

Index

1944 Water Treaty, 101,
107–108, 113, 130
1972 Clean Water Act, 89
1990 Clean Air Act, 89

A

accountability, 111–113, 211,
227
active and passive learning,
197–200
adaptability, 46–47, 113
agriculture, 19, 54–55, 104,
111, 134, 281, 325, 329,
338–340, 380
activity, 6, 9–10, 20–21, 55,
96, 109, 111, 114, 128,
134–135, 154, 200,
217–218, 223–224, 297,
299, 302–313, 316–321,
329, 332, 341, 382
production, 9, 20, 304
air emissions requirements,
177
air pollution, 2, 6, 9, 12, 14,
16, 21, 25–26, 46, 49–50,
52, 59, 67, 83, 91, 106,
134, 142, 146, 165, 170,
172, 177, 180–181, 191,
193–197, 201, 209,
213–214, 217–219, 221,
223–225, 229, 231–232,
237–243, 246, 249, 270,
274, 291, 347–348, 350,
353–364, 379
airborne pollutants, 50, 214,
347
and quality of life, 49–53
emissions, 6, 9, 49–50, 165,
177, 209, 214, 217–219,
223, 232, 237–238, 347,
350–351, 354, 358–366
health effects, 238, 239, 247
PM₁₀, 50, 230–231, 238,
240–242, 246, 248,
353–355, 357, 359–360,
366, 369
reduction, 6, 135
sources, 14
airsheds, 6, 16, 21, 49, 209,
321
alternative policy options, 11
aquifer assessment, 133
assessment of quality, 31
asthma, 50, 52, 214, 218, 238,
241, 359

B

binational aquifer system, 210
binational environmental
agreements, 90, 130
binational sustainability insti-
tutions, 129–132
binational work groups, 93
biocomplexity research, 371
biocultural model, 32, 35
biodiversity, 54–55, 123, 126,
128, 200
biological universals, 32

Dynamics of Human-Environment Interactions

- birth rates, 13–16, 69, 195, 257, 266–267, 270
 - border characteristics, 8
 - Border Environment
 - Cooperation Commission (BECC), 90–91, 96, 106, 115, 121, 130–132, 216, 333
 - Border Environmental Infrastructure Fund (BEIF), 131–132
 - Border Governors' Conference, 93
 - border patrol, 70
 - Border Plus Twenty Years
 - (B+20) approach, 4, 25, 373
 - feedback loops, 12, 231, 376
 - finding alternative policy options, 1, 4, 7
 - Border Plus Twenty Years (B+20) model, 116, 185, 193, 229, 231, 255, 297, 339, 353
 - accessibility, 381–382
 - application, 225
 - economic concerns, 383–384
 - elements to include, 378–382
 - framework, 1, 4, 26, 136, 194, 374
 - land use concerns, 383
 - program, 218
 - project team, 18–19, 23–26, 220, 305, 310, 372–373, 375
 - qualitative data concerns, 384–385
 - risks, 382
 - stakeholder engagement, 375–385
 - users, 376–377
 - using the model, 195–196
 - validity, 382–383
 - border security, 6, 14
 - border wait times, 6, 11
 - Border XXI Program, 93, 106, 215
 - brick kilns, 6, 11, 217–218, 223, 364
 - brown pelicans, 55
 - Brundtland Report, 200
 - building codes, 92
 - Build-Lease-Transfer (BLT) program, 155
- ### C
- Caballo Reservoir, 299, 302, 308–311
 - Calexico, Calif., 170, 277
 - California Energy Commission, 152, 168, 176
 - California Public Utilities Commission (CPUC), 152, 157, 168, 177
 - capacity building, 93
 - carbon monoxide (CO), 65, 354
 - case law or common law, 83
 - causal relationships, 13
 - checks and balances, 88
 - citizen education, 188
 - Ciudad Juárez, Chih., 126, 195, 210, 256, 274, 298, 327, 345–347, 350–351, 367, 369, 380
 - civil law, 83, 98
 - clientelistic-discretionary model, 83, 94
 - climate, 6, 8, 14, 23, 133, 142, 220, 225, 297, 302, 308, 310–311, 319, 321, 366

