

Contents

<i>List of abbreviations</i>	<i>page</i> xiii
<i>List of figures</i>	xvi
<i>Table of treaties and instruments</i>	xviii
<i>Table of cases</i>	lxvii
<i>Preface</i>	lxxv
Part I Foundations	1
1 Emergence and development of international environmental law	3
1.1 Introduction	3
1.2 Precedents	4
1.3 Permanent sovereignty over natural resources	6
1.4 The Stockholm Conference on the Human Environment (1972)	8
1.5 The Rio Conference on Environment and Development (1992)	12
1.6 The World Summit on Sustainable Development (2002)	16
1.7 The Rio Summit (2012) and beyond	18
Select bibliography	21
2 Main features of international environmental law	23
2.1 Introduction	23
2.2 The 'environment' as a legal object	24
2.2.1 Overview	24
2.2.2 Scientific level	24
2.2.3 Legal level	25
2.2.4 Operational level	27
2.3 The main actors	27
2.3.1 From challenges to structures	27
2.3.2 International structures and actors	28
2.3.3 Civil society and the private sector	31
2.4 The sources of international environmental law	33
2.4.1 The prevalence of treaties	34
2.4.2 The role of soft law	34
2.4.3 <i>Droit dérivé</i>	36
2.5 The implementation of international environmental law	37
2.5.1 Overview	37

2.5.2	Incentive mechanisms	38
2.5.3	Managing scientific uncertainty	40
2.5.4	Management of non-compliance	11
2.6	The legal environment of international environmental law	45
	Select bibliography	48
3	The principles of international environmental law	51
3.1	Introduction	51
3.2	Some analytical distinctions	51
3.3	Prevention in international environmental law	55
3.3.1	Introductory observations	55
3.3.2	'No harm' principle	55
3.3.3	The principle of prevention	58
3.3.4	Precaution in international law	61
3.3.5	Co-operation, notification, consultation	64
3.3.6	Prior informed consent	66
3.3.7	Environmental impact assessment	68
3.4	Balance in international environmental law	71
3.4.1	Principles expressing the idea of balance	71
3.4.1.1	The polluter-pays principle	71
3.4.1.2	The principle of common but differentiated responsibilities	73
3.4.1.3	The principle of participation	75
3.4.1.4	The principle of inter-generational equity	77
3.4.2	Concepts expressing the idea of balance	78
3.4.2.1	Overview	78
3.4.2.2	Sustainable development	79
3.4.2.3	Common areas	82
3.4.2.4	Common heritage of mankind	84
3.4.2.5	Common concern of humankind	85
3.5	From principles to regulation	86
	Select bibliography	87
	Part II Substantive regulation	91
4	Oceans, seas and freshwater	93
4.1	Introduction	93
4.2	The international regulation of the marine environment	94
4.2.1	Environmental jurisdiction over marine areas	94
4.2.1.1	Overview	94
4.2.1.2	Territorial sea	95
4.2.1.3	The exclusive economic zone	96
4.2.1.4	The continental shelf	97
4.2.2	Protection of the marine environment: general aspects	97
4.2.3	Regulation of sources of pollution	100
4.2.3.1	Overview	100
4.2.3.2	Pollution from vessels	101

4.2.3.3	Dumping and incineration	102
4.2.3.4	Land-based pollution	103
4.2.4	The protection of regional seas	104
4.3	The international regulation of freshwater resources	107
4.3.1	Structure of the regulation	107
4.3.2	International watercourses	109
4.3.3	Transboundary aquifers	112
4.3.4	Iced freshwater resources	113
4.3.4.1	Overview	113
4.3.4.2	Antarctica	114
4.3.4.3	The Arctic	115
	Select bibliography	117
5	Protection of the atmosphere	122
5.1	Introduction	122
5.2	'Local' transboundary air pollution	123
5.3	Long-range transboundary air pollution	124
5.3.1	Origins of the regime	124
5.3.2	The LRTAP Convention	125
5.3.3	The protocols to the LRTAP Convention	127
5.4	The protection of the ozone layer	131
5.4.1	The origins of the regime	131
5.4.2	The Vienna Convention of 1985	133
5.4.3	The Montreal Protocol of 1987	135
5.5	Climate change	141
5.5.1	Overview of the problem	141
5.5.2	The two pillars of the regime	142
5.5.3	The United Nations Framework Convention on Climate Change	146
5.5.4	The Kyoto Protocol	149
5.5.5	From Bali to Durban and the future of the regime	153
	Select bibliography	155
6	Species, ecosystems and biodiversity	158
6.1	Introduction	158
6.2	Regulatory approaches	160
6.3	Protection of species	162
6.3.1	Regulation of exploitation: fisheries	162
6.3.1.1	The UNCLOS	163
6.3.1.2	The Straddling Fish Stocks Agreement	164
6.3.1.3	The NAFO	165
6.3.1.4	The Whaling Convention	166
6.3.2	Regulation of trade: CITES	167
6.3.2.1	The structure of CITES	167
6.3.2.2	The permits system	169
6.3.2.3	CITES in practice	171

