Index

Adams, W. 1, 20
Africa
carbon sequestration and restoration projects, survey of 228–33
PES and CCT comparison 113, 130–31
representations of nature 262
see also individual countries
Agrawal, A. 200
agrobiodiversity conservation, in-situ, PES potential 150–71, 283–4
biodiversity conservation on the farm 152–3
conservation goals, defining 156–9
direct payments, benefits of 150–51
direct private use value to farmer 152
eco-labelling and certification schemes 152
ex-situ conservation strategies 153
future research 156, 166, 167
global responsibilities 154
marketing and service purchaser role 154
payment mechanisms 23–4, 150–51
plant and animal genetic resources (PAGR) 150, 151, 152, 153, 156–61, 163, 165
risk-averse reasons for using agrobiodiversity 152
see also institution and ecosystem functions
agrobiodiversity conservation, PACS schemes (payments for agrobiodiversity conservation services) 151
assessment of possible outcomes 159–65
competitive tendering 163
cost–benefit assessment 160–61, 162–4
design and implementation constraints 154–6
ecological effectiveness assessment 159–62
equity and efficiency trade-offs 161, 164–5
geographical targeting 153–4
institutional requirements 155–6
intermediaries, involvement of 155
land tenure issues 155
leakage considerations 161–2
monitoring and enforcement 155–6, 164
opportunity costs 163
private sector funding considerations 162
pro-poor outcomes and social equity 164–5
scientific foundations, need for strong 156, 157
supply and demand, matching 153–4
sustainability 162
threshold effects 161
transaction costs 163–4
wealth status of benefiting farmers, effects of 165
Ahlheim, M. 18
Ahmed, A. 134
Albán, M. 5, 41, 42, 46, 98, 112, 124, 134, 136, 289
Alongi, D. 197
Alvarez, C. 136
Alviar, C. 113, 130
Anand, M. 77
Anand, P. 172
Anderson, K. 198
Andrade, G. 20
Angelsen, A. 47
Anthoff, D. 217, 227
Archer, D. 198
Armbrecht, I. 77
Values, payments and institutions for ecosystem management

Aronson, J. 12, 221, 222, 228, 233, 250–51

Arriagada, Rodrigo 16–57, 172–91

Asia
   Arab representations of nature 262
   PES and CCT comparison 112–13, 129–30
   see also individual countries

Asquith, N. 3, 5, 6, 134, 135, 144, 287

Asselin, L. 110

Australia 239, 242
   Bush Tender Program 27, 136
   National Landcare Program 22

Aylward, B. 19

Badiou, A. 267, 270, 273

Bali, A. 77

Balmford, A. 58

Bangladesh, Vulnerable Group
   Development project 134

Bann, C. 20, 101

Banuri, T. 200

Banzhaf, S. 59

Barbier, E. 195

Barnosky, A. 196

Barrera-Osorio, F. 133

Barrett, S. 172

Bateman, Ian 58–69

Batina, R. 177

Bawa, K. 20

Bellon, M. 152, 153, 156, 157, 158

Bengtsson, J. 82

Bennett, M. 3, 6, 26

Beria, L. 113, 130

Berkes, E. 20

Bernet, T. 152

Biermann, E. 47

biodiversity
   agrobiodiversity see agrobiodiversity conservation, in-situ, PES
   potential
   protection 3, 17, 194–6

Bishop, J. 23, 193, 284

Blihnaut, James 215–58

Bloch, F. 186

Bloodhart, B. 267

Bohensky, E. 71

Bolivia 167
   Los Negros programme 5, 30, 134, 289

Bonds, I. 6, 133, 288

Borkhataria, R. 77

Bows, A. 198

Boyd, J. 59

Braat, L. 82

Brand, F. 265

Brazil 112, 125–6

Brink, P. ten 82

Brock, R. 196

Bromley, D. 196

Brush, S. 153, 158

Brussaard, L. 75

Bulte, E. 19, 120, 121

Bush Tender Program, Australia 27, 136

Butler, J. 259

Cambodia 112, 129, 137

Cameroon 233

CAMPFIRE scheme, Zimbabwe 6, 133, 288, 289

Canada 239
   carbon sequestration 3, 98, 245–6, 247
   and land management 234–43
   and restoration projects 226–33

