **6:24**
- Supply-side development. *See* Twentieth-century water-resources development
- Surface water:
 in China, **6:81**
 effects of climate change, **6:43**
See also Lakes; Rivers; Streams
- Sustainability reports. *See* Global Reporting Initiative
- Sustainable Asset Management (SAM) Group, **3:167**
- Sustainable vision for the Earth's freshwater:
 agriculture, **1:187–88**
 climate change, **1:191**
 conflict/cooperation concerning freshwater, **1:190**
 criteria, sustainability, **1:17–18**
 diseases, water-related, **1:186–87**
 ecosystems water needs identified and met, **1:188–90**
 human needs, basic, **1:185–86**
 introduction, **1:183–84**
 public participation/perception, **1:82, 7:24–25**
See also Soft path for water; Twenty-first century water-resources development
- Swaziland, **1:121**
- Sweden, **1:52, 96, 3:162**
- Switzerland, **1:89, 171, 3:162, 5:33, 35**
- S&W Water, LLC, **5:61**
- Sydney Morning Herald*, **5:66**
- Synthesis Report* (2001), **5:136**
- Syria, **1:109, 110–11, 116, 118, 7:335**
- Systems Research, **2:56**

- T
- Taenia solium*, **4:8**
- Tahoe-Truckee Sanitation Agency, **2:152**
- Tajikistan, **5:9, 7:335**
- Tampa Bay (FL), **2:108–9, 5:61–63, 6:123–25**
- Tanzania, **1:63, 7:11, 335**
- Tapeworm, pork, **4:8**
- Target Corporation, **6:27**
- Tar sands, **7:75, 78, 85, 87, 91–92**
- Tear Fund, **5:131**
- Technical efficiency, **4:103–4**
- Technology development, **5:219, 220, 6:60, 7:67**
- Temperature, measuring, **2:307, 3:325, 4:332, 7:348**
- Temperature rise, global, **1:138, 145, 3:120–23, 4:159, 166. See also Climate change listings; Greenhouse effect; Greenhouse gases**
- Tennant Method and environmental flow, **5:38**
- Tennessee Valley Authority, **1:69–70, 145, 7:307**
- Terrorism, **2:35, 5:1–3, 6:152**
- chemical/biologic attacks, vulnerability to, **5:16–22**
 - defining terms, **5:3–5**
 - detection and protection challenges, **5:23**
 - early warning systems, **5:23–24**
 - environmental terrorism, **5:3–5**
 - infrastructure attacks, vulnerability to, **5:15–16**
 - overview, **5:1–2, 7:176**
 - physical access, protection by denying, **5:22–23**
 - policy in the U.S., security, **5:23, 25**
 - public perception/response, **5:2–3**
 - response plans, emergency, **5:24–25**
 - summary/conclusions, **5:25–26**
 - in water-related conflict, **5:5–15, 7:176 (See also Water Conflict Chronology)**
 - and water treatment, reducing vulnerability, **5:2**
- Texas, **3:74–75**
- Texas, Austin, **1:22**
- Thailand, **4:40, 5:33, 106, 134**
- arsenic in groundwater, **7:59**