Index

- arid, 8, 9, 99, 128, 135,
209, 350
future conditions, 8
semi-arid, 8, 99
colonias, 56, 92, 213–214,
217, 305, 307
Colorado River, 26, 54, 90,
93, 100–101, 120, 125, 130
Comisión Federal de
Electricidad (CFE),
152–160, 163, 165,
167–169, 182, 382
Comisión Nacional de Agua
(CNA), 93, 102, 115, 210,
301, 303, 313, 321
Comisión Nacional Para el
Ahorro de Energía
(CONAE), 153
Comisión Reguladora de
Energía (CRE), 153–154,
161–162, 182
Comité de Planeación para el
Desarrollo Municipal
(COPLADEMUN), 95
Commission for Environmental
Cooperation (CEC), 132,
216
Committee on Binational
Regional Opportunities
(COBRO), 94
commute, 64–66, 175
congestion, 62, 65, 74–76, 78
costs, 61–63
mental health consequences,
65
conservation, 11
constitutions, 81, 83–85, 89,
91, 98–99, 106, 154
coordinating border initiatives,
92–94
correlative rights, 103
culture, 32, 33, 77–78, 226
cyanosis, 57
- D
- death rates, 12–16, 195, 266,
268
decision-making, 1, 4, 8, 23,
95, 136, 219, 224
democracy, 83
Democratic Revolution Party
(PRD), 88
desalination, 123, 135, 217,
223, 303, 316–317, 319
desert environments, 9
diarrhea, 129
diesel fuel, 146, 163
disease, 21, 46, 50, 57, 65, 67,
129, 214, 218, 238, 250,
353, 384
distribution of power
among government levels,
99–100
and international waters,
100–101
- E
- economics, 6, 12–14, 18–19,
21, 26, 52–53, 59, 67, 82,
126–127, 132, 141–142,
144, 146, 167, 175–176,
179, 193, 196, 211–212,
216, 218, 220–221,
223–224, 231–232, 270,
273–274, 278–279, 281,
284–285, 289–290, 321,
338, 341, 347–348, 365,
379, 383–384
B+20 model sector, 284–293
business cycles, 289–290

Dynamics of Human-Environment Interactions

- conditions, 12, 16, 23, 221, 224, 258, 262, 265, 269, 379
- crime, 45, 70–72, 249–250, 383–384
- development, 2, 16, 18, 70–71, 93, 131, 191, 194, 196, 273–274, 278–279, 347
 - and crime rates, 71–73
- efficiency, 108, 110
- El Paso, 281
- expansion, 9, 269
- growth, 8, 67, 69–70, 107, 123–124, 135–136, 156, 196, 211–212, 274, 352
- history, 70–71
- impact, 50, 135
- Mexican border region, 277
- opportunity, 14, 16, 216
- recession, 8
- stagnation, 9
- U.S. border region, 277
- variables, 72, 191, 262
- ecosystems, 2, 8–9, 21, 54–55, 58, 92, 95, 100, 112, 127, 133, 135, 192, 375
- educational process, 192
- efforts to build collaborative binational cooperation, 215–216
- El Paso County Water Improvement District #1 (EPCWID No. 1), 301–303, 311–312, 318–319
- El Paso Water Utilities (EPWU), 303–304, 314–315, 318–322
- El Paso, Tex., 16, 56, 94, 177, 209, 227, 232, 256, 258, 274, 277, 299, 325–327, 345–347, 350–351, 366–367, 369, 376
- Elephant Butte Reservoir, 134, 299, 301–302, 308–310, 323–324
- eminent domain, 85–86
- endangered and threatened species, 128
- energy, 8, 21, 25, 91, 123, 126–127, 141–182, 193, 372, 379–380
- biomass, 174
- coal, 147, 151–152, 157–158, 165, 180
- conservation, 104–05, 123, 128, 133, 135–136, 153, 171, 179, 318–319, 335
- crossborder planning, 180
- demand, 141, 146, 156, 179
- deregulation, 154
- electricity, 151, 153, 155, 162, 166
- electricity costs, 154–155
- fossil fuels, 142, 157, 172, 179
- future needs, 145, 168–169, 180
- geothermal, 157, 161, 173
- in Baja California, 163–168
- in San Diego, 175–179
- independent power producers (IPPs), 154, 169
- indigenous sources, 127
- liquefied natural gas (LNG), 163, 170–171, 182–183
- liquid petroleum gas (LPG), 157
- microhydroelectric power, 173

