
Index

Titles of publications are shown in *italics*.

- Aaron, H. 175
abrupt climate change 95
accounting 336, 337
 Experimental Ecosystem Accounts (SEEA)
 320–21, 329
 experimental land accounts, Australia
 329–31
 wealth accounting 25–38
 see also environmental accounting
Acemoglu, D. 257, 273
Acid Rain Program, US 455
adaptation to climate change 463–73
adaptive cycle 93–4
adaptive expectations and increasing returns
 306
adaptive management 49–50, 98–100, 108–19,
 169
 and human excellence 119–21
Adger, W.N. 96, 193, 465
Adriaanse, A. 63
ageing population 300
Agenda 21 280, 436, 437, 551, 552, 553
Aghion, P. 257
agriculture 517–29
 and biodiversity conservation 523–4
 GM crops 525–7
 organic versus non-organic 521–3
 traditional versus modern 519–21
 water usage 506, 509–10, 511–13
Agyeman, J. 189, 190, 193, 194–5, 200
aid 451
Allen, M.R. 468, 533
Alston, D. 189
Altieri, M.A. 519
Anand, S. 224
anthropocentricity and environmental ethics
 105–6
Antweiler, W. 406
Appadurai, A. 560
Aristotelian virtue ethic 119
Aronsson, T. 177–8
Arrow, K. 25, 39, 96, 131, 144, 259, 368, 405
Arthur, W.B. 305–6
Asheim, G.B. 127, 134, 136, 144, 337, 338, 404,
 407
asset accounts 322–4
Atkinson, G. 25, 27, 45, 85, 337, 342, 408, 409
Atrostic, B.K. 180
Australia
 experimental land accounts 329–31
 social discount rates 150
axiology and welfarism 161–2
Aylward, B. 457
Azar, C. 152
Babiker, M.H. 247
Baker, M.B. 468
Baldwin, R.E. 271, 402
Banzhaf, S. 74, 75
Barrett, S. 424
Barro, R.J. 35
Basic Needs movement 222
Basu, K. 126, 127
Baudrillard, J. 288
Baumgärtner, S. 42
Beckerman, W. 43, 254
Benarroch, M. 407
benign problems 115
Bennett, J. 176
Bentham, Jeremy 218
Bergman, L. 182
Bernanke, B.S. 241
Berrens, R.P. 167, 172
Berry, J. 554
Bethel New Life, Inc. 200
Betsill, M. 561
Biggs, D. 99
biocapacity 371–2
 and Ecological Footprint 380
 impact of Fukushima nuclear accident 385
 measurement 380–82
biodiversity conservation and agriculture
 523–4
Bishop, R.C. 164, 165, 167
Bithas, K. 167
Black, J. 422
Bloch, F. 421
blue water 502, 507–9
Boardman, A.E. 150
Bockstael, N.E. 75
Bogmans, C. 403
Bohle, H.G. 214

- Böhringer, C. 181, 182
 Bollen, J. 490
 Bongaarts, J. 298
 Botswana, asset accounts 323–4
 Boulding, K.E. 41, 253
 Bowen, A. 241, 245
 Bowen, H. 565
 Boyce, J.K. 176, 196
 Boyd, J. 74, 75
 Brand, F. 64, 65
 Brännlund, R. 182
 Brenkert, A. 465
 Brenton, T. 436
 Brock, W. 257
 Brooks, N. 465
 Broome, J. 144
 Brown, D.J. 175
 Brulle, R. 193
 Brundtland process and local action 553
 Brundtland Report 1, 221–2, 238, 253, 436, 532, 551
 definition of sustainable development 2, 192
 Buchholz, W. 144
 Buhrs, T. 193
 Bulkeley, H. 561
 Bulte, E.H. 172, 386
 business, governance of 566–8
 business-as-usual and welfarism 160–63
 precautionary constraints 164–6, 168–9
- Cai, D. 410
 Callicott, J. Baird 109–10
 cap and trade schemes 455–6
 capital 55
 capital approach 2–3
 capital stock 254
 critical natural capital 63–8
 ecological capital 72
 intangible capital 31, 35–6
 natural capital 30–33, 72
 total capital estimates 31–5
- carbon and Ecological Footprints 384
 carbon emissions, *see* emissions
 carbon offsets 454–5
 carbon taxes 327–8
 Carbone, J.C. 182
 Carlsson, B. 305
 Carraro, C. 420, 422, 423, 424, 424–5, 426
 Carroll, A.B. 565, 566
 carrying capacity of the Earth 294
 Carson, Rachel 252–3
 catastrophic risk and social discounting 151–2
 Catton, W. 194
 CDM (Clean Development Mechanism) 455
 Cesar, H. 426
 Chambers, Robert 218
Changing Wealth of Nations, The (World Bank) 25
 Chatterjee, K. 421
 Chavis, Benjamin 189
 Chen, Y. 168
 Chesapeake Bay 113–14, 116, 120–21
 Chichilnisky, G. 133, 136, 149, 403
 China
 energy policy 540–42
 one-child policy 295
 social discount rates 150
 Chomitz, K. 457
 Christen, O. 518
 Ciriacy-Wantrup, S. von 164
 cities, sustainable 551–62
 Clarke, M. 360
 Clean Development Mechanism (CDM) 455
 Clemens, M. 25, 337, 338, 399
 climate change 94–5
 business response 568–73
 and Ecological Footprint 374–5
 local government action 552
 and market failure 240–42
 climate change adaptation 463–73
 New York 468–73
 Climate Change Adaptation Task Force, New York City 471
 climate change mitigation research 476–94
 IAMs 483–92
 climate policy and social discounting 151
 Clinton, President, Executive Order 12898 190–91
 co-benefits, climate change mitigation 481–2
 coalitions
 expansion 423–6
 formation 420–23
 non-cooperative coalition theory 420–21
 Coase theorem 447–50
 Cobb, J. 46, 61, 350, 357, 367, 413
 Cocoyoc Declaration 435
 Cohen, J. 294
 Cole, L. 195
 Cole, M.A. 257, 261, 406, 407
 Collier, P. 451
 Commission on Sustainable Development (CSD) 438, 441, 444
 commitment and environmental cooperation 424
 Common, M.S. 257, 258
 common pool resources 50
 communities, resilience 96
 comparative advantage and environmental concerns 400–401
 comprehensive wealth accounting 25–38

