The third edition of this classic textbook offers comprehensive and critical commentary on international environmental law. It fully covers the key topics of the course and is clearly structured to include the history and framework in which international environmental law exists, key areas of regulation and implementation, links to other areas of law and future developments. It has been updated to incorporate all the latest developments in treaty and case law. Extensive feedback on previous editions results in a re-structuring of material, including a new part focused on linkage to other areas of international law including human rights, international trade and foreign investment. There is also a new chapter on future developments charting the directions in which the subject is moving. Specialist authors writing on oceans, seas and fisheries and biodiversity add to the expertise of the two principal authors for an authoritative overview of the subject.

Philippe Sands is Professor of Law and Director of the Centre on International Courts and Tribunals in the UCL Faculty of Laws. He is also a practising barrister, with extensive experience litigating cases before the International Court of Justice, the International Tribunal for the Law of the Sea, the International Centre for the Settlement of Investment Disputes, and the European Court of Justice.

Jacqueline Peel is an Associate Professor at the Melbourne Law School, with a background in environmental science and law. She has taught many courses in environmental law, international environmental law and climate change law, and has published widely in the field.
Contents

Foreword xxi
Preface and acknowledgments to the first edition xxv
Preface and acknowledgments to the second edition xxix
Preface and acknowledgments to the third edition xxxi
Table of cases xxxiii
Table of treaties and other international instruments xxxvii
List of abbreviations lxiii

PART I THE LEGAL AND INSTITUTIONAL FRAMEWORK

1 The environment and international society: issues, concepts and definitions 3
The environmental challenge 3
The basis for decision-making: science, economics and other values 5
Science 6
Economics 7
Other social objectives 8
Sustainable development 9
The international legal order 10
The functions of international law 10
Sovereignty and territory 11
International actors 13
The environment and international law: defining terms 13
Challenges for international environmental law 15
Further reading 16
International environmental law: texts, articles and history 16
Sources of international environmental law 18
Primary materials 18
International environmental jurisprudence 18
Journals 19
International law generally 19
International environmental law 19
International environmental co-operation and policy 19
Science and the state of the environment 20
Environmental economics and development 20
Websites 21
2 History 22

Introduction 22

From early fisheries conventions to the creation of the United Nations 23

From the creation of the United Nations to Stockholm: 1945–72 26

UNCCUR 27

The 1972 United Nations Conference on the Human Environment 30

Stockholm follow-up 33

From Stockholm to Rio: 1972–92 34

Post-Stockholm: treaties and other international acts 34

1978 UNEP draft Principles 36

1981 Montevideo Programme 37

1982 World Charter for Nature 37


Conclusions 40

UNCED 40

The Rio Declaration 42

Agenda 21 44

Beyond UNCED: trends and directions 45

World Summit on Sustainable Development 47

Conclusions 49

3 Governance: states, international organisations and non-state actors 50

Introduction 50

States 51

International organisations 52

Introduction 52

History of international organisational arrangements 53

UNCED 53

The function and role of international organisations 55

Global organisations 56

United Nations (www.un.org) 56

UN General Assembly 58

UN Environment Programme (www.unep.org) 60

UN Development Programme (www.undp.org) 62

International Law Commission (www.un.org/law/ilc) 63

UN Commission on Sustainable Development (www.un.org/esa/dsd/csd/csd_index.shtml) 65

Other subsidiary bodies established by the General Assembly 65

Economic and Social Council (ECOSOC) 67

Security Council 69

Trusteeship Council 69

International Court of Justice (www.icj-cij.org) 70

United Nations specialised agencies and related organisations 70

Food and Agriculture Organization (www.fao.org) 70

United Nations Educational, Scientific and Cultural Organization (www.unesco.org) 72

International Maritime Organization (www.imo.org) 72

International Labour Organization (www.ilo.org) 73

World Meteorological Organization (www.wmo.int) 73

International Civil Aviation Organization (www.icao.int) 74
UN Industrial Development Organization (www.unido.org) 74
World Health Organization (www.who.int) 74
International Atomic Energy Agency (www.iaea.org) 75
World Bank, International Monetary Fund, and World Trade Organization 76
Co-operative arrangements 76
Other global institutions 77
Regional and sub-regional organisations 77
Europe and the OECD 77
Africa 81
Americas and the Caribbean 82
Asia Pacific 82
Organisations established by environmental treaties 83

Non-state actors 86
Scientific community 87
Environmental, health and developmental organisations 88
Legal groups 88
Corporate sector 89
Individuals and indigenous communities 90
The media 91

Conclusions 92

4 International law-making and regulation 94

Introduction 94

Treaties 96
Environmental treaties 98
The treaty-making process 98
The 1969 Vienna Convention and legal issues relating to treaties 99
Interpretation 100
Entry into force 102
Reservations and interpretative declarations 103
Relations between international agreements 105
Amendment 107

Other international acts 108
Acts of international organisations 108
Conference declarations and other acts 110

Customary international law 111
State practice 112
Opinio juris 114
Treaties and custom 115
Persistent objector 116
Regional custom 117

General principles of international law 117
Equity 119

Subsidiary sources 120
Introduction to regulatory approaches 121

Direct regulation 122
Environmental quality standards 122
Product standards 123
Emissions standards 123
5 Compliance: implementation, enforcement, dispute settlement  135

Introduction  135
Implementation  138
National law  138
National compliance  139
Reporting  143

International enforcement  144
Enforcement by states  144
Damage to a state's own environment  145
Damage to the environment of another state  146
Damage to the environment in areas beyond national jurisdiction  146
Enforcement by international organisations  151
Enforcement by non-state actors  155
Enforcement in the national courts  155
International enforcement  157

International conflict resolution (settlement of disputes)  159
Introduction  159
Diplomatic means of dispute settlement  159
Negotiation and consultation  159
Mediation, conciliation, fact-finding and international institutions  161
Non-compliance procedures  163
Inspection procedures of multilateral development banks  167
NAFTA Commission on Environmental Cooperation  168
Legal means of dispute settlement  169
Arbitration  169
International courts  171
International Court of Justice  171
Contentious cases  172
Advisory opinions  174
Interim measures of protection  174
UNCLOS and ITLOS  175
WTDispute Settlement Body  177
European Court of Justice and Court of First Instance  179
Human rights courts  180