 - dams with Chinese financiers/developers/builders, **7:335–36**
 - drought, **7:132**
 - and the Mekong River, **7:14, 130**
 - and the Salween River, **7:132**
- Thames Water, **3:63, 5:62**
- Thatcher, Margaret, **1:106, 3:61**
- Thirsty for Justice*, **5:122**
- Threatened/at risk species:
- Colorado River, **3:134, 142**
 - by country, **2:291–97**
 - dams, **1:77, 83, 90, 2:120, 123**
 - extinct in the wild, freshwater animal species, **7:292–302**
 - proportion of species at risk in U.S., **4:313–16**
 - Red List, **7:292**
 - by region, **1:291–96, 7:56**
 - twentieth-century water-resources development, **3:3**
 - water transfers, **3:39–40**
 - See also Extinct species*
- Three Affiliated Tribes, **5:123**
- Three Gorges Dam, **6:139–49**
- chronology of events, **1:85–87, 6:147–48**
 - climatic change caused by, **6:146–47**
 - costs of, **6:141–42**
 - dimensions of, **6:140–41**
 - displaced people, **1:78, 85, 90, 5:134, 151**
 - economic issues, **1:16, 6:141–42**
 - financial costs of, **6:141–42**
 - fisheries, **6:142–43**
 - food protection benefits, **6:144**
 - funding of, **1:86–89, 6:141–42**
 - geological instability caused by, **6:144–45**
 - history, **6:140, 7:133**
 - hydroelectric production, **1:84, 6:140**
 - impacts of, **1:89–92, 6:142–43**
 - largest most powerful ever built, **1:84**
 - military targeting of, **6:146**
 - opposition to, **1:91–93**
 - overview, **6:148–49, 7:129**
 - population relocation and resettlement caused by, **6:145–46**
 - river sediment flow effects, **6:143–44**
 - seismicity caused by, **6:144–45**
 - shipping benefits of, **6:144**
 - size of, **6:140**
 - storage capacity of, **6:140**
 - threats to, **6:139**
- Time, measuring, **2:304, 4:329, 7:345**
- Timor-Leste, **7:264**
- Togo, **1:55, 7:336**
- Toilets, **1:21–22, 3:4, 118, 4:104, 109, 113–14, 6:106, 110**
- Tonga, **3:46, 118**
- Touré, A. T., **1:53**
- Tourism, costs of poor water quality, **7:64**
- Toxic waste dumps, **5:119, 124**
- Toxic Wastes and Race in the United States*, **5:119**
- Trachoma, **1:48, 7:272**
- Traditional planning approaches, **1:5. See also Projections, review of global water resources; Twentieth-century water-resources development**
- Transfers, water, **1:27–28, 74–75, 3:39–40. See also Dams**
- Transpiration loss of water into atmosphere, **1:141, 2:83, 4:159–60**
- Transportability, **6:7–8**
- Transportation, energy costs, **7:161–62, 163**
- Treaties. *See Law/legal instruments/regulatory bodies; United Nations*
- Trichuriasis, **1:48, 7:272**
- Trinidad and Tobago, **2:108, 5:72, 7:264**
- Trout Unlimited, **2:118, 123, 128**

