
Index

- Abonyi, G. 146
Acheson, J. 318
ActionAid 223, 227, 228
actor involvement
 and collective action problems 3, 24, 26, 27,
 32–3, 50, 51
 non-state, and global freshwater governance
 41–2, 43, 44, 50, 51
 see also individual countries
adaptability 4, 8, 305–14; *see also* individual
 countries
Adger, N. 312
Adler, E. 25
Adler, R. 200, 202, 208
Agarwal, A. 134
Agranoff, R. 308, 314
Ailawadhi, R. 132
Allan, J. 46
Alley, R. 3
Allouche, J. 237, 239
Alp, Sezin 287–303
Anders, G. 52
Anderson, R. 66
Andrásfalvy, B. 251, 256, 263
Andréasson, J. 316
Annan, K. 50, 51
Anukularmphai, A. 146
Arcari, M. 47
Armitage, D. 306, 308
Arnold, T. 74, 77
Arrojo, P. 282
Arthur, R. 308
Arts, B. 45
Ashton, P. 196
Asian Development Bank (ADB) 146, 151,
 163, 165, 166
Asmal, K. 204
Atmanto, S. 163
Australia, water policy transitions 175–92
 actors involvement in shaping 176, 184,
 189–91
 coalition groups 182, 186, 187, 188–9
 Commonwealth Scientific and Industrial
 Research Organisation (CSIRO) 186,
 187
 Coorong Delta 179, 181
 Council of Australian Governments
 (COAG) 175
 Department of Water, Land and
 Biodiversity Conservation (DWLBC)
 176, 180, 181, 182, 183–4, 186, 187, 188
 drinking water access 177
 droughts 181, 182, 183, 185
 environmental concerns 175–91
 federal-level reforms 175 (NWI) 175, 176
 Great Barrier Reef Marine Park 310
 groundwater use, commercial 184–9
 individuals as policy entrepreneurs 176
 institutional reforms 175, 182, 190, 191
 Living Murray programme 178–9, 182
 National Water Initiative (NWI) 175, 180–81
 Natural Resources Management Act 185–6
 Natural Resources Management (NRM)
 Boards 176, 186, 188
 networks 182, 186, 187, 188–9
 and political independence 181, 182
 public–private partnerships 181–2, 186
 science development 179, 182, 184, 186, 187,
 191
 South Australia Water Resources Act 184
 South Australian Farmers Association
 (SAFF) 185, 187, 188
 South East Natural Resources Management
 (NRM) Board 184, 185, 186, 187, 188
 stakeholder involvement 46, 179
 venue change theory and policy dynamics
 181, 186
 Victoria, water allocation licensing system
 for forestry 188
 and ‘Water 2000’ report 177–8
 ‘Water Fund’ programme 181
 water licences and donations 181, 182, 186
 water management history 175–6
 windows of opportunity 178–80, 182
Australia, water policy transitions, Murray
 River environmental water allocations
 176, 177–84
 contesting legitimacy of 179–80
 and environmental flow reference points 179,
 180
 ‘First Step Decision’ 179
 interim sharing arrangements 182–4
 Murray–Darling Basin Commission
 (MDBC) 178
 River Murray Environmental Manager
 (RMEM) 180, 181–2
 strategic intervention and negotiation
 179–80, 182–4

- target setting 177–80
and water recovery 180–82
- Australia, water policy transitions, water allocation licensing system for forestry 176, 184–9
actors involved 184
and direct extraction process 188
forests and water, relationship between 184, 185–6, 187
lobbying groups and forestry accountability 185, 186, 187, 188–9
Managed Investment Schemes (MIS) 185
policy implementation 186–9
- Avni, J. 198, 205, 206, 208
- Babbitt, B. 72, 74
Bachrach, P. 24, 30–31
Bakker, K. 80, 92, 276, 277, 278
Ballabh, V. 134
Balogh, P. 251
Bansal, R. 132
Baratz, M. 24, 30–31
Barber, J. 201
Bardach, E. 314
Barkin, D. 79, 82
Barlow, M. 45, 237
Barratt, J. 201
Barta, K. 251
Barzelay, M. 326
Baskan, Argun 287–303
Bassi, N. 128
Basson, M. 195
Bates, B. 304
Bauer, C. 85
Baumgartner, F. 8, 23, 24, 26, 29, 31, 33, 63, 88, 272, 308, 373, 385, 388
Baysoy, E. 289
Becker, C. 307
Becker, Gert 325–48
Bedirhanoglu, P. 301
Bellon, T. 251, 256, 262, 263
Benford, R. 26, 32
Bennett, H. 65
Bennett, V. 88
Benvenisti, E. 47
Benyon, R. 186
Berbalk, D. 240
Berkes, F. 306, 307, 312, 314, 318
Bernhardt, C. 325
Bernstein, A. 198, 202, 205, 207, 209, 210
Bevir, M. 5
Bhat, Anjali 158–74
Bhogle, S. 126, 131
Biermann, F. 306
Bijker, W. 352
Bingham, L. 71, 385
Birkland, T. 5, 8, 28
Blackmore, D. 179
Blatter, J. 45, 80, 84, 85, 92, 325, 340
Blomquist, W. 3
Bodin, Ö. 308
Boekhorst, Dorri te 99–119
Boelens, R. 48
Boesen, J. 217
Boin, A. 382
Boone, P. 52
Boot, S. 239
Borade, V. 126
Boratav, K. 288, 289
Borrini-Feyerabend, G. 307
Botos, C. 254, 255, 256
Bourdieu, P. 70
Bourne, C. 41
Bower, B. 67
Boxer, B. 113
Brand, U. 237, 243
Brander, L. 105
Bressers, J. 238, 241, 351
Brewer, J. 120, 134
Breyer, H. 243
Brinkerhoff, D. 129
brokerage and advocacy, balancing between 379–80; *see also* coalition, advocacy
Broschek, J. 326
Brown, F. 66
Brown, J. 196, 205, 206
Brown, K. 312
Brunnengräber, A. 237, 243
Bruns, B. 162, 163, 164, 165, 166, 173
Bukowski, J. 273, 278, 279
Buras, N. 85
Burch, D. 148
Burchi, S. 3
Burns, M. 209
- Cabanes, C. 3
Calsson, L. 307
Camou, E. 82
Carabias Lillo, J. 87–8
Carlsson, L. 307, 308, 312
Carpenter, S. 306
Carson, R. 65
Carter, J. 65–6
Castro, J. 79, 82, 88
change agent 8, 115, 242, 375
Chapin, F. 308
Chaskalson, M. 199, 200, 202
Chiba, M. 48
China, integrated water basin management (IRBM) 99–119