Cardenas, J. 48

Carpenter, S. 71, 72

Carr, D. 75

Cartwright, A. 249

certification schemes with price
   premiums 80, 81

Champetier de Ribes, A. 51

Chapman, K. 120

Chavas, J. 152

Chen, S.-M. 263

Chichilnisky, G. 195

Chiesura, A. 265

Child, B. 6, 288

China 25, 242, 263
   bee extinction, Maoxian County 195

Grain to Green programme (GTGP)
   25, 26, 32, 40, 46, 167

Natural Forest Conservation
   Program (NFCP) 25, 32

Sloping Land Conversion
   Programme 3, 6, 25

Claassen, R. 26–7

Clements, T. 112, 129

climate change concerns 63–5, 74,
   201–2, 202, 205–6, 210
Index

adaptation and restoration of natural capital 216–20
and regulation 181–5, 186
South Asian ecosystems see institution and ecosystem functions, climate change and South Asian ecosystems
Coady, D. 115
coffee production 76–80
Colombia 112, 124–5, 134, 168
conditional cash transfers (CCT) 102, 109, 110–11, 115, 116
PES comparison see environmental and social protection, unifying, and PES and CCT comparison
conflict in social systems 93, 98, 100–101, 263
Corbera, E. 25, 32, 44, 45, 47, 93, 112, 121, 127, 155, 156, 164, 266
Cornes, R. 180, 182
Costa Rica 35, 168
FONAFIFO forest conservation PES 98
PSAH programme 6, 37–8, 45, 132, 133
Costanza, R. 220, 288, 289
cost–benefit assessment environmental and social protection, PES and CCT comparison 132–3
equity and efficiency in payments for ecosystem services 103–4
and internal rate of return (IRR) 231
PACS schemes (payments for agrobiodiversity conservation services) 160–61, 162–4
transaction costs 44, 142, 143, 163–4
see also value
Cowling, R. 84
cropland management, carbon gain 234–5
Cuesta, J. 121–2, 141
cultural diversity see ethical foundations of cultural diversity
Dasgupta, F. 220
Daily, G. 2, 19, 58, 61, 70
Daly, H. 192
Das, A. 77
Das, J. 110, 121, 136
Dasgupta, C. 199
Dasgupta, P. 120, 192, 195, 217
Davis, B. 110, 121, 133, 135
De Groot, R. 221, 222, 223, 265
Deng, L. 25
Denich, M. 76
Denmark 21
Dennis, E. 155
Devooght, K. 96
Di Falco, S. 152, 154
Diaz, S. 75
Dobbs, T. 27
Dolia, J. 77
Dombrowsky, I. 175
Donnelly, A. 245–6
Downing, J. 196
Drucker, Adam, G. 150–71
Duraiappah, Anantha K. 51, 90–108
Echavarria, M. 144
eco-labelling and certification schemes 152
ecological effectiveness assessment, PACS schemes (payments for agrobiodiversity conservation services) 159–62
ecosystem functions see institution and ecosystem functions
Ecosystem Services Districts, development suggestion 84
ecosystem services, payments for see environmental and social protection, unifying, and PES and CCT comparison; equity and efficiency in payments for ecosystem services, relationship between; payments for ecosystem services (PES)
carbon sequestration see carbon sequestration
climate change concerns see climate change concerns
disproportionate impact dilemma 218
global damage cost of carbon, estimation of, and pure rate of time preference (PRTP) 217
Hartwell Paper 215–16, 249
Values, payments and institutions for ecosystem management

intervention costs, assessment problems 220
mitigation options 218, 219, 226–8, 230–32
ecosystem-based restoration benefits, adaptation
costs 233–48
costs, and continuous benefits 248–51
costs, McKinsey adaptation options 248, 249
focus, need for 218–20, 224
ongoing benefits, assessing 220
planning problems 220
and precautionary principle 218–19
recommendations 252
ecosystem-based restoration benefits,
natural capital restoration value 221–33
cost–benefit ratios and internal rate of return (IRR) 231
cultural services 224
degradation trend, reversing 221–3
ecosystem-based adaptation 223–6
and human well-being 222–3, 225–6
provisioning services 223
regulating services 223–4
restoration activities 222
restoration value 226–33
supporting services 224–5
will to change, importance of 225–6
Ecuador 112, 124
Pimampiro programme 30, 41, 46
PROFAFOR programme 5–6, 30, 42, 46, 98, 112, 124, 133, 134, 136, 137, 289
efficiency concerns 37–8, 39–49, 177–9
and equity in payments see equity and efficiency in payments for ecosystem services, relationship between
El-Bizri, N. 262
Elmqvist, Thomas 70–89, 161
endangered species, conservation of 177–9
Engel, S. 2, 20, 23, 34, 39, 90, 115, 120, 121, 132, 151, 154, 164, 180, 287
environmental additionality concept 93–4, 103–4
environmental public goods see international environmental public goods, paying for
environmental and social protection, PEPAS (Payments for Environmental and Poverty Alleviation Services) 137–43
conditions, setting 142–3
eligibility criteria 139–42
free-rider problem 138
payment vehicle and frequency of transfers 138–9
poverty alleviation 140–42
targeting mechanism 142, 143
environmental and social protection, unifying, and PES and CCT comparison 120–49, 282–3
community level impact 133
compensation types 132–5
compliance conditions 123–31, 289
conditional cash transfers (CCT) criticisms of 121
conditional cash transfers (CCT) as social protection mechanisms 121–2, 123
cost-effectiveness of programme 132–3
eligibility criteria 135–6
geographic targeting 123–31, 135
landholder compensation 134
market-based interventions 122–32
participation conditions 136–7
payment frequency effects 134
payment vehicle 123, 133–4, 289
payments for ecosystem services (PES) criticisms of 121
payments for ecosystem services (PES) as economic transfers 120–22, 123
positive externalities, internalizing 122–32
poverty alleviation 132–3, 136, 137, 140–42
proxy means testing and environmental metrics 135–6, 140
public funding 123, 132
targeting mechanism 123
see also payments for ecosystem services (PES)
Environmentally Sensitive Areas (ESA) 21, 27
equity and efficiency in payments for ecosystem services, relationship between 90–108, 288–9
actual provision fairness criterion 97, 98, 102
compensation fairness criterion 97, 98, 100, 101, 102
conditional cash transfers (CCT) see conditional cash transfers (CCT)
conflicts between social groups, avoidance of 93, 98, 100–101, 263
consensus fairness criterion 97, 98, 102
cost–benefit evaluation 103–4
disadvantaged groups, involvement of 101, 102
distributional aspects 91
economic fairness and welfare evaluative criteria 96–8, 99, 101–2
efficiency criteria 94–5
efficiency and equity, trade-offs between 92
egalitarian fairness criterion 97, 98, 102
environmental additionality concept 93–4, 103–4
equity criteria 94–5, 96, 99
evaluation method, effect of 103–4
expected provision fairness criterion 97, 98, 102
individual capabilities, evaluation of 99, 101
individual wealth, effect of 103
intermediary role in implementation of scheme 100–101
internalizing externalities 91–2
land-management decisions 98, 101, 102
maxi-min fairness criterion 97, 98, 101
planning and implementation process 100
policy trade-off curve (PTOC) 94, 95, 96, 102, 104
power imbalance among social groups 98
pro-poor effects 91, 93, 100, 101–2
property rights identification 92, 95, 105
quality of life opportunities 100
stakeholder effect 96, 99–100, 103
status quo fairness criterion 97, 102
uncertainty implications 105–6
value of services, effects of 103
welfare outcomes, evaluation of 98–103
willingness to accept (WTA) and willingness to pay (WTP) 94–5, 104