Conclusions  181
PART II PRINCIPLES AND RULES ESTABLISHING STANDARDS

6 General principles and rules 187

Introduction 187
Principles and rules 188
Sovereignty over natural resources and the responsibility not to cause damage to the environment of other states or to areas beyond national jurisdiction 190
Sovereign rights over natural resources 191
Sovereignty and extra-territoriality 192
Responsibility not to cause environmental damage 195
Conclusion 200
Principle of preventive action 200
Co-operation 203
Sustainable development 206
Introduction 206
Future generations 209
Sustainable use of natural resources 210
Equitable use of natural resources 213
Integration of environment and development 215
Conclusion 217
Precautionary principle 217
Polluter pays principle 228
OECD 230
European Union 231
Principle of common but differentiated responsibility 233
Common responsibility 234
Differentiated responsibility 234
Conclusions 236

7 Atmospheric protection and climate change 238

Introduction 238
Milestones in the development of atmospheric regulation 239
Trail Smelter case 239
Nuclear testing 240
Customary law 242
UNCED and WSSD 243
Urban and transboundary air pollution 245
1979 UNECE Convention on Long Range Transboundary Air Pollution and its Protocols 246
1979 LRTAP Convention 247
1984 Monitoring and Evaluation Protocol 248
1985 Sulphur Protocol 248
1988 NOx Protocol 249
1991 Volatile Organic Compounds Protocol 251
1994 Sulphur Protocol 253
1998 Aarhus Protocol on Heavy Metals 254
1998 Aarhus Protocol on Persistent Organic Pollutants 255
1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-Level Ozone 255
1991 Canada–US Air Quality Agreement 257
Sulphur dioxide 257
Nitrogen oxides 258
8 Freshwater resources 303

Introduction 303

Customary law 305

Lac Lanoux arbitration 307
ILA: 1966 Helsinki Rules and beyond 308
ILC: 1997 Watercourses Convention 310
ILC 2008: Articles on Transboundary Aquifers 312
Case Concerning the Gabčíkovo-Nagymaros Project 313

Regional rules 319

Europe 319

Rhine 320
## Contents

1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes 322  
Americas 326  
1909 Boundary Waters Treaty 326  
Gut Dam arbitration 327  
1978 Great Lakes Water Quality Agreement 328  
The 1975 Statute of the River Uruguay 329  
The Case Concerning the Pulp Mills on the River Uruguay 330  
Africa 333  
Niger basin 334  
Southern Africa, including the Zambezi River 335  
Asia 336  
Mekong River Basin 336  
Subcontinental Asia 337  
Israel–Jordan Peace Treaty 339  
Conclusions 340

### 9 Oceans, seas and marine living resources 342

#### Introduction 342  
Ecosystem approach 345

#### Protection of the marine environment 346

- Introduction 346  
- Development of standards of international law 347  
- UNCLOS 349  
- Regional arrangements 352  
  - UNEP Regional Seas Programme 352  
  - Northeast Atlantic (1992 OSPAR Convention) and the North Sea 360  
  - Baltic Sea: the 1992 Helsinki Convention 362  
  - Caspian Sea: the 2003 Tehran Convention 364  
- Pollution by dumping 365  
  - UNCLOS: general principles 366  
  - Regional agreements 370  
- Pollution from land-based sources including through the atmosphere 372  
  - UNCLOS 373  
  - 1995 Global Programme of Action 374  
  - Regional agreements 375  
  - Atmospheric pollution 378  
- Pollution from vessels 378  
  - UNCLOS 380  
  - MARPOL 73/78 381  
  - Other agreements on pollution from ships 385  
  - Safety agreements 386  
- Pollution from seabed activities 387  
  - UNCLOS 387  
  - Regional agreements 389  
  - Other agreements 390  
- Environmental emergencies 391  
  - 1989 Salvage Convention 392  
  - 1990 OPRC Convention and 2000 HNS Protocol 393  
  - 1969 and 1983 Bonn Agreements 394
Conservation of marine living resources 396
Introduction 396
Milestones in the development of fisheries law 399
Pacific Fur Seal arbitration 399
Food and Agriculture Organization 400
The First UN Conference on the Law of the Sea (1958) 401
Fisheries Jurisdiction case 402
The 1972 Stockholm Conference on the Human Environment 402
UNCLOS 403
Territorial waters, archipelagic waters and the continental shelf 404
Exclusive economic zone 404
High seas 405
1995 Fish Stocks Agreement and other global arrangements 407
1995 Fish Stocks Agreement 408
1993 Compliance Agreement 410
1995 Code of Conduct for Responsible Fisheries 411
Regional fishery arrangements 411
Fisheries case law 418
Estai case (Canada v. Spain) 418
Southern Bluefin Tuna cases (New Zealand v. Japan, Australia v. Japan) 420
Swordfish case (Chile v. EU) 421
Marine mammals 423
International Whaling Commission 425
1992 ASCOBANS 428
1992 NAMMCO 428
Marine birds 429
Destructive fishing practices 429
Driftnet fishing 430
Bottom trawling 431
Illegal, unreported and unregulated (IUU) fishing 432
2009 Agreement on Port State Measures 433
Conservation of marine biodiversity 434
The international legal framework 435
UNCLOS and the 1995 Fish Stocks Agreement 435
Convention on Biological Diversity 435
Agenda 21 and the Johannesburg Plan of Implementation 436
Resolutions of the United Nations General Assembly 437
Regional arrangements 437
Protection of deep-sea ecosystems 439
UNCLOS and the 1995 Fish Stocks Agreement 440
Resolutions of the UN General Assembly 440
Food and Agriculture Organization 441
Convention on Biological Diversity 442
Marine protected areas 442
Marine protected areas within the EEZ 444
MPAs in areas beyond national jurisdiction 445
Conclusions 447

