

Handbook of Globalization and the Environment

Khi V. Thai
Dianne Rahm
Jerrell D. Coggburn

Table of Contents

1 Globalization and the Environment: an Introduction	1
<i>Khi V. Thai, Dianne Rabm, and Jerrell D. Cogburn</i>	
1.1: Overview	1
1.1.1: The Conceptual Meaning of Globalization	2
1.1.2: Perspectives on Sustainable Economic Growth	2
1.1.3: Globalization, the Environment, and Sustainable Economic Growth	2
1.1.3.1: Globalization and Sustainable Economic Growth	3
1.1.3.2: Globalization and a Sustainable Environment	4
1.2: Book Contents	5
1.2.1: Part One: Global Environmental Issues and Policies	5
1.2.2: Part Two: Global Environmental Organizations and Institutions	8
1.2.3: Part Three: Environmental Management and Accountability	10
1.2.4: Part Four: Controversies in Globalization and the Environment	12
Acknowledgments	14
References	14

PART I: GLOBAL ENVIRONMENTAL ISSUES AND POLICIES

2 Sustainable Development in an International Perspective	19
<i>Ross Prizzia</i>	
2.1: The Movement toward Sustainable Development	19
2.1.1: Definition	19
2.1.2: From Stockholm to Rio, Kyoto, and Beyond	20
2.1.3: Growth as a Challenge to Sustainable Development	22
2.1.4: Sustainable Development in the United States	26
2.2: National Strategies and Good Practices in OECD Countries	28
2.2.1: Policy Integration	30
2.2.2: Intergenerational Timeframe	31
2.2.3: Analysis and Assessments	32
2.2.4: Indicators and Targets	33

2.2.5: Coordination and Institutions	34
2.2.6: Local and Regional Governance	35
2.2.7: Stakeholder Participation	36
2.2.8: Monitoring and Evaluation	37
2.3: Conclusion	39
References	40

3 European Global Warming Policy 43

David Howard Davis

3.1: Introduction	43
3.2: The European Union Commission	43
3.3: Climate Change Treaty Structure	47
3.4: EU Involvement	48
3.5: The Kyoto Conference	50
3.6: Trading	53
3.7: The Individual European Countries	55
3.8: Conclusion	60
References	60

4 Transborder Air Pollution 61

Zachary A. Smith and Katrina Darlene Taylor

4.1: Introduction	61
4.2: Air Pollution	62
4.2.1: Causes	62
4.2.2: Acid Deposition	63
4.3: Countries Significantly Affected by Transborder Air Pollution	63
4.3.1: Europe	63
4.3.2: Russia	64
4.3.3: United States and Canada	64
4.3.4: United States and Mexico	65
4.3.5: China and Japan	65
4.4: The Globalization Effect	65
4.4.1: WTO	66
4.4.2: NAFTA	66
4.4.3: Viewpoints of the Relationship between Trade Liberalization and the Environment	66
4.5: International Environmental Regimes	67
4.5.1: Trail Smelter Dispute	68
4.5.2: LRTAP	69
4.5.3: MOI	71
4.5.4: La Paz	72
4.6: Conclusion: Future Trends in Transborder Air Pollution Control	72
References	75

5 Desertification 77

Steffan Bauer

5.1: Introduction	77
5.2: Desertification as a Global Issue	78

5.2.1: The Issue at Stake: Dryland Degradation	78
5.2.2: A Brief History of Desertification	81
5.2.3: Desertification and Global Interdependence	82
5.2.3.1: Agricultural Trade Liberalization	83
5.2.3.2: Climate Change and Loss of Biological Diversity	84
5.3: Governing Global Desertification	85
5.3.1: The Political Globalization of Desertification	85
5.3.2: The UNCCD Process in its First Decade	87
5.4: Summary and Outlook	90
References	91