equity and efficiency trade-offs, PACS schemes (payments for agrobiodiversity conservation services) 161, 164–5
ethical foundations of cultural diversity 259–78, 286–7
commodification of natural resources, effects of 266–7
conflict in social systems, role of 263
consensual conceptions of societal systems 261
ecofeminists and separation from nature 267
economic valuations, foundations for alternatives 271–3
ethics and economics 267–71
ethics and economics, distribution of goods 269–71
ethics and economics, ‘good’ as ideal standard 267–8
human culture as ecosystem 260
human nature characteristics 272–3
moment of production of nature as economic activity 265
morality and subject’s duty to do good 269
nature as such, separation from 266–7
payments for ecosystem services (PES) and commodity fetishism 266
policy implications 274
‘second nature’ problem 271–2
social dimension, lack of consensus of meaning 265
social functions of ‘nature’, and competing cultural conceptions 262–3
social realm, separation in and from 263–7
social-systemic problems and public health 266
societal diversity, contradictory conceptions of 261–2
‘subject’ concept in different cultures 270
unity and diversity within cultural and economic systems 261–3
see also welfare
Ethiopia 76, 80
Cash for Relief Programme 141
Global Environment Facility-funded project 151
Europe 19, 262
payments for threatened livestock breeds 151
see also individual countries
Evans, J. 268
externalities, effects of 20–21, 91–2, 122–32, 181–2
Eyzaguirre, P. 155
Farley, J. 116, 288, 289
Farrington, J. 120
Ferraro, P. 2, 16, 20, 21, 33, 34, 39, 91, 109, 121, 138–9, 150, 155, 163, 180, 287
Ferroni, M. 177
Field, C. 83
Fischer, J. 82
Fisher, Brendan 4, 58–69
Fizbein, A. 134
Folke, C. 81
FONAFIFO forest conservation PES, Costa Rica 98
forestry
carbon sequestration 247
Clean Development Mechanism (CDM) projects 25
damage cost avoided approach 63–5
deforestation 75–6, 181–2
deforestation and REDD mechanism 16, 45–7, 181–5, 186
FONAFIFO forest conservation PES, Costa Rica 98
forestland management, carbon gain 235, 236, 237
and international public goods 175
mangrove see institution and ecosystem functions, Keti Bunder, Pakistan
Natural Forest Conservation Program (NFCP), China 25, 32
water-related services, Mexico 103–4
see also land management practices
France 21, 245
Vittel PES 3, 29
free-rider problem 34, 138
Frey, B. 200
Frost, P. 6, 288
future research 34, 71, 156, 166, 167
Fuwa, N. 151
Gadgil, M. 175, 178
Georgescu-Roegen, N. 192, 196
Geras, N. 272
Gilbert, N. 192
Glaser, M. 265
Glewwe, P. 135
Global Environment Facility (GEF) 151, 180, 187, 188
Godfray, H. 63
Gökalp, Y. 133
Goldman, R. 84
Goldstein, J. 180
Gordon, C. 74, 77, 79–80
Göschl, T. 153, 154
Goulder, L. 2
Gove, A. 76
Gowdy, John M. 192–214
Grain to Green programme (GTGP), China 25, 26, 32, 40, 46, 167
grassland practices and carbon gain 235, 242–3, 245–6
Grieg-Gran, M. 2, 20, 23, 33, 91, 101, 109, 121, 165
Grosh, M. 115, 138, 139
Gruère, G. 150, 152
Hajjar, R. 150
Halder, S. 140
Handa, S. 110, 121, 133, 135
Haq, M. 200
Harcourt, W. 262
human benefits and ecosystem processes, relationships between 59–60
human culture as ecosystem see ethical foundations of cultural diversity
Human Development Index (HDI) human well-being see welfare
Hylander, Kristoffer 70–89