- conservation constraints and welfarism 164
 consumer behaviour and sustainable
 consumption 283–6
 consumer durables and GPI calculation 351–3
 consumption, sustainable 279–88
 Convention on Biodiversity (CBD) 436
 Conway, G.R. 519
 cooperation, international 418–28
 coordination effects and increasing returns 306
 Copeland, B.R. 402, 406, 413
 Corden, M. 270
 Corey-Luse, C.M. 172
 corporate governance 566–8
 Corporate Social Responsibility (CSR) 564–74
 definitions 565–6
 cost–benefit analysis 140
 climate change mitigation 484–5
 limitations 151–2
 social discounting 141–50
 Costanza, R. 48, 49
 Cox, J. 557
 Coyle, M. 189
 Crafts, N. 243
 crayfish fishery, adaptive management 98
 crises, environmental, and resilience 99
 critical natural capital 63–8
 CRITINC framework 66–8
 CSD (Commission on Sustainable
 Development) 438, 441, 444
 Csikszentmihalyi, M. 219
 CSR, *see* Corporate Social Responsibility
 Cutter, S. 190, 214

 Dahlsrud, A. 565–6
 Daily, G.C. 72
 Daly, H. 41, 46, 59, 61, 239, 350, 357, 367, 399,
 411, 413
 Dasgupta, P. 27, 72, 145, 177, 185, 294, 337,
 338, 340, 342, 344
 David, P. 305, 306
 De Groot, R. 56, 64, 167
 de Soysa, I. 342
 De Zeeuw, A. 426
Death of Environmentalism (Shellenberger and
 Nordhaus) 195
 debt-for-nature swaps 451–2
 decomposition of emissions 261–3
 decoupling of economic and resource
 consumption 283–4
 defensive expenditures and GPI calculation 355
 Denmark, social discount rate 150
 deontological approaches to cost–benefit
 analyses 154
 depletion adjusted Net Saving 336
 deprivation and vulnerability 212–14

 descriptive approach to social discounting
 142–3
 descriptive norms 285–6
 developing economies and energy policies
 536–40
 development aid 451
 Dewees, D.N. 180
 Dewey, John 110
 Diamond, J. 298
 Diamond, P. 126, 127
 Diamond–Basu–Mitra Impossibility Result
 127
 Dietz, S. 61, 136, 142, 151
 dignity line 192–3
 Dijkgraaf, E. 257, 258
 Dinda, S. 406
 disaster recovery and adaptive management
 99
 discount rates, *see* social discounting
 Dismal Theorem (Weitzman) 152
 distributional analysis 175–85
 intergenerational equity 177–8
 intragenerational equity 178–82
 Dixit, A. 343
 Dobson, A. 81, 559
 Dollar, D. 451
 double dividend in sustainable consumption
 287–8
 Drèze, J. 141
 Drucker, A.G. 172
 Dubourg, R. 506
 Dugmore, A.J. 98
 Duncan, R.O. 269
 Dunlap, R. 194
 Dutch disease 270

 Earth Summit, *see* United Nations Conference
 on Environment and Development
 Eckaus, R.S. 247
 ecoagriculture 524
 ecological capital 72
 ecological collapse 81–5
 ecological economics 41–51
Ecological Footprint Atlas 375
 Ecological Footprint 46, 371–88
 cities 558–9
 measurement 372–5, 380–83
 and sustainable development 376–9
 ecological resilience 92–5
 ecological thresholds 338–9
 economic consumption and resource
 consumption 283
*Economic Description of the North Sea for the
 Netherlands, The* (Statistics Netherlands)
 329

- economic growth
 - and the environment 252–64
 - green growth 237–48
 - long term 242–4
 - role of population and resources 292–4
- economic modeling with environmental accounts 326–7
- economic policy
 - green growth 237–48
 - and resource curse 271–6
- economic welfare, *see* welfare
- Economics of Climate Change: The Stern Review* 6, 140, 143, 239, 532, 571
- ‘Economics of the coming spaceship earth, The’ (Boulding) 253
- ecosystem accounts 328–31, 333–4
- ecosystem functions 73
- Ecosystem Health Index (EHI) 356–7
- ecosystem services 73–4
- ecosystems 72–86
 - collapse 81–5
 - competing uses, valuation 77–80
 - valuation 74–7
- Ederington, J. 407
- EEIO (environmentally extended input–output) accounting 67
- EfAI (Enterprise for the Americas Initiative) 451
- efficiency and equity separation 175
 - and social discounting 141
- EHI (Environmental Health Index) 356–7
- Ehrlich, P. 296, 304
- Ehrlich–Holdren IPAT identity 297–8, 304
- EIPRO project 67
- EJP (Environmental Justice Paradigm) 194
- Ekins, P. 55, 56, 66, 167, 258–9
- El Serafy, S. 356, 363
- electricity markets, OECD countries 542–3
- electricity system, UK
 - low carbon transition pathway 312–13
 - techno-institutional complex 308
- Ellerman, A.D. 544
- Elliott, R.J.R. 406
- Elvin, M. 296
- emissions
 - and carbon taxes 327–8, 540
 - decomposition 261–3
 - permits, impact on firms 180–81
 - reduction policies 539–40, 543–5
- Emissions Trading Scheme (ETS), EU 456, 544–5
- employment and green growth policies 245–7
- energy consumption
 - economic growth and environmental damage 259–60
 - and IAM analyses 491–2
 - worldwide 534–6
- energy efficiency policies
 - China 541
 - OECD countries 546
- energy policies 532–46
 - aims 532–3
 - China 540–42
 - developing economies 536–40
 - Netherlands, transition management 310–11
 - OECD countries 542–6
- energy security and IAMs 490–91
- Engels, F. 517
- Engerman, S.L. 271
- Enkvist, P.-A. 242
- Enterprise for the Americas Initiative (EfAI) 451
- entitlements and vulnerability 210–11
- environment and economic growth 252–64
- environmental accounting 319–34
 - asset accounts 322–4
 - environmentally related transactions 327–31
 - flow accounts 324–7
 - macroeconomic indicators 331–3
- environmental bonds 49
- environmental change and vulnerability 208
- environmental costs and GPI calculation 356–7
- environmental ethics 105–7
 - and adaptive management 108–21
- environmental externalities 42–3
- environmental functions 56–8
- Environmental Health Index (EHI) 356–7
- environmental impact and IPAT identity 297
- environmental justice 188–201
- Environmental Justice Paradigm (EJP) 194
- Environmental Justice Populations (Massachusetts) 191
- environmental Kuznets curve (EKC) 255–60, 300
 - criticisms of 258–9
- environmental offsets 454–5
- environmental policies
 - benefits and costs 183
 - and employment and skills 246–7
 - firm-level impacts 180–81
 - household level impacts 178–80
 - market impacts 181–2
- environmental pragmatism 106–7
- environmental racism 189
- environmental and resource economics (ERE) 42
- environmental services 297
- environmental sustainability 56–63
 - measuring 61–3
 - principles and standards 63–5