Index

- natural gas, 142, 145–147, 149–152, 154, 157–158, 161–163, 165, 169–172, 175, 177, 179–181, 183, 281–282, 361
 - North American Free Trade Agreement (NAFTA), 155–156
 - petroleum, 147–148
 - power generation facilities, 154–155
 - power grid, 163–164, 169
 - power transfers, 145, 169
 - private companies, 142, 155
 - renewable sources, 171–173, 181
 - sources and uses, 147–152
 - structure of the sector, 147–156
 - sustainable sources, 145
 - wind power, 157, 174
 - environmental conditions, 8–9, 29, 31–32, 44, 46, 106, 187–188, 200–201, 218, 352
 - inadequate regulations, 9
 - non-enforcement of regulations, 9
 - relationship with human health, 7
 - relationship with quality of life, 32
 - environmental degradation, 10, 20, 128, 142, 179, 190, 201, 244, 353
 - environmental impact studies (EIS), 59
 - environmental planning, 31
 - epidemiological studies, 238, 240
 - etic-emic distinctions, 33–35, 37
 - etic-nomothetic approaches, 35
- F
- Federal Energy Regulatory Commission (FERC), 152, 158
 - federalist system, 89
 - Fox, Vicente, 88, 151
 - funding issues, 11
- G
- gasoline, 62, 146, 163, 175, 180, 361, 365
 - gastric and stomach cancer, 57
 - gastrointestinal illness, 46, 55–57, 235
 - Gini Index of Income Inequality, 72
 - gross domestic product (GDP), 69, 196, 340
 - groundwater recharge rates, 314–316
 - growth without prosperity, 69
 - Gulf of California (or, Sea of Cortez), 54, 173
 - Gulf of Mexico, 55, 93, 133, 276
- H
- habitats, 10
 - health effects, 50, 64, 230, 235, 237–239, 243–246, 248, 359
 - emissions, 240–243
 - estimating risks, 246–249
 - historical landmarks, 86
 - households, 6, 14, 60, 152, 214, 218–219, 234, 237, 244, 305–307