10 Biological diversity 449
Introduction 449
### Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>International law</td>
<td>451</td>
</tr>
<tr>
<td>Convention on Biological Diversity</td>
<td>453</td>
</tr>
<tr>
<td>Preamble and jurisdictional scope</td>
<td>454</td>
</tr>
<tr>
<td>Conservation and sustainable use</td>
<td>454</td>
</tr>
<tr>
<td>Access to genetic resources and benefit sharing</td>
<td>457</td>
</tr>
<tr>
<td>Biotechnology and living modified organisms</td>
<td>460</td>
</tr>
<tr>
<td>Financial resources and mechanism</td>
<td>460</td>
</tr>
<tr>
<td>Institutions and other mechanisms</td>
<td>460</td>
</tr>
<tr>
<td>Evolution of the Biodiversity Convention</td>
<td>461</td>
</tr>
<tr>
<td>2010 Nagoya Protocol</td>
<td>464</td>
</tr>
<tr>
<td>Global instruments addressing specific threats to biodiversity</td>
<td>466</td>
</tr>
<tr>
<td>Cartagena Protocol on Biosafety</td>
<td>466</td>
</tr>
<tr>
<td>Convention on International Trade in Endangered Species</td>
<td>472</td>
</tr>
<tr>
<td>Institutions</td>
<td>472</td>
</tr>
<tr>
<td>Preamble and definitions</td>
<td>473</td>
</tr>
<tr>
<td>Appendices I, II and III and international trade</td>
<td>473</td>
</tr>
<tr>
<td>Amendments to Appendices</td>
<td>474</td>
</tr>
<tr>
<td>Reservations</td>
<td>476</td>
</tr>
<tr>
<td>Exemptions and special provisions</td>
<td>476</td>
</tr>
<tr>
<td>Introduction from the sea under CITES</td>
<td>478</td>
</tr>
<tr>
<td>Enforcement</td>
<td>478</td>
</tr>
<tr>
<td>General instruments of regional and sub-regional application</td>
<td>479</td>
</tr>
<tr>
<td>Africa</td>
<td>480</td>
</tr>
<tr>
<td>1968 African Nature Convention</td>
<td>480</td>
</tr>
<tr>
<td>2003 Revised African Nature Convention</td>
<td>481</td>
</tr>
<tr>
<td>1994 Lusaka Agreement</td>
<td>483</td>
</tr>
<tr>
<td>The Americas and the Caribbean</td>
<td>484</td>
</tr>
<tr>
<td>1940 Western Hemisphere Convention</td>
<td>484</td>
</tr>
<tr>
<td>1978 Treaty for Amazonian Cooperation</td>
<td>485</td>
</tr>
<tr>
<td>Pacific islands region</td>
<td>486</td>
</tr>
<tr>
<td>Europe</td>
<td>487</td>
</tr>
<tr>
<td>1979 Berne Convention</td>
<td>487</td>
</tr>
<tr>
<td>1982 Benelux Convention</td>
<td>489</td>
</tr>
<tr>
<td>1991 Alpine Convention</td>
<td>489</td>
</tr>
<tr>
<td>2003 Carpathians Convention</td>
<td>490</td>
</tr>
<tr>
<td>Asia</td>
<td>490</td>
</tr>
<tr>
<td>Regulation of particular habitats or species</td>
<td>492</td>
</tr>
<tr>
<td>Wetlands</td>
<td>492</td>
</tr>
<tr>
<td>Forests</td>
<td>495</td>
</tr>
<tr>
<td>1994 International Tropical Timber Agreement</td>
<td>495</td>
</tr>
<tr>
<td>International Tropical Timber Agreement 2006</td>
<td>496</td>
</tr>
<tr>
<td>1992 Forest Principles</td>
<td>497</td>
</tr>
<tr>
<td>UN Forum on Forests</td>
<td>497</td>
</tr>
<tr>
<td>2007 Non-Legally Binding Instrument on All Types of Forests</td>
<td>498</td>
</tr>
<tr>
<td>Land, soil and desertification</td>
<td>499</td>
</tr>
<tr>
<td>1994 Convention to Combat Desertification</td>
<td>500</td>
</tr>
<tr>
<td>Migratory species</td>
<td>502</td>
</tr>
<tr>
<td>1979 Bonn Convention on Migratory Species</td>
<td>502</td>
</tr>
<tr>
<td>Birds</td>
<td>505</td>
</tr>
<tr>
<td>1950 Birds Convention</td>
<td>505</td>
</tr>
<tr>
<td>1970 Benelux Convention</td>
<td>505</td>
</tr>
<tr>
<td>Other animal species</td>
<td>506</td>
</tr>
</tbody>
</table>
# Contents

1973 Polar Bear Agreement 506

1979 Vicuna Convention 506

Plants and plant genetic resources 507

Cultural and natural heritage and landscape 509

1972 World Heritage Convention 510

Conclusions 511

## 11 Hazardous substances and activities 514

### Introduction 514

Definition of hazardous substances 516

### Accident prevention, preparedness and response 516

1996 EU Seveso Directive 518

1992 Industrial Accidents Convention 519

### Chemicals, pesticides and other dangerous substances 521

Registration and classification (including labelling and packaging) 522

Production and use 523

2001 POPs Convention 524

International trade 526

1985 FAO Code of Conduct 528

1987 UNEP London Guidelines 529

1998 Chemicals Convention 530

Transport 532

### The working environment 532

### Nuclear activities and radioactive substances 536

Nuclear safety 537

1994 Nuclear Safety Convention 538

1997 Joint Safety Convention 539

Transport 540

Protection of workers and the public 541

Border area co-operation 541

Emergencies 542

Nuclear weapons and testing, and nuclear-free zones 543

### Other hazardous activities 546

Energy 547

Mining 548

Agriculture 550

Transportation 551

Tourism 551

Conclusions 552

## 12 Waste 554

### Introduction 554

### Defining and treating waste 557

Municipal waste 557

Hazardous and toxic wastes (industrial, agricultural and mining waste and sewage sludge) 558

