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# Main features of international environmental law

## 2.1 Introduction

In the preceding chapter, we studied the various milestones that shaped the development of international environmental law. Before discussing the technical aspects of this area of international law, it is useful to consider its most salient features. Some comments on these features appear useful at this stage for three main reasons. First, to understand international environmental law as a branch of international law, it is necessary to identify its specific object, namely the environment. Second, the systematic presentation of a number of distinctive features that emerge from the comparative analysis of the main multilateral environmental agreements (MEAs) will help understand their operation, in the same way as grammar facilitates the understanding of a language. Third, the features of international environmental law provide a great deal of information about its dynamics as a legal and social phenomenon, and therefore also about its future evolution.

In other words, understanding the main features of international environmental law is useful both from a theoretical standpoint - to identify the contours of international environmental law as a discipline - and from a practical one - to understand its sources, methods and operation. As regards the theoretical aspects, the relative unity of international environmental law as a discipline comes from its object, the environment, as well as from the principles underlying most of its legal instruments. In this chapter, we analyse the difficulties in the conceptualisation of a reality as broad and multifaceted as the environment (2.2), leaving the study of the unifying principles for Chapter 3. The practical aspects of international environmental law, its distinguishing features as regards its main actors (2.3), sources (2.4) and regulatory techniques (2.5) can, to a large extent, be understood as responses to the political, economic and scientific challenges that this body of law has faced over time, and which will also be discussed. Finally, the last section is devoted to the place of international environmental law within the international legal order (2.6).

## 2.2 The 'environment' as a legal object

### 2.2.1 Overview

A first question that arises when we attempt to understand the object of international environmental law is whether the term 'environment' refers or can be pinned down to a single concept or meaning. The term 'environment' pervades scientific, political and media discourse and, yet, its meaning remains unclear. As with the concept of 'time', of which Augustine said that we know what it means so long as we are not asked for a definition, the term 'environment' is as simple to understand intuitively as it is difficult to circumscribe precisely. For present purposes, it will suffice to attempt a characterisation at three levels: scientific, legal and operational.

### 2.2.2 Scientific level

First, the term 'environment' can be characterised at a scientific level and, more specifically, through the prism of ecology. Different characterisations are provided in the relevant literature.

Broadly speaking, the environment is defined as 'everything which surrounds a spatial entity, abiotic or alive'.<sup>1</sup> Broad definitions dating from the 1970s included a human element as the driving force.<sup>2</sup> Today, the balance of the term has shifted away from a pure human focus and gravitates around an 'organism' (including humans) as its pivotal reference. According to the Oxford Dictionary of Ecology, the 'environment' is:

[t]he complete range of external conditions, physical and biological, in which an organism lives. Environment includes social, cultural, and (for humans) economic and political considerations, as well as the more usually understood features such as soil, climate, and food supply.<sup>3</sup>

This broad and balanced concept prevails today, and it can be found at the roots of the 'ecosystems approach' increasingly followed by MEAs. The scientific concept seems, however, too broad to determine the province of

<sup>1</sup> F. Ramade, *Dictionnaire encyclopédique de l'écologie et des sciences de l'environnement* (Paris: Dunod, 2002), p. 279 (our translation).

<sup>2</sup> At the beginning of the twentieth century, the term 'environment' was used as a synonym for 'geography' in the monumental treatise of E. Reclus, *L'homme et la terre*, 6 vols. (Paris: Librairie Universelle, 1905). See Y. Veyret, 'Environnement', in Y. Veyret (ed.), *Dictionnaire de l'environnement* (Paris: Armand Colin, 2007), p. 133. Ecology was distinguished from 'geography' in the late nineteenth century by its emphasis on biological analysis, but the place of humans between ecology and geography remained a very important question throughout the twentieth century. Some of the first modern accounts of 'ecology' as a science include: W. C. Allee, O. Park, A. E. Emerson, T. Park and K. P. Schmidt, *Principles of Animal Ecology* (Philadelphia: Saunders, 1949); E. P. Odum, *Fundamentals of Ecology* (Philadelphia: Saunders, 1st edn, 1953, 2nd edn, 1959, 3rd edn, 1971). On the history of ecology, see J.-P. Deleage, *Histoire de l'écologie: une science de l'homme et de la nature* (Paris: La Découverte, 1991).