6 The Environmental Frontier of Space 95

W. Henry Lambright and Anna Ya Ni

6.1: Introduction	95
6.2: Conceptual Framework	96
6.3: Space and the Home Planet	96
6.3.1: Space in the Environment—Energy Decade	97
6.3.2: The Ozone Hole	99
6.3.3: Mission to Planet Earth and Earth Observation System	99
6.3.4: Landsat	100
6.4: Near-Earth Orbit	102
6.4.1: The Commercial Significance of Geosynchronous Orbit	102
6.4.2: Policy Problems of Geosynchronous/ Geostationary Orbit	104
6.4.3: Electromagnetic Spectrum	105
6.4.4: The Role of International Telecommunications Union	106
6.4.5: Space Debris	106
6.4.6: The Outer Space Treaty	107
6.5: Deep Space as Environment	108
6.5.1: The Moon	108
6.5.2: Mars	109
6.5.3: Beyond	110
6.6: Conclusion	111
References	112

7 Human Rights to Water 115

Zachary A. Smith and Kristi L. Ross

7.1: Introduction	115
7.2: Addressing the Variables that Affect Access	116
7.2.1: Distribution, Supply, and Demand	116
7.2.2: Pollution	118
7.3: Toward Human Rights to Water	119
7.3.1: Integrated Water Resources Management	120
7.3.2: What is a Human Right to Water?	121
7.3.3: Challenges	123
7.3.4: International Trade	125
7.4: Implications of a Human Right to Water	126
7.5: Alternatives	129
7.6: Conclusions	130
References	132

PART II: GLOBAL ENVIRONMENTAL ORGANIZATIONS AND INSTITUTIONS

8 Global Environmental Governance	137
<i>Frank Biermann</i>	
8.1: Introduction	137
8.2: The Concept of Global Environmental Governance	138
8.3: Characteristics of Global Environmental Governance	141
8.3.1: Increased Segmentation: Complexity through Fragmentation	141
8.3.2: Increased Participation: Diversity through Inclusion	142
8.3.3: Increased Privatization: Negotiation through Partnerships	144
8.4: Current Reform Debates	144
8.4.1: Segmentation: the Debate on a United Nations Environment Organization	145
8.4.2: Participation and Privatization: Institutionalizing Civil Society Involvement	148
8.5: Conclusion	149
References	150
9 The Role of the United Nations: from Stockholm to Johannesburg	155
<i>Lisa Nelson</i>	
9.1: Introduction	155
9.2: Stockholm, 1972: Convention on the Human Environment	158
9.2.1: Creation of the UNEP	158
9.2.2: Initial Multilateral Environmental Agreements, 1972–1987	159
9.3: Brundtland Report, 1987	160
9.4: Rio De Janeiro, 1992: the Earth Summit and Agenda 21	161
9.4.1: The Rio Declaration	161
9.4.2: Agenda 21	161
9.4.3: The Convention on Climate Change	162
9.4.4: The Convention on Biodiversity	162
9.4.5: Commission on Sustainable Development	162
9.4.6: Rio +5	163
9.4.7: Summary of Rio Conference	163
9.5: The Millennium Development Goals, 2000	163
9.6: Johannesburg, 2002: Renewal of Commitments	166
9.7: Additional Conventions and Secretariats, 1993–2002	166
9.8: Beyond the 2002 Earth Summit	167
Appendix A: Rio Declaration	170
Annex I	170
Appendix B: Excerpt from the Johannesburg Declaration on Sustainable Development	174
References	174
10 The World Trade Organization: Free Trade and Its Environmental Impacts	177
<i>Fariborz Zelli</i>	
10.1: Introduction	177
10.2: What Impact and How to Assess It?	178