Dynamics of Human-Environment Interactions

- housing development, 11–12, 45–46, 55, 59, 63, 83, 167, 176, 214, 332, 339, 340, 352, 378–379
- Hueco Bolson, 126, 210, 297–299, 303–306, 308, 312, 314–319, 321–322, 350
- human behavior, 39, 187, 200–201, 250, 264
- human cognition, 31
- human consumption, 9
- human health, 2, 9, 21, 25, 47, 50, 57, 123, 125, 127, 129, 135, 194, 209, 218, 237, 239, 305, 347–348, 358–359
 - in Paso del Norte, 206, 213
 - relationship with environmental conditions, 7
- human-environment
 - dynamics, 2, 8, 10, 18, 23, 31, 186, 188, 190, 200, 371
 - dynamics models, 18–20
 - modeling the dynamics of interactions, 10–20
 - quantitative models of dynamics, 2, 18
 - system model, 2, 4, 9, 21–22, 188
- I
- “ideal” models, 38–49
- idiographic-nomothetic distinctions, 33–35
- immigration, 7, 44
- impedance, 61–63, 77
- Imperial Valley, Calif., 10, 54, 277
- income, 8, 43, 66, 69, 212, 220, 273, 277, 279–281
- inequality, 72
 - per capita, 8, 43, 70–71, 195, 212, 262, 273, 277, 280, 352
- incremental legalistic model, 83
- indicators, 29, 33–38, 40, 44–47, 49, 52, 58–59, 67, 70, 72, 94, 229, 232–233, 249–250, 328
 - and value domains, 47
 - economic, 45
 - health, 45, 64, 384
 - overlap, 46
 - transportation, 63–67
- indoor plumbing
 - Ciudad Juárez, 234
 - El Paso, 235
- industrialization, 9, 49, 54–55, 71, 136, 142, 144, 146, 151, 154–155, 180, 192, 211, 274, 278–281, 284, 291–292, 327, 329, 341, 364–365
- infrastructure, 6, 8–9, 11, 14, 16, 22, 55, 89, 93, 126, 128–129, 131–132, 135, 141–142, 144–145, 149, 152, 157, 164, 167, 169, 171, 175, 180, 212, 214, 216–217, 220–221, 223, 250, 277–278, 303, 305, 321, 332, 352, 374, 380
- institutional
 - capacity, 126
 - evaluation criteria, 108
 - frameworks, 83, 101, 107–108, 115–116

Index

- Institutionalized Revolutionary Party (PRI), 88
- Integrated Border Environmental Plan (IBEP), 106
- interdisciplinarity, 373, 375
overhead, 372–373
research, 25, 372–373
- International Boundary and Water Commission (IBWC), 90, 101, 105–107, 112, 115, 120, 130, 133, 210, 215, 309
- irrigation, 10, 58, 109, 136, 173, 299, 301, 304–313, 316–317, 322, 324, 332, 376
- J
- Juárez Valley, 303–304, 313–314, 318
- judicial system, 83, 86–88, 98–99, 112
- L
- La Paz Agreement, 105, 146, 215, 354–355
- labor, 63, 151, 250, 258, 268–269, 274, 278–280, 284–287, 340, 352
- land use, 12, 26, 49, 59, 67, 81–95, 106, 115–116, 193, 195, 197, 220–221, 223, 231–232, 249, 270, 306, 325, 327–332, 337–338, 340–341, 353, 365, 376, 383
- constitutional framework for planning, 87
- decisions, 83–84, 88, 92, 106, 116
- institutional analysis of water and, 115
- institutional framework, 83–88
- legal framework for planning, 82–96
- role of municipalities in planning, 94–96
- role of states in planning, 91–92
- Ley de Aguas Nacionales (National Water Law), 102
- Ley General de Asentamientos Humanos (LGAH), 84, 89, 91, 93, 95–96
- Ley General del Equilibrio Ecológico y la Protección al Ambiente (General Law of Ecological Balance and Environmental Protection, or LGEEPA), 105
- M
- maquiladora industry, 14, 69, 107, 211–212, 216, 225, 250, 277–280, 283–284, 291, 296, 327–329, 352, 384
- market mechanisms, 92, 109, 339
- Mesilla Bolson, 210, 297–299, 302–305, 311–315, 319
- Mesilla Valley, 302, 311–312
- methemoglobinemia, or “blue baby syndrome,” 57–58
- Mexicali, B.C., 16, 54, 277
- Mexicali-Imperial Valley, 26, 375
- Mexican minimum wage, 8
- microbial contamination, 56