Radioactive waste 560

### Prevention and treatment 560

Disposal 562

Disposal at sea 563
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disposal into rivers and lakes by other land-based sources</td>
<td>564</td>
</tr>
<tr>
<td>Incineration</td>
<td>564</td>
</tr>
<tr>
<td>Landfill and other land disposal and storage</td>
<td>566</td>
</tr>
<tr>
<td><strong>Recycling and re-use</strong></td>
<td>566</td>
</tr>
<tr>
<td><strong>International movement (including trade) in waste</strong></td>
<td>567</td>
</tr>
<tr>
<td>The 1989 Basel Convention</td>
<td>568</td>
</tr>
<tr>
<td>1991 Bamako Convention</td>
<td>571</td>
</tr>
<tr>
<td>1995 Waigani Convention</td>
<td>572</td>
</tr>
<tr>
<td>North America</td>
<td>574</td>
</tr>
<tr>
<td><strong>Conclusions</strong></td>
<td>575</td>
</tr>
</tbody>
</table>

13 **The polar regions: Antarctica and the Arctic**                     | 577  |
| **Introduction**                                                       | 577  |
| **The Antarctic**                                                      | 578  |
| The Antarctic Treaty regime                                            | 579  |
| 1959 Antarctic Treaty                                                  | 579  |
| 1972 Antarctic Seals Convention                                        | 580  |
| 1980 CCAMLR                                                            | 580  |
| 1988 CRAMRA                                                            | 582  |
| 1991 Environment Protocol                                              | 586  |
| Other treaty provisions                                                | 591  |
| **The Arctic**                                                         | 591  |
| The Arctic Council                                                     | 593  |
| Arctic Monitoring and Assessment Programme                              | 594  |
| Arctic Council Action Plan to Eliminate Pollution of the Arctic       | 594  |
| Protection of the Arctic Marine Environment Working Group             | 595  |
| Conservation of Arctic Flora and Fauna Working Group                   | 595  |
| Emergency Prevention, Preparedness, and Response Working Group         | 596  |
| Sustainable Development Working Group                                  | 596  |
| **Conclusions**                                                        | 596  |

**PART III TECHNIQUES FOR IMPLEMENTING INTERNATIONAL PRINCIPLES AND RULES**

14 **Environmental impact assessment**                                   | 601  |
| **Introduction**                                                       | 601  |
| **Non-binding instruments**                                            | 602  |
| UNCED and the WSSD                                                      | 604  |
| ILC draft Articles on Prevention of Transboundary Harm                  | 605  |
| **Treaties and other binding instruments**                             | 605  |
| 1982 UNCLOS                                                            | 607  |
| 1986 Noumea Convention                                                  | 609  |
| 1991 Espoo Convention                                                   | 610  |
| 2003 Strategic Environmental Assessment Protocol                       | 613  |
| 1991 Antarctic Environment Protocol                                     | 614  |
| 1992 Biodiversity Convention                                            | 615  |
| Risk assessment procedures                                             | 616  |
15 Environmental information 624

Introduction 624
Information exchange 626
Reporting and provision of information 629
Reports by organisations 630
Reports under treaties or other agreements 630
Reports of events other than emergencies 633
Information to and from non-state organisations 635
Consultation 636
Prior informed consent 638
Notification of emergency situations 639
Nuclear accidents 641
1986 Notification Convention 643
Monitoring and other information gathering 644
Treaty arrangements 646
Access to environmental information and public participation 648
1992 OSPAR Convention 650
1993 Lugano Civil Liability Convention 651
1998 Aarhus Convention 652
2003 Protocol on Pollutant Release and Transfer Registers 655
Public education and awareness 657
Eco-labelling 658
Eco-auditing and accounting 659
Environmental accounting 660
Environmental auditing 662
Conclusions 662

16 Financial resources, technology transfer and intellectual property 665

Introduction 665
Financial resources and mechanisms 666
Overseas development assistance 667
Multilateral development banks 668
World Bank 669
Regional and sub-regional development banks 671
Environment funds 674
UNEP Environment Fund 674
World Heritage Fund 675
Wetland Conservation Fund 675
Montreal Protocol Multilateral Fund 675
Global Environment Facility 676
Technology transfer and technical assistance 679
Treaty provisions 681
The ozone regime 682
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodiversity Convention</td>
<td>683</td>
</tr>
<tr>
<td>2010 Nagoya Protocol</td>
<td>684</td>
</tr>
<tr>
<td>Climate Change Convention and Kyoto Protocol</td>
<td>685</td>
</tr>
<tr>
<td>Intellectual property</td>
<td>686</td>
</tr>
<tr>
<td>Technology transfer</td>
<td>687</td>
</tr>
<tr>
<td>Patents and other rights</td>
<td>690</td>
</tr>
<tr>
<td>Traditional knowledge</td>
<td>695</td>
</tr>
<tr>
<td>Conclusions</td>
<td>697</td>
</tr>
</tbody>
</table>

### 17 Liability for environmental damage  700

#### Introduction  700

#### State liability  702

**General international law**  705
- Defining environmental damage  706
- Threshold at which environmental damage entails liability  708
- Standard of care  711
- Reparation  714
- State practice  717

**UN Compensation Commission**  720

**International crimes**  725

#### Treaties  727

- 1972 Space Liability Convention  727
- 1979 LRTAP Convention  729
- 1982 UNCLOS  729
- 1988 CRAMRA and 1991 Antarctic Environmental Protocol  733
- 1992 Climate Change Convention  734

**The work of the International Law Commission**  734

#### Civil liability for environmental damage under international law  737

**Nuclear installations**  738
- 1960 Paris Convention  739
- 1963 Vienna Convention  742
- 1988 Joint Protocol  745

**Oil pollution**  745
- 1992 Civil Liability Convention  746
- The 1992 Fund Convention  748
- 2001 Bunker Oil Convention  755