<sup>3</sup> M. Allaby, *Oxford Dictionary of Ecology* (Oxford University Press, 3rd edn, 2005), at 154.

international environmental law as a branch. The social, cultural, economic and political dimensions of the human environment would, indeed, encompass the entire field of international law. This said, the scientific characterisation highlights the need for a balanced approach to environmental protection because the environment is defined not only as the conditions surrounding humans (an 'anthropocentric' view) but also those surrounding any other organism (an 'eco-centric' view).

### 2.2.3 Legal level

We may also ask whether international law attaches certain legal effects to one or more meanings of the term 'environment'. The answer to this question must be derived from a diverse array of legal instruments.

First, we may look to the founding instruments of international environmental law discussed in Chapter 1. However, such an approach is not entirely satisfactory since none of these instruments has specifically characterised the term 'environment'. They offer, nevertheless, some useful insights. For example, the preamble of the Stockholm Declaration makes reference to two components of the human environment: 'the natural and the man-made, [which] are essential to his well-being and to the enjoyment of basic human rights and the right to life itself'.<sup>4</sup> Further, it refers to '[t]he natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems'.<sup>5</sup> The texts of the World Charter for Nature, the Rio Declaration and the Millennium Declaration add little to the characterisation of the term in the Stockholm Declaration.<sup>6</sup> It must be concluded, therefore, that this approach is not, as such, sufficient.

A second possible approach is to refer to the decisions of international courts and tribunals, in particular those of the ICJ. In its well-known Advisory Opinion on the Legality of Nuclear Weapons, the ICJ observed that: 'the environment is not an abstraction but represents the living space, the quality of life and the very health of human beings, including generations

<sup>4</sup> Declaration of the United Nations Conference on the Human Environment, Stockholm, 16 June 1972, UN Doc. A/CONF 48/14/Rev. 1 ('Stockholm Declaration'), preamble, para. 1.

<sup>5</sup> *Ibid.*, Principle 2.

<sup>6</sup> The World Charter for Nature mentions, in its preamble, that 'Mankind is a part of nature and life depends on the uninterrupted functioning of natural systems which ensure the supply of energy and nutrients', and notes, further on, the need to maintain 'essential ecological processes and life support systems, and . . . the diversity of life forms'. World Charter for Nature, 28 October 1982, UN Doc. A/RES/37/7 ('Charter for Nature'). The Rio Declaration refers, in its Principle 7, to the 'health and integrity of the Earth's ecosystem', Rio Declaration on Environment and Development, 13 June 1992, UN Doc. A/CONF.151/26 ('Rio Declaration'). As for the Millennium Declaration, it makes reference in para. 6 to 'respect for nature' and 'management of all living species and natural resources', Millennium Declaration, 13 September 2000, UN Doc. A/RES.55/2.

unborn'.<sup>7</sup> However, without questioning the interest of such clarification, this is not enough to give legal content to the term 'environment'.

A third approach is to seek the definition of the term 'environment' within a specific normative context, such as a treaty or a norm. The very strength of this approach, namely the ability to specify the meaning that a term will have in a given treaty context, is also its main weakness because such a meaning will normally be confined to this context. Thus, for example, the characterisation of the term 'environment' that arises from the treaties of the Antarctic Treaty System<sup>8</sup> has little relevance outside that particular context. Similarly, the definition of what amounts to 'environmental' damage in the context of the civil liability regime relating to oil spills<sup>9</sup> or to harm to the 'environment' in the context of Protocol I to the 1949 Geneva Conventions,<sup>10</sup> cannot easily be generalised to the extent that they may exclude certain components of the 'natural' or 'man-made' environment,<sup>11</sup> according to the formula of the Stockholm Declaration.<sup>12</sup> Even a broad characterisation, such as the one provided in Article 1(1) of the UNFCCC,<sup>13</sup> cannot be transposed to other

<sup>7</sup> Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, ICJ Reports 1996, para. 29 ('Legality of Nuclear Weapons').