- environmental virtue ethics 107, 111
 environmentally extended input–output (EEIO) accounting 67
 environmentally related transactions 327–31
 Enzensberger, H. 193
 equity
 and efficiency separation 141, 175
 environmental justice 188–201
 and environmental quality 196
 equity deficit of environmental sustainability 194
 intergenerational, *see* intergenerational equity
 intragenerational, *see* intragenerational equity
 equivalence factors and Ecological Footprint 382–3
 ESA (US Endangered Species Act) 167
 ESRC
 Research Group on Wellbeing in Developed Countries 218
 Sustainable Technologies Programme (STP) 311
 essential harvest 166
 ethics
 and sustainable development 105–22
 and welfare impacts of public decisions 161–3
 ETS (Emissions Trading Scheme), EU 456, 544–5
 eudaemonic approach to wellbeing 219
 European Union
 Emissions Trading Scheme 456, 544–5
 renewable energy incentives 546
 Evans, B. 189, 200
 Executive Order 12898 on environmental justice (Clinton) 190–91
 exhaustible resources 296
 EXIOPOL project 67
 Experimental Ecosystem Accounts (SEEA) 320–21, 329
 experimental land accounts, Australia 329–31

 factor endowments hypothesis (FEH) 406
 factor price equalization 402
 Falkner, R. 441
 Fankhauser, S. 240, 241
 Farmer, M.C. 165, 167
 feed-in tariffs 539–40, 546
 Feldstein, M. 181
 Ferreira, S. 35, 343
 Fiala, N. 386
 finance, green 457–8
 financial flows 447–8
 financing for sustainable development 446–58
 private 454–8
 public 450–54
 Finite Anonymity (FA) axiom 126–8
 firm level impact of environmental policy 180–81
 fiscal incentives for sustainable development 446; *see also* taxation
 Fischer-Kowalski, M. 381
 Fisher, I. 26, 28, 38, 368
 fisheries
 ecosystem valuation 75–6
 management and SMS 167
 fishing communities, resource dependency 96–7
 Flaaten, O. 410
 Fleurbaey, M. 127, 482
 Floering, I. 271
 flow accounts 324–7
 Folke, C. 98
 Folmer, H. 426
 food supply chains and sustainable water use 510–11
 foreign aid 451
 foreign debt and GPI calculation 355
 fossil fuels 533
 subsidies 536
 Foster, J. 60
 Foster, S. 195
 Founex Report 434
 four box model 47–8
 4-capitals model 55
 Foxon, T.J. 243
 Frame, D.J. 468
 Frankel, J.A. 406
 Freeman, C. 243, 305
 Frey, B.S. 219
 Friedman, M. 565
 Friends of the Earth ‘Measuring Progress’ ISEW calculator 62
 fugitive water 502
 Fukushima nuclear accident 385
 Fullerton, D. 176, 185
 Funtowicz, S. 112
 future reward preferences and declining discount rates 148–9
Future We Want, The (United Nations) 554–5, 555–7

 G77 (Group of 77) 433
 Gabriel, Y. 285
 Gallagher, K.P. 406
 Galor, O. 493
 Gandhi, Indira 434
 Gardiner, S. 117
 GDP and economic welfare 349–50, 359–60