**Private compensation schemes**  755

**Marine environment**  756
- Waste  757
- Transport  759

**Antarctic**  760
- 1988 CRAMRA  760
- 1991 Antarctic Environment Protocol  761

**Biodiversity**  764

**General instruments relating to dangerous goods or activities**  766
- Council of Europe  766
- UNECE  770

#### Conclusions  771
### PART IV  LINKAGE OF INTERNATIONAL ENVIRONMENTAL LAW AND OTHER AREAS OF INTERNATIONAL LAW

#### 18 Human rights and armed conflict  775

- **International human rights  775**
  - Introduction  775
  - Development of international human rights law  777
  - Environmental protection and human rights  777
  - Economic and social rights  780
  - Civil and political rights  787
- **War and armed conflict  789**
  - Introduction  789
  - International environmental law during war and armed conflict  790
  - International law of war and armed conflict: general rules of environmental protection  792
  - International law of war and armed conflict: special rules of environmental protection  794
- **Conclusions  797**

#### 19 International trade and competition  799

- **Introduction  799**
- **Trade measures in international environmental agreements  801**
- **Unilateral environmental measures and international trade  806**
  - WTO/GATT  808
  - Technical barriers to trade  810
  - Committee on Trade and the Environment  811
  - WTO/GATT dispute settlement  812
  - Reformulated Gasoline case (1996)  815
  - Shrimp/Turtle cases (1998 and 2001)  818
  - Asbestos case (2000)  824
  - Brazil Retreaded Tyres case (2007)  827
  - Assessment  829
- **Measures for health and safety protection  830**
  - Beef Hormones  832
  - Australia Salmon  838
  - Japan Varietals  840
  - Japan Apples  841
  - Australia Apples  842
  - EC – Biotech  844
  - Assessment  846
  - European Union  847
  - Trade restrictions on environmental grounds: the role of the European Court of Justice  848
- **Canada–United States Free Trade Agreement  852**
- **North American Free Trade Agreement  854**
  - Agricultural, sanitary and phytosanitary measures  855
  - Non-technical barriers to trade  856
  - Competition  858
  - Institutions and dispute settlement  858
  - North American Agreement on Environmental Cooperation  859
  - Border Environment Cooperation Commission, and North American Development Bank  860
- **African Economic Community  860**
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competition and subsidies</td>
<td>861</td>
</tr>
<tr>
<td>Subsidies</td>
<td>862</td>
</tr>
<tr>
<td>Anti-competitive agreements</td>
<td>865</td>
</tr>
<tr>
<td>Anti-dumping</td>
<td>866</td>
</tr>
<tr>
<td>Conclusions</td>
<td>866</td>
</tr>
<tr>
<td><strong>20 Foreign investment</strong></td>
<td>869</td>
</tr>
<tr>
<td>Introduction</td>
<td>869</td>
</tr>
<tr>
<td>Investment treaties</td>
<td>870</td>
</tr>
<tr>
<td>Substantive rules</td>
<td>871</td>
</tr>
<tr>
<td>Dispute settlement</td>
<td>874</td>
</tr>
<tr>
<td>Global rules</td>
<td>874</td>
</tr>
<tr>
<td>Case law</td>
<td>876</td>
</tr>
<tr>
<td>Insurance</td>
<td>885</td>
</tr>
<tr>
<td>Conclusions</td>
<td>886</td>
</tr>
<tr>
<td><strong>21 Future developments</strong></td>
<td>888</td>
</tr>
<tr>
<td>Introduction</td>
<td>888</td>
</tr>
<tr>
<td>Governance challenges</td>
<td>891</td>
</tr>
<tr>
<td>Implementation and enforcement challenges</td>
<td>893</td>
</tr>
<tr>
<td>Future regulatory development</td>
<td>895</td>
</tr>
<tr>
<td>Conclusion</td>
<td>897</td>
</tr>
</tbody>
</table>

Index 898
It is with pleasure that I write a foreword to this timely exposition and analysis of the system of environmental law as a whole, and as it stands after the Rio Conference. If it seems a little bold to call environmental law a ‘system’, it is assuredly not so bold as it would have been before the publication of Philippe Sands’ important work. A main purpose of academic writing should be to perceive and portray patterns and relations in a body of legal rules so as to make it manageable, teachable, comprehensible and usable. The present work succeeds in doing this to a remarkable degree.

The author’s statement that environmental law has a ‘longer history than some might suggest’ might be thought to border on understatement. When something is taken up as a modish ‘concern’, there is often a strong temptation to think of it as a discovery by a newly enlightened generation. It is, therefore, a useful antidote to be reminded that, of the two pioneering decisions, both still leading and much-cited cases, one was the Bering Sea arbitration, of a century ago, and the other, the Trail Smelter arbitration, of half a century ago. Nevertheless, the present-day need for law to protect the environment and to preserve resources is of a scale and urgency far beyond the imagining of the early pioneers.

Seeing these questions, however, in a proper historical perspective does help to warn against the dangers of treating environmental law as a specialisation, which can be made a separate study; or, on the other hand, of regarding environmental law – and here I borrow Philippe’s words – as a ‘marginal part of the existing legal order’. A perusal of this book will readily reveal to the reader the fallacy of both of these attitudes. Part I of the book – which is entitled ‘The legal and institutional framework’ – comprises illuminating treatments of such basic subjects of international law as the legal nature of states, international organisations, non-governmental organisations, treaties and other international acts such as resolutions of the General Assembly and other international bodies, EC regulations and directives, the nature and uses of customary law, the general principles of law, and general problems of compliance, implementation and enforcement, and dispute settlement. These pages amply demonstrate that the environmental lawyer has to be equipped with a good basic knowledge of general international law before he can even get properly started on the study of environmental law. Likewise, the general student of international law will, in these pages, find illumination in plenty on these basic questions of general public international law; and indeed also of EC law. He will also find, in the later pages, valuable light upon such difficult questions as ‘sovereignty over natural resources’, the actio popularis, ‘standards’ and ‘soft law’; techniques to encourage compliance, such as reporting;
the position in war and armed conflict; general principles of liability and reparation, as well as specifically environmental notions such as the so-called 'polluter pays' principle.