Dynamics of Human-Environment Interactions

- migration, 12–13, 15–16, 21, 23, 69, 128, 193, 195, 212–213, 216, 220–221, 224, 227, 257–258, 261–263, 265–268, 270, 277, 280, 327
drivers, 15–16
rates, 14
- Millennium Institute, 24, 27
- modeling
developing and applying, 10
integrating, 189
- municipal and industrial
(M&I) water use, 305–308, 318
- Municipal Institute of
Planning and Research
(IMIP) (Ciudad Juárez), 94, 215, 332, 381
- Municipal Planning Institute
(IMPLAN) (Tijuana), 94
- municipal planning standards, 95
- N
- National Action Party (PAN), 88, 94
- natural resources, 8, 23, 83, 93, 115, 217, 351
- natural systems, 10
- nitrates, 57–58, 316
- Nogales, Son., 56
- non-governmental organizations (NGOs), 180, 360, 376
- North American Development Bank (NADBank), 90–91, 106, 131–132, 216, 318
- North American Free Trade Agreement (NAFTA), 8, 83, 91, 94, 131, 142, 155–156, 211, 215–216, 260, 278, 280, 296, 341, 352
energy, 155
- Nuclear Regulatory Commission (NRC), 152
- O
- ozone (O₃), 52, 74, 358, 366–367
- P
- pareto optimum* and *pareto superior*, 110–111
- Paso del Norte
economy, 276–284
history and settlement, 205, 212
regional overview, 207–216
- Paso del Norte System Model, 16, 25–26, 193, 216, 220–221, 223–225, 229, 231–233, 249, 266–267, 270, 308, 348, 364
- paved roads, 70, 214, 249
- pedagogical tools, 185–200
- Petróleos Mexicanos (Pemex), 148–151, 153–156, 158, 169, 183
- police power, 85–86, 104
- political boundaries, 95, 100, 205, 209, 363
- population, 2, 7–9, 11–21, 26, 28, 34, 37, 39, 49–50, 52, 55, 61, 63, 69, 71–72, 86, 89, 107, 114, 116, 123, 126, 130, 135–136, 142, 145–146, 152, 156, 163, 167, 171, 175–176, 179,

Index

190–191, 193–195, 197,
201, 209, 212–213,
216–225, 229, 231, 234,
240, 242–243, 246,
249–250, 255–274, 277,
286–287, 293, 302–307,
318, 327–329, 332,
335–341, 347, 351–352,
365, 379, 384
B+20 population sector, 16,
264–270, 379
dynamics of individual bor-
der communities, 16
El Paso and Ciudad Juárez,
258–261
growth, 2, 7–9, 11–13, 16,
18, 49, 55, 107, 130, 136,
146, 163, 175–176, 179,
191, 194, 209, 212,
216–217, 221, 224, 250,
255, 257–261, 269,
302–305, 307, 327–329,
335–337, 340, 347, 352,
365
in the Mexican border
region, 7
in the U.S. border region, 7
projections, 261–264, 267
projections for El Paso-
Ciudad Juárez, 268
ports of entry, 21, 223, 277,
384
precipitation, 8
preference satisfaction, 35–37
premature death, 50
property rights, 83, 86, 96,
103, 109, 113, 116
public finance, 22, 224, 231,
250
public financial resources, 8

Q

quality of life (QoL), 4, 6,
9–12, 16, 21, 29–73, 81, 94,
123, 135, 142, 144, 179,
185, 187, 189, 191–193,
195, 197, 200, 206, 209,
212, 215, 218, 220–221,
223–224, 229–250, 264,
270, 273, 277, 297, 305,
307, 321, 347–348, 366,
375, 378
and cultural relativism, 32
and environment, 46
Binational Quality of Life
Indicators Project, 45, 74,
76
hedonic, 35–36
index, 40
indicators, 29, 35, 37–38,
40, 44, 46–47, 49, 52,
54–55, 58, 61, 66–67, 70,
72, 74
measure for water use, 233
models, 35
Physical Quality of Life
Index (PQLI), 42–44, 77
relationship with environ-
mental changes, 32
relationship with sustainabil-
ity indicators, 38