- Trypanosomiasis, **7:272**
- Tuna, **3:49, 50**
- Tunisia, **2:142, 5:33, 7:336**
- Turkey:
- bag technology, water, **1:202–5**
 - conflict/cooperation concerning freshwater, **1:110, 118, 5:8**
 - dams with Chinese financiers/developers/builders, **7:336**
 - environmental concerns, top, **7:287**
 - globalization and intl. trade of water, **3:45–47**
 - terrorism, **5:22**
- Turkish Antiquity Service, **3:183**. *See also* Southeastern Anatolia Project
- Turtles, **3:49, 50**
- Tuvalu, **5:136**
- Twentieth-century water-resources development:
- Army Corps of Engineers and Bureau of Reclamation, U.S., **1:7–8**
 - benefits of, **3:2**
 - capital investment, **1:6–7**
 - drivers of, three major, **1:6**
 - end of
 - alternatives to new infrastructure, **1:17–18**
 - demand, changing nature of, **1:10–14**
 - economics of water projects, **1:16–17**
 - environmental movement, **1:12, 15–16**
 - opposition to projects financed by intl. organizations, **1:17**
 - overview, **1:9–10**
 - shift in paradigm of human water use, **1:5–6**
 - government, reliance on, **1:7–8**
 - limitations to, **1:8–9, 3:2–3**
 - problems/disturbing characteristics of current situation, **1:1–2**
 - summary/conclusions, **1:32**
 - supply-side solutions, **1:6**
- Twenty-first century water-resources development:
- agriculture, **1:23–24**
 - alternative supplies, **1:28**
 - desalination, **1:29–32**
 - efficient use of water, **1:19–20**
 - industrial water use, **1:20–21**
 - overview, **1:18–19**
 - Pacific Island developing countries, **3:121–23**
 - pricing, water, **1:24–28**
 - reclaimed water, **1:28–29**
 - residential water use, **1:21–23**
 - shift in the paradigm of human water use, **1:5–6**
 - summary/conclusions, **1:32–33**
 - See also* Soft path for water; Sustainable vision for the Earth's freshwater
- Typhoid, **1:48, 7:57, 58**
- Typhus, **1:48**
- U
- Uganda, **1:55, 4:211**
- dams with Chinese financiers/developers/builders, **7:336**
 - and the Nile River Basin, **7:11**
 - wastewater treatment by the Akivubo Swamp, **7:63**
- Ultraviolet radiation, bottled water treatment, **7:159, 161**
- Unaccounted for water, **3:305, 307, 4:59**
- Underground storage tanks (UST), **7:77**
- Undiminished principle and the human right to water, **5:37**
- Unilever, **5:149, 6:24, 7:35**
- United Arab Emirates (UAE), **5:68–69, 7:75**
- United Kingdom:
- environmental concerns, top, **7:287, 288**
 - See also specific countries*
- United Nations:
- Agenda 21, **1:18, 44, 3:90**
 - arsenic in groundwater, **2:167, 172**
 - Children's Fund (UNICEF), **1:52, 55, 2:167, 172, 173, 6:60, 62**
 - data collection by, **7:230, 241**
 - Group DANONE aid, **7:41**
 - Commission on Human Rights, **2:5**
 - Commission on Sustainable Development, **2:10, 3:90**
 - Committee on Economic, Social, and Cultural Rights, **5:117, 137**
 - Comprehensive Assessment of the Freshwater Resources of the World (1997), **1:42–43**
 - Conference on International Organization (1945), **2:5**
 - conflict/cooperation concerning freshwater, **1:107, 114, 118–19, 124, 210–30, 2:36**
 - Convention of the Law of the Non-Navigational Uses of International Watercourses (*See* Convention of the Law of the Non-Navigational Uses of International Watercourses)
 - data, strict access to water, **2:41–42**
 - Declaration on the Right to Development (1986), **2:8–10**
 - Development Programme (UNDP), **1:52, 82, 171, 2:172, 173, 3:90, 4:7, 5:100**
 - diseases, water-related, **5:117**
 - dracunculiasis, **1:52, 55**
 - drinking water, **1:40, 251**
 - droughts, **5:100**
 - Earth Summit (1992), **3:38, 88, 101**
 - Economic Commission for Asia and the Far East (UNECAFE), **7:13**
 - environmental justice, **5:137–38**
 - Environment Programme (UNEP), **1:137, 3:127, 164, 7:34**
 - Food and Agriculture Organization (FAO), **2:64, 67, 5:126**
 - AQUASTAT database, **4:81–82, 7:215, 221**