Ihori, T. 177
Imbach, P. 135
India 25, 77, 262
climate change effects see institution and ecosystem functions, climate change and South Asian ecosystems
individual capabilities, evaluation of 99, 101
individual preferences, temporal context 67–8
individual wealth, effect of 103
Indonesia 112, 129
Inglehart, R. 193
institution and ecosystem functions 192–214, 284–5
capability poverty measure (CPM) 200
costs avoided by ecosystem preservation, estimation of 195 ecological economics 193–4, 196
economic value of ecosystems and biodiversity 194–6
ecosystem integrity as economic development concern 193–4
environmental concern and subjective well-being, links between 201
Human Development Index (HDI) 200
poverty implications 193–4, 200
resilience and biodiversity, relationship between 196
'shadow price' and net national product (NNP) accounting framework 194–5
socio-cultural value of ecosystems and biodiversity 196
spiritual ties, significance of 196
values of ecosystem services 194–7 see also agrobiodiversity conservation, in-situ, PES potential
institution and ecosystem functions, climate change and South Asian ecosystems 197–200
agricultural production loss 199
climate-induced migration 199
higher average temperatures 198
human well-being see welfare
rainfall pattern changes and extreme weather events 198–9
sustainable well-being, economics of 200–201
institution and ecosystem functions, Keti Bunder, Pakistan 201–11
clim ate change concerns 201–2, 202, 205–6, 210
as designated wildlife sanctuary 202
economic conditions 204–5
fishing as livelihood, unsustainability of 204, 206–8, 210
fresh water supply 203–4, 209
livestock farming reduction 209
mangrove forest degradation 197, 202–3, 204, 205–6, 210
migration, limited 209
resource conflicts 210–11
institutional requirements, PACS schemes (payments for
agrobiodiversity conservation services 155–6
Intergovernmental Panel on Climate Change (IPCC) 63, 81
see also UN Framework Convention on Climate Change (UNFCCC)
international environmental public goods, paying for 172–91, 280
adequacy criterion 180
‘best shot’ cases 175, 176–7, 186
classification 174–5
deforestation cases and REDD mechanism 16, 45–7, 181–5, 186
ecosystem services 173–4
efficient provision of conservation effort 177–9
endangered species, conservation of 177–9
externalities, effects of 181–2
Global Environment Facility (GEF) 151, 180, 187, 188
market failure problems 179
PES schemes 180–81, 188
public goods theory 185–6
pure public good and private good, difference between 177–8, 185
‘simple sum’ cases 175
technology of supply 174–5, 176, 186–7
underprovision explanation 176–80
‘weakest link’ cases 175
international environmental public goods, paying for, policy options 180–85
direct investment to specific countries 187–8
global climate regulation 181–5, 186
implications 185–8
international coordination or cooperation 187
market forces and multi-site production 187
public goods failure, diagnosis of 186–7
international-level PES schemes 24–5, 47–8
Italy 21
Lazio Rural Development Programme 168

Jack, K. 20
Jackson, J. 192
Jameson, F. 273
Jianchu, X. 199
Jiang, D. 198
Jindal, R. 113, 131
Jones, M. 245–6
Kagan, C. 262
Kahneman, D. 200
Kallis, G. 193
Kamin, L. 270
Kanbur, R. 177
Kapos, V. 16, 45, 47, 185
Kareiva, P. 1, 19, 33
Karsenty, A. 121
Katz, C. 264
Kaul, I. 172, 173, 174, 175, 185
Kelt, D. 196
Kemkes, R. 2, 4, 5
Kennedy, D. 2
Kenya 113, 116, 130–31, 167
Cash Transfer for Orphan and Vulnerable Children 113, 130, 137
Khan, S. 200
Kinzig, A. 16, 17
Kiss, A. 16, 34, 180, 287
Kleijn, D. 32
Klein, A. 75, 76, 77
Konow, J. 96
Kontoleon, U. 154, 157
Kosoy, N. 98, 121, 141, 155, 156, 266
Kothari, U. 264
Kovel, J. 264, 271
Krall, L. 193
Kreuter, U. 84
Krishna, V. 152
Krishnaswamy, Jagdish 70–89
Krutilla, J. 193
Kuik, O. 217
Kumar, B. 77
Kumar, M. 1, 4, 276
Kumar, Pushpam 1–15, 181, 261, 276, 279–90
land management practices 22–3, 98, 101, 102, 155, 234–43, 244, 245–6
coffee production 76–80
### Index