10.2.1: Classical Assumptions about the Impact of Trade Liberalization	178
10.2.2: Looking for a Signpost: the WTO's Effect on Domestic and International Environmental Policies and Standards	180
10.3: The WTO's Environmentally Relevant Institutions	182
10.3.1: The Old GATT and the Environment	183
10.3.2: WTO Bodies of Environmental Relevance	184
10.3.3: WTO Rules of Environmental Relevance	185
10.4: Conflicts between WTO Law and Domestic Environmental Law	187
10.4.1: Cases on Issues of Species Protection and Biological Diversity: Direct Import Restrictions	188
10.4.2: Cases on Human Health Issues: Risk Assessment, Prior Informed Consent, and Labeling Requirements	190
10.4.3: Conclusion: the WTO is Taking Over	192
10.5: Conflicts between WTO Law and Multilateral Environmental Agreements	193
10.5.1: Increasing Institutional Overlap and Conflict among International Institutions	193
10.5.2: The Basel Convention, Cites and the Montreal Protocol: Direct Import Restrictions	194
10.5.3: The Climate Change Regime: Mix of Direct and Indirect Trade Restrictions	196
10.5.4: The Convention on Biological Diversity: Benefit-Sharing, Prior Informed Consent and Labeling Requirements	198
10.5.5: Conclusion: No Dispute, No Problem?	201
10.6: Strategies and Proposals to Improve WTO Compatibility with Environmental Law	203
10.6.1: A Solution under the Legal Status Quo?	203
10.6.2: Initiatives from the Inside	204
10.6.3: Suggestions from the Outside	206
10.7: Summary and Concluding Remarks	209
References	212

11 United Nations Conferences and the Legitimization of Environmental NGOs	217
<i>Kyle Farmbry and Aroon Manoraban</i>	
11.1: Introduction	217
11.2: Conceptualizing NGO Growth	218
11.3: NGOs and Environment Discourse: between Stockholm and Johannesburg	220
11.3.1: Stockholm (1972)	221
11.3.2: Implications for NGOs	222
11.4: United Nations Conference on Environment and Development, Rio de Janeiro, 1992	223
11.5: Implications for NGOs	225
11.6: Summit on Sustainable Development, Johannesburg, 2002	226
11.7: Implications for NGOs	228
11.8: Prescriptive Thoughts	228
11.9: Conclusion	230
References	231

12 Global Academia: the State of Environmental Learning and Awareness 233
Brent S. Steel and Rebecca L. Warner
 12.1: Introduction 233
 12.2: Why is Environmental Learning Important? 235
 12.2.1: Correlates and Sources of Environmental Knowledge and Awareness 237
 12.2.1.1: Information Sources 238
 12.2.1.2: Formal Environmental Education 240
 12.3: State of Global Environmental Awareness 240
 12.4: Approaches to Increasing Environmental Awareness 244
 12.4.1: Developing Countries 245
 12.4.2: Postcommunist Countries 247
 12.4.3: Postindustrial Countries 248
 12.5: Conclusion 250
 References 251

PART III: ENVIRONMENTAL MANAGEMENT AND ACCOUNTABILITY

13 Government Green Procurement in the U.S.: an Approach to Meeting Global Environmental Challenges 259
Jerrell D. Coggburn and Dianne Rahm
 13.1: Introduction: Global Environmental Challenges 259
 13.2: The U.S. Environmental Framework 260
 13.3: What is “Green” Procurement? 261
 13.4: Evolution of Green Procurement in Federal Government 262
 13.5: Green Procurement in U.S. State and Local Governments 268
 13.6: Adopting and Implementing Green Procurement 270
 13.6.1: Green Procurement Policies: Mandatory versus Voluntary 270
 13.6.2: Integrating Green Procurement 271
 13.6.3: Strategies for Green Procurement Implementation 272
 13.6.3.1: Price Preferences 273
 13.6.3.2: Green Specifications 273
 13.6.3.3: “Best Value” Approach and Life Cycle Analysis 274
 13.6.3.4: Setting Green Procurement Goals 275
 13.6.3.5: Raising Awareness about Green Procurement 275
 13.6.3.6: “Green Teams” 276
 13.6.3.7: Cooperative Green Procurement Efforts 277
 13.7: Challenges Facing Green Procurement 277
 13.8: Conclusion: Assessing Government’s Green Procurement Efforts 281
 References 286

14 Environmental Management 289
Laura F. Pasquale
 14.1: Introduction 289
 14.2: U.S. Environmental Regulation 289
 14.2.1: Introduction 289
 14.2.1.1: Legislative History 290
 14.2.1.2: Pollution Prevention 291
 14.2.1.3: Current Regulatory Options 291