- Geels, F. 309, 310
 GEF (Global Environment Facility) 450, 452–3
 Gelb, A.H. 268, 275
 Gelobter, M. 195
 genetically modified crops 525–7
 Genuine Progress Indicator (GPI) 62, 350–57
 calculation 350–57
 criticisms of 360–67
 genuine savings 336–46, 363
 definition 337–8
 genuine savings indicator (World Bank) 62
 GHG, *see* greenhouse gas emissions
 Gierlinger, J. 147, 148
 Gilbert, R. 551
 Gilmont, M. 507
 Glaeser, E.L. 273
 Gleick, P.H. 504, 506
 Global Environment Facility (GEF) 450, 452–3
 Global Footprint Network 372, 375, 379, 382, 385, 387
 globalization
 and local sustainability 560
 and vulnerability 208–10
 GM crops and agricultural sustainability 525–7
 Gollier, C. 146–7, 148
 Gomes, A. 422
 Gordon, R.J. 145
 Gould, K. 195
 governance
 of business 566–8
 and wellbeing 224, 230
 GPI, *see* Genuine Progress Indicator
 Graham, E. 271
 Grazi, F. 386
 Great Barrier Reef 330
 green accounting 185
 Green Book (HM Treasury) 150
 Green Climate Fund 453–4
 Green Economy Initiative (UNEP) 237, 440
 green finance 457–8
 green fiscal stimulus 244–5
 green growth 237–48
 definitions 238
 Green Growth Knowledge Platform (World Bank) 237
 green jobs 245–6
 green paradox 274
 green water 502
 Greenhalgh, S. 295
 greenhouse gas emissions 240
 decomposition 261–3
 reduction pathways 476–94
 supermarket strategies 568–72
 Groom, B. 146
 Grossman, G.M. 255, 402, 406
 growth, *see* economic growth
 Guha, R. 194
Guidelines for Preparing Economic Analyses (US EPA) 150
 Guiso, L. 473
 Guivarch, C. 241
 Guy, S. 560
 Haberl, H. 381
 Halicioglu, F. 260
 Hamilton, C. 261
 Hamilton, K. 25, 28, 35, 36, 39, 337, 338, 339, 340, 342, 343, 399, 408, 409
 Hammond equity (HE) axiom 129
 Hammond equity for the future (HEF) axiom 134–5
 Hanley, N. 260
 happiness approach to wellbeing 219
Happiness: Lessons from a New Science (Layard) 218
 Harbaugh, B. 257, 258–9
 Hardin, G. 50
 Harrod, R.F. 144
 Hartwick, J.M. 28, 36, 38–9, 339, 342, 343, 346, 404, 405
 Hartwick rule 59, 338, 342–4, 404–5
 Harvey, C.M. 145
 Hausmann, R. 244
 HDI (Human Development Index) 377
 Heal, G. 144, 145, 175, 177, 185, 342
 Hecht, J.E. 409–10
 Heckscher–Ohlin model 401–3
 Heckscher–Ohlin Theorem 402
 Hediger, W. 529
 Helfand, G. 185
 Helm, D. 545
 Hempel, L.C. 193
 Hepburn, C. 146, 151
 Heras, H.E. 87, 90
 Hewitt, Patricia 282
 Hicks, J. 368
 hierarchy of needs (Maslow) 222
 hierarchy theory 115–16
 Hobbs, H. 561
 Hochman, E. 180
 Hoel, M. 148
 Holdren, J. 297, 304
 Holling, C.S. 41, 92, 122, 298
 Holling sustainability 44
 Horan, R.D. 168
 Horton, Tom 113
 Hotelling Rule 405
 Hourcade, J.-C. 175
 household level impact of environmental policy 178–80

- Howard, Michael 239
 Howitt, P. 257
 Hubin, D.C. 162
 Huetting, R. 56
 Hughes, T. 304–5
 Hulme, M. 95
 human carrying capacity of the Earth 294
 Human Development Index (UNDP) 377
 Human Health and Welfare functions 67
 human-induced climate change as market failure 240–42
 human-made capital as substitute for natural capital 361–2, 365
 human right to water 502–3
 human well-being, *see* well-being
 Hume, David 109, 112
 Hume's law 109
 Hurricane Katrina 465–6
 hydro-energy, developing countries 538
 hyperbolic discount functions 148–9
- IAMs (integrated assessment models) and climate change mitigation 483–92
 IEAW (Index of Economic Aspects of Welfare) 350
 immediate productivity condition 127
Inclusive Green Growth: The Pathway to Sustainable Development (World Bank) 237
Inclusive Wealth Report (UNU-IHDP and UNEP) 25
 income and welfare 26
 Index of Economic Aspects of Welfare (IEAW) 350
 Index of Sustainable Economic Welfare (ISEW) 61–2, 350, 357–8; *see also* Genuine Progress Indicator
 India, wellbeing and sustainability 225–9
 indicators of environmental sustainability 61–3
 indicators for sustainable development 47–8
 infrastructural services and GPI calculation 354
 injunctive norms 286
 innovation, technological 241, 304–14
 sustainable innovation policy 311–12
 innovation systems 305
 institutional and technological systems, co-evolution 307–9
 institutional lock-in 306–7
 institutions
 mediating population impact on environment 298–9
 resilience 96
 intangible capital 31, 35–6
 integrated assessment models (IAMs) and climate change mitigation 483–92
 intergenerational equity 125–38, 175, 177–8 and declining discount rates 149–50
 Intergovernmental Panel on Climate Change (IPCC) 463, 465, 466
 international environmental cooperation 418–28
 international politics of sustainable development 432–42
 International Telecommunication Union 435
 international trade, *see* trade
 intragenerational equity 178–82
Introducing Just Sustainabilities: Policy, Planning and Practice (Agyeman) 201
 Inuvialuit people, resource management 98
 IPAT identity 297–8, 304
 IPCC (Intergovernmental Panel on Climate Change) 463, 465, 466
 ISEW (Index of Sustainable Economic Welfare) 61–2, 350, 357–8; *see also* Genuine Progress Indicator
 Israel, water decoupling 508–9
- Jackson, T. 239
 Jacobs, M. 196
 Jalil, A. 259
 Jamali, D. 565
 James, C. 525
 Jamieson, D. 123
 Jevons Paradox 506
 Johannesburg Conference, *see* World Summit on Sustainable Development (WSSD)
 Johansson, P.O. 178
 John, A. 257
 Johnstone, N. 176
 JSP (Just Sustainability Paradigm) 194–200
 just sustainability 193–200
- Kahneman, Daniel 218
 Kamien, M.I. 90
 Kaspersen, J.X. 298
 Kates, R.W. 465–6
 Kaufmann, R.K. 259
 Kellenberg, D.K. 407, 410
 Kemp, R. 309, 310
 Kennedy, G. 218
 Keynes, J.M. 293
 Kijjima, M. 406
 Kimball, M.S. 147
 Kitzes, J. 46
 Klepper, G. 408
 Knickel, K. 529
 knowledge incentives and green growth 242–3
 Koopmans, T.C. 144