<table>
<thead>
<tr>
<th>forestry</th>
<th>see forestry</th>
</tr>
</thead>
<tbody>
<tr>
<td>landholder compensation</td>
<td>133, 134</td>
</tr>
<tr>
<td>soil quality maintenance and erosion prevention</td>
<td>75, 77, 78, 81</td>
</tr>
<tr>
<td>water protection schemes</td>
<td>see water protection schemes</td>
</tr>
<tr>
<td>wetland management</td>
<td>66–7, 74, 237</td>
</tr>
<tr>
<td>Landell-Mills, N.</td>
<td>2, 20, 151, 155, 179, 181</td>
</tr>
<tr>
<td>Larsen, T.</td>
<td>75</td>
</tr>
<tr>
<td>Latacz-Lohmann, U.</td>
<td>163</td>
</tr>
<tr>
<td>Latin America</td>
<td>77, 112, 124–8, 242–3</td>
</tr>
<tr>
<td>see also</td>
<td>individual countries</td>
</tr>
<tr>
<td>Lavelle, P.</td>
<td>75</td>
</tr>
<tr>
<td>Layton, D.</td>
<td>32, 33</td>
</tr>
<tr>
<td>Lazio Rural Development Programme, Italy</td>
<td>168</td>
</tr>
<tr>
<td>Leech, B.</td>
<td>260</td>
</tr>
<tr>
<td>Lévi-Strauss, C.</td>
<td>261</td>
</tr>
<tr>
<td>Lipper, L.</td>
<td>151</td>
</tr>
<tr>
<td>Liu, J.</td>
<td>25, 26–32, 38</td>
</tr>
<tr>
<td>Liverman, D.</td>
<td>32</td>
</tr>
<tr>
<td>Los Negros programme, Bolivia 5, 30, 134, 289</td>
<td></td>
</tr>
<tr>
<td>Losey, J.</td>
<td>75</td>
</tr>
<tr>
<td>Luck, G.</td>
<td>71</td>
</tr>
<tr>
<td>McClafferty, B.</td>
<td>136</td>
</tr>
<tr>
<td>McDaniel, C.</td>
<td>201</td>
</tr>
<tr>
<td>McKinsey adaptation options</td>
<td>248, 249</td>
</tr>
<tr>
<td>McLeod, E.</td>
<td>197</td>
</tr>
<tr>
<td>McShane, T.</td>
<td>1</td>
</tr>
<tr>
<td>Madsen, B.</td>
<td>154, 172</td>
</tr>
<tr>
<td>Malaysia</td>
<td>233</td>
</tr>
<tr>
<td>Maler, K.-G.</td>
<td>195, 200</td>
</tr>
<tr>
<td>mangrove forests</td>
<td>see institution and ecosystem functions, Keti Bunder, Pakistan</td>
</tr>
<tr>
<td>market forces</td>
<td>2, 16–17, 19, 61, 62, 122–32, 154, 179, 187</td>
</tr>
<tr>
<td>Martinez-Alier, J.</td>
<td>193</td>
</tr>
<tr>
<td>Marx, L.</td>
<td>263</td>
</tr>
<tr>
<td>Massingarela, C.</td>
<td>113, 131</td>
</tr>
<tr>
<td>Mastrandrea, M.</td>
<td>58</td>
</tr>
<tr>
<td>Mather, A.</td>
<td>48</td>
</tr>
<tr>
<td>Matin, I.</td>
<td>139, 140, 141</td>
</tr>
<tr>
<td>Matson, P.</td>
<td>19</td>
</tr>
<tr>
<td>Maxted, N.</td>
<td>153</td>
</tr>
<tr>
<td>Mayrand, K.</td>
<td>19</td>
</tr>
<tr>
<td>means testing and environmental metrics</td>
<td>135–6, 140</td>
</tr>
<tr>
<td>Medeiros, M.</td>
<td>115, 121</td>
</tr>
<tr>
<td>Melillo, J.</td>
<td>195</td>
</tr>
<tr>
<td>Metzger, J.</td>
<td>83</td>
</tr>
<tr>
<td>Mexico</td>
<td>79–80, 98, 103–4, 112, 127</td>
</tr>
<tr>
<td>Payments for Hydrological Environmental Services</td>
<td>29, 43, 46, 133</td>
</tr>
<tr>
<td>PROGRESA (Oportunidades) programme</td>
<td>112, 127, 132, 134, 136</td>
</tr>
<tr>
<td>PSA-CABSA programme</td>
<td>112, 127, 137</td>
</tr>
<tr>
<td>Scolel Té Project</td>
<td>31, 42–3, 46</td>
</tr>
<tr>
<td>Meyerson, L.</td>
<td>71</td>
</tr>
<tr>
<td>Miles, L.</td>
<td>16, 45, 47, 185</td>
</tr>
<tr>
<td>Miranda, M.</td>
<td>116, 133</td>
</tr>
<tr>
<td>mitigation options, ecosystem-based restoration benefits</td>
<td>218, 219, 226–8, 230–32</td>
</tr>
<tr>
<td>Mody, A.</td>
<td>177</td>
</tr>
<tr>
<td>Moguel, P.</td>
<td>77</td>
</tr>
<tr>
<td>Moldova</td>
<td>25</td>
</tr>
<tr>
<td>Morrissey, O.</td>
<td>174</td>
</tr>
<tr>
<td>Mozambique</td>
<td>113, 131</td>
</tr>
<tr>
<td>Munasinghe, M.</td>
<td>198</td>
</tr>
<tr>
<td>Munawir, S.</td>
<td>112, 129</td>
</tr>
<tr>
<td>Múñoz-Piña, C.</td>
<td>29, 43, 46, 103–4, 133</td>
</tr>
<tr>
<td>Muradian, Roldan</td>
<td>1, 4, 90–149, 151, 156</td>
</tr>
<tr>
<td>Myers, R.</td>
<td>58</td>
</tr>
<tr>
<td>Nadar, L.</td>
<td>261</td>
</tr>
<tr>
<td>Naidoo, R.</td>
<td>70, 71</td>
</tr>
<tr>
<td>Nair, P.</td>
<td>77</td>
</tr>
<tr>
<td>Narayan, D.</td>
<td>266</td>
</tr>
<tr>
<td>Narloch, Ulf</td>
<td>150–71</td>
</tr>
<tr>
<td>natural capital restoration value</td>
<td>see ecosystem-based restoration benefits, natural capital restoration value</td>
</tr>
<tr>
<td>Nautiyal, S.</td>
<td>152</td>
</tr>
<tr>
<td>Neef, A.</td>
<td>18</td>
</tr>
<tr>
<td>Nelson, E.</td>
<td>1</td>
</tr>
<tr>
<td>Nemomissa, S.</td>
<td>76, 80</td>
</tr>
<tr>
<td>Netherlands</td>
<td>5–6, 245</td>
</tr>
<tr>
<td>Neumayer, E.</td>
<td>67</td>
</tr>
<tr>
<td>Nhate, V.</td>
<td>113, 131</td>
</tr>
</tbody>
</table>
Nicaragua, Silvopastoral Project 28, 41, 46, 112, 128, 168
Niesten, E. 16, 109, 121, 143
Nordhaus, W. 175, 217
Norton, B. 196
Norway 239
Nunes, P. 195, 259
Nussbaum, M. 200