14.2.2: Systems Analysis	292
14.2.2.1: System Characteristics and Policy Implications	292
14.2.2.2: Context	293
14.3: Environmental Management Systems	297
14.3.1: Background	297
14.3.2: Systems Analysis	299
14.3.2.1: Better Alignment	299
14.3.2.2: Decreased Resistance	299
14.3.2.3: Enhanced Use of Information	300
14.3.2.4: Increased Range of Response	300
14.3.2.5: Stronger Foundation	300
14.3.2.6: Tighter Feedback Loops	300
14.3.3: Research Data	301
14.3.3.1: Systems Research	301
14.3.3.2: Stakeholder Participation	301
14.3.3.3: Future Research	303
References	304

15 Sustainable Waterfront Development in the Great Lakes Basin 311

Wendy A. Kellogg and Erica M. Matheny

15.1: Introduction	311
15.2: Waterfront Growth, Decline and Redevelopment in the Great Lakes Basin	313
15.3: Urban Sustainability as a Framework for Waterfront Regeneration	316
15.4: Case Studies	317
15.4.1: Selection of Cases	317
15.4.2: Waterfront Redevelopment Cases	318
15.4.2.1: Toronto, Ontario, Canada	318
15.4.2.2: Chicago–Calumet, Illinois, United States	320
15.4.2.3: Hamilton, Ontario, Canada	322
15.4.2.4: Cleveland, Ohio, United States	325
15.5: Discussion	328
15.5.1: Shared Historic Experiences	328
15.5.2: Land	329
15.5.3: Political System	329
15.5.4: The Timeframe of Planning	330
15.5.5: Sustainability as a Waterfront Planning Framework	330
Acknowledgments	331
References	331

16 Getting Agricultural Productivity and Environmental Sustainability at the Same Time: What Matters, What Doesn't? 335

Edward P. Weber, Madina Kbalmirzaeva, Mark Stephan, Tetyana Lysak, and Ilhom Esanov

16.1: Introduction	335
16.2: Research Methods	337
16.3: Performance Outcomes	338
16.4: Explaining the Policy Performance of the Uzbek WUAs	343
16.4.1: Formal Institutions: form and Function	343
16.4.2: The Physical Wealth Framework	346

16.4.3: Informal Institutions: the Social Side of the Street	347
16.4.4: The Three Frameworks and the Policy Results: How Do They Measure Up?	350
16.5: Conclusion	351
Appendix A: Crop Productivity Data	353
Appendix B: Participation and Awareness Index	354
Appendix C: Levels and Sources of Outside Help	354
WUA, Outside Support Crosstabulation Results	355
Appendix D: Egalitarian and Accountability Indexes	355
Egalitarian Decision-Making Index	355
Accountability Index	356
Acknowledgments	356
References	356

17 Sustainability Issues in Public Procurement 359

Brian Pangrle

17.1: Introduction	359
17.1.1: Government Spending	359
17.1.2: Sustainable or Green Procurement?	359
17.1.3: Implementation through a Procurement Code	360
17.2: Brief Background	361
17.3: What is "Sustainable"?	361
17.3.1: Experience of U.S. Forest Service	361
17.3.2: Sustainability at Various Levels	363
17.3.3: Summary of Programs	365
17.4: Implementation in the U.S.: National and Local	366
17.4.1: U.N. to National Level	367
17.4.1.1: U.N. to U.K. and Concerning EU	367
17.4.1.2: U.S. Involvement in the U.N.: Millennium Challenge Account	367
17.4.2: U.S. National Level to Local Level	368
17.5: Objective Definitions for "Sustainable" in a Procurement Code	369
17.5.1: Example: the Mirra™ Chain and Aluminum	369
17.5.2: Example: Sustainable Buildings	371
17.6: Harmonization of Procurement Codes and Sustainable Codes	372
17.7: Conclusion	376
References	377

18 Managing Nuclear Waste 381

Catherine Horiuchi

18.1: Introduction	381
18.2: How is Nuclear Waste Categorized?	382
18.3: Distinguishing Attributes of Nuclear Material	385
18.4: The Regulatory Framework	386
18.5: Yucca Mountain	387
18.6: Policy Modifications Resulting from the "Global War on Terror"	391
18.7: Effect of the Kyoto Protocol	392
18.8: Conclusion	393
Appendix A: Warnings across Millennia	394
Appendix B	396
References	396