- Kopp, R.J. 152, 153
 Kothari, S. 194
 Krasner, Steven 444
 Kriström, B. 177, 178, 182, 185
 Krueger, A.B. 255, 402, 406
 Krueger, A.O. 275
 Krugman, P.R. 270
 Kumar, P. 60
 Kuznets, Simon 349
 Kyoto Protocol 455
 Kysar, D.A. 162
- LA21 (Local Agenda 21) 553
 labour market, impact of green growth 246–7
 Lal, D. 273, 275
 land accounts, Australia 329–31
 land resources, international comparisons 33
 landscapes 310
 valuation 65
 Lang, T. 285
 Lange, A. 181
 Larrain, S. 192
 Lauwers, L. 127
 Lauwers–Zame Impossibility Result 127
 Lavelle, M. 189
 Law of the Sea, Third UN Conference on the 435
 Lawn, P. 356–7, 360, 362
 Layard, Richard 218, 219
 LCS (Low-Carbon Society) pathways 494
 Leamer, E.E. 402
 learning effects and increasing returns 306
 Lecomber, R. 253
 Lee, H. 409
 Lee, J.W. 35
 Leonard, G.K. 183
 Leopold, Aldo 108, 116, 120–21, 122
 Lerch, A. 167
 Levin, S. 96
 Levitt, T. 565
 leximin SWR 129
 Li, C.Z. 149
 life-expectancy and GPI 366
 life-style changes and climate change mitigation 493–4
 Life-Support functions, sustainability standards 67
 limits to growth 252–3
Limits to Growth, The (Meadows et al.) 253, 293
 Lin, C.-Y.C. 506
 Lind, R.C. 141–2
 Lindgren, K. 152
 Littlechild, S.C. 543
 livelihoods and well-being 210–12
- Living Planet Reports* (Worldwide Fund for Nature) 375
 Local Agenda 21 (LA21) 553
 local sustainability 551–62
 limits 558–62
 Löfgren, K.-G. 149, 177–8
 London
 ecological footprint 559
 sustainability policies 557
 Löschel, A. 182
 Low, N. 557
 Low-Carbon Society (LCS) pathways 494
 Lozano, R. 565
 Lucas, R.E. 473
 Luderer, G. 485
 Luers, A.L. 214
- M-SGAP 68
 Macbean, A.I. 270
 macroeconomic indicators of sustainable development 331–3
 Mahmud, S.F. 259
 Mäler, K.-G. 177, 337, 338, 340
 Malone, E. 465
 Malthus, T.R. 517
 Managi, S. 406
 Marchiori, C. 426
 Margolis, M. 165
 marine ecosystem valuation 77
 Markandya, A. 181
 market efficiency and government activities 161
 market failures and green growth 240–42
 markets, impact of environmental policy 181–2
 Marshall, N. 97
 Martinez-Alier, J. 194, 408, 411
 Marvin, S. 560
 Maslow's hierarchy of needs 222
 Massachusetts, environmental justice policy 191–2
 Max-Neef, M. 358
 maximin 129
 May, R.M. 172
 McCollum, D. 490
 McFadden, D. 183
 McGregor, J.A. 220
 McGuire, M.C. 175
 McNeely, J.A. 524
 Meadows, D.H. 253, 293
 Meadows, D.L. 253, 293
 Measure of Economic Welfare (MEW) 350, 357
 measurement
 of environmental sustainability 61–3
 of sustainable development 47–8

- of sustainable economic welfare 348–67
- of well-being 26
- media influence on corporate behaviour 572
- Melenberg, B. 260
- Mendelsohn, R. 74
- MEW (Measure of Economic Welfare) 350, 357
- Meyerson, F. 298
- Michel, P. 127
- Middleton, N. 193
- migration and vulnerability 209
- Mill, J.S. 292
- Millennium Development Goals 210, 444
- Millennium Ecosystem Assessment 297, 329
- Miller, D. 285
- Millner, A. 147, 493
- minimum participation rule 422–3
- mining and the resource curse 270–71
- Mitra, A. 554
- Mitra, T. 126, 127
- Moffatt, I. 381
- Moldovanu, B. 421
- monetary accounts 331
- monetary SGAP 68
- monetary valuation of environmental functions 63–4
- Montero, J.P. 544
- Moore's law 314
- Morello-Frosch, R. 196
- Moretti, E. 473
- Morris, William 280
- MRIO (Multi-Regional Input–Output) models 387–8, 408–9
- Multi-Regional Input–Output (MRIO) models 387–8, 408–9
- Muradian, R. 411

- Naevdal, E. 165
- Najam, A. 432
- Namibia, asset accounts 323–4
- National Footprint Accounts 375, 388
 - data sources 394–6
- natural capital 30–31, 72, 322–4
 - international comparisons 31–3
- natural resources, *see* resources
- naturalism 109–12
- Neal, S. 190
- Neary, J.P. 269, 270
- needs 222–3
- Nelson, R. 305
- net national product (NNP) 480, 482–3
- Net Primary Productivity (NPP) 381
- Netherlands, transition management in energy policy 310–11
- network effects and increasing returns 306

- Neumayer, E. 58, 61, 154, 342, 366, 507
- New Environmental Paradigm (NEP) 194
- New International Economic Order (NIEO) 435
 - new localism 560
- New York City, risk management 468–72
- Newbery, D.M. 533, 543
- Newell, R. 146
- niches, innovations 309, 310
- NIEO (New International Economic Order) 435
 - NNP (net national product) 480, 482–3
 - no dictatorship of the present (NDP) axiom 133
 - non-cooperative coalition theory 420–21
 - non-marginal cost–benefit analysis and social discounting 151
- Nordhaus, T. 195
- Nordhaus, W. 148, 349–50, 357, 366, 367
- North, D. 273, 307
- NPP (Net Primary Productivity) 381
- nuclear energy
 - China 541
 - and Ecological Footprints 385
- Nunns, J.R. 180
- Nussbaum, M. 218
- Nutzinger, H.G. 167