<sup>8</sup> E.g. the Convention on the Conservation of Antarctic Marine Living Resources, 20 May 1980, 33 UST 3476 ('CCAMLR'), defines in its Art. 1 its scope as follows: 'This Convention applies to the Antarctic marine living resources of the area south of 60° South latitude and to the Antarctic marine living resources of the area between that latitude and the Antarctic Convergence which form part of the Antarctic marine ecosystem . . . The Antarctic marine ecosystem means the complex of relationships of Antarctic marine living resources with each other and with their physical environment.' Similarly, the Protocol on Environmental Protection to the Antarctic Treaty, 4 October 1991, 30 ILM 1455 (1991), defines in Art. 3(1) its scope by reference to the Antarctic Treaty area (the area south of 60° South latitude) specifying the environment within that area as follows 'the Antarctic environment and dependent and associated ecosystems and the intrinsic value of Antarctica, including its wilderness and aesthetic values and its value as an area for the conduct of scientific research, in particular research essential to understanding the global environment'. See P. Birnie, A. Boyle and C. Redgwell, *International Law and the Environment* (Oxford University Press, 2009), p. 6.

<sup>9</sup> See *infra* Chapter 8. <sup>10</sup> See *infra* Chapter 11.

<sup>11</sup> See United Nations Compensation Commission, Report and Recommendation made by the Panel of Commissioners concerning the F4 claims, 22 June 2001, UN Doc. S/AC.26/2001/16, (first instalment); 3 October 2002, S/AC.26/2002/26 (second instalment); 18 December 2003, S/AC.26/2003/31 (third instalment); 9 December 2004, S/AC.26/2004/16 (fourth instalment, part I); 9 December 2004, S/AC.26/2004/17 (fourth instalment part II), and 30 June 2005, S/AC.26/2005/10 (fifth instalment). J.-C. Martin, 'The United Nations Compensation Commission Practice with Regards to Environmental Claims', in S. Maljean-Dubois and Y. Kerbrat (eds.), *The Transformation of International Environmental Law* (Oxford: Hart, 2011), pp. 251-67.

<sup>12</sup> Stockholm Declaration, *supra* n. 4, preamble, para. 1. In addition, international humanitarian law protects civilian objects. See, notably, The (IV) Geneva Convention Relative to the Protection of Civilian Persons in Time of War, 12 August 1949, 75 UNTS 287, Art. 33.

<sup>13</sup> Article 1(1) of the UNFCCC defines '[a]dverse effects of climate change' as 'changes in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare', United Nations Framework Convention on Climate Change, 9 May 1992, 1771 UNTS 107 ('UNFCCC').

treaty contexts in the absence of a legal relationship (e.g. with the Kyoto Protocol<sup>14</sup>).

#### 2.2.4 Operational level

Finally, the meaning of the term 'environment' can be derived, for purely operational purposes, from the body of instruments referred to as international environmental law. This approach is, of course, unsatisfactory from a theoretical standpoint because of its circularity. It is, however, very useful in practice, especially when it comes to providing a structured overview of international environmental law as a discipline for professional or educational purposes. It helps indeed organise the main contents of this discipline in a manner that is more conducive to their understanding as a whole.

Thus, for example, the physical (air, water, land), biological (species, including the human species, habitats, ecosystems and diversity) and cultural components (the human existence and aesthetic considerations) identified in the aforementioned characterisations of the term 'environment' can be organised analytically in a number of categories or areas of regulation. This is the approach adopted here. For the remainder of this book, we will focus on four 'sub-continent' within the entire 'world' of international environmental law:<sup>15</sup> (i) the marine environment and freshwater;<sup>16</sup> (ii) the protection of the atmosphere;<sup>17</sup> (iii) species, ecosystems and biodiversity;<sup>18</sup> and (iv) the regulation of dangerous substances and activities.<sup>19</sup>

The object of this introduction to international environmental law thus characterised, we can now turn to the main features of this body of law.

### 2.3 The main actors

#### 2.3.1 From challenges to structures

To understand the main actors shaping the dynamics of international environmental law, we must first recall some of the challenges that the discipline has faced since its modern origins in the 1960s. These challenges can be classified into two main categories.