19	Inter-Agency Collaborative Approaches to Endangered Species Act Compliance and Salmon Recovery in the Pacific Northwest	401
	<i>Nicholas P. Lovrich, Edward P. Weber, Michael J. Gaffney, R. Michael Bireley, Bruce Bjork, and Dayna R. Matthews</i>	
	19.1: Introduction	401
	19.2: Legal and Physical Setting	403
	19.2.1: Background	403
	19.2.2: The NOAA Response	404
	19.2.3: The WDFW Response	405
	19.2.4: Strategy for Implementation	406
	19.3: The Methow Valley	407
	19.3.1: Background	407
	19.3.2: Okanogan County Memorandum of Understanding	409
	19.3.3: Compliance in the Methow Valley	409
	19.3.4: MOU Negotiations Fail	410
	19.4: The Walla Walla River Basin	410
	19.4.1: Background	410
	19.4.2: A Take Occurs in the Walla Walla Basin	410
	19.4.3: Compliance Issues in the Walla Walla River Basin	411
	19.4.4: The Environmental Advocacy Component	412
	19.4.5: Compliance in the Walla Walla Basin-Cooperation Rather than Confrontation	413
	19.4.6: The Cooperative Compliance Initiative	413
	19.4.7: Interim Outcomes in the Walla Walla	414
	19.5: Methods	415
	19.5.1: Defining Success	415
	19.5.2: The Need to Measure Outcomes	415
	19.6: Findings	417
	19.6.1: Demographic Factors	417
	19.6.2: Environmental and Political Values	418
	19.6.3: Level of Trust in Key Actors	422
	19.6.4: Support for the ESA	423
	19.6.5: Citizen Perceptions of Good Faith Bargaining	424
	19.7: Discussion	425
	19.8: Conclusion	426
	References	427

PART IV: CONTROVERSIES IN GLOBALIZATION AND THE ENVIRONMENT

20	Eco-Terrorism: a Natural Reaction to Violence?	433
	<i>Michael J. Mortimer</i>	
	20.1: Introduction to a Cause	433
	20.2: Definitions, Semantics, and a Common Syntax	435
	20.3: Direct Action in a Contemporary Context	438
	20.4: Causal Factors: Self-Defense, Environmental Preservation, and Anti-Global Rhetoric	439
	20.5: Defining Anti-Globalism	441
	20.6: Implications for the Future	442

20.7: Remedies	443
20.8: Conclusions	445
References	446

21 Globalization, Environmental Challenges and North-South Issues 449

Joyeeta Gupta

21.1: Introduction	449
21.2: Globalization	450
21.2.1: Introduction	450
21.2.2: Theories on Globalization: Modernization versus Re-colonization	450
21.2.3: Impacts of Globalization: Enrichment versus Impoverishment	452
21.2.4: Managed Governance: Anarchy versus Rule-Based Order	454
21.2.5: Spontaneous Globalization: Autonomous versus Orchestrated	455
21.2.6: Inferences	457
21.3: Are Resources and Environmental Space Limited?	457
21.3.1: Introduction	457
21.3.2: The Goal: Development versus Sustainable Development	457
21.3.3: The Resource Base: Limited or Unlimited?	459
21.3.4: Environmental Space: Property or Human rights?	460
21.3.5: Inferences	460
21.4: A Brief History of North-South Issues	461
21.4.1: Introduction	461
21.4.2: North-South: Moot or Passé?	461
21.4.3: UN Politics: Development versus Environment	462
21.4.4: G-77 Power: Ebb and Flow	462
21.4.5: The Emerging Powers: Friend or Foe	463
21.4.6: Inferences	463
21.5: North-South Problems in Global Governance	464
21.5.1: Introduction	464
21.5.2: Problem Definition: Scaling Up to Gain Control; Scaling Down to Avoid Responsibility	464
21.5.3: Dilemmas: To Do or Not to Do	465
21.5.4: Negotiation Challenges	466
21.5.5: Negotiation Outcomes	466
21.5.6: Inferences	467
21.6: Conclusion	467
Acknowledgments	468
References	468