It is in Part II of the book that the author broaches the immense task of setting out, and analysing in some detail, the developing substantive law for the protection of the environment and for the conservation of resources, and of biological diversity. Here, again, when it comes to classifying the areas for purposes of exposition, some of the general headings are familiar to every international lawyer: the atmosphere and outer space; oceans and seas; freshwater resources; hazardous substances and activities; waste; the polar regions; and European Community environmental law. It is in itself a valuable lesson to be able thus to see the shape and dimensions of environmental law as a whole. To establish the boundaries of a subject is an important step towards its intellectual comprehension.

It is a trite observation that environmental problems, though they closely affect municipal laws, are essentially international; and that the main structure of control can therefore be no other than that of international law. Yet one result of this study of environmental law as a whole is to show that the environmental factor has already so infiltrated so many of the traditional areas of public international law that it is no longer possible adequately to study many of the main headings of public international law without taking cognisance of the modifying influence in that particular respect of the principles, laws and regulations of environmental law. There are many instances; one that might not be the first possibility that comes to mind is the law concerning foreign investment. Many readers will remember the controversies of the 1960s and 1970s over the efforts to strike some sort of balance between the principle of national sovereignty over a nation's natural resources, and the competing principles limiting the sovereign rights of expropriation without proper compensation for the foreign investment in those resources. At the present time, this is an area of the law which can no longer be appreciated without adding the considerable factor of the need to protect the environment and therefore the need to limit certain kinds of exploitation, whether foreign or domestic, which cause international waste and harm. The problem of the destruction of tropical rainforests is probably the most dramatic and best known example of a national resource itself becoming an international problem.

Another matter that needs to be thought about is how to make the law of the environment more efficient. The existing principles, laws, case law, regulations, standards, resolutions and so on, already constitute a vast and complicated apparatus of paper and of powers conferred upon certain bodies or persons. When it is considered that the existing law is, however, also seemingly quite inadequate to the problem and that much more may be needed, one is bound to ask questions about how much of the world’s resources, wealth, energy and intellect is to be spent on this task of regulation and control. Pollution resulting from an excess of the complication and sheer number of laws, regulations and officials is by no means the least of the threats to our living environment. This book is an important first step towards rationalisation, for it does, by its very able and effective exposition, enable one to see the dimensions of the problem and to get some sort of conspectus of the existing legal apparatus.

Another matter of concern is the need to keep laws and regulations in this area reasonably flexible and open when necessary to changes of direction. Good laws on the environment are driven, or should be driven, by the lessons to be learned from the natural sciences and from technology. But scientists are not by any means always in agreement. It is reasonable to assume, moreover, that the enormous sums spent upon further scientific and technological
research imply that the scene of scientific ‘fact’ is liable to change importantly and even suddenly; for, if not, it is difficult to see what this expensive endeavour is about. For an example of this kind of effect, it is necessary only to mention how new scientific knowledge of the dangers from dioxins have put into a wholly new perspective erstwhile schemes for conserving non-renewable sources of energy using instead the combustion of mixed wastes. We need, therefore, a law of the environment that can change with the changes in the scientific world; otherwise it will quickly and most damagingly be enforcing outmoded science. But to achieve change in international regulations, without thereby merely adding more layers of regulation, is technically by no means an easy task or even always a possible one.

But the matter goes deeper than these preoccupations, important as they are. Humanity is faced with a multifaceted dilemma. There seems to be an urgent need for more and more complex regulation and official intervention; yet this is, in our present system of international law and relations, extremely difficult to bring about in a timely and efficient manner. The fact of the matter surely is that these difficulties reflect the increasingly evident inadequacy of the traditional view of international relations as composed of pluralistic separate sovereignties, existing in a world where pressures of many kinds, not least of scientific and technological skills, almost daily make those separate so-called sovereignties, in practical terms, less independent and more and more interdependent. What is urgently needed is a more general realisation that, in the conditions of the contemporary global situation, the need to create a true international society must be faced. It needs in fact a new vision of international relations and law. This is a matter that takes us beyond the scope of this book. But those who doubt the need for radical changes in our views of, and uses of, international law should read Philippe Sands' book and then tell us how else some of these problems can be solved. After all, this is not just a question of ameliorating the problems of our civilisation but of our survival.

Sir Robert Jennings QC

Former Judge and President of the International Court of Justice; sometime Whewell Professor of International Law in the University of Cambridge; Honorary Bencher of Lincoln’s Inn; former President of the Institut de Droit International
Preface and acknowledgments to the first edition

_Principles of International Environmental Law_ marks the culmination of that aspect of my professional activities which was triggered by the accident at the Chernobyl nuclear power plant, on 26 April 1986. At that time I was a research fellow at the Research Centre for International Law at Cambridge University, working on international legal aspects of contracts between states and non-state actors, and not involved in environmental issues. With the active support of the Research Centre’s Director, Eli Lauterpacht, I began to examine the international legal implications of the Chernobyl accident, which indicated that the legal aspects of international environmental issues were of intellectual and political interest, and still in an early phase of development. This led to several research papers, a book and various matters involving the provision of legal advice on international environmental issues. My interest having been aroused, the implications of environmental issues for public international law provided a rich seam which has sustained me for several years, and resulted in my foundling, with James Cameron, what is now the Foundation for International Environmental Law and Development (FIELD). That, in turn, has provided me with the fortunate opportunity to participate in a number of international negotiations, most notably those preparatory to UNCED and the Climate Change Convention, and to develop an international legal practice which is varied, unpredictable, entertaining, often challenging and occasionally frustrating.

This book, together with the accompanying volumes of international documents (Volumes IIA and IIB) and EC documents (Volume III), is intended to provide a comprehensive overview of those rules of public international law which have as their object the protection of the environment. I hope that it will be of some use to lawyer and non-lawyer alike, whether working for government, international organisations, non-governmental organisations and the private sector, or having an academic or other perspective. Its structure and approach reflect my belief that international environmental efforts will remain marginal unless they are addressed in an integrated manner with those international economic endeavours which retain a primary role in international law-making and institutional arrangements, and unless the range of actors participating in the development and application of international environmental law continues to expand. In that regard, it is quite clear that international environmental law remains, as a branch of general public international law, at an early stage of practical development, in spite of the large body of instruments and a burgeoning literature. Over the past decade the
body of law has increased dramatically, and only the best equipped researchers will be able to keep up with all developments as they occur. I have sought to state the law as it was on 1 January 1993, although the diligent reader will note that on some aspects more recent developments have also been treated.