O’Connor, D. 16, 45
OECD, agricultural policies 21–2
O’Hara, S. 271
Olchev, A. 77
Olinto, P. 135
Ollman, B. 264
Orr, D. 196
Ostrom, E. 47, 84, 174, 265
Oswald Spring, U. 260
Ouédraogo, J.-B. 262

PACS schemes see agrobiodiversity conservation, PACS schemes (payments for agrobiodiversity conservation services)


Pakistan, institution and ecosystem functions see institution and ecosystem functions, Keti Bunder, Pakistan
Paquin, M. 19
Paraguay, Tekopora project 134
Parenti, C. 269
Parker, Ian 259–78
Parry, M. 248
Pascual, Unai 51, 90–171
Pattanayak, S. 34, 39

payments for ecosystem services (PES) 1–57, 279–80
agro-biodiversity schemes 23–4
agrobiodiversity conservation see agrobiodiversity conservation, in-situ, PES potential
biodiversity protection 3, 17
bundling of services 34
buyers’ identity, significance of 23
carbon sequestration PES 3
characteristics of 25–39
and commodity fetishism 266
conceptual confusion 20
conditional payments 2–3, 39
counterfactual outcome, estimation of 35–6
definition 18–25
deforestation see forestry
development benefits, potential to deliver 33
economic evaluation 3, 4–6
efficiency concerns 37–8, 39–49
endogenous selection effect 35–6, 37
environmental services, logic of payments for 22–3
equity and efficiency 90–91
free-rider problem 34, 138
future research 34
government-financed programmes 34, 39, 47
human well-being see welfare
impact estimation 35–6
implementation conditions 34–9, 288
indirect externalities, focus on internalizing 20–21
integrated conservation–development projects 19–20
international environmental public goods, paying for 180–81, 188
international-level schemes 24–5, 47–8
land management practices, incentives to follow 22–3
landholders, private decisions of 32
landscape beauty PES 3
long-term service provision, lack of guarantee of 5
marginal benefits, estimation of 44–5
OECD agricultural policy origins 21–2
and poverty see poverty
price-based mechanisms, efficiency of 32–3
‘purchasers should be users’ requirement 20
redistributive mechanism, PES as 4
spillover effects 45, 47–8
success and dependent variables 287–8
transaction costs, estimation of 44
Index