R

recycling, 6, 9, 11, 217, 223
renewable resources, 147, 157,
173
respiratory conditions, 238,
359
Rio Grande, 26, 90, 93–94,
100–101, 107, 128, 130,
133–134, 138, 209–210,
212, 217, 223, 297, 299,

Dynamics of Human-Environment Interactions

- 302–306, 308–309,
311–312, 314–316,
318–319, 322–324,
350–351, 361, 364–365
riparian habitats, 10, 103,
111, 128, 310
river flows, 309
- S
- Salton Sea, 25–26, 54–55
San Diego Association of
Governments (SANDAG),
94, 168, 175–176, 179
San Diego, Calif., 7, 26–28,
54, 94, 120, 137–139, 163,
182–184, 226, 258, 276,
295–296, 323, 368
Secretaría de Energía (SE),
149, 152–153, 158,
161–162, 166, 183
Secretaría de Medio Ambiente
y Recursos Naturales
(SEMARNAT), 105–106,
115, 121, 352, 356–357,
363, 368–369
social costs per vehicle-mile,
62
social dislocation, 71
social interactions, 66
sovereignty, 171–172
sprawl, 2, 9, 59–60
stakeholders, 1, 4, 7, 13,
18–20, 90–91, 114, 124,
133, 136, 179–180, 185,
220, 375–378, 381,
383–385
standard of living, 9
sulfur dioxide (SO₂), 52
suspended solids, 10
sustainability, 1, 4, 19–20,
23–24, 38–40, 44, 47, 90,
93, 102, 125, 129, 135, 136,
185–191, 196, 200, 220
sustainability science, 185,
188, 203
system dynamics, 2, 4, 10, 11,
13–14, 18–20, 23–25, 29,
81, 135, 185, 191–193, 200,
205, 325
approach, 10–11, 18, 21–25,
34, 193, 379
models, 2, 4, 10–11, 13,
18–21, 23–26, 29, 81,
135, 185, 191–193, 200,
205, 216–217, 220–221,
297, 306, 313–314, 316,
325, 348, 375
thinking, 2, 4, 10–11, 13,
18, 185–186, 190–200,
205–206, 218, 297, 376
system dynamics modeling
software, 13, 24
flows, 13, 308, 311
STELLA®, 14–15, 17,
24–25, 46, 337
stocks, 2, 13–15, 53, 104,
167, 266, 269, 285–286,
316, 337–339
- T
- taxes, 6, 156
Threshold 21 (T21), 24, 27
Tijuana River, 101, 130, 138
Tijuana, B.C., 7, 126, 163,
327
total dissolved solids (TDS),
223, 237, 299, 302–304,
316–317, 319
traffic congestion, 13, 59, 61,
64–65, 135, 193, 249, 383