- O'Keefe, P. 193
- O'Neill, B.C. 298
- OECD, definition of green growth 238
- OECD countries, energy policy 542–6
- offsets, environmental 454–5
- oil reserves 533
- Okumura, R. 410
- Oleson, K.L.L. 408
- Olmstead, S. 74
- Olsson, P. 98
- one-child policy, China 295
- opportunity cost method of estimating natural capital 30
- organic versus non-organic agriculture 521–3
- Ostrom, E. 50
- Our Common Future* (Brundtland Report) 1, 221–2, 238, 253, 436, 532, 551
 - definition of sustainable development 2, 192

- Page, T. 152, 153–4
- Parajuli, P. 194
- Parfit, D. 144
- partial translation scale invariance (PTSI) axiom 128
- payments for ecosystem services (PES) 456
- Pearce, D. 25, 26, 27, 45, 149, 151, 177, 337, 338, 440

- Pearsall, H. 200
- Pearson, L. 65
- Pearson, P.J.G. 243
- Pecchenino, R. 257
- PEDA (Population–Environment–Development–Agriculture) model 294
- Pedersen, O. 67
- Peirce, C.S. 110
- Perez, C. 243
- Perman, R. 258
- Perotti, R. 176
- Perpetual Inventory Method (PIM) 29–30
- Perrings, C. 44
- Perry, M. 421
- Persson, U.M. 148
- PES (payments for ecosystem services) 456
- pessimism and declining discount rates 145–6
- Pezzey, J. 25, 43, 339
- Pfeiffer, L. 506
- physical I–O tables (PIOT) 67
- Pickett, K. 196
- Pierce, J. 200
- Pierson, P. 307, 308
- Pigou, A.C. 57, 128, 144
- Pillariseti, J. 66
- Pimentel, D. 294, 523
- Pindyck, R. 482, 484
- Pizer, W. 146, 545
- Polasky, S. 74, 76–7
- Polese, M. 193
- policies
 - and Ecological Footprints 376
 - implication of comprehensive wealth accounting 37
 - and resource curse 273–5
 - sustainability policy 48–50
 - sustainable consumption 286–7
 - see also* energy efficiency policies; energy policies; environmental policies
- political freedom and GPI 366–7
- political institutions and technological lock-in 307
- pollution
 - evaluating impacts 65
 - measurement and Ecological Footprints 383
 - pollution costs and GPI calculation 356
- pollution haven hypothesis (PHH) 406
- Popp, D. 241
- population 291–301
 - ageing and decline 300
 - and climate change 493–4
 - and economic growth 292–4
 - growth 291–2
 - optimal trajectories 294–6
 - and resources 292–4, 296–8
- Population–Environment–Development–Agriculture (PEDA) model 294
- Porritt, J. 473
- Portney, K. 554
- Portney, P.R. 152, 153
- positive psychology 219
- potentially internally stable (PIS) coalitions 425
- Poterba, J.M. 179–80
- precaution 164–9
- Precautionary Principle 65
- prescriptive approach to social discounting 142–3
- Present Value method of estimating natural capital 30
- Preston, S.H. 297–8
- Pretty, J. 519, 523
- price
 - energy prices and consumption 536
 - price of time and the resource curse 405–6
- Principles of Political Economy* (Mill) 292–3
- Prisoner's Dilemma and international environmental cooperation 419–20
- private finance for sustainable development 454–8
- private-sector consumption and GPI calculation 351–2
- produced capital, estimation 29–30
- Proops, J.L.R. 408
- public consciousness, transforming 113–14
- public finance for sustainable development 450–54
- public-sector consumption and GPI calculation 354
- Pulido, L. 189
- Quaas, M. 42
- Ramsey, F.P. 128, 144
- Randall, A. 161, 165, 168–9
- rank-discounted utilitarian (RDU) SWO 136
- rapid climate change 95
- Ravetz, J.R. 112
- Rawls, J. 129, 131, 144
- Ray, D. 421
- Ready, R.C. 165
- recreation as ecosystem service 74–5
- Reed, W.I. 87, 90
- Rees, W. 46
- regional sustainability 46
- regulation, impact on firms 180
- rehabilitative expenditures and GPI calculation 355
- renewable energy incentives
 - China 541–2
 - developing economies 539–40