- food needs for current/future populations, **2:64, 66, 67**
 Framework Convention on Climate Change (UNFCC), **3:126, 6:48–51**
 Global Water Partnership, **1:165, 166, 171, 175, 5:183, 6:73**
 greenhouse gases, **3:126**
 groundwater, **2:167, 172, 4:80–81**
 Human Poverty Index, **3:87, 89, 90, 109–11**
 human right to water, **2:3, 5–9, 14, 4:208, 214, 5:117**
 formal recognition, **7:251**
 Industrial Development Organization, **7:278–81**
 Inter-agency Group for Child Mortality Estimation, **7:264**
 intl. river basins assessment, **7:2–3**
 public participation and sustainable water planning, **1:82**
 Summit for Children (1990), **1:52, 2:14**
 Universal Declaration of Human Rights, **2:4–10, 4:208**
 well-being, measuring water scarcity and, **3:90, 96, 109–11**
 World Water Council, **1:172, 173, 175**
See also Law/legal instruments/regulatory bodies, International Covenant on Economic, Social, and Cultural Rights; Law/legal instruments/regulatory bodies; Millennium Development Goals
- United States:
 availability, water, **2:217**
 bottled water (*See under* Bottled water)
 budgets, U.S. federal agency water-related, **7:303–7**
 business/industry, water risks, **5:162–63**
 cholera, **1:56, 266, 270, 271**
 climate change, **1:148, 7:153**
 Colorado River Basin, intl. agreements, **7:6, 8–9, 15–16**
 conflict/cooperation concerning freshwater, **1:110, 111, 5:6–9, 11–12, 24**
 dams, **1:69–70, 3:293, 7:52**
 desalination, **2:94–95, 97, 5:58–63**
 diseases, water-related, **4:308–12**
 dracunculiasis, **1:52**
 drinking water, **1:253, 3:257, 5:242**
 access, **3:280–88, 7:236**
 droughts, **5:93**
 economic productivity of water, **4:321–24**
 environmental concerns, **6:339–41**
 environmental concerns of the public, top, **7:282–84, 287, 288**
 environmental flow, **5:34, 36–37**
 environmental justice, **5:119–20, 122–23**
 floods, **4:305–7**
 food needs for current/future populations, **2:68–69**
 fossil-fuel production, **7:75, 78–79, 82, 85, 88, 90**
 General Agreement on Tariffs and Trade, **3:50**
 Great Lakes Basin, intl. agreements, **7:165–69**
 groundwater, **3:2, 4:82, 86, 96, 5:125**
 arsenic in, **7:59**
 human right to water, **4:213**
 hydroelectric production, **1:71, 278, 7:129**
 introduced/invasive species, **7:48**
 irrigation, **1:299, 2:265, 3:289, 4:296, 5:299, 7:16**
 meat consumption, **2:79–80**
 mortality rate, under-5, **7:261**
 North American Free Trade Agreement, **3:47–48, 51–54**
 Overseas/Official Development Assistance by, **7:274**
 pesticides, **5:305–7**
 population data/issues, **1:248, 2:214**
 precipitation changes, **1:146–47**
 privatization, **3:58–60**
 radioactive contaminants, **7:52**
 renewable freshwater supply, **1:238, 2:200, 217, 3:240, 4:264, 5:224**
 1985, **7:218**
 renewable water availability in, **6:83–84**
 reservoirs, **2:270, 272, 274**
 runoff, **2:23**
 salinization, **2:268**
 sanitation services, **1:258, 3:266, 272, 5:251, 7:246**
 terrorism, **5:21–23, 25**
 threatened/at risk species, **1:293, 4:313–16, 7:56**
 usage estimates, **1:245**
 water industry revenue/growth, **5:303–4**
 water policy reform
 background, **7:143–44**
 key steps to, **7:151–54**
 need for, **7:143, 150–51, 154**
 well-being, measuring water scarcity and, **3:92**
 withdrawals, water, **1:243, 2:207, 3:247, 308–12, 4:271, 317–20, 5:232**
 2005, **7:225**
 See also California; Colorado River; Dams, removing/decommissioning
- United Utilities, **3:63**
 United Water Resources, **3:61, 63**
 United Water Services Atlanta, **3:62, 4:46**
 Universidad de San Augustin, **2:179**
 University of California at Santa Barbara (UCSB), **3:20–22**
 University of Kassel, **2:56**
 University of Michigan, **3:183**
Upper Atmosphere Research Satellite (UARS), **1:196**
 Uranium, **7:74**