6.4	Protection of spaces (sites, habitats, ecosystems)	173
6.4.1	'Top-down' and 'bottom-up' regulation	173
6.4.2	The 'top-down' approach: the creation of protected areas	173
6.4.2.1	The protection of wetlands: the Ramsar Convention	173
6.4.2.2	The protection of world heritage: the World Heritage Convention	178
6.4.2.3	Protection of the Antarctic environment: the Madrid Protocol	183
6.4.3	The 'bottom-up' approach: the Convention to Combat Desertification	185
6.5	The protection of biodiversity	186
6.5.1	A complex regulatory object	186
6.5.2	The regulation of biological diversity	187
6.5.3	The regulation of GMOs	190
6.5.4	Access to genetic resources and benefit sharing	192
6.5.4.1	The 'seed wars'	192
6.5.4.2	The role of international law	194
	Select bibliography	196
7	Dangerous substances and activities	200
7.1	Introduction	200
7.2	Object and structure of the international regulatory framework	202
7.3	Attempts to develop a global regulatory framework	204
7.3.1	The political impulsion	204
7.3.2	The main outcomes: the GHS and the SAICM	205
7.4	The regulation of specific substances and activities	208
7.4.1	Regulatory objects and techniques	208
7.4.2	The regulation of production and use	209
7.4.2.1	The regulation of substances: the POP Convention	209
7.4.2.2	The regulation of activities: the Convention on Industrial Accidents	214
7.4.3	The regulation of trade: the PIC Convention	217
7.4.4	The regulation of waste: the Basel Convention	221
7.4.5	Integrated approaches	225
7.4.5.1	Synergies between the Basel, PIC and POP Conventions	225
7.4.5.2	Integrated regulation: nuclear energy	226
7.4.5.3	Integrated regulation: mercury	229
	Select bibliography	232

Part III	Implementation	235
8	Implementation: traditional approaches	237
8.1	Introduction	237
8.2	Monitoring and reporting	238
8.2.1	Types of obligations	238
8.2.2	Types of mechanisms	240
8.3	Dispute settlement and legal consequences	243
8.3.1	Preliminary remarks	243
8.3.2	International environmental adjudication	244
8.3.2.1	The fora of international environmental law	244
8.3.2.2	Courts specialising in environmental matters	245
8.3.2.3	Borrowed fora	247
8.3.2.3.1	Overview	247
8.3.2.3.2	Welcoming jurisdictions	248
8.3.2.3.3	A neutral ICJ	249
8.3.2.3.4	Reluctant tribunals	250
8.3.3	The consequences of environmental damage	252
8.3.3.1	Types of consequences	252
8.3.3.2	The international responsibility of the State	254
8.3.3.2.1	Overview of the system	254
8.3.3.2.2	Primary norms: prevention and due diligence	256
8.3.3.2.3	Secondary norms: addressing complex scenarios	257
8.3.3.3	The liability of the economic operator	259
8.3.3.3.1	Overview of treaty systems	259
8.3.3.3.2	Main parameters of liability regimes	261
8.3.3.4	Assessment and reparation of environmental damage	264
	Select bibliography	266
9	Implementation: new approaches	270
9.1	Introduction	270
9.2	Techniques to facilitate compliance	271
9.2.1	Types of techniques	271
9.2.2	Techniques oriented towards assistance	272
9.2.2.1	Financial assistance	272
9.2.2.1.1	Overview	272
9.2.2.1.2	Treaty-specific environmental funds	274
9.2.2.1.3	General environmental funds: the GEF	278
9.2.2.1.4	Hybrid mechanisms: the PCF	280
9.2.2.2	Technical assistance	280
9.2.3	Techniques oriented towards efficiency (<i>renvoi</i>)	284