user-financed programmes 34, 47
water protection schemes 3, 23, 24
see also environmental and social
protection, and PES and
CCT comparison; equity and
efficiency in payments for
ecosystem services, relationship
between
Pazmino, Nathalie 120–49
Pearce, D. 51, 63, 64, 180
Pearson, R. 113, 130
PEPAS (Payments for Environmental
and Poverty Alleviation Services)
see environmental and social
protection, PEPAS (Payments
for Environmental and Poverty
Alleviation Services)
Perales, H. 153
Perez-Ribas, R. 135, 144
Perfecto, I. 78, 79, 80
Perrings, Charles 16–57, 150, 151, 152,
172–91
Perrot-Maitre, D. 3, 116, 287, 288, 289
Peru 135
Pfaff, A. 37, 48
Phelps, J. 184
Philippines 112–13, 130, 151, 167
Philpott, S. 77, 80
Pimampiro programme, Ecuador 30,
41, 46
Pini, B. 260
Pirard, R. 19, 20
Platais, G. 5, 23, 154, 162
Polanyi, K. 267
Polasky, S. 83
policy implications
ethical foundations of cultural
diversity 274
international environmental public
goods see international
environmental public goods, paying for, policy options
policy trade-off curve (PTOC) 94,
95, 96, 102, 104
regulation of ecosystem services see
trade-offs in ecosystem services,
management of, regulation of
ecosystem services
Porras, I. 2, 20, 151, 155, 179, 181
Porter, G. 51
poverty
capability poverty measure (CPM)
200
pro-poor effects 91, 93, 100, 101–2,
164–5
reduction 6, 19, 20, 25, 136, 137,
140–42, 193–4, 200
poverty alleviation efforts and payment
levels 109–19, 281–2, 284
conditional cash transfers (CCT),
purpose of 115, 116
conditional cash transfers (CCT) use
109, 110, 115
conditional cash transfers (CCT)
use, payment assessment
110–11
environmental and socio-economic
systems, links between 116–17
geographic targeting 115
incentives to beneficiaries 115
payments for ecosystem services
(PES) 109–10, 113–17
payments for ecosystem services
(PES), bundled ecosystem
services, cost-effectiveness of
116
payments for ecosystem services
(PES), purpose of 115, 116
PES and CCT amounts, comparison
of 111–13, 115
poverty reduction concept 110–11
Pretty, J. 27
Proctor, W. 91
PROFAFOR programme, Ecuador
5–6, 30, 42, 46, 98, 112, 124, 133,
134, 136, 137, 289
PROGRESA (Oportunidades)
programme, Mexico 112, 127, 132,
134, 136
property rights identification 92, 95,
105
Prügl, E. 267
PSA-CABSA programme, Mexico 112,
127, 137
PSAH programme, Costa Rica 6, 37–8,
45, 132, 133
public goods, environmental see
international environmental public
goods, paying for
Puleo, A. 259
Values, payments and institutions for ecosystem management

Rafey, W. 217
Rajchman, J. 267
Rangel, A. 201
Rawlings, L. 109, 121, 132
Rayden, T. 232
Redford, K. 1
regulation see policy implications
Reid, W. 33, 58, 109, 116
Reist-Marti, S. 157, 158
restoration benefits, ecosystem-based
see ecosystem-based restoration benefits
Rice, R. 16, 109, 121, 143
Ricketts, T. 77
Righelato, R. 82
Rios, A. 112, 125, 128
Robalino, J. 48
Robertson, A. 266
Robertson, N. 39
Robinson, G. 196
Rockström, J. 74
Rockström, J. 81
Rodriguez, Luis C. 90–149
Rojas, M. 19
Romero, C. 20
Rosegrant, M. 58
Roy, M. 51
Ruane, J. 157
Rudel, T. 48
Ruijs, A. 120
Russman, E. 37
Sachs, J. 33, 58, 109, 116
Sajise, A. 151
Sala, O. 195
Salim, R. 197
Salman, Aneel 192–214
Salzman, J. 18
Samuelson, P. 180
Sanchez-Azofeifa, G. 16, 37
Sandler, T. 174, 175, 180
Schady, N. 134, 135
Schafrin, A. 268
Scheer, S. 102
Scheffer, M. 74
Scherr, S. 16, 109
Schilizzi, S. 163
Schmitt, C. 76
Schneider, S. 58, 198
Schokkaert, E. 96
Schröter, D. 58, 71
Schubert, B. 120, 121, 136
scientific foundations, agrobiodiversity conservation 156, 157
Scolel Tê Project, Mexico 31, 42–3, 46
Semu-Banda, P. 140
Sen, A. 99, 100, 200
Senbeta, F. 76
Settele, J. 4
‘shadow price’ and net national product (NNP) accounting framework 194–5
Shapouri, S. 102
Sharma, E. 1
Shennan, C. 75
Sidle, R. 76
Sierra, R. 37
Siikamäki, J. 32, 33
Silvopastoral Project, Nicaragua 28, 41, 46, 112, 128, 168
Simpson, R. 20, 21, 33, 34, 91, 109, 121, 139, 150, 155, 180
Singh, S. 196
Skoufias, E. 121, 136
Slater, R. 120, 121, 136
Slovic, P. 264
Smale, M. 152, 154, 163, 165
Smith, J. 109
social systems, conflict in 93, 98, 100–101, 263
society, and cultural diversity see ethical foundations of cultural diversity
Soto-Pinto, L. 78
South Africa, Working for Water (WfW) Program 29, 40, 46, 47
Sovacool, B. 217
Spain 21
Spain, A. 75
Spangenberg, J. 4
Spash, C. 267
Spracklen, D. 82
Sri Lanka 233
Srivastava, V. 262
Stafford, M. 249
Stage, R. 217
stakeholder effect 96, 99–100, 103
Standing, G. 121, 141, 143
Stavins, R. 181
Index