Urban areas:

- drinking water access in, **6:70–71, 7:97, 115–17** (*See also* Drinking water, access, by country)
 - droughts, **5:98, 7:114–21**
 - floods, **5:104**
 - future demands in, **6:102–4**
 - municipal water, **1:29, 4:29, 5:73, 6:101**
 - pricing, water, **1:25–27, 4:124–25, 7:118**
 - privatization, **3:76**
 - reclaimed water, **1:25, 2:146–49, 7:114**
 - sanitation services in, **6:70–71** (*See also* Sanitation services, access by country)
 - soft path for meeting water-related needs, **3:20–22, 7:150**
 - water rate structure (*See* Water rate structures)
 - water use in, **6:101–2, 7:115–17**
- Urbanization, **5:98, 7:53**
- Urfa, **3:185**
- Urlama, **5:5**
- U.S. Filter Company, **3:63**
- U.S. National Water Assessment, **5:112**
- User fees and environmental flows, **5:41–42**
- Utilities and risks that face business/industry, **5:162–63**
- Uzbekistan, **1:52, 4:40, 7:336**

V

- Van Ardenne, Agnes, **4:196**
- Varieties of Environmentalism* (Guha & Martinez-Alier), **5:123**
- Velocity, measuring, **2:305, 3:323, 4:330, 7:346**
- Venezuela, **7:75**
- Veolia, **6:93**
- Veolia Environnement, **5:162**
- Vermont Natural Resources Council, **2:128**
- Vibrio*, **7:47**. *See also* Cholera
- Vibrio cholerae*, **1:56, 57, 58, 7:57**. *See also* Cholera
- Vietnam, **4:18, 5:134, 163**
- arsenic in groundwater, **7:59**
 - dams with Chinese financiers/developers/builders, **7:130, 336–37**
 - and the Mekong River Basin, **7:14, 130**
- Viking*, **3:214, 5:177**
- Virginia, **2:152**
- Virgin Islands, U.S., **3:46**
- Visalia (CA), **1:29**
- Vision 21 process, **2:3**
- Vivendi, **3:61–64, 70, 4:47**
- Voith and Siemens, **1:85**
- Volume, measuring, **2:303–4, 3:321–22, 4:328–29, 7:344–45**. *See also* Stocks and flows of freshwater

W

- Waggoner, Paul, **1:149**
- Waimiri-Atroari people, **5:134**
- Wales, **7:63**. *See also* United Kingdom
- Wall Street Journal*, **1:89**

- Warfare, **5:4–5**. *See also* Conflict/cooperation concerning freshwater; Terrorism; Water Conflict Chronology
- Warming, global, **1:138**. *See also* Climate change listings; Greenhouse effect; Greenhouse gases
- Washing machines, **1:23, 4:114–16, 5:219, 220**
- Washington. *See* Seattle
- Waste management:
- hazardous/toxic waste landfills, **5:119, 124**
 - Overseas/Official Development Assistance, **7:277**
- See also* Wastewater
- Wastewater:
- business/industry effluent, **7:26, 28–29, 51, 55–56, 73–74**
 - dumped into rivers, **6:82**
 - human waste disposal, **7:52–53**
 - rates for, **6:118–19**
 - treatment of, **1:6, 2:138, 5:153, 159–60, 6:27, 92**
 - expansion and improvement, **7:65**
 - overwhelmed by stormwater runoff, **7:53**
- See also* Reclaimed water; Sanitation services
- Wasting, **6:58**
- Water:
- bottled (*See* Bottled water)
 - consumptive uses of, **6:7**
 - in goods, **6:335–38**
 - lack of substitutes for, **6:8–9, 13**
 - nonconsumptive uses of, **6:7**
 - origins of, **6:5**
 - pricing (*See* Pricing, water)
 - produced, **6:23, 7:73, 76, 79**
 - right to (*See* Human right to water; Nature's right to water)
 - running out of, **6:4–5**
 - stocks of, **6:6**
 - units/data conversions/constants, **2:300–309, 3:318–27, 4:325–34, 5:319–28, 7:341–50**
 - vs.* oil, **6:3–9, 14**
- Water* (Vizcaino, *et al.*), **5:219**
- WaterAid, **5:131**
- Water allocation:
- instream, preserving/restoring, **5:29–30** (*See also* Environmental flow)
 - transboundary waters and climate change, **7:7, 13**
 - volumetric systems, **4:95–97**
- Water-based diseases, **7:58**. *See also* Diseases, water-related
- Waterborne diseases, **1:47–49, 274–75, 4:8, 7:57–58**. *See also* Diseases, water-related
- Water Conflict Chronology, **1:108–9, 125–30, 2:35, 182–89, 3:194–206, 4:xvii–xviii, 238–56, 5:5–15, 190–213, 6:151–93, 7:1, 175–205**
- website, **7:175**
- Water conservation:

- Atlanta (GA), **6**:108–9
- Australia, **7**:106, 109, 114–21
- California commercial/industrial water use
background to CII water use, **4**:132–33
calculating water conservation potential,
methods for, **4**:143–47
current water use in CII sectors, **4**:133–38
data challenges, **4**:139–40, 148–50, 152–53
defining CII water conservation, **4**:132
evolution of conservation technologies,
4:149
overview, **4**:131–32
potential savings, **4**:140–43
recommendations for CII water conserva-
tion, **4**:150–53
summary/conclusions, **4**:153–54
water use by end use, **4**:138–39
- California residential water use
abbreviations and acronyms, **4**:126–27
agricultural water use, **4**:107
current water use, **4**:105–6
data and information gaps, **4**:108–9
debate over California's water, **4**:102–3
defining conservation and efficiency,
4:103–5
economics of water savings, **4**:107–8
indoor water use
dishwashers, **4**:116
end uses of water, **4**:112–13
faucets, **4**:117
leaks, **4**:117–18
overview, **4**:109
potential savings by end use, **4**:111–12
showers and baths, **4**:114
summary/conclusions, **4**:118
toilets, **4**:113–14
total use without conservation efforts,
4:110
washing machines, **4**:114–16
outdoor water use
current use, **4**:119–20
existing efforts/approaches, **4**:120–21
hardware improvements, **4**:122–23
landscape design, **4**:122–23
management practices, **4**:121–22
overview, **4**:118–19
rate structures, **4**:124–25
summary/conclusions, **4**:125–26
overview, **4**:101–2
description of, **6**:106
indoor, **6**:110–12
Las Vegas (NV), **6**:107–8, 110–12
outdoor, **6**:112
rainwater catchment, **7**:120–21
rebates and incentives for, **6**:110–12,
7:119, 121
- Water Efficient Technologies, **6**:107
- Water in Crisis: A Guide to the World's Fresh
Water Resources* (Gleick), **2**:300, **3**:318
- Water industry. *See* Business/industry, water
risks; Economy/economic issues
- Water landscape, **6**:36
- Water market and water trading, **3**:47–48,
7:110, 111–14, 146. *See also* Pricing,
water
- Water performance reporting, **6**:28–31
- A Water Policy for the American People*, **3**:16,
4:103
- Water & Process Technologies, **5**:159
- Water quality:
acidification (*See* Acidification)
bottled water, **4**:17, 25–26, 31–32, 37–40,
7:159–60, 161
business/industry, water risks that face,
5:146–49, **7**:26
China, **6**:80–82
climate change, **4**:167–68, **6**:44, **7**:7
community-level consequences of poor,
7:61–62
contaminants
emerging, **7**:48–49
fecal, **7**:52–53, 57–58
from fossil-fuel extraction/processing,
7:88–89
organic, **7**:278–81
overview, **7**:46–47
pathogenic organisms, **7**:47
See also specific contaminants
droughts, **5**:98, 102
ecological consequences of poor, **7**:54–57
economic/social consequences of poor,
7:62–65
environmental justice, **5**:127–29
floods, **5**:109
groundwater, **4**:83, 87
Guidelines for Drinking-Water Quality,
4:26–27, 31
human health consequences of poor,
7:57–60
impacts of fossil-fuel extraction/processing,
7:51, 73–74, 76–93
overview, **7**:45
pollution prevention, **7**:65
privatization, **3**:78
salinity issues (*See* Desalination;
Salinization)
satisfaction by country, **7**:289–91
temperature/thermal pollution, **7**:46–47, 51,
53, 85
three-tier classification of impacts, **7**:52
water quantity consequences of poor, **7**:60
See also Desalination; Drinking water,
access; Environmental flow;
Salinization
- Water rate structures, **3**:303
- Atlanta (GA), **6**:115–16
average price, **6**:117
benefits of, **6**:112, 114
consumption charges, **6**:117
flat, **6**:114
inclining block, **6**:114
Las Vegas (NV), **6**:115–16