- EU 546
US 545–6
- rent curse 271–2
- Reny, P. 421
- resilience 44, 91–100
- resource curse 267–76
 endogenous explanations 271–5
 exogenous explanations 269–71
- resources
 depletion 65
 and economic growth 292–4
 and population growth 296–8
 resource consumption vs. economic consumption 283–5
 resource dependency 96–7
 resource economics in open economies 404–6
- Ricardo, D. 400, 517
- Richmond, A.K. 259
- Rio Declaration on Environment and Development* 436, 437
- Rio Summit (UN Conference on Environment and Development) 436–7, 551, 554
- Rio+20 (UN Conference on Sustainable Development) 280, 377, 439–40, 441, 554
- Rip, A. 309
- risk and uncertainty and declining discount rates 146–8
- risk management approach to climate change adaptation 463–73
 New York City 468–72
- Rittel, H.W.J. 115
- Robinson, J. 273
- Rockström, J. 63
- Rodrik, D. 244
- Roe, G.H. 468
- Rogers, D.L. 185
- Rojas, M. 457
- Roland-Holst, D. 409
- Rose, A. 178
- Rose, A.K. 406
- Rotmans, J. 310
- Round Table on Sustainable Consumption (UK) 279
- Rozelle, S. 473
- Rubio, M. del M. 407
- Ruta, G. 39, 339, 340
- Rutz, S. 422
- Ryan, Richard 219
- Rybczynski Theorem 402
- Sachs, J.D. 268–9, 270, 273–5
Safe and Just Operating Space for Humanity: Can We Live Within the Doughnut? (Raworth) 201
- safe minimum standard of conservation 49, 63, 164–6
 and precaution 167–9
- safe operating space for humanity 63
- Sagoff, Mark 109, 110
- Sala-i-Martin, X. 473
- SAM (social accounting matrix) 183–5
- Samuelson, P. 26, 177
- Satterthwaite, D. 557
- savings gap 345
- scale economies 305–6
- scaling and environmental problem formulation 115–19
- Scarborough, H. 176
- Schaefer, F. 387
- Scheffler, S. 144
- Schelling, T. 17, 152, 153
- Scherr, J.J. 524
- Schlumberger, O. 273
- Schulz, C.E. 410
- Schwartz, N.L. 90
- SDGs (Sustainable Development Goals) 440, 481
- SEEA (System of Environmental and Economic Accounting) 319–21, 336
 Central Framework (CF) 319–21, 333
 Experimental Ecosystem Accounting 320, 329, 333
- Sefton, J.A. 408
- Segerson, K. 74, 76–7
- Seidmann, D. 422
- Selden, T.M. 257
- Self Determination Theory 219
- Seligman, M.E.P. 219
- Selten, R. 421
- Sen, A. 122, 154, 210, 218, 222–3, 224
- separable future (SEF) 130
- separable present (SEP) 129
- Serageldin, I. 55
- Serret, Y. 176
- Shabana, K.M. 565
- Shafik, N. 255
- Shellenberger, M. 195
- Shimamoto, M. 410
- Sidgwick, H. 128
- Sieg, H. 182
- Silent Spring* (Carson) 253
- Simon, J. 293, 296
- Simon, S. 66
- Siniscalco, D. 420, 423, 424
- Sjögren, T. 241
- Smale, R. 545
- smart growth movement, USA 557
- Smith, Adam 38, 39, 218, 458
- Smith, Kerry 185–6

- Smith, M. 559
 Smith, S. 180
 Smith, V.K. 182
 SMS (safe minimum standard of conservation) 49, 63, 164–6
 and precaution 167–9
 Smulders, S. 242
 SNA (System of National Accounts) 319, 336
 social accounting matrix (SAM) 183–5
 social costs and GPI calculation 355
 social differentiation and vulnerability 208
 social discounting 140, 141–55
 alternatives 152–4
 declining discount rates 145–50
 international comparisons 150
 limitations 151–2
 zero discounting 144–5
 social-ecological systems 91–2
 social norms and consumer behaviour 285–6
 social resilience 95–7
Social Responsibilities of the Businessman (Bowen) 565
 social sustainability 56
 social welfare orders (SWO) 126
 social welfare relations (SWR) 126
 social wellbeing 220–21
 and sustainable development 221–5
 socio-technological regimes 309
 Sokoloff, K.L. 271
 Solomon, B.D. 172
 Solow, R. 129, 131, 144, 223
 Solow–Hartwick sustainability 44
 Song, D. 257
 Song, J. 295
 Sorrell, S. 546
Soul of Environmentalism, The (Gelobter et al.) 195
 Source and Sink functions 67
 Soytas, U. 260
 Spash, C.L. 65
 spatial sustainability 45–7
 spending and green growth 245
Spirit Level, The: Why Equality is Better for Everyone (Wilkinson and Pickett) 196
 Stähler, F. 408
 Stahmer, C. 67
 Stankiewicz, R. 305
 state valuation function 177
 stationarity (ST) 130
 Steer, A. 55
 Stern, D.I. 257, 258, 262–3
 Stern, N. 141, 144, 238–9, 245, 484–5
Stern Review on the Economics of Climate Change 6, 140, 143, 239, 532, 571
 Sterner, T. 148
 Stiglitz, J.E. 175, 386
 STIRPAT equation 298
 Stockholm Declaration 434
 Stokey, N. 257
 Stolper–Samuelson Theorem 402
 strategic niche management 310
 Stren, R. 193
 Strong, Maurice 432, 443
 Strong Anonymity (SA) axiom 126
 Strong Pareto (SP) axiom 126–8
 strong sustainability 43–5, 58–61, 254, 338
 and climate change mitigation 478, 480–82, 485–7
 and international trade 407–8
 subsidies, fossil fuels 536
 substitutability
 of natural capital, and discount rates 148
 of water 504–7
 supermarkets, response to climate change 568–72
 sustainability 192–200
 and environmental justice 188–201
 local 551–62
 and population 291–301
 and resilience 97–100
 schematic definition 117–19
 and technical innovation 304
 and wellbeing 217–31
 sustainability gap (SGAP) 65–6, 67–8
 sustainability policy 48–50
 sustainable agriculture 517–29
Sustainable Communities and the Challenge of Environmental Justice (Agyeman) 188, 201
 sustainable consumption 279–88
 sustainable development
 and climate change mitigation 476–94
 definitions 2, 25–6, 192
 in ecological economics 41–51
 and Ecological Footprints 376–9
 and economic growth 253–5
 financing 446–58
 indicators and models 47–8
 international politics of 432–42
 and international trade 399–413
 macroeconomic indicators 331–3
 origins of 433–4
 of water resources 500–514
 Sustainable Development Goals (SDGs) 440, 481
 sustainable discounted utilitarianism (SDU) 135, 149–50
 sustainable preferences 133–4
 Sustainable Technologies Programme (STP), UK 311
 sustainable trade 45–7