*Principles of International Environmental Law* therefore marks the culmination of an initial phase of my endeavours as an academic and practitioner. Its roots run deep and wide, and it is impossible to acknowledge here all the sources of input and generous support which I have received over the past several years. It seems to me to be quite appropriate, however, to acknowledge those teachers, colleagues and friends who have exercised particular influence, directly or indirectly.

The fact that I became interested in international law at all is largely due to my first teacher of international law, Robbie Jennings, then in his final year at Cambridge before moving to The Hague: I am hugely grateful for his inspiring encouragement and support ever since, particularly for taking the view that the environment was, even several years ago, properly a subject for consideration in its international legal aspect. Eli Lauterpacht gave me my first professional ‘break’ and taught me, in particular, the value of a practical approach and the importance of rigour. Even at a distance, Philip Allott constantly reminds me of the need to think about the bigger picture. And lest I should slip, David Kennedy has been a critical inspiration in reminding me that there is another way.

Colleagues at London University (particularly Ian Kennedy at King’s College and Peter Slinn at the School of Oriental and African Studies) have provided great support in allowing me the flexibility to combine teaching with practical efforts. I would also like to record my debt to Tom Franck for introducing me to New York University Law School, and to Dean John Sexton for giving me a more regular perch from which to base my forays to the United Nations.

I am tremendously indebted to all my colleagues at FIELD. I would like to thank the Board of Trustees, and especially John Jopling, the Chairman, for allowing me to devote considerable time to this project, as well as Marian Bloom, Frances Connelly, Rona Udall and Roger Wilson for their administrative support. Many FIELD interns provided long hours of patient assistance, and I want especially to thank Carolyn d’Agincourt, Mary Beth Basile and Kiran Kamboj for going way beyond the call of duty during their extended internships, and Joanna Jenkyn-Jones, Hugo Jolliffe and Penny Simpson for helping me to get over the final hurdles more easily. But it is to FIELD’s lawyers that I extend especially warm thanks for helping me to fulfil my other obligations and for always being available to provide information and critical insights on those areas in which they are expert. James Cameron is an inspirational friend, colleague and co-founder of FIELD, and I feel fortunate to have found a working partner who is able to provide me with the space and support to get on with my own efforts whilst reminding me that I also have, in all senses, broader responsibilities. Greg Rose (now at the Australian Department of Foreign Affairs and Trade), Jake Werksman and Farhana Yamin have been outstanding colleagues and friends. Richard Tarasofsky and Mary Weiss, my collaborators on Volumes II and III, assisted also in the preparation of this volume. FIELD’s many supporters have also contributed, indirectly but significantly, to the production of this book, and I would like to thank, in particular, Janet Maughan (Ford Foundation), Mike Northrop (Rockefeller Brothers Fund), Ruth Hennig (John Merck Fund) and Marianne Lais Ginsburg (German Marshall Fund) for
supporting FIELD’s efforts and enabling me to participate in some of the important international legal developments since 1989. At my chambers, I want to thank Ailsa Wall for her magnificent typing efforts, and Paul Cooklin for his accommodation of my rather peripatetic needs.

For their efforts on a day-to-day basis my deepest gratitude, however, is reserved for two individuals without whose support it is unimaginable that this book could have been completed. Louise Rands has run my office for the past two and a half years with the greatest efficiency, effectiveness and humour anyone could hope to benefit from, maintaining order (and priorities) in the maelstrom of activities and obligations that frequently engulf FIELD’s offices. Natalia Schiffrin has been absolutely fabulous in putting up with the demands that the book placed on our daily routine, and reminding me of what is important in life and what isn’t.

I must also acknowledge the assistance of numerous other individuals, who enabled me to obtain access to information or to participate in various meetings, in particular: Andronico Adede (Office of Legal Affairs, United Nations); Raymondo Arnaudo and Genevieve Ball (United States Department of State); Dr John Ashe (Permanent Mission of Antigua and Barbuda to the United Nations); Cath Baker, A. M. Forryan and Susan Halls (UK Foreign and Commonwealth Office); Germaine Barikako (OAU); William Berenson (OAS); Giselle Bird (Department of Foreign Affairs and Trade, Australia); Celine Blais (External Affairs and International Trade, Canada); Dan Bodansky (University of Washington School of Law); Laurence Boisson de Chazournes (Institut des Hautes Etudes, Geneva); M. Borel (Departement Federal des Affaires Etrangeres, Switzerland); Jo Butler and Michael Zammit-Cutajar (Climate Change Convention Interim Secretariat); G. de Proost (Ministere des Affaires Etrangeres, Belgium); Juan-Manuel Dias-Pache Pumareda (Ministerio de Asuntos Exteriores, Spain); Dr Emonds (Bundesministerium fur Umwelt, Naturschutz und Reaktorsicherheit, Germany); Philip Evans (Council of the European Communities); Denis Fada (FAO); Dr Antonio Fernandez (International Commission for the Conservation of Atlantic Tunas); Dr Charles Flemming (Permanent Representative of St Lucia to the United Nations); Nigel Fyfe and Paul Keating (New Zealand Ministry of Foreign Affairs and Trade); Dr R. Gambell (International Whaling Commission); John Gavitt (CITES Secretariat); Professor Gunther Handl (Editor, Yearbook of International Environmental Law); Beatrice Larre (OECD); Howard Mann (Environment Canada); Norma Munguia (Mexican Embassy, Washington); Lincoln Myers (formerly Minister of Environment, Trinidad and Tobago); Boldizsar Nagy (Associate Professor, Eotvos Lorand University); Bernard Noble (Deputy Registrar, International Court of Justice); Manoel Porges (GATT); Marie-Louise Quere-Messing (United Nations); N. Raja Chandran (Ministry of Foreign Affairs, Malaysia); Patrick Reyners (OECD-NEA); Keith Richmond (FAO); Stan Sadowski (Paris/Oslo Commissions); Candice Stevens (OECD); Wouter Stuurns (IAEA); Patrick Szell (UK Department of Environment); Dr Alexandre Timoshenko (UNEP); Eduardo Valencia Ospina (Registrar, International Court of Justice); Robert van Lierop (formerly Permanent Representative of Vanuatu to the United Nations); Makareta Waqavonova (South Pacific Forum); and Linda Young (IMO).