- Central Yangtze: Partnership for a Living River programme 105–9, 114
- and China Council for International Cooperation on Environment and Development 107–9
- coalition building 114
- Council for International Cooperation on Environment and Development (CCICED) 109, 113, 114
- dams 102, 106, 110–11, 113
- and deforestation 103, 104
- drinking water access 103, 116
- environmental issues 103, 104–11, 112, 114–15, 116
- Five Year Plans and economic growth 103
- Flood Control Law 101
- flooding 101, 103, 104, 106, 107, 110
- groundwater extraction 142, 143
- institutional framework 99–101, 102–3, 112
- land reclamation 103, 104, 106–7
- Law on Prevention and Control of Water Pollution (WPPC) 101
- and livelihood development 106–7, 111
- Ministry of Environmental Protection (MEP) 101, 107
- Ministry of Water Resources (MWR) 99–100, 101, 102, 103, 109
- network management 114, 115
- new ideas, development of 114
- NGO involvement 99, 101, 104–11, 112–13
- pilot projects 14, 105–7, 378
- policy-making, centralized 112–13
- and pollution 101, 103, 111
- public–private cooperation 107, 112
- and Ramsar Convention on Wetlands 106, 112
- River Basin Commissions (RBCs) 101
- science development 103–4, 106, 113, 114
- and snail fever 110
- South-to-North Water Transfer Project 103
- stakeholder involvement 109, 113, 114
- sustainability 104, 105
- ‘32-character’ policy 104, 114
- Three Gorges Dam 106
- transition management strategies 113–15
- venue change theory and policy dynamics 114–15
- Water Law (2002) 99, 100–101
- water scarcity problems 101, 103
- Water and Soil Conservation Law 101
- wetlands management 105, 106–9, 111
- windows of opportunity 114
- and World Wide Fund for Nature (WWF) 99, 101, 104–11, 112, 114–15
- WWF Living River programme 112, 114
- WWF–HSBC Yangtze Programme 105, 109–11, 114
- Yangtze Forum 109, 113
- Yangtze River basin, geohydrological data 101–3
- Cioc, M. 325
- Clark, M. 4
- Clarke, T. 45, 237
- coalition
- advocacy 25, 26, 27, 29, 86, 92, 128–9, 379–80
 - building 32, 33, 379–81
 - see also* individual countries
- Cobbing, J. 208, 209
- Coetzee, H. 204, 205, 206
- Cohen, P. 137, 139, 141
- Conca, K. 3, 50, 51, 84, 85
- Confederation of Organizations for Environmental Protection (CODA) 280
- Conley, A. 195
- Cook, W. 308
- cooperation, public–private 107, 112, 181–2, 186, 278
- Cornelius, W. 89
- Cosgrove, W. 46
- Costejà, M. 273, 274, 275
- Crosby, B. 129
- Csekö, G. 251, 257, 265
- Cullen, P. 179
- Cumming, G. 306, 307
- Cummings, R. 85
- ‘cunning state’ 215, 217, 218, 222, 223, 225
- dams 3, 4, 24, 25, 29–30, 41, 42, 43, 50, 51; *see also* individual countries
- Day, D. 178
- De Boer, J. 349
- De Bruin, D. 362
- de Castro, P. 40
- de Coning, C. 198, 203, 204
- De Jonge, J. 360, 361, 362, 363, 364, 365, 366
- decentralization
- and global freshwater governance 44, 46
 - see also* individual countries
- Deckwirth, C. 246
- Del Moral, L. 275, 276, 277
- Dellapenna, J. 38, 39, 41, 45, 48
- Demirayak, F. 290
- Den Doolard, A. 355
- Deputato, G. 90
- developing countries
- bottom-up development 226
 - and decision-making 30, 159
 - development aid 52, 86, 240–41, 244–5
 - large-scale canal irrigation 120

- policy transition 92, 129
 privatization and deregulation 45, 85
 and science development 50–51
see also individual countries
- Dewulf, A. 8, 9, 62
 Dieperink, C. 325, 336
 Dietz, T. 306, 307, 308
 Dillon, S. 89, 93
 Dimas, S. 239, 240, 241
 Dinerstein, E. 106
 Dingwerth, K. 42
 Disco, C. 352, 353, 355
 Disse, M. 325
 Dister, E. 325, 330–31
 Divrak, B. 290
 Dixon, R. 198, 202, 205, 209
 Dollar, D. 52
 Dombrowsky, I. 325, 336
 donor organizations 376–7
 ActionAid 223, 227, 228
 aid as driver of change 44, 48, 52
 development aid 52, 86
 EU foreign aid projects 240–41, 244–6
 Tearfund 244, 245
 USAID 124
 WaterAid 226, 227, 244, 245
 World Wide Fund for Nature (WWF), *see*
 World Wide Fund for Nature (WWF)
 see also individual countries; World Bank
- Doody, T. 186
 Dresser, D. 93
 drinking water access 3, 39, 40, 43, 69, 103,
 116, 240
 drought 3, 150, 181, 182, 183, 185, 195–6, 215,
 278, 280; *see also* water scarcity
- Dryzek, J. 3
 Du Toit, A. 198, 200
 Dudley, G. 25
 Duit, A. 8
 Dworak, T. 239, 240
- Easter, W. 79, 85
 Easterley, W. 52
 Easterling, D. 3
 economic apertures, *see* Mexico
 ecosystems and governance systems 305–8; *see*
 also ‘environmentalism’ under individual
 countries
- Edgecombe, R. 196
 Eising, R. 313
 Engel, H. 325
 environmental concerns 3, 44, 48–9, 305–8; *see*
 also individual countries
- Erdogan, G. 298
 Erntson, H. 308
- Eroglu, V. 294
 Esluga, J. 283
 European Union (EU)
 Anti-Privatization Forum (APF) 245
 civil society actors 237, 241, 242–4, 245–7
 coalitions 244, 245, 246
 Conservation of Natural Habitats Directive
 281
 Conservation of Wild Birds Directive 281
 domestic water strategies 238–40
 drinking water access 379
 energy Directives 292
 Environmental Impact Assessment (EIA)
 Directive 330
 environmental issues 29, 238, 281, 292
 European Environmental Bureau 243, 245
 external water strategies 240–42, 246–7
 foreign aid projects 240–41, 244–6
 infrastructure development 241, 246
 institutional development 237, 238, 240–41
 integrated water resource management
 (IWRM) 240, 241, 246
 Millennium Development Goals (MDGs)
 241, 246
 and multinationals 245–6
 and NGOs 242, 243–4, 245, 246
 pollution and water overuse 239
 private investment 237, 241, 242–3, 245–6
 public participation 239, 240–41
 river basin management 238–9, 240–41,
 242
 River Restoration Conference 257
 stakeholder involvement 239, 240, 241,
 242–4, 246
 Stockholm World Water Week 240
 Strategic Impact Assessment Directive 281
 sustainable water use 240
 transboundary river basins 39, 43, 47, 50,
 240, 241
 UN Economic Commission for Europe
 (ECE), Transboundary Watercourses
 and Lakes (1992) 39, 43, 47, 50
 Water Framework Directive (WFD) 39–40,
 43, 47, 237, 238–40, 241, 242–4, 245,
 257, 264, 273, 279, 280–81, 283–4,
 314–16
 Water Initiative (EUWI) 237, 238, 240–42,
 244–7
 water policy 237–49
 water pricing and full cost recovery 238,
 239–41, 242–4, 245, 246–7
 water quality classification system 238
 water scarcity 239
 see also individual countries
- Evans, P. 229

- Ewert, F. 307
 Eybers, T. 198, 205
- Falkenmark, M. 3, 113, 144, 304
 Fang, J. 103, 105
 Farwell, B. 196
 Fawcett, M. 196
 Fazey, I. 308
 Feinstein, A. 198, 207
 Feldman, M. 62
 Finer, S. 5
 Finger, M. 237, 239
 Fischer, F. 24, 45
 Fischer, G. 103
 Fischhendler, I. 29
 Fjelstad, O. 228, 230
 Flachner, Zsuzsanna 250–71
 Flavin, C. 99
 Floch, P. 152
 flooding, *see under* individual countries
 Flyvberg, B. 352
 focusing events and projects 28, 29, 86, 143, 166, 172, 335, 340, 353
 Fokkens, B. 257
 Folke, C. 32, 304, 305, 306, 307, 308, 312, 314
 Font, Nuria 272–86
 Ford Foundation 124, 165
 Forsyth, T. 145, 149, 150, 151
 Frankel, P. 201
 Fraser, L. 28, 78, 308
 freshwater, *see* global freshwater governance
 Friends of the Earth (FOE) 245
 Fritjers, I. 325
 Fu, C. 111
 Füchtner, N. 326
 Fuentes, X. 47
 Fugl, J. 113
- Gadgil, M. 312
 Gains, F. 25
 Galaz, Victor 8, 304–24
 Gallopin, G. 306
 Ganjanapan, A. 141, 143
 Garaway, C. 308
 Garden, Po 137–57
 Gardner, G. 99
 Gates, M. 86
 Geels, F. 8, 309
 Geers, K. 352, 355
 Geldenhuys, D. 198, 200, 201
 Genxu, W. 3
 Germany, flood management transitions in
 Rhine basin 325–48
 actor involvement 327–30, 340–41
 background and history 325
- Baden-Wuerttemberg (B-W) 330–31, 334, 336, 337, 340–41
 change, implementation of 336–9
 and civil community 340–41
 coalitions 330–31, 333–4, 338, 340, 341, 342
 compensation requirements 329
 cost–benefit analysis 331
 cross-border problems 332, 335
 Declaration of Arles 335
 dyke rehabilitation programme 333, 334, 335, 338
 environmental issues 327, 330–32, 333, 334, 335–6, 340–41, 342
 epistemic community as pressure group 329–30
 and EU Environmental Impact Assessment (EIA) Directive 330, 334
 federal administration 325–8, 330–37, 342–3
 Five Points Programme 335
 Flood Action Plan (IKSR) 336
 Flood Control Act 335, 342
 and global climate change 337
 Hesse (HE) 332, 337, 341, 342
 infrastructure and planning approval 329, 333, 334, 337
 institutional arrangements 325–6, 328–9, 335–6, 337, 340–43
 Integrated Rhine Programme (IRP) 334, 335
 International Commission for the Protection of Rhine (IKSR) 335–6
 International Commission for Research on Floods of the River Rhine (HSK) 325, 327, 329–30, 334
 local opposition 337, 341–2
 Lower Rhine (NRW) 329–30, 341
 ‘more room for water’ study 329–30
 NGOs 330–31, 340–41
 North Rhine-Westphalia (NRW) 332–3, 334–5, 338, 341, 342
 policy entrepreneurs 339–40, 341
 and political endorsement 332, 333–7, 340, 341
 preparation for change 327–33
 Rhineland-Palentina (R-Pf) 331–2, 334, 335, 336, 338, 341
 risk assessment 329, 331, 332, 334, 336, 337, 340
 science development 327–9, 330, 331–2, 333, 334, 337, 340–41, 342–3
 stakeholder involvement 338, 341, 343
 State Water Working Group (LAWA) 328, 335, 336, 341, 344
 strategies for 340–42
 water resource management 328
 windows of opportunity 330, 333–4