22 Environmental Justice: a Global Perspective 473

Celeste Murphy-Greene

22.1: Introduction	473
22.2: Literature Review	474
22.2.1: Chronological History of the Environmental Justice Movement in the United States	474
22.2.2: Environmental Justice Received National Recognition	475
22.2.3: President Clinton Formally Addressed Environmental Justice	477
22.2.4: Analysis of Recent Environmental Justice Literature	478

22.3: Global Environmental Justice Issues	481
22.3.1: Environmental Pollution in Developing Nations	482
22.3.2: Corporate Transnational Environmental Crime	483
22.4: Cases of Global Environmental Injustice	484
22.4.1: Nigeria's Ogoniland: a Region of Contrasts	484
22.4.2: Post-Apartheid South Africa	485
22.4.3: United States–Mexican Border Region	486
22.5: Conclusion	487
Acknowledgments	488
References	489

23 Globalization and Growth of Developing Countries 491

Dang Tran

23.1: The Globalization Process	491
23.2: Effects of Globalization on LDCs	495
23.3: What Should LDCs Do?	499
23.3.1: The Necessity of a Market Economy	499
23.3.2: Opportunity Provided by Globalization	500
23.3.3: Costs, Prices, Product Qualities, and Technological Innovations	501
23.3.4: Institutional Factors	502
23.3.5: Role of the Government	503
23.3.6: Attractiveness and Competitiveness of a Nation	505
23.3.7: Emphasis on Manufactures and High-Technology Products	506
23.3.8: Environmental Consequence of Growth	508
23.4: A Growth Model as a Guide for Policy Formulation	509
23.4.1: Demand for Export Function	510
23.4.2: Demand for Import Function	510
23.4.3: Balance of Payments Equilibrium Condition	510
23.4.4: Wage Setting Condition	513
23.4.5: Verdoorn's Law	513
23.4.6: Balance of Payment Equilibrium Growth	514
23.5: Empirical Estimation of Parameters	515
23.6: Policy Implication of Globalization	515
23.7: Conclusion	518
Appendix A	519
Appendix B	520
A. Wage Cost	520
B. Increasing Returns to Scale	521
C. Capital Inflows	521
D. Inflation	521
E. Expansion of the World Economy	522
F. Currency Devaluation	522
References	522

24 Complexity and the Science–Policy Interface 527

Kathi K. Beratan

24.1: Introduction	527
24.2: Complex and Contentious Problems	528
24.3: Shifting Views of Science	529
24.4: Institutional Change	532

24.5: Practical Strategies for Managing the Interface	536
24.5.1: Question-Framing	537
24.5.1.1: Problem Definition	537
24.5.1.2: Formulation of Scientific Research Questions	539
24.5.2: Models as Tools to Assist Development of Shared Understanding	540
24.5.3: Boundary Organizations	542
24.6: Process Design Considerations	545
24.7: Conclusion	547
Acknowledgments	548
References	548

25 Multi-Party Environmental Negotiations: the Democratizing Nations of Mexico and Ecuador 553

Jennifer E. Horan and Donna L. Lybecker

25.1: Introduction	553
25.2: Negotiations within Latin American Countries	555
25.3: Mexico	555
25.3.1: Mexican Environmental Politics and Management	556
25.3.2: The Mexican State	557
25.3.3: Mexican Environmental Negotiations: the Actors	558
25.3.4: Genuine Inclusion or Superficial Change? The Gray Whale Controversy	559
25.3.5: Mexican Environmental Negotiations: Gray Whales and the Desert Biosphere Reserve	560
25.3.6: Mexican Environmental Negotiations: Lessons from the Gray Whale Controversy	562
25.4: Ecuador	563
25.4.1: Ecuadorian Environmental Politics and Management	564
25.4.2: Problems of Institutional Legitimacy	565
25.4.3: Ecuadorian Environmental “Negotiations”: the Actors	566
25.4.4: Ecuadorian Environmental Negotiations: the Case of Cayapas–Mataje	568
25.4.5: Ecuadorian Environmental Negotiations: Lessons from the Case of Cayapas–Mataje	569
25.5: Conclusion	570
References	572