- Water rate structures (*continued*)
 seasonal, **1:26, 6:114**
 Seattle (WA), **6:115–17**
 summary of, **6:119**
 uniform, **6:114**
 wastewater, **6:118–19**
- Water reporting:
 by companies, **6:18, 20** (*See also* Corporate reporting)
 inconsistency in, **6:33**
 performance, **6:28–31**
 recommendations for, **6:37–38**
 by sector, **6:32–35**
- Water Resources Policy Committee, **3:16**
- Water risk, corporate. *See* Business/industry, water risks
- Watershed, **6:10–11**. *See also* International river basins
- Water Supply and Sanitation Collaboration Council, **7:230, 241**
- Water use:
 company reporting on, **6:18, 20** (*See also* Corporate reporting)
 defining, **1:12**
 direct, **3:18–19**
 estimates, **1:46, 246**
 fossil-fuel extraction/processing and energy production, **7:25, 26, 31, 73–84**
 increases in, **6:1**
 indirect, **3:18–19**
 industrial, percent used for, **7:74**
 institutional, **6:102**
 measurement, **2:25, 7:30–31**
 process water use and CII water use, **4:134–36**
 restriction policy in urban areas, **7:115–17**
 water footprint, **7:30–34**
See also Water-use efficiency; Withdrawals, water
- Water-use efficiency, **1:19–20, 3:77–78, 4:xvi–xvii, 58–60, 5:153, 157, 6:106–9**
 age of homes and, **6:112**
 agriculture, **3:4, 19–20, 7:109–10, 146**
 Atlanta (GA), **6:108–9**
 Australia, **7:118–21**
 business/industry, **7:35, 37, 39**
 Las Vegas (NV), **6:107–8**
 legislation and policy, **7:28, 118–19, 153–54**
 measurement, **7:30–31**
 Seattle (WA), **6:109**
 U.S. policy, **7:153–54**
See also Soft path for water; Sustainable vision for the Earth's freshwater; Twenty-first century water-resources development
- Waynilad Water, **4:46**
- WCD. *See* World Commission on Dams
- Weather Underground group, **5:20**
- Websites, water-related, **1:231–34, 2:192–96, 3:225–35**
 short documentaries and films, **7:174**
- Weight of water, measuring, **2:309, 3:327, 4:334, 7:350**
- Well-being, measuring water scarcity and:
 Falkenmark Water Stress Index, **3:98–100**
 multifactor indicators
 Human Poverty Index, **3:87, 89, 90, 109–11**
 Index of Human Insecurity, **3:107, 109**
 International Water Management Institute, **3:108, 197**
 overview, **3:101**
 vulnerability of water systems, **3:101–4**
 Water Poverty Index, **3:110–11**
 Water Resources Vulnerability Index, **3:105–6**
 overview, **3:xviii–xix, 87–88**
 quality-of-life indicators, **3:88–96, 6:61**
 single-factor measures, **3:96–98, 101–3**
 summary/conclusions, **3:111**
- Well water, **4:28, 30**. *See also* Groundwater
- Western Pacific Region. *See* Pacific Region, Western
- Wetlands, **1:6, 3:141–43, 5:111, 6:86, 88**
 degradation, **7:56, 63**
 ecosystem services by, **7:56, 63**
- Wetlands, specific:
 Amazon River, **7:56**
 Ciénega de Santa Clara, **3:141–43**
 El Doctor, **3:141**
 El Indio, **3:141, 142**
 Nakivubo, **7:63**
 Rio Hardy, **3:141**
- Wheat, **2:75, 4:89**
- Whipworm, **7:61**
- White, Gilbert, **3:16**
- Williams, Ted, **2:119**
- Wind energy, **2:105, 7:25**
- Wintu people, **5:123**
- Wisconsin, **2:117–18**
- Withdrawals, water:
 conflict/cooperation concerning freshwater, **1:112**
 by country and sector, **1:241–44, 2:203–11, 3:243–51, 4:267–75, 5:228–36, 6:202–10**
 defining terms, **1:12, 7:221**
 Great Lakes Basin restrictions, **7:168, 169**
 gross national product
 China, **3:316–17**
 Hong Kong, **3:313–15**
 U.S., **3:310–12**
 population in the U.S., **1:10, 12, 13**
 soft path for meeting water-related needs, **3:23–24**
 threatened/at risk species, **3:3**
 total/per-capita, **1:10, 11**
 U.S., **1:10, 11, 12, 13, 3:308–12, 4:317–20**
See also Groundwater, monitoring/management problems; Projections, review of global water resources
- Wolf, Aaron, **2:28**