Index

- transaction costs, 108, 110, 114, 134–135, 372
- transborder
cooperation, 1, 4
flow restrictions, 23
issues and challenges, 7–10
spillover, 83
- transborder cooperation, 1, 7, 9
- Transboundary Environmental Impact Assessments (TEIAs), 132, 364
- transformation costs, 108, 114–115
- transparency, 113, 131
- transportation, 6, 11–12, 16, 21–22, 45, 49, 59–68, 74, 76, 78–79, 86, 91, 106, 146, 157, 175, 180, 193–194, 201, 217, 221, 223, 231–232, 249, 261, 280–282, 321, 328, 331, 341, 352, 366, 376
- turbidity, 56, 191, 236, 237
- U
- U.S. Bureau of Reclamation (BOR), 210, 297, 299, 301–302, 323–324
- U.S. Environmental Protection Agency (EPA), 52, 58, 74, 105–106, 112, 115, 129, 131, 138, 210, 236, 274, 276, 316, 347–348, 353–358, 364
- U.S. National Science Foundation (NSF), 371–372
- U.S.-Mexico Rio Grande Project, 210
- unemployment, 8, 69–71, 212, 262–263, 274, 280, 284, 286–287, 289–290, 292–293
- unpaved roads, 6, 11, 217–218, 352, 354, 364, 365
- upper respiratory disease, 218
- urban
areas, 83, 201, 231, 233, 281, 381
development patterns, 14
ecosystems, 9, 375
growth, 67, 92–94, 205, 209, 217, 220, 231, 325, 327, 329, 331–332, 335–336, 339, 341, 365
land area, 14, 365
planning, 25, 82, 84, 89, 91, 93, 219, 224
policy, 89, 91–92, 96, 115
systems, 83
- usufructuary right, 102
- V
- value/ideal models, 37–38
- vehicle fleet, 6, 351
- vehicle miles traveled (VMT), 14, 59, 63, 67, 353–354
- vehicles, 14, 21, 52, 60, 63, 175, 177, 232, 238, 351, 354, 359–361, 365
commercial, 11, 14
personal, 14
- W
- wastewater
treatment, 9, 11, 14, 21–22, 91, 112, 129, 274
untreated discharges, 83
- water, 55–58, 106–107, 235, 316

Dynamics of Human-Environment Interactions

- availability, 2, 6, 9, 53, 126, 136, 195, 219–221, 232, 234, 249, 308, 310, 337
- B+20 model sector, 297, 299, 301–302, 314, 321
- bank, 92, 104, 108–110, 114, 116
- conservation, 6, 9, 217, 223
- contaminants, 55, 235–237
- demand, 16, 114, 130, 217, 302, 319
- distribution, 44, 54, 237, 305
- economic efficiency of delivery and management, 108
- effluents, 55
- estimating health impacts of infrastructure, 235
- future management, 318–321
- ground, 21, 26, 55–56, 96, 100–104, 107, 125–127, 210, 217, 220, 223, 232–233, 297, 299, 302–305, 308, 311–319, 380–381
- importing, 303
- infrastructure, 55, 234, 305–308, 380
- institutional analysis of land use and, 115
- legislation, 98
- management, 96–97, 107, 121, 137, 318, 323
- management and policy options, 107–115
- Mexico's deficit, 107, 125
- nitrate contamination, 57
- Paso del Norte surface delivery system, 308
- policy, 55, 100
- potable, 6, 136, 214, 223, 305
- principal sources and use areas in Paso del Norte, 300
- public drinking, 56, 70
- quantity and quality, 2, 9, 53, 231
 - and infrastructure, 53–58
 - protection, 104–106
- releases from reservoirs, 104, 305, 310
- resources, 9, 25, 92–93, 110, 130, 210, 319
- rights, 102–104
- role of government levels in determination of rights, 99
- salination, 127
- salinity, 316–317
- sanitation, 90, 106, 277, 282
- supply, 6, 8–12, 16, 21–22, 54, 58, 91, 108, 123, 125, 128–129, 133, 136, 142, 180, 193, 209, 212, 214, 217, 219, 223–224, 229, 233–235, 270, 313, 379
- surface, 10, 96, 100–104, 107, 126–128, 210, 220, 223, 232, 299, 302–305, 308, 310–314, 316, 318–319
- trades, 134–135
- transfers, 6, 103, 134–135, 304, 337
- treatment plants, 6, 14
- turbidity, 56

Index

use, 9, 54, 108, 110–114,
126, 136, 191, 195, 197,
218–221, 223, 268,
302–308, 312–313, 316,
318–319, 332, 380
water-borne disease, 9, 129,
131, 213–214, 218, 236,
305, 307
watershed councils, 93, 108,
110, 116
watersheds, 16, 53, 93,
99–101, 108, 110–113,
115–116, 126, 130, 133,
135, 213, 299, 303, 308,
318
welfare policy, 110
wetlands, 10
willingness to pay (WTP),
114, 243–244, 246,–248

Z

zoning, 86