- and World Wide Fund for nature (WWF) 330–31, 334, 341
- Glassman, J. 143, 148
- Gleick, P. 3, 4, 45, 51, 54, 84, 85, 92
- global climate change 3, 29, 48–9, 68, 69, 73, 82, 152, 215, 294, 316, 337
- global freshwater governance 37–57
 - actors, dominant 44
 - and aid as driver of change 44, 48, 52
 - bilateral and multilateral agreements 39–40, 42–3
 - catchment councils 47
 - and decentralization 44, 46
 - driving forces 43–9
 - environment-specific discourses 44, 48–9, 305–6
 - equitable use and no harm discourse 46–7, 50
 - factors of change 49–53
 - global problem definition, lack of 43
 - governance discourses 44, 45–6
 - governance versus government discourse 44, 45
 - and human right to water and sanitation 39, 43, 45
 - human rights discourse 44, 47–8, 50
 - hybrid bodies 42, 43, 44, 51
 - hydraulic mission 43, 44, 46, 50
 - ideas and defining moments 43
 - ideological discourses driving change 43–5, 50
 - integrated water resource management (IWRM) 44, 47, 65
 - inter-basin transfers 41, 50
 - international court cases 40
 - international river basin management (IRBM) discourse 47
 - journals 41–2
 - legal discourses 46–7, 51
 - and legal scholars 41
 - and multinational water corporations 42
 - neoliberal economic model 43–5, 50, 85
 - network governance and management 45, 50, 308, 313–14
 - and non-state actors 41–2, 43, 44, 50, 51
 - organizational frameworks 52, 54, 306–8
 - ownership rights of indigenous peoples 44, 48
 - perceptions and mental models, changing 310–11
 - and potable water access 240
 - and punctuated equilibrium theory 28, 308–9
 - river basin management 52
 - and science development 49–51, 54, 306
 - and social engineering approaches 46
 - social movements and lobbying 51
 - and social networks 308
 - stakeholder participation 44, 45–6, 307
 - structure and drivers 38–43, 51
 - and sustainable development 43, 48–9
 - virtual water discourse 44, 48
 - and water professionals 41, 43
 - water-specific discourses 46–8
- Global Water Partnership 42, 113, 226
- Godfrey, L. 203, 208
- Goldin, Jacqui 215–33
- Goode, J. 191
- Gordon, L. 305
- Gosling, M. 198, 205, 206
- Goss, J. 148
- Gould, D. 85, 86
- Green Cross 244
- Greenpeace 243, 279, 280, 281
- Griesemer, J. 63
- Grillo, R. 122
- Grindle, M. 129, 158–9, 172, 173, 225–6, 389
- Groenewald, Y. 198, 205, 206
- groundwater extraction 4, 41, 74, 76, 142, 143, 184–9, 206, 314–15
- Gunaydin, G. 295, 299
- Gunderson, L. 306, 307, 308, 310, 313
- Gunlicks, A. 325, 326
- Guodong, C. 3
- Gupta, Joyeeta 37–57
- Guston, D. 63
- Haas, P. 25, 26, 49, 158, 190
- Habib, A. 229
- Hahn, T. 311, 312, 314
- Hajer, M. 23, 24, 26, 31, 32, 45, 63, 122, 313
- Hall, D. 42, 292
- Hall, N. 40
- Hall, P. 24, 26
- Hallstein, E. 3
- Hanf, K. 45
- Hardin, G. 125
- Hardin, R. 224
- Harnpitakul, S. 144
- Hartje, V. 47
- Harvey, D. 186
- Harvey, N. 88
- Hasian, M. 196
- Hattingh, J. 208, 209
- Hayde, L. 251, 257, 265
- Hazare, A. 125, 126
- Heilig, G. 103
- Herman, T. 164, 165, 166
- Hildering, A. 46, 47
- Hill, J. 185

- Hill, M. 130
 Hillenius, H. 356
 Hinchcliffe, F. 85
 Hindley, J. 88
 Hirsch, P. 146
 Hobbs, P. 205, 208, 209
 Hobhouse, E. 196
 Hödl, E. 238
 Holländer, R. 325, 336
 Holling, C. 306, 308, 310
 Hong, L. 307
 Hooja, R. 125, 134
 Hooper, B. 47, 52
 Hopkin, J. 10
 Horlemann, L. 48
 Howe, J. 315
 Hu, J. 116
 Hughes, Sara 175–92
 Huitema, Dave 3–36, 238, 241, 310, 349–68, 371–91
 Hummel, H. 237
 Hungary, water policy for Tisza River 250–71
 ADAM project 250
 administrative agencies, role of 257, 258, 263, 264, 265–6
 background and policy transition 251–4, 265
 civil society input 261, 262–3
 coalitions 253, 254–6, 258–61, 262, 263, 264, 265, 266
 cyanide spill 251, 260, 262, 264
 deforestation 251
 environmental issues 252, 256, 258, 260, 261, 264, 265
 and EU funding 257, 261, 262, 264
 flooding 251–2, 259, 260, 262, 265
 floodplain drainage 251, 252
 floodplain rehabilitation 254–6, 257, 259, 263–4, 267
 individuals and the transition 254–66
 and inland water stagnation area (Cigánd) 263, 265
 and international research and development projects 264
 INTERREG III project funding 264
 ‘Last Straw’ project 254
 local experience, use of 256, 258, 262–3, 264
 Ministry of Environment and Water 253, 260, 263
 and multiple venues 262–4
 network management 264–6
 new ideas development 254–8
 new water policy (VTT) 258–9, 261, 262, 263, 266
 and NGOs 250, 252, 253, 254–6, 258–60, 261, 262, 263, 264, 265, 266
 organizational change, lack of 269
 pilot projects 254, 264, 268, 378
 political involvement 260–62
 privatization 251
 and research community 263–4, 266
 river restoration 257
 rural development programme 253, 254, 257, 258, 259, 264
 and science development 257, 258, 259, 262, 263, 264
 stakeholder involvement 253, 263
 sustainable development 254, 264
 VÁTI planning agency 252, 253, 256, 263, 266, 268
 Water Resources Research Centre (VITUKI) 263, 264
 windows of opportunity 260–62
 and World Wide Fund for Nature (WWF) 257
- Ijjas, I. 262
 Ilcan, S. 219
 Ilhan, A. 272
 Imperial, M. 307, 308
 Imre, E. 290
 India, water user associations in large-scale canal irrigation systems 120–36
 advocacy coalitions 128–9
 Andhra Pradesh Farmers Management of Irrigation Systems Act 121, 129
 and economic reform 124
 epistemic communities and policy networks 128–9, 133
 and Ford Foundation 124
 and good governance paradigm 123–4
 Gujarat and process documentation research (PDR) 127
 Haryana Water Resources Consolidation Project (WRCP) 123, 124, 131–2
 India–Canada Environment Facility (ICEF) 128
 irrigation management transfer (IMT) 120, 125, 128, 130, 131, 132
 Jaykwadi Dam 134
 Karnataka and NGOs as policy entrepreneurs 127–8
 Madhya Pradesh Farmers Management of Irrigation Systems Act 128
 Maharashtra natural resource management 123–4, 126, 130–31
 Mula Irrigation Project 126, 131, 132
 National Water Policy 121, 127
 NGOs as policy entrepreneurs 121, 125–8, 131
 participatory irrigation management (PIM)