9.3	Techniques to manage non-compliance	285
9.3.1	Non-compliance procedures	285
9.3.2	The legal basis of NCPs and its implications	287
9.3.3	Triggering NCPs	289
9.3.4	Composition of NCP organs	290
9.3.5	Measures adopted by NCPs	291
	Select bibliography	292
Part IV	International environmental law as a perspective	295
10	Human rights and the environment	297
10.1	Introduction	297
10.2	The relationship between human rights and environmental protection	298
10.3	Synergies	301
10.3.1	Two key questions	301
10.3.2	Identifying human rights provisions with environmental content	303
10.3.2.1	Some analytical distinctions	303
10.3.2.2	General rights	304
10.3.2.2.1	Overall context	304
10.3.2.2.2	A possible starting-point: the Human Rights Committee	306
10.3.2.2.3	The European Court of Human Rights	307
10.3.2.2.4	The Inter-American Court of Human Rights	309
10.3.2.2.5	The African Commission	310
10.3.2.3	Specifically environmental rights	311
10.3.2.3.1	A right to an environment of a certain quality	311
10.3.2.3.2	The right to water and sanitation	314
10.3.2.3.3	Procedural environmental rights	316
10.3.3	The 'extent' of environmental protection afforded by human rights instruments	319
10.3.3.1	Overview	319
10.3.3.2	The 'link' requirement	320
10.3.3.3	Mass human rights claims: who speaks for the environment?	324
10.3.3.4	Human rights and climate change	327
10.4	Conflicts	331
	Select bibliography	335

11	Environmental dimensions of international security	339
11.1	Introduction	339
11.2	The environment and the law of war	340
11.2.1	The environment and armed conflict	340
11.2.1.1	Overview	340
11.2.1.2	The environment and <i>jus in bello</i>	342
11.2.1.2.1	'Specific' and 'general' regulation	342
11.2.1.2.2	Specifically environmental norms	342
11.2.1.2.3	General norms of <i>jus in bello</i>	346
11.2.1.3	Armed conflict and environmental law	349
11.2.1.3.1	Overview	349
11.2.1.3.2	Continued operation	350
11.2.1.3.3	Treaty-specific response	353
11.2.1.3.4	Norm articulation	354
11.2.1.4	Weapons as pollutants	356
11.2.1.4.1	Overview	356
11.2.1.4.2	Biological weapons	357
11.2.1.4.3	Chemical weapons	358
11.2.1.4.4	Nuclear weapons	360
11.2.1.5	Current codification efforts	362
11.2.2	Environmental dimensions of recourse to war	363
11.2.2.1	Overview	363
11.2.2.2	<i>Jus ad bellum</i> and environmental protection	364
11.2.2.3	Violations of <i>jus ad bellum</i> and environmental damage	365
11.3	Environmental security in international law	366
11.3.1	Preventing environment-driven conflict	366
11.3.2	Environmentally-induced displacement	368
11.3.2.1	Circumscribing the problem	368
11.3.2.2	Legal response	369
11.3.3	Environmental security in post-conflict settings	372
11.3.3.1	The rise of environmental peacebuilding	372
11.3.3.2	Environmental peacebuilding and environmental obligations	373
	Select bibliography	374
12	Environmental protection and international economic law	378
12.1	Introduction	378
12.2	Foreign investment and the environment in international law	379
12.2.1	Overview	379
12.2.2	Synergies	380
12.2.2.1	Instruments	380
12.2.2.2	Policy processes	383

12.2.3	Conflicts	385
12.2.3.1	Normative conflicts v. legitimacy conflicts	385
12.2.3.2	The practice of investment tribunals	386
12.2.3.3	Investment treaty practice	389
12.3	Environmental protection and international trade law	391
12.3.1	Overview	391
12.3.2	Synergies	393
12.3.2.1	Mutual supportiveness	393
12.3.2.2	Environmental goods and services	395
12.3.3	Conflicts	397
12.3.3.1	Normative conflicts v. legitimacy conflicts	397
12.3.3.2	Multilateral environmental treaties and trade regulation	398
12.3.3.3	Environmental protection in practice	400
12.3.3.3.1	Processes and production methods ('PPMs')	400
12.3.3.3.2	The use of general exceptions	401
12.3.3.3.3	Specific trade agreements: SPS and TBT	403
12.4	Environmental protection and intellectual property rights	405
12.4.1	Overview	405
12.4.2	Synergies	407
12.4.2.1	Approaches to international patent protection	407
12.4.2.2	Fast-tracking of environmental patents	408
12.4.2.3	IPRs markets	409
12.4.3	Conflicts	410
12.4.3.1	The TRIPs and environmental protection	410
12.4.3.2	Interpreting the TRIPs	410
12.4.3.2.1	Compulsory licensing and public health	410
12.4.3.2.2	<i>Sui generis</i> protection of plant varieties	411
12.4.3.3	Genetic resources and traditional knowledge: proposed amendments	412
	Select bibliography	414
	<i>Index</i>	416