The first category covers political difficulties at the international level, mainly due to: (i) developing countries' perception of international environmental law as a rich country luxury or a strait-jacket to their development or even a protectionist tactic used by developed countries to regulate trade

<sup>14</sup> Protocol to the United Nations Framework Convention on Climate Change, Kyoto, 11 December 1997, 2303 UNTS 148 ('Kyoto Protocol'), Art. 1.

<sup>15</sup> See D. Bodansky, J. Brunnée and E. Hay (eds.), *The Oxford Handbook of International Environmental Law* (Oxford University Press, 2007), part III.

<sup>16</sup> See our analysis *infra* Chapter 4. <sup>17</sup> See *infra* Chapter 5. <sup>18</sup> See *infra* Chapter 6.

<sup>19</sup> See *infra* Chapter 7.

from developing countries; (ii) the strategic competition among different countries;<sup>20</sup> and (iii) the need to co-operate and co-ordinate initiatives to tackle transboundary or global environmental problems.

The second category refers to domestic difficulties, mainly as a result of:

(i) economic interest groups adversely affected by environmental regulation, with sufficient means to organise themselves and influence the position of their governments on a variety of environmental problems; and (ii) some broader implications of environmental regulation, such as the potential competitive disadvantages arising from it and the risk of outsourcing and job losses, both of which have been often associated, for justified or unjustified reasons, with the adoption of environmental disciplines.<sup>21</sup>

To address these two categories of challenges, international environmental law has developed two features that could be described as 'organisational' in nature insofar as they reflect the organisation of the main actors of global environmental governance.<sup>22</sup> The answer to the first category of difficulties has consisted in creating a number of international structures (or the re-orientation of some existing ones) in order to facilitate State co-operation in environmental matters (2.3.2). As to the second category of difficulties, it has encouraged the organisation of civil society to counterbalance the influence of economic interest groups and to participate in the implementation of environmental norms (2.3.3).

### 2.3.2 International structures and actors

The problems of trust and efficiency in the relations between States have been managed through the creation of new international organisations or the re-orientation or expansion of existing ones. We do not intend to dwell on the theory of international organisations here<sup>23</sup> nor on their function in international relations.<sup>24</sup> The discussion will be limited to some observations about the types of international organisations active in global environmental governance.

There are broadly four types of international organisations, according to their mode of creation and the scope of their mandate. The first and probably

<sup>20</sup> The refusal by the United States Senate to consider the ratification of the Kyoto Protocol is often put down to the fact that some of its strategic competitors, especially China, were not subject to quantified emissions reduction targets. See especially 'Getting Warmer', *The Economist*, 3 December 2009.

<sup>21</sup> See *ibid.*

<sup>22</sup> See generally J. G. Speth and P. Haas, *Global Environmental Governance* (Washington DC: Island Press, 2006).

<sup>23</sup> See M. Virally, *L'organisation mondiale* (Paris: Armand Colin, 1972); H. G. Schermers and N. M. Blokker, *International Institutional Law* (Leiden: Martinus Nijhoff, 5th edn, 2011).

<sup>24</sup> See P. Haas, R. O. Keohane and M. A. Levy (eds.), *Institutions for the Earth: Sources of Effective International Environmental Protection* (Cambridge MA: MIT Press, 1993); Speth and Haas, *supra* n. 22.

most common one encompasses international organisations created by a 'constitutive treaty', which defines the functional scope as well as the principal organs of the organisation. Prominent examples of organisations involved in environmental matters include the World Meteorological Organisation ('WMO'),<sup>25</sup> the United Nations Food and Agriculture Organisation ('FAO')<sup>26</sup> and the International Maritime Organisation ('IMO').<sup>27</sup> The essential function of these organisations is to co-ordinate the efforts of States in a specific area of regulation, often providing a framework for the negotiation of treaties or the adoption of standards.

The second type of organisation is a variation of the first, the main difference being that the basic treaty does not aim to create an organisation with a general purpose in a given area but rather to regulate a specific problem, creating institutions to manage the development of the treaty thus concluded. By way of illustration, most MEAs create organs such as a conference of the parties ('COP') and a secretariat.<sup>28</sup> Examples of this second category include the COP and secretariats established by the Basel Convention, the UNFCCC, the CBD, the Convention on Desertification and the Stockholm Convention, to name a few.<sup>29</sup> The function of these institutions is to facilitate the development of a specific regime by hosting regular negotiations often resulting in new more specific treaties or a wide array of other legal instruments (typically decisions of the COP clarifying the contents and scope of the obligations provided for in the initial treaty).