- 120–21, 122, 124–5, 127–8, 129, 131, 132
- pilot projects 126–7, 133
- policy change sources 122–9
- policy implementation process 129–32
- stakeholder involvement 128
- state government control 121
- street-level bureaucracy, role of 130–32
- and USAID 124
- vested interests among farmers 131–2
- water tanks 124
- water users associations (WUA) 120, 122, 123, 124, 125, 130–32
- watershed conservation 125
- and World Bank 123–4
- Indonesia, water policy transitions 158–74
 - agricultural dependency 161–2, 163
 - and Asian Development Bank (ADB) 163, 165, 166
 - background 160–62
 - Bureau of Water Resources and Irrigation 164, 165, 168
 - BWS (BBWS) 170, 171, 172
 - Capacity Building Project (CBP) 165, 167
 - Cisarua International Water Resources Conference 164, 172
 - constitutional reform 160
 - decentralization 161, 164, 166, 167, 169–70, 172
 - economic crisis and reform 162–9
 - environmental concerns 161, 167
 - five-year development plans (Repelita) 162, 164, 165
 - flooding 161, 162, 171
 - and Ford Foundation 165
 - infrastructure development 162, 163, 168
 - institutional structure 162, 163–4, 165, 166–7, 168, 170, 171, 172
 - Integrated Irrigation Sector Projects (IISPs) 163
 - integrated water resource management (IWRM) 164, 166, 173
 - international aid 162, 163, 165, 166–7, 168–9
 - and International Monetary Fund (IMF) 166
 - irrigation management transfer (IMT) policy 167, 168, 169
 - Irrigation Operation and Maintenance Policy (IOMP) 163, 164, 165
 - irrigation sector investment 162–5
 - Irrigation Sub-sector Projects (ISSPs) 163, 164
 - Java Irrigation and Water Resources Management Project (JIWMP) 163, 165, 167, 168
 - National Planning Agency (Bappenas) 163, 164, 165, 166, 167, 168, 169
 - National Water Councils 164, 167
 - National Water Resources Policy Action Plan 164
 - New Water Resources Law 168–9
 - NGO involvement 163, 166
 - oil revenues 162
 - pilot projects 165
 - political reforms (Reformasi) 160, 169
 - pollution 161
 - provincial responsibility 161, 163–4, 165, 169–70, 171
 - Regional Autonomy Laws 169
 - regional government authority 161
 - river basin development 162, 164, 165
 - river basin management 169–72
 - river territories (SWS) 162
 - special allocation funds (DAK) 161
 - stakeholder participation 167
 - and subsidies 164
 - water pricing and cost recovery 170–71
 - Water Resources Development Law 167, 169
 - water sector loan reform 166–9
 - watershed erosion 161
 - and World Bank 163, 165, 166–7, 168–9
- Ingram, Helen 28, 61–78, 80, 84, 85, 92, 308
- institutional development 24, 27, 30, 32, 306–7, 385–7; *see also* individual countries
- integrated water resource management (IWRM) 44, 47, 65; *see also* individual countries
- International Law Association 38, 39, 41, 43, 44, 46
- International Monetary Fund (IMF) 166, 222–4, 225, 229
- International Water Associations 41, 164
- Isik, Y. 294
- Janchitfah, S. 145
- Jänicke, M. 325, 328
- Janssen, M. 308
- Jasanoff, S. 62, 63
- Jenkins-Smith, H. 8, 26, 357
- John, P. 23
- Johnston, S. 198, 202, 205, 207, 209, 210
- Jompakdee, W. 150–51
- Jonch-Clausen, T. 113
- Jones, B. 8, 23, 24, 26, 29, 31, 33, 63, 88, 272, 308, 373, 385, 388
- Jones, G. 179
- Jordaan, J. 200, 206
- Jordan, A. 5, 6
- Joshi, L. 125

- Kaika, M. 29, 238, 242, 243
 Kampa, E. 336
 Kavdia, P. 134
 Kay, A. 25, 30
 Keeley, J. 46
 Kellogg, W. 318
 Keloglu, N. 293
 Kemp, R. 8
 Kemper, K. 3
 Kempster, P. 206
 Kerkhof, M. van de 46
 Khademian, A. 63
 Kibaroglu, Aysegül 287–303
 Kibassa, Deusdedit 215–33
 Kibona, E. 216
 Kickert, W. 23, 33, 45, 224, 229, 314
 Kidd, M. 46
 King, P. 31
 Kingdon, J. 6, 8, 23, 27–8, 32, 61, 76, 93, 158,
 172, 260, 272, 334, 340, 375, 380, 383, 388
 Kipping, M. 48
 Kissling-Näf, I. 351
 Kleyweight, R. 200
 Klijn, E. 33, 45, 314
 Klooster, D. 79, 82
 Knees, A. 67
 Knill, C. 27
 Kohler-Koch, B. 313
 Kolavalli, S. 120
 Kolf, R. 333, 334
 Kooiman, J. 45, 314
 Koppenjan, J. 45, 224, 229, 314
 Korten, F. 134
 Koudstaal, R. 47
 Krämer, A. 328, 342
 Kranz, N. 239, 240
 Krebs, F. 325
 Krebs, P. 196
 Kreimer, A. 99
 Kuks, S. 28, 310, 350, 351, 353
 Kulkarni, D. 124
 Kulkarni, S. 124
 Kundzewicz, Z. 257
 Kurien, V. 125

 Lamar, H. 196
 Lammersen, R. 337, 345
 Landa, R. 87
 Lane, J. 51, 54
 Lankford, B. 225
 Laster, R. 46
 Latour, B. 62
 Laungaramsri, P. 145, 149
 Lebel, Louis 137–57
 Lee, S. 99, 100, 101

 Leemans, A. 352, 355
 Leentvaar, J. 325
 Lei Gang 99–119
 Lejano, Raul 61–78
 Lele, S. 130, 131
 Lemon, A. 46
 Lemon, M. 313
 Lemos, M. 85, 89
 Lenschow, A. 27
 Lenton, T. 8
 Levin, S. 305
 Li, C. 103
 Li, Y. 103
 Lichtinger, V. 89
 Liebenberg, B. 199
 Liefferink, M. 204, 205
 Li Lifeng 99–119
 Linnerooth-Bayer, J. 251
 Lipsky, M. 130
 Liptapanlop, S. 143
 Litfin, K. 158
 Liverman, D. 82, 88
 Livney, D. 46
 Lloyd, D. 191
 Lobina, E. 42
 Lodge, T. 198, 200
 Loorbach, D. 31, 309
 Lopez-Pujol, J. 111
 Löser, G. 340
 Louw, E. 25
 Low, B. 307, 308
 Lowry, W. 29, 355
 Luers, A. 83, 87
 Luna, A. 88
 Lundgren, L. 313

 Maass, A. 64, 66
 McCaffrey, S. 38, 47
 McCay, B. 318
 McCay, J. 46
 McCormack, G. 113
 McGinnis, M. 307
 McGuire, M. 308, 314
 McKay, Jennifer 175–92
 McNie, E. 75
 Madhoo, Y. 143, 151
 Maganga, F. 217
 Maheshwari, B. 177
 Maiklad, P. 137
 Majone, G. 31
 Maloney, C. 124, 125, 134
 Malzbender, D. 218, 219
 Mandell, M. 308
 Manring, S. 308
 Manuta, J. 143