303

Steffan-Dewenter, I. 77
Steinfel, H. 72
Stern, N. 197, 217, 227, 233
Stückler, C. 186
Stoneham, G. 136, 163
Stromberg, P. 158
Stutzer, A. 200
Sugden, R. 200
Sukhdev, P. 193, 284
Summer, D. 51
sustainability issues 162, 200–201, 204, 206–8, 210
Suyanto, S. 109, 121
Swallow, B. 16
Swanson, T. 153, 154
Sweden, Payments for Wildlife Conservation 28
Swim, J. 267
Switzerland 245

Tacconi, L. 288
Tallis, H. 1, 2, 19, 23, 25, 33, 70
Tanuro, D. 266
targeting mechanism
environmental and social protection 123, 142, 143
geographical 123–31, 135, 153–4
Tazi, N. 267
technology of supply, international environmental public goods 174–5, 176, 186–7
Tekopora project, Paraguay 134
Terakunpisut, J. 233
Thailand 233
Thiaw, Ibrahim 1–15
Thomas, J. 268
Thompson, M. 203
Tietenberg, T. 16
Tilman, D. 196
Tipper, R. 42–3, 46
Tirmizi, N. 203
Tol, R. 217, 227
Toledo, V. 77
Tomich, T. 39
Touza, J. 172, 175, 177, 186
trade-offs in ecosystem services, management of 70–89, 281
Ecosystem Services Districts, development suggestion 84
framework proposal 80–83
framework proposal, conservation landscapes 82
framework proposal, degraded landscapes 82–3
framework proposal, intensively used agricultural landscapes 81–2
future research 71
multiple services, interlinking of 71
provisioning ecosystem services in isolation, focusing on 71–2
provisioning and regulating services 72–3
provisioning services definition 70
service-providing unit (SPU) 71
trade-offs in ecosystem services, management of, regulation of ecosystem services 73–80
biological control 75, 77, 78
certification schemes with price premiums 80, 81
cclimate regulation and forecasting problems 74
coffee production 76–80
pollination 75, 77, 78
soil quality maintenance 75–6, 77, 78, 81
water regulation 74, 77
transaction costs 44, 142, 143, 163–4
see also cost–benefit assessment
Tucker, C. 47
Tuhiwai Smith, L. 262
Turner, R. Kerry 58–69
Turpie, J. 29, 40, 46, 47, 101
Tuvendal, Magnus 70–89

UK 21, 27, 239, 245
Umali-Deininger, D. 102
UN Framework Convention on Climate Change (UNFCCC)
Convention on Long Range Transboundary Air Pollution 187
Kyoto Protocol, carbon sequestration markets 24–5
Reduced Emissions from Deforestation and forest Degradation (REDD) scheme 16, 45–7, 181–5, 186
see also Intergovernmental Panel on Climate Change (IPCC)
Values, payments and institutions for ecosystem management

US 5, 239, 242, 246, 263
Catskill watershed valuation 195
Conservation Reserve Program (CRP) 21, 26–7
value
economic valuations, foundations for alternatives, ethical foundations of cultural diversity 271–3
natural capital restoration see ecosystem-based restoration benefits, natural capital restoration value
see also cost–benefit assessment
valuing ecosystem services 4–6, 58–69, 280–81
adjusted market prices and willingness to pay (WTP) 62
damage cost avoided approach 63–5
discount function, decline of 68
equity and efficiency in payments 103
‘here and now’ versus ‘there and then’ 65–8
human benefits and ecosystem processes, relationships between 59–60
individual preferences, temporal context 67–8
institution and ecosystem functions 194–7
intergenerational opportunities 67
intermediate and final services–benefits scheme 59–61
market price as poor approximation of value 61
preference changes 67
prices versus values 61–5
productivity methods 62
replacement costs as proxy for loss of existing services 65
revealed preference methods 62
services versus benefits 59–61
stated preference methods and willingness to pay (WTP) 63, 66
supply and demand and consumer surplus 61
temporal and spatial context 65–8
value measurement 61–2
water regulation, spatial context 65–6
wetland restoration and temporal changes 66–7
Van de Wouw, M. 156
Van den Bergh, J. 195, 259
Van der Hamsovoort, C. 163
Vaughan, M. 75
Venter, O. 116
Vitas Soares, F. 121
Vermeulen, S. 112, 129
Viana, V. 112, 125
Vittel PES, France 3, 29
Wagner, M. 84
Wale, E. 151
Walker, B. 196
Wallace, K. 59
Wang, H. 198
water protection schemes 3, 23, 24, 65–6, 74, 77, 98, 103–4
Working for Water (WfW) Program, South Africa 29, 40, 46, 47
Weitzman, M. 33, 157, 159–61
welfare
human well-being and health 17, 44, 199–200, 201, 203–4, 209, 222–3, 225–6
outcomes, evaluation of 98–103
social protection mechanisms 121–2, 123
see also ethical foundations of cultural diversity