- Wolff, Gary, **3**:xiv
- Women:
 effects of poor water quality on, **7**:61
 and environmental justice, **5**:126, 134
 increased exposure to contaminated water,
7:89
 responsibility for water collection, **7**:61, 89
- World Bank:
 arsenic in groundwater, **2**:172–73
 business/industry, water risks that face,
5:147
 dams, **1**:82–83, **7**:133, 134, 138
 Development Research Group, **7**:278
 diseases, water-related, **4**:9
 displaced people, dams and, **1**:78
 dracunculiasis, **1**:52
 Global Burden of Disease assessment, **7**:270
 Global Water Partnership, **1**:165, 171, **5**:183
 human needs, basic, **1**:44, 47
 human right to water, **2**:10–11
 Lesotho Highlands project, **1**:96, 99
 opposition to projects financed by, **1**:17
 overruns, water-supply projects, **3**:13
 privatization, **3**:59, 70, **4**:46
 sanitation services, **5**:273
 self-review of dams funded by, **1**:175–76
 Southeastern Anatolia Project, **3**:190–91
 Three Gorges Dam, **1**:85, 88
 World Water Council, **1**:173
- World Business Council for Sustainable
 Development (WBCSD), Global Water
 Tool, **7**:33, 34
- World Climate Conference (1991), **1**:149
- World Commission on Dams (WCD):
 data and feedback from five major sources,
3:150
 environmental flow, **5**:30
 environmental justice, **5**:134, 135
 findings and recommendations, **3**:151–53
 goals, **3**:150–51, **7**:136
 organizational structure, **3**:149–50, **7**:136
 origins of, **1**:83, 177–79, **7**:136
 overview, **3**:xix, **7**:136–37
 priorities/criteria/guidelines, **3**:153–58,
7:137–38, 139
 reaction to the report
 conventions, intl., **3**:166
 development organizations, intl., **3**:164–
 65
 funding organizations, **3**:158, 162–64,
 167–69, **7**:138–39
 governments, **3**:170–71, **7**:139–40
 industry/trade associations, intl., **3**:169–
 70, **7**:139
 national responses, **3**:159–62, **7**:138–39
 nongovernmental organizations, **3**:157,
7:138
 overview, **3**:155–56, **7**:138
 private sector, **3**:166
 regional groups, **3**:165
 rights and risk assessment, **3**:153, **7**:137
 Southeastern Anatolia Project, **3**:191
 summary/conclusions, **3**:171–72
- World Conservation Union (IUCN), **1**:82–83,
 121, 177, **3**:164. *See also* International
 Union for Conservation of Nature
- World Council on Sustainable Development,
5:158
- World Court, **1**:109, 120
- World Food Council, **2**:14
- World Fund for Water (proposed), **1**:174–75
- World Health Assembly, **1**:52
- World Health Organization (WHO):
 arsenic in groundwater, **2**:166, 167, 172
 bottled water, **4**:26–27
 childhood mortality, data, **7**:257
 cholera, **1**:61, 271
 desalination, **5**:75
 diseases, water-related, **4**:9, **5**:117
 dracunculiasis, **1**:52, 55
 drinking water, **3**:2, **4**:2, 208, **6**:211
 access to, data, **7**:230
 Global Burden of Disease assessment,
7:270
 human needs, basic, **1**:44
 human right to water, **2**:10–11
 Joint Monitoring Programme, **6**:60, 73,
7:230, 241
 reclaimed water, **2**:154, 155
 sanitation services, **1**:256, **3**:2, **4**:2, 208, **6**:62
 access to, data, **7**:241
 unaccounted for water, **3**:305
 well-being, measuring water scarcity and,
3:90, 91
- World Health Reports*, **4**:8, 9
- World Meteorological Organization (WMO),
1:137, **5**:100
- World Resources Institute, **2**:27–28, 49–50
- World Trade Organization (WTO), **3**:48–50
- Worldwatch Institute, **2**:28
- World Water Council (WWC), **1**:172–76, **3**:165,
4:192–93, **5**:183
- World Water Forum:
 2000, **3**:xviii, 58, 59, 90, 173
 2003
 background to, **4**:192–94
 Camdessus Report, **4**:195–96, 206
 efficiency and privatization, lack of atten-
 tion given to, **4**:192
 focus of, **4**:191
 human right to water, **4**:212
 Millennium Development Goals, **4**:6, 7
 Ministerial Statement, **4**:194–95, 200–204
 NGO Statement, **4**:192, 198, 205–6
 overview, **4**:xv
 successes of, **4**:191–92
 Summary Forum Statement, **4**:196–97
 value of future forums, **4**:192
 2006, **5**:186–88
- World Wildlife Fund International, **3**:157

X

Xeriscaping, **1**:23, **4**:123–24

Y

Yangtze! Yangtze!, **1**:92

Yeates, Clayne, **1**:194–95

Yemen, **1**:53, 55

Z

Zambia, **1**:63, **4**:211, **5**:9, 32

dams with Chinese financiers/developers/
builders, **7**:133, 337–38

Zimbabwe, **1**:107, **5**:7, 140, **7**:338

Zuari Agro-Chemical, **1**:21