- Marsden, S. 46
 Marsh, D. 24, 33
 Marshall, L. 205
 Martens, P. 309
 Masahauri, D. 225
 Matczak, Piotr 250–71
 Matthews, K. 185
 Maurer, T. 328
 May, J. 225
 Mayntz, R. 326, 342
 Mayo, A. 225
 Meadows, D. 355
 Meer, F. 196, 198
 Meffe, G. 306, 310
 Meier, K. 33
 Meijerink, Sander 3–36, 86, 257, 349–68, 371–91
 Meitzen-Dick, R. 3
 Melville, R. 82
 Merideth, R. 82, 88
 Meuser, A. 331, 334
 Mexico, national water policy and economic apertures 79–96
 advocacy coalition and economic opening 86, 92
 Border Environment Cooperation Commission (BECC) 88
 civil society actors 88, 90
 dams 85, 88
 and decentralization 80, 82, 83, 85, 88, 89, 90, 91–2
 and economic crises 85–6
 and economic equity decrease 83–4
 economic reforms 86–8
 environmentalism 87, 88, 89
 flooding 90
 and free trade policies 86–7
 and global climate change 82
 indigenous peoples' rights 88
 infrastructure development 85, 90
 integrated water resources management (IWRM) 80, 84–5, 88, 296
 irrigation districts 82, 83–4, 85, 87, 88
 jurisdiction, lack of 84
 Ministry of Environment and Natural Resources (SEMARNAT) 87, 88, 90
 National Water Commission (CONAGUA) 81, 82, 84, 87, 88, 89, 90–91
 National Water Law (LAN) 81, 88, 89–91
 National Water Plan 90
 network management 88
 'new water culture' 85
 new water management paradigm 81–4
 and North American Free trade Agreement (NAFTA) 86, 88
 policy dynamics, accounting for 84–91
 political aperture 80, 91, 93
 and political transformation 79–81, 82, 89–92
 privatization 82, 83, 85, 86–7, 88, 89
 public consultations 90
 river basin councils 82, 84, 88, 90
 science development 87–8, 89
 Sonora state 82–4
 subsidies 83, 85
 sustainable development 84, 90, 91–2
 transition pressures 85–6, 91
 venue change theory and policy dynamics 88
 wastewater treatment 90
 water user associations 87, 88, 90
 World Bank support 82, 85
 Mfangavo, C. 228
 Mills, G. 196, 199, 202
 Mmemezi, H. 205, 206, 208
 Moberg, F. 312
 Mol, A. 113
 Molle, F. 137, 139, 141, 143, 146, 147, 150, 151, 152
 Mollinga, Peter P. 46, 124, 126, 127, 129, 134, 158–74
 Molnár, G. 256, 263
 Monge, R. 94
 Moreno, J. 79, 82
 Moss, T. 342
 'most different systems' approach 10, 373
 Mostert, E. 238, 239, 325
 Muldavin, J. 105
 Muller, M. 198
 Munasinghe, M. 99
 Murray-Rust, H. 163
 Mutayoba, W. 215
 Na Nan, Sakkarin 137–57
 Nadal, A. 87
 Nader, R. 65
 Najam, A. 134
 Nakamura, T. 105
 Nakashima, D. 48
 Narain, Vishal 120–36
 Narbona, C. 279, 283
 Nattapoolwat, S. 138, 143, 148
 Needham, B. 25
 neoliberal economic model 43–5, 50; *see also* privatization under individual countries
 Netherlands, water management and policy entrepreneurs 349–68
 background and history 349–51, 353, 355, 356–7, 364
 central water management (Rijkswaterstaat) 350, 353–5, 356, 357, 363

- civil engineers' epistemic community 353–5
 coalitions 350–51, 355, 356, 357, 362–3
 dams 28, 351, 353, 355
 'Dealing with Water' report 355
 Delta Plan 28, 353, 357, 364
 dykes and polders 28, 350, 351, 363, 364
 Eastern Scheldt storm surge barrier 28,
 352–8
 environmental issues 351–2, 355, 356–8,
 360–62, 363, 364, 365
 flood safety–agriculture coalition 350–51
 flooding 349–51, 353, 356, 357, 363, 364
 greening of water management 351–2, 358,
 363, 364
 infrastructure projects 351, 352–9
 institutional change 359–60, 361
 National Land Use Plan 362–3
 National Nature Policy Plan 361
 networks 357–8, 365
 new ideas, development of 353–6, 360–62,
 363, 365
 NGOs 355, 356, 363
 perceptions and mental models, changing
 310
 pilot projects 363, 378
 Plan Stork 361–3, 364–5
 political input 357–8, 362–3, 364, 365
 and private enterprise 361
 research projects 355
 river management 358–65
 science development 353–5, 356
 South Sea Works 350, 351
 and venue choice 356–7, 364–5
 windows of opportunity 28, 356–7, 363–4
 and World Wide Fund for Nature (WWF)
 Living Rivers plan 361–2, 364
 network governance and management 33, 45,
 50, 308, 313–14
 policy networks 23, 24, 26, 33, 128–9, 133,
 219–24, 225, 228, 229
 shadow networks 26
see also under individual countries
 Neubert, S. 48
 Nevins, J. 93
 Nichols, J. 66
 Nienhuis, P. 325
 Nijpels, E. 362, 364
 Norberg, J. 307, 308
 North, D. 25, 27, 273, 291
 Nortje, P. 201, 202
 Nott, G. 296
 Nyathi, S. 205, 207, 209
 Odendaal, A. 198
 Odgaard, R. 217
 Oelofse, S. 203, 208
 O'Leary, R. 71, 385
 Olson, D. 106
 Olsson, Per 8, 26, 31, 32, 304–24, 371, 383, 388
 Oomen, B. 219
 Ortiz, S. 94
 Ostrom, E. 307, 308, 318, 385
 Otero, G. 89
 O'Toole, L. 33
 Otsuka, K. 99, 100, 101, 103
 Overeem, A. 325
 Overmars, W. 361
 Page, S. 307
 Pahl-Wostl, C. 4, 37, 42, 304, 306, 308, 309, 318
 Pakenham, T. 196
 Paktar, M. 51
 Palacios Velez, E. 82
 Pant, N. 120, 134
 Park, Y. 111
 Parthasarathy, R. 127
 Partzsch, Lena 237–49
 Patil, R. 130
 Paton, D. 179
 Pearson, R. 137, 139, 141
 Peires, J. 196
 Peluso, N. 145
 Pendse, M. 126, 131
 Perez Prado, L. 82
 Peters, B. 5, 6, 26, 28, 112
 Peterson, G. 307, 318
 Petrella, R. 45
 Phanayangoor, P. 144
 Philippines, irrigation management transfer
 (IMT) schemes 120, 124
 Phillips, L. 219
 Pierre, J. 5, 6, 45, 112
 Pierson, P. 25, 31, 273, 373
 Pigram, J. 175
 Pike, D. 200
 Pineda Pablos, N. 82
 Pitroda, S. 125
 Pitzer, G. 73
 Ploegmakers, H. 360, 361, 363, 364–5
 policy
 image 24, 26, 28–9, 63, 272, 284–5, 385–6
 monopoly 24, 26–7, 31, 357
 networks 23, 24, 26, 33, 128–9, 133, 219–24,
 225, 228, 229
 stability 23–6, 28, 30
 stream 27, 28, 158
see also individual countries
 policy change 4–7
 and alternative dispute resolution 29
 and bandwagon effect 28

- barriers to 24
 epistemic communities (EC) theory 25, 26
 and focusing projects concept 29–30
 implementation problems 24
 incremental 30
 and interest groups 29
 and negative feedback 27, 28
 normative 8
 and positive feedback 8, 28–9
 as random process 6
 resistance 6–8, 24
 and serendipity and coincidence 30
 strategies to block 386
 and vested interest 24
see also individual countries
 policy entrepreneurs 374–7
 collective 376
 individual 375–6
 strategies of 377–86
see also individual countries and
 entrepreneurs
 pollution 67, 101, 103, 111, 161, 239, 290, 312,
 314–15
 Pralle, S. 33
 Pratong, K. 145
 Pressman, J. 389
 Preston, J. 89, 93
 privatization 3, 50, 51; *see also* individual
 countries
 Pronk, J. 52
 punctuated equilibrium theory 28, 308–9
 Putnam, R. 33

 Quesada, J. 90

 Rácz, T. 260
 Rahman, M. 47
 Rainey, H. 220
 Rajan, R. 52
 Raju, K. 124, 125
 Ramu, K. 161, 165, 170
 Randeria, S. 215, 217, 219, 220, 222, 226, 229
 Ray, A. 82
 Rayner, S. 73, 75
 Rechkemmer, A. 241
 Reidsma, P. 307
 Rein, M. 24, 26, 31, 63
 Repetto, R. 308
 Reuss, M. 349, 351
 Rhodes, R. 5, 24, 33, 45
 Rich, R. 50
 Richardson, J. 25, 26, 28, 29, 33, 114, 115, 273,
 387
 Rigg, J. 138, 143, 148
 Rijsberman, F. 46