The third type of organisations, namely the subsidiary bodies established by a principal organ of a treaty, can be seen as a by-product of the previous two types of organisations. For example, the UN General Assembly, one of the principal organs of the UN,<sup>30</sup> has established several subsidiary bodies, two of which are very important in environmental matters, namely the United Nations Environment Programme ('UNEP')<sup>31</sup> and the United Nations

<sup>25</sup> Convention of the World Meteorological Organization, 11 October 1947, 77 UNTS 143.

<sup>26</sup> Constitution of the Food and Agriculture Organization of the United Nations, 16 October 1945, 12 UST 980.

<sup>27</sup> Convention of the International Maritime Organization, 6 March 1948, 289 UNTS 4.

<sup>28</sup> See J. M. Lavieille (ed.), *Conventions de protection de l'environnement, Secrétariats, Conférences des parties, Comités d'experts* (Limoges: PULIM, 1999); B. H. Desai, *Multilateral Environmental Agreements. Legal Status of the Secretariats* (Cambridge University Press, 2010).

<sup>29</sup> Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 22 March 1989, 1673 UNTS 57 ('Basel Convention'), Art. 15; UNFCCC, *supra* n. 13, Art. 7; Convention on Biological Diversity, 5 June 1992, 1760 UNTS 79 ('CBD'), Art. 23; United Nations Convention on Action Against Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, 14 October 1994, 1954 UNTS 3 ('UNCCD'), Art. 22; Stockholm Convention on Persistent Organic Pollutants, 22 May 2001, 2256 UNTS 119 ('POP Convention'), Art. 19.

<sup>30</sup> Charter of the United Nations, 26 June 1945, 1 UNTS XVI, Art. 7.1.

<sup>31</sup> 'Institutional and Financial Arrangements for International Environmental Cooperation', 15 December 1972, UN Doc. A/Res/2997/XXVII ('Resolution 2997').

Development Programme ('UNDP').<sup>32</sup> The activities of these subsidiary bodies will be referred throughout this book. It suffices to emphasise at this stage that while UNEP has a function that is in some ways 'entrepreneurial' or 'catalytic' as regards international environmental law,<sup>33</sup> UNDP focuses on the implementation of projects which, in some cases, have environmental components. A third illustration is the Commission on Sustainable Development ('CSD'), created by the Economic and Social Council ('ECOSOC'), another principal organ of the UN.<sup>34</sup> The CSD has been replaced with a High-Level Political Forum, introduced by the outcome document of the 2012 Rio Summit,<sup>35</sup> which is a subsidiary body of the UN General Assembly. COPs are also empowered to create subsidiary bodies. Thus, the COP of the UNFCCC, acting as the Meeting of the Parties to the Kyoto Protocol ('CMP'), has set up bodies to manage the flexible mechanisms under Articles 6 and 12 of the Protocol.<sup>36</sup> In some cases, subsidiary bodies may, in turn, be involved in the creation of a new organisation. For example, in 1991, UNEP and UNDP, together with the World Bank, created the Global Environmental Facility ('GEF'), which became an independent organisation in 1994.<sup>37</sup> This change took place, largely under pressure from developing countries, in order to limit the influence of the World Bank, hence of developed countries, on the allocation of funds by the GEF.

Finally, the fourth type of organisations are characterised by their relative organisational informality insofar as they are not based on a treaty or a decision of an organ but operate as forums for discussion among States and, in some cases, also some other entities. Their composition may therefore need to be expanded depending on the issues that have to be addressed. For example, the G8, which traditionally brings together the heads of State or governments of Germany, Canada, the United States, France, Italy, Japan, Russia and the United Kingdom, has sometimes been expanded to include counterparts in countries like South Africa, Brazil, China, India or Mexico.<sup>38</sup> Another forum linked to the G8, namely the 'Major Economies Forum', brought together leaders of the sixteen States (plus the EU) that emit most greenhouse gases in July 2009.<sup>39</sup> Alongside these forums, there are

<sup>32</sup> 'Consolidation of the Special Fund and the Expanded Programme of Technical Assistance in a United Nations Development Programme', 22 November 1965, UN Doc. Resolution 2029 (XX).