- Svensson, L.-G. 126
 Swanson, T.M. 522
 Swinnen, J.F.M. 473
 System of Environmental and Economic Accounts, *see* SEEA
 System of National Accounts (SNA) 319, 336
- taxation
 emission taxes 327–8
 and energy policy 540, 543
- Taylor, C.R. 163
 Taylor, D. 194, 197
 Taylor, M.S. 257, 402, 406, 413
 techno-institutional complexes (TICs) 308
 technological and institutional systems 307–9
 technological innovation 304–14
 technological lock-in 305–6
 technological niches 309, 310
 technological systems 304–5
 technological transitions 309–13
Theory of Moral Sentiments, The (Smith) 218
 Thoreau, Henry 280
 time-discounted utilitarian (TDU) SWO 131–4
 Tisdell, C.A. 518, 521, 529
 Tobin, J. 349–50, 357, 367
 Tol, R.S.J. 240, 465, 484
 Tompkins, E.L. 99
 total capital, international comparisons 31–5
Towards Green Growth (OECD) 237
 ‘Toxic wastes and race in the United States’ (United Church of Christ) 189
- trade
 and Ecological Footprints 383–4
 international trade theory 400–404
 policy instruments 409–11
 sustainable 45–7
 and sustainable development 399–413
- trade liberalization
 timing and sustainability 403–4
 and vulnerability 208–9
- Traeger, C.P. 147
 transition pathways 312–13
 Trinidad and Tobago, produced capital 344
 Tsoularis, A. 172
 Turner, K. 260
 Turner, R.K. 59
 Turton, H. 261
- Ultimate Resource, The* (Simon) 293, 296
 UNCED (Conference on Environment and Development) Rio, 1992 436–7, 551, 554
 uncertainty 49
 UNCHE (Conference on the Human Environment) 434
 UNCSD (Conference on Sustainable Development), Rio+20 280, 377, 439–40, 441, 554
 UNDP Human Development Index (HDI) 377
 unemployment, impact of green growth 247
 UNEP (UN Environment Programme) 246
 Green Economy Initiative 237, 440
 UNFCCC (Framework Convention on Climate Change) 436
- United Kingdom
 electricity system 308, 312–13
 ESRC Sustainable Technologies Programme (STP) 311
 Round Table on Sustainable Consumption 279
 social discount rates 150
 supermarkets, response to climate change 568–72
 Sustainable Communities Plan 555
 sustainable consumption strategy 279, 283–4
- United Nations 433
 Conference on Environment and Development 1992 (UNCED) 436–7, 551, 554
 Conference on Sustainable Development (UNCSD), Rio+20 280, 377, 439–40, 441, 554
 Conference on the Human Environment (UNCHE) 434
 Development Programme (UNDP) Human Development Index 377
 Environment Programme, *see* UNEP
 Framework Convention on Climate Change (UNFCCC) 436
 Third Law of the Sea Conference 435
- United States
 Acid Rain Program 455
 Endangered Species Act (ESA) 167
 environmental justice movement 189
 National Research Council, population report 296
 renewable energy 545–6
 smart growth movement 557
 social discount rates 143, 150
- Unruh, G.C. 308
 unsustainable consumption 285–6
 Urban Ecology 199
 urban sustainability 551–62
 user cost method 356, 363–4
 utility function approach (Schelling) 153
- valuation
 ecosystem goods and services 74–7
 environmental functions 63–5

- value pluralism 163
 values, *see* ethics
 van den Bergh, J.C.J.M. 42, 46, 66, 386
 van Kooten, G.C. 172, 386
 van Marrewijk, M. 566
 van Wijnbergen, S.N. 269, 270
 Vaze, P. 67
 Veblen, Thorstein 280
 Veenhoven, Ruut 218
 Verbruggen, H. 46, 386
 very strong sustainability 44
 Victor, P.A. 61
 Vietnam, adaptive management 98–9
 Vincent, J. 343, 405
 Vincent, K. 465
 virtue ethics 107, 111, 119–21
 Vitousek, P.M. 381
 Vohra, R. 421
 Vollebergh, H.R.J. 257, 258
 voting mechanisms as alternative to social discounting 153–4
 vulnerability 206–15

 Wackernagel, M. 46
 Wada, Y. 503
 Wagner, M. 258
 Warner, A. 268–9, 273–5
 Warner, K. 200
 water 500–514
 agricultural usage, impact on biodiversity 524
 and food supply chains 510–11
 as human right 502–3
 political economy 507–10
 substitutability 504–7
 Watts, M.J. 214
 weak sustainability 3, 27, 43, 44–5, 58–61, 254, 338
 and climate change mitigation 477, 480–82, 484–5
 and international trade 408
 and welfarism 164
 Weale, M.R. 408
 wealth accounting 25–38
 intangible capital 35–6
 international comparisons 31–5
 total wealth 28–31
Wealth of Nations, The (Smith) 39, 218
 Webber, M.M. 115
 WeD (Wellbeing in Developing Countries) research programme 218
 Weder, R. 407
 Weiss, J. 244

 Weitzman, M. 146, 151–2, 337, 338, 343, 482, 545
 Weizsäcker, C.C. von 154
 welfare
 indicators 482–3
 measurement 177, 348–67
 welfarism 161–3
 and weak sustainability 164
 well-being 26, 217–31
 and natural capital 38
 social wellbeing 220–21
 and sustainability, India 225–9
 and sustainable development 221–5
 Westley, G. 269
 White, Lynn 105
 wicked problems 115
 wild biodiversity and agriculture 523–4
 Wilkinson, R. 196
 Williams, Bernard 110
 windfall revenue and rent curse 271–2
 Winter, E. 422
 Winters, L.A. 473
 Withagen, C. 36, 343, 403
 Woodward, R.T. 167
 World Bank
 genuine savings indicator 62
 and green growth 237, 238
World Development Indicators (World Bank) 337, 339–41
 World Development Report (World Bank) 239
 World Summit on Sustainable Development 2002 (WSSD) 438–9, 554, 555
 Plan of Implementation 282
 statement by local government 555, 561
 World Trade Organization (WTO) 438
 WSSD, *see* World Summit on Sustainable Development
 WTO (World Trade Organization) 15, 410, 438

 Yaari, M.E. 127, 145
 yields, agricultural
 GM crops 525–6
 organic versus non-organic agriculture 532
 Yohe, G. 465

 Zame, W. 126, 127
 Zeng, D.-Z. 407
 zero discounting 144–5
 Zhang, Z.X. 541
 Zhao, L. 407
 Zilberman, D. 180
 Zimmerman, K. 183
 Zolotas, X. 350