 Ripl, W. 304
 risk management 3–4, 8–9, 316–17, 329, 331,
 332, 334, 336, 337, 340
 Rittel, H. 3
 river basin management 5, 41; *see also*
 individual countries
 Roberts, N. 31
 Rockstrom, J. 144
 Romero Lankao, P. 79, 80, 82, 83
 Rondinelli, D. 46
 Roosevelt, F.D. 64–5
 Ross, R. 198, 200
 Roth, D. 360, 363
 Rother, K. 331–2, 336, 341
 Rotmans, J. 8, 31, 309, 339

 Sabatier, P. 8, 23, 24, 26, 27, 29, 31, 32, 62, 76,
 86, 247, 357, 373
 Sabel, R. 40
 Sacher, D. 48
 Saeijs, H. 355–6
 Santiso, C. 52
 Sauri, D. 275, 276, 277
 Schaap, L. 232
 Scheff, T. 222
 Scheffer, M. 304, 308
 Scheumann, W. 42, 52
 Schlager, E. 23, 30
 Schlesinger, W. 3
 Schmidt, F. 241
 Schneider, M. 184, 189
 Schnurr, M. 37
 Scholes, R. 207
 Schön, D. 24, 26, 31, 63
 Schot, J. 8, 309
 Schout, A. 5
 Schouten, M. 45
 Schultz, L. 311, 312
 Schusler, T. 306, 307
 Schuyt, K. 105, 106, 107
 Schwartz, K. 45
 science development 49–51, 54, 306; *see also*
 individual countries
 Scoones, I. 46
 Seagar, R. 82
 Sektheera, R. 141
 Sendzimir, J. 251, 309
 Sharpf, F. 45
 Shashidharan, E. 127, 134
 Shaw, M. 237
 Shemsanga, S. 220
 Sherwill, T. 198, 203, 204
 Shiva, V. 45
 Sibanda, B. 198, 202, 205, 209
 Sinh, B. 143

- Siy, R. 134
 Smets, H. 47
 Smillie, S. 206, 207, 208
 Smith, A. 8, 309
 Smith, D. 175
 Smith, K. 64
 Smits, Toine 99–119
 Sneddon, C. 143, 148
 Snow, D. 26, 32
 social learning 306–7
 Sokile, C. 216
 Sorensen, E. 313
 South Africa, water and mining policy 195–214
 Accelerated and Shared Growth Initiative
 for South Africa (ASGISA) 204, 205
 access to information problems 208
 and acid mine drainage (AMD) 205, 206,
 207, 208, 209–10
 Afrikaner hegemony, rise of 199–200
 Black Economic Empowerment (BEE) 208,
 209
 civil society as policy entrepreneur 205, 206,
 208
 coalition-building 205, 206
 constitutional reform 202–3, 206, 209
 corruption 207, 209
 Council for Scientific and Industrial
 Research (CSIR) 206, 207–8, 209
 Council for Geosciences (CGS) 205, 206
 Department of Environmental Affairs and
 Tourism (DEAT) 203, 209
 Department of Water Affairs and Forestry
 (DWAF) 203, 222
 dewatering of dolomites of Far West Rand
 200, 202, 204, 205
 drought 195–6
 and economic growth 196, 199, 200, 201,
 203–4, 205, 206, 208–9
 environmental concerns 198, 200–201, 203,
 205, 209
 epistemic community as policy entrepreneur
 205–6, 207–8
 extraction policy, five phases of 198–204
 Federation for Environmental Sustainability
 (FES) 205, 206
 groundwater and health 206
 Growth, Employment and Redistribution
 Programme (GEAR) 204
 Hazardous Substances Act 203
 human rights 196–8, 202–3, 204, 206, 208–9
 Jordaan Commission of Enquiry 200, 206
 land ownership and Native Land Act 203
 leadership, lack of inspired 207
 mine closure policy, lack of 196
 Mine Health and Safety Act 203
 Mineral and Petroleum Resources
 Development Act 203
 mining policy opposition 204
 mining and self-interest abuse 208
 mining waste management practices 203, 209
 National Environmental Management Act
 203
 National Water Act 196, 203, 222
 National Water Quality Science, Technology
 and Policy Support Program 206, 207
 nationalization of resources 202, 203
 and NGOs 205, 208–9
 policy entrepreneurs 204–7
 political stability and state repression 200
 political violence 200–201
 and ‘polluter pays’ principle 203, 205, 206
 public awareness, lack of 201, 202
 and radioactivity 203, 205, 206, 207, 209–10
 Reconstruction and Development
 Programme (RDP) 200
 Reports 1095 and 1214 206, 207, 208
 research projects 206–8, 209
 and science development 204, 205–6, 207–8,
 209
 sinkhole formation and land instability 200,
 202, 204, 205
 stakeholder involvement 46, 209, 229–30
 state and mining industry collaboration
 (1961–76) 200–201
 state survival and armed struggle (1976–94)
 201–2
 sustainable development 202–3, 205, 209
 Tooth Fairy Project 206, 207, 208, 209
 ‘total national strategy’ and mining oversight
 201–2
 transboundary problems 209
 transition management, actors and strategies
 204–10
 Water Matters Commission of Enquiry 200
 water policy entrepreneurs, strategy
 assessment 207–8
 water policy, relevance of 195–8
 Water Research Commission (WRC) 206–7
 Water Services Act 222
 wealth and privilege redistribution (1994–
 date) 202–4, 206, 208–9
 and windows of opportunity 207
 Southern Africa 38, 40, 241
 Soylu, N. 299
 Spain, water management in transition 272–86
 actor involvement 273–4
 AGUA programme 272, 278–9
 Aragón Water Pact 277, 282
 background and history 274–5
 Blue March, Brussels 281

- and COAGRET (Association of People Affected by Large Dams) 280, 281–2
- coalitions 273, 279–82, 283–4
- cross-border water transfers 277, 279
- cross-regional administration 274, 277, 278
- dams 275, 278, 280, 281–2
- and decentralization 274–5
- and desalinization plants 272, 279
- droughts 278, 280
- Ebro River transfer 278, 280, 281, 283
- environmental issues 277, 278, 279, 280–82
- and EU funding 280, 281
- and EU Strategic Impact Assessment Directive 281
- and EU Water Framework Directive (WFD) 275, 279, 280–81, 283–4
- infrastructure, state-subsidized 272, 274, 275, 280
- institutional change 272–3, 275–6, 280, 282
- Ministry of the Environment 274, 279, 281, 282
- and multiple venues 273
- National Irrigation Plan 276
- National Water Council 276, 278, 281
- National Water Plan 272, 274, 275, 276–7, 278, 280, 281–2, 283
- Natura 2000 network and protected sites 280, 282
- networks 280, 281, 282
- New Water Culture 272, 282
- and polarization 275, 277–8
- policy entrepreneurs 279–83
- policy options, change of 272–4, 275, 278–9, 280
- and political involvement 275–9, 282–3
- and protest, emerging 275, 276–7
- public–private partnerships 278
- research studies 282
- river basin management 274, 275, 276, 278, 279
- and science development 281–2
- Water Act 275, 276, 277–8, 279
- water banks 278, 279
- water as economic good 277
- water funding 278
- windows of opportunity 281, 283
- and World Wide Fund for Nature (WWF) 279, 280, 281, 282
- Spitz, R. 199, 200, 202
- Spreij, M. 3
- Sproule-Jones, M. 318
- Star, S. 63
- Staudenmann, J. 241
- Stelman, T. 308
- Stern, P. 75, 76
- Stiglitz, J. 46
- Stirling, A. 309
- Stoker, G. 5
- Stone, R. 3
- Streeter, C. 307
- Stubbs, M. 313
- Subirats, Joan 272–86
- Subramanian, A. 52
- subsidies 66, 69, 83, 85, 164, 272, 274, 275, 280
- Subsin, Nutthawat 137–57
- Suhardiman, D. 163, 167, 168, 169
- Suicmez, B. 299
- Sukhapunnaphan, T. 144
- Surarerks, V. 141
- Surawadi, P. 145
- Sutton, R. 122, 125
- Svendsen, M. 296
- Sweden, water management transition and governance 304–24
 - acidification crisis 313
 - actor networks 311, 312, 315–16
 - adaptive governance approach 312–13, 316–19
 - ‘adhocracy’ groups 312
 - bridging organization (BO) and collaborative management 311–13
 - collective action and participation 317–18
 - environmental issues 311–12, 314–15
 - Environmental Protection Agency 311
 - and EU ‘good water’ status 315
 - and EU Water Framework Directive (WFD) 314–16
 - and EU Water Framework Directive (WFD) and opportunity for change 316–19
 - flooding 312
 - and global climate change 316
 - governance networks 313
 - groundwater management 314–15
 - institutional and organizational change 311–13, 316, 317
 - International Development Agency 39
 - Kristianstads Vattenrike Biosphere Reserve (KVBR) 309, 311–12, 313, 314
 - learning networks, development of 312–13, 314, 317, 318–19
 - networks, central coordination of 311, 312–14, 315–16, 317–19
 - NGOs 315
 - perceptions and mental models, changing 310–11
 - political involvement 311, 313
 - and pollution 312, 314–15
 - risk assessment 316–17
 - stakeholder involvement 311, 315–16, 317–19