Finally, I would like to thank Vaughan Lowe for encouraging me to write this textbook (and the supporting volumes of documents), for providing clear intellectual guidance and support, and for introducing me to Manchester University Press. At the Press, Richard Purslow has been as patient and supportive an editor as one could possibly hope to find,
and his colleagues Jane Hammond Foster, Elaine White and Celia Ashcroft have provided enormous assistance. Needless to say, such errors or omissions as might have crept in remain my full responsibility.

Philippe Sands
London
1 November 1994
Preface and acknowledgments
to the second edition

The second edition of *Principles of International Environmental Law* indicates that the legal aspects of international environmental issues are of growing intellectual and political interest, and that they have moved beyond the situation I described nearly ten years ago as reflecting ‘an early phase of development’. It is apparent from the new material which this edition treats – new conventions, new secondary instruments, new (or newly recognised) norms of customary law, and a raft of new judicial decisions – that international environmental law is now well established and is a central part of the international legal order. It is also clear that international environmental law has reached new levels of complexity, in particular as it has become increasingly integrated into other social objectives and subject areas, particularly in the economic field. The burgeoning case law, and the increased involvement of practitioners, suggests that it can no longer be said that international environmental law is, as a branch of general public international law, at an early stage of practical development.

Like the first edition, this edition (together with the accompanying volume of international documents for students) is intended to provide a comprehensive overview of those rules of public international law which have as their object the protection of the environment. Those rules have become more numerous and complex, but also more accessible: the advent of the Internet often means that material which was previously difficult to track down – for example, information as to the status, signature and ratification of treaties, and acts and decisions of Conferences of the Parties and subsidiary bodies – is now relatively easy to obtain. But the Internet also increases the danger of becoming overwhelmed by the sheer quantity of material that is now available, a risk which is exacerbated by the very extensive (and growing) secondary literature which is produced every year, only a small proportion of which may really be said to indicate real insights into new developments. This background necessarily means that what is gained on breadth may be lost – at least in some areas – on depth. This comprehensive account cannot address all of the details that now dominate specific areas – trade, fisheries and climate change spring immediately to mind – and the reader will need to refer to more detailed accounts of particular sectors, and the websites of various conventions, to obtain many of the details. Over the past decade, the body of law has again increased dramatically; I have sought to state the law as it was on 1 January 2003.

This second edition has largely been inspired by my endeavours as an academic and practitioner over the last eight years, in particular contact with my academic colleagues at London and New York Universities and professional contact in connection with the various
Preface and acknowledgments to the second edition

international cases I have been fortunate to be involved in. Again, it is impossible to acknow-
ledge here all the sources of input and generous support received since 1995. It is appropriate,
however, to acknowledge those colleagues and friends who have exercised particular influence,
directly or indirectly. At London University, Matt Craven and Michael Anderson have provided
great support, as have many other colleagues at SOAS, together with Richard McCrory, Jane
Holder and Jeffrey Jowell at my new home at University College London, with help too from
Ray Purde and Helen Ghosh. At New York University, I could not have wished for greater
collegiality and friendship than that offered by Dick Stewart, together with the support offered
over many years by Tom Franck, Andy Lowenfeld, Eleanor Fox, Iqbal Ishar, Norman Dorsen,
Ben Kingsbury, Radu Popa, Vicki Been and Ricky Revesz, as well as Jane Stewart, and for heaps
of administrative support from Jennifer Larmour. At the Project on International Courts and
Tribunals, Shep Forman, Ruth Mackenzie, Cesare Romano, Thordis Ingadottir and Noemi Byrd
have also provided unstinting support. My former colleagues at FIELD have continued to
provide support and assistance, including Jake Werksman, Farhana Yamin, Jurgen Lefevre,
Alice Palmer and Beatrice Chaytor.

Many of my students and former students at London and New York Universities have provided
long hours of patient assistance. Two colleagues have provided particular support, to whom
I extend special thanks and appreciation: Jacqueline Peel, now at the Melbourne University
Faculty of Law, who has expended great efforts in assisting with research and in drafting of the
highest quality and who, I hope, might become the co-author of this book in its third edition; and
Paolo Galizzi, now at Imperial College London, who is co-authoring the student edition of basic
documents to accompany this volume. Thanks also go to Valeria Angelini, Lauren Godshall, Ed
Grutzmacher, Victoria Hallum, Miles Imwalle, Jimmy Kirby, Lawrence Lee, Bruce Monnington,
Lillian Pinzon, Katarina Kompari, Denise Ryan, Anna-Lena Sjolund, Eva Stevens-Boenders and
Mimi Yang. Thanks also go to Tim Walsh for electronic wizardry, and – once again – to Louise
Rands in deepest Devon for helping to bring the manuscript in on time.

In other places – courts and tribunals and conferences – I have benefited inestimably from the
learning and experience offered to me by James Crawford and Pierre-Marie Dupuy, and from
Boldizsar Nagy, Vaughan Lowe, Chris Thomas, Laurence Boisson de Chazournes and Adriana
Fabra. My colleagues at Matrix Chambers have created an environment which encourages ideas
to be generated and tested, supportive of both the environmental law and the international law
elements which make up this book and the experience it reflects.

Finally, I would like to thank Finola O’Sullivan and Jennie Rubio at Cambridge University Press.
Needless to say, such errors or omissions as might have crept in remain my full responsibility.

For her efforts on a day-to-day basis – and every day – my greatest thanks are to Natalia
Schiffrin, for all her help, and for continuing to remind me of what is important in life and what
isn’t. And of course this time she has had a little help from Leo, Lara and Katya, each of whom
has contributed uniquely over the last eight years.

Philippe Sands
1 June 2003
Faculty of Laws
University College London
Bentham House
London WC1H 0EG