- water districts 315
 wetlands and ecosystem changes 309–10,
 311–12, 313, 314, 317
 windows of opportunity 311, 314–16
 Szlávik, L. 262
- Tàbara, D. 4
 Tàbara, J. 272
 Tan-kim-yong, U. 137, 141, 147
 Tanor, B. 289
- Tanzania, water policy 215–33
 ActionAid report 223, 227, 228
 background 215–17
 civil society involvement 227–30
 colonial to post-independent 219–22
 ‘cunning state’ 215, 217, 218, 222, 223,
 225
 customary systems 217, 218–19, 222
 Dar es Salaam Water and Sewerage
 Authority (DAWASA) 223, 225
 Dar es Salaam Water Supply and Sanitation
 Project (DWSSP) 223
 decentralization 221, 226, 230
 demand and supply tensions 215, 221
 and demographic changes 217, 221
 donor organizations 217, 222–4, 227, 229
 drought and climate change 215
 Energy and Water Utilities Regulatory
 Authority (EWURA) 227–8
 environmental issues 219
 global and local discourse, tensions between
 225–6, 228–9
 institutional opportunities 220–21, 226, 229
 integrated water resources management
 (IWRM) 219, 222, 226, 228
 irrigation and hydropower and pastoral
 practice 220
 and irrigation-based livelihood trends 225
 local elite, influence of 228–9
 National Water Policy (NAWAPO) 215, 221,
 222, 229, 230
 National Water Sector Development
 Strategy (NWSDS) 215
 new policy networks, restrictions on 219–24,
 225, 228, 229
 and NGOs 223–4, 226, 227, 229
 policy entrepreneurs, external 224–7
 policy formulation dynamics 222–30
 policy influences 222–4
 political change and colonialism 218–19
 pre-colonial landscape 216–18
 privatization 221, 223–4, 226, 227, 228, 229
 regional influences 221–2
 river basin management approach 219
 science development 224
 sovereignty, overlapping 217–18, 219, 220,
 226, 229
 stakeholder involvement 226–7, 229–30
 Statutory Water Law 218
 and transnational network organizations
 226
 Urban Water and Sewerage Authority 225
 venue-shopping 223–4
 village water committees (VWCs) 218, 229,
 230
 water charges 218, 225, 227–8
 Water Companies Act 220–21
 water as economic good 225, 228
 water laws and policies transition 219–22
 water as public good 218
 water user associations (WUAs) 220–21,
 222, 228
 Water Utilization Act 220, 230
 and WaterAid 226, 227
 and World Bank and IMF 222–4, 225, 229
- Tanzi, A. 47
 Tearfund 244, 245
 Tecco, N. 45
 Techawongtham, W. 142
 Tellez, L. 81, 87, 90
 Tempelhoff, J. 198, 205
 Ten Dam, H. 356
 Teske, P. 184, 189
- Thailand, water management in Upper Ping
 River basin 137–57
 agricultural lobbying groups 146
 and aid agencies 141, 148
 and Asian Development Bank (ADB) loans
 146, 151
 background and history 137–8, 141, 149–50,
 151
 basin organization, integration and reforms
 146–7, 148, 149
 Bhumipol Dam 137, 146
 and Chao Phraya Delta 139, 140, 143
 Chiang Mai floods 143–4, 150–51, 152
 and community forestry 145
 community-based irrigation 141–2
 dams 137, 140–41, 142, 144, 146, 149, 151–2
 decentralization 152, 153
 deforestation 145, 149, 151, 152
 Department of Water Resources (DWR)
 146, 151, 153
 ‘drought’ narrative 150
 economic and political crises 152, 153
 environmental issues 138, 145, 149, 151
 farm-to-city transition 142–4, 147, 150, 152
 flooding 137, 142, 143–4, 149, 151–2
 ‘forests make water’ narrative 151
 and global climate change 152

- good-to-service transition 144–7, 148, 150, 152
 Hydrology and Water Management Center 144, 149
 institutional reforms 146–7, 149, 153
 integrated water resource management (IWRM) 144, 146, 148, 151
 ‘living with the river’ narrative 150–51
 local public consultation problems 141–2, 144, 153
 Mae Taeng Project 140–41, 142, 149
 Ministry of Environment and Natural Resources 146
 ‘modern life’ narrative 151
 national infrastructure development plans 139–41
 National Parks Department 146, 151
 National Water Resources Committee 146 and NGOs 147–8, 151
 People’s Irrigation Act 141
 pilot projects 138
 policy origins 147–50
 policy strategies 147–53, 154–5
 policy transitions 139–47
 private investment 152
 and professional consulting firms 148–9
 Royal Forest Department (RFD) 145, 149, 151
 Royal Irrigation Department (RID) 141, 142, 143, 144, 146, 149, 150
 science development 144, 145, 149, 151
 stakeholder involvement 139, 146–7, 152, 153
 water allocation issues 142–3
 water budget allocation gaming 142
 water consumption rise 143
 ‘water is a natural right’ narrative 151
 Water Law, lack of 146
 water pricing 143, 146, 151
 water shortages 143, 150
 watershed networks and alliances 146–7, 149–50, 151, 152, 153
 watershed zoning 144–5
 wet-to-dry transition and rural modernization 139–42, 144, 147–8, 149, 150, 152
 windows of opportunity 143–4, 151–2
 Thelen, K. 273
 Theunissen, N. 209
 Thodey, A. 143
 Thomas, D. 138, 145, 146, 152, 153
 Thomas, J. 129, 158–9, 172, 173, 225–6, 389
 Thomas, S. 292
 Thompson, L. 196, 224
 Thompson, M. 68
 Timár, G. 260
 Tittizer, T. 325
 Toens, P. 206
 Tompkins, E. 312
 Torfing, J. 313
 Torregrosa, M. 82
 transboundary issues 38, 39, 43, 47, 49, 50, 209, 240, 241, 277, 279, 332, 335
 Trosper, R. 310
 True, J. 24, 26, 28, 308
 Turkey, water management transitions 287–303
 and agricultural sector 294–5, 296–7, 298
 coalitions 291–4
 demand and supply problems 290
 economic crises 289, 290, 291, 296
 Energy Community 294
 Energy Market Regulatory Authority (EMRA) 291–2, 293
 environmental issues 292
 and EU 287, 292, 294
 foreign investment 294
 and global climate change 294
 hydroelectricity sector liberalization 287, 290, 291–4
 infrastructure development 293–4
 irrigation associations (IAs) 287, 295, 296, 297–9
 irrigation management devolution 294–300
 irrigation management devolution, accelerated transfer programme (IMT) 295–7
 irrigation management devolution, accelerated transfer programme (IMT), opposition to 297–300
 liberalized water policy, actors opposing 291–4
 Local Government Associations Law 297
 Municipality Law 297–8
 National Association of Industrialists and Businessmen (USIAD) 288, 291, 292, 293
 National Environment Action Plan 290
 and OECD 287, 292
 and pollution control 290
 privatization 287, 289–90, 291–4, 295–6
 protectionism and economic nationalism, call for 292
 regional disparities 296
 Renewable Energy Law 291, 292
 Southeastern Anatolia Project (GAP) 290, 296
 State Hydraulic Works (DSI) 290, 292, 293, 295, 296–8, 299
 Union of Chambers of Turkish Engineers

- and Architects (TMMOB) 287–8, 291, 293, 294, 299–300
- water funding and cost recovery system 296
- water resources management, history and background 290, 292
- World Bank funding 287, 292, 295, 296 and World Water Day 300
- Turkylmaz, O. 293
- Turner, B. 3
- Turner, J.L. 99, 100, 101, 103
- Turner, J.W. 200, 202
- Turrall, H. 120
- Turton, Anthony Richard 103, 113, 195–214
- Tutus, A. 291
- Ullery, S. 65
- United Nations (UN)
 - Aarhus Convention 44, 46
 - Agenda 21 39, 40, 43, 47, 48
 - Berlin Rules 43, 49
 - Biodiversity Convention 49
 - Code for Transnational Companies 51
 - Convention on Biological Diversity 48
 - Convention on the Law of the Sea 38–9
 - Dams Report 39
 - Development Programme Global Environment Facility (UNDP-GEF) 264
 - Development Programme (UNDP) 164
 - Dublin Principles 39, 42, 43, 44, 45, 47, 85
 - Economic Commission for Europe (ECE), Transboundary Watercourses and Lakes (1992) 39, 43, 47, 50
 - Environment and Development Conference 39, 40, 45
 - Environment Programme (UNEP) 40, 87
 - Framework Convention on Climate Change 48–9
 - General Comment on the Right to Water (2002) 39, 43, 47
 - Global International Waters Assessment (GIWA) 40
 - global water governance 37, 38–40
 - Global Water Partnership 39, 44
 - Human Environment Conference 39, 40
 - Human Rights Council 39, 43, 44, 47
 - International Conference on Water and the Environment 39
 - International Drinking Water Supply and Sanitation decade (1980s) 39, 40
 - International Law Commission (ILC) 38, 39, 41
 - International Water Resources Association 39
 - Johannesburg Plan of Implementation 240
- Law on the Non-Navigational Uses of International Watercourses 39
- Mar del Plata Conference on Water (1977) 39, 40
- Millennium Development Goals (MDGs) 39, 40, 48, 240
- Rights of Indigenous Peoples, Draft Declaration 48
- Rio Declaration 43, 44, 49, 85
- Stockholm Declaration on the Human Environment (1972) 39, 49
- transboundary water issues 38, 39, 43, 47, 49, 50
- UNESCO International Hydrological Programme 40
- Water Conference 39
- Water Decade (2005–15) 39, 40
- Watercourses Convention 38, 43, 44, 47
- World Summit on Sustainable Development 45, 51
- World Water Assessment Report 40
- World Water Council 39
- World Water Development Report (2003) 45
- United States (US), multiple ways of knowing water resources 61–78
 - Arizona aqueduct 66
 - California Bay-Delta estuary system (CalFed) 71–3
 - California water policy and punctuated equilibrium theory 28, 308–9
 - Citizens for Colorado's Water 74
 - Clean Water Act 65, 67
 - dams 63, 65, 66
 - drinking water access 69
 - Endangered Species Act 68, 69, 71, 72
 - environmental concerns 65–6, 68, 69, 71–5
 - Environmental Protection Agency 65, 71, 75
 - Environmental Water Account 73
 - Everglades, Florida 314
 - fairness and equity, emergence of 66–7, 68–9, 72–3, 74–5
 - flooding, subsidence and levies 73
 - Gibbons v. Ogden* 64
 - and global climate change 68, 69, 73
 - groundwater extraction 74, 76
 - indigenous peoples and water project policies 66, 69
 - Inter-American Development Bank 82
 - municipal water supply agencies 69
 - National Oceanic and Atmospheric Administration (NOAA) 71, 75
 - National Regional Planning Boards 64–5
 - Nature Conservancy and San Luis valley 73–4

- networks 71–3, 74–5, 314
 Northern Highlands Lake District,
 Wisconsin 307
 Owens Valley and Los Angeles 66–7
 post-colonial experience 63–4
 public access to decision-making 65, 72,
 74
 Reclamation Act (1902) 64
 Regional Integrated Science and
 Assessments (RISA) teams 71, 75
 Rio Grande Water Conservation District
 74
 river basin schemes 65, 71–3
 rural populations and water project policies
 66
 San Luis valley 72, 73–5
 Sand Dunes National Park 74
 science development 63–4, 73, 75
 Soil Conservation Service (SCS) 65
 stakeholder involvement 75, 307
 tradable pollution permits 67
 transition profiles 70–75
 upland watershed management 65
 USAID 124
 venue change theory and policy change 63,
 71, 73
 water as economic commodity 67, 68, 69–70,
 72, 73, 74–5
 water lawyers 69
 water lobbies 74
 water policy tools 70–71
 water as product 68, 69–70, 71–2, 75
 water resources, historical experience
 63–7
 water subsidies 66, 69
 Utzinger, J. 103, 110
 Uyl, D. 28

 Vakkilainen, P. 103
 Valdes-Ugalde, F. 86
 Vámosi, S. 251
 Van Ast, J. 239, 351
 Van der Brugge, R. 31, 310, 339, 351, 360
 van der Walt, I. 206
 Van der Windt, N. 360, 361, 362, 363, 364, 365,
 366
 van der Zaag, P. 40, 50
 van Eeden, E. 200
 Van Jaarsveld, F. 196
 Van Slobbe, E. 351
 van Tatenhove, J. 45
 van Twist, M. 232
 van Verseveld, W. 3
 Vandergeest, P. 145, 149
 Varady, R. 84, 85

 Vári, A. 251, 261, 265
 Varis, O. 103
 Vellinga, P. 3
 venue change theory 29, 30, 32–3, 384; *see also*
 individual countries
 Vera, R. 89
 Veres, J. 262
 Vermillion, D. 163
 Victor, D. 307
 Voß, J.-P. 308

 Wade, P. 206
 Wagenaar, H. 45, 313
 Walk, H. 237, 243
 Walker, A. 138, 145, 149, 150, 151
 Walker, B. 306
 Walker, P. 198, 202, 209
 Walton, J. 64
 Walwyn, D. 207
 Wang, Q. 103
 Wang, Y. 104, 113
 water banks 69, 278, 279
 water governance transitions 4–5, 8–9, 25,
 26–36, 372; *see also* individual countries
 water pricing 143, 146, 151, 170–71, 238,
 239–41, 242–4, 245, 246–7
 water scarcity problems 103, 239; *see also*
 drought
 WaterAid 226, 227, 244, 245
 Waterbury, J. 103
 ways of knowing, *see under* United States
 Weaver, A. 209
 Webber, M. 3
 Weber, E. 63
 Weible, C. 24, 27, 29, 31
 Welsh, F. 196, 200
 Werdmüller, V. 196
 Werners, Saskia E. 250–71
 Wescoat, J. 65
 Westerheijden, D. 352, 355, 357
 Westley, F. 306, 308, 309, 389
 White, I. 315
 Whiteford, S. 82, 83, 87
 Wieland, M. 326
 Wildawsky, A. 389
 Wilder, Margaret 79–96
 Williams, D. 196, 199
 Williams, G. 231
 Williams, R. 200, 202
 Winde, F. 206
 Windfur, M. 48
 windows of opportunity 27–8, 32, 381–4; *see*
 also individual countries
 Winnege, R. 328
 Wolff, G. 3

- Wondolleck, J. 318
 Woolgar, S. 62
 World Bank 39, 47, 69, 82, 85, 141, 163, 165–9,
 222–5, 229, 289, 292, 295–6
 Water Resources Management Policy
 123–4
 World Commission on Dams (WCD) 42
 World Commission on Environment and
 Development (WCED) 48
 World Trade Organization, GATT 86, 292
 World Water Assessment Programme 40, 42
 World Water Council 42, 44, 45
 World Water Day 300
 World Wide Fund for Nature (WWF) 243, 279,
 280, 281, 282, 330, 334
 Living Rivers plan 257, 361–2
 Wu, J. 110, 111
 Wynne, B. 62–3
 Wytinck, S. 142
- Xu, X. 116
 Yaffee, S. 318
 Yan, H. 101
 Yang, G. 102, 111
 Yates, P. 85
 Yeldan, E. 288, 289
 Yildiz, D. 295
 Yin, H. 99, 103
 You, J. 116
 Young, O. 3, 4, 306
 Yu Xiubo 99–119
 Yudelman, M. 217
- Zhang Chen 99–119
 Zhang, M. 102
 Zhao, S. 103, 104, 106
 Zhong, L.-J. 113
 Zöckler, C. 257