<sup>33</sup> On the role of UNEP see M. Ivanova, 'UNEP in Global Environmental Governance: Design, Leadership, Location' (2010) 10 *Global Environmental Politics* 30.

<sup>34</sup> 'Institutional Arrangements to follow up the United Nations Conference on Environment and Development', 22 December 1992, UN Doc. A/Res/47/191.

<sup>35</sup> 'The Future We Want', 11 September 2012, UN Doc. A/Res/66/288, para. 84.

<sup>36</sup> See Doc. FCCC/KP/CMP/2005/8/Add.2, Decisions 3/CMP.1 and 9/CMP.1.

<sup>37</sup> See Instrument for the Establishment of the Restructured Global Environmental Facility (October 2011). The text of the 'Instrument' is reproduced at 9-41 of the 2011 publication.

<sup>38</sup> G8 Summit 2008, Hokkaido, Tokyo (Japan), 7-9 July 2008.

<sup>39</sup> Declaration of the Leaders of the Major Economies Forum on Energy and Climate, see [www.g8italia2009.it/static/G8\\_Allegato/MEF\\_Declaration1.pdf](http://www.g8italia2009.it/static/G8_Allegato/MEF_Declaration1.pdf) (3 February 2012).



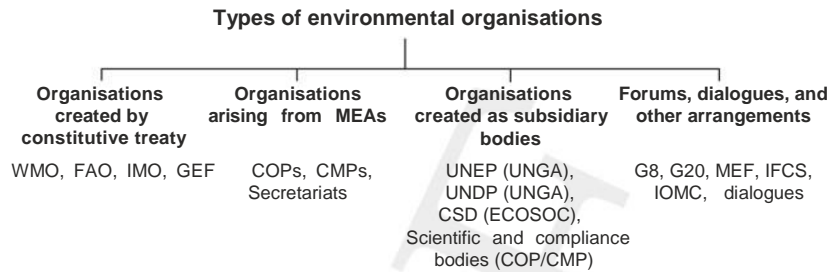


Figure 2.1: Types of environmental organisations

also ‘dialogues’ on issues such as climate co-operation<sup>40</sup> or chemical management,<sup>41</sup> which may include a variety of stakeholders and allow for the removal of obstacles ahead of formal negotiations. Figure 2.1 summarises the four types of organisations identified so far.

This brief survey highlights one important feature of global environmental governance, namely its decentralisation or, more specifically, the scattered distribution of its governing structures. Referring to one aspect of this scattered landscape, a prominent environmental lawyer spoke of ‘treaty congestion’.<sup>42</sup> Indeed, despite several initiatives to this effect, no ‘World Environmental Organisation’ has been developed so far,<sup>43</sup> unlike areas such as international trade or global health issues. The function of the various organisations active in environmental matters is, in essence, to co-ordinate the efforts of States in this area, seeking as much as possible to avoid duplication as well as to enhance the efficient use of resources. The decentralisation of global environmental governance extends, moreover, well beyond intergovernmental organisations, as discussed next.

### 2.3.3 Civil society and the private sector

Besides the four types of organisations discussed earlier, private sector organisations and other organisations from civil society play a very important role in shaping international environmental law.<sup>44</sup> It is not an exaggeration to

<sup>40</sup> See J. E. Viñuales, ‘Du bon dosage du droit international: Les négociations climatiques en perspective’ (2010) 56 *Annuaire français de droit international* 437ss.

<sup>41</sup> See *infra* Chapter 7, discussing the ‘International Forum on Chemical Safety’ (IFCS) and the ‘Inter-Organisation Programme for the Sound Management of Chemicals’ (IOMC).

<sup>42</sup> See E. Brown Weiss, ‘International Environmental Law: Contemporary Issues and the Emergence of a New World Order’ (1995) 81 *Georgetown Law Journal* 675.

<sup>43</sup> See F. Biermann and S. Bauer (eds.), *A World Environmental Organization: Solution or Threat for Effective International Environmental Governance* (Aldershot: Ashgate, 2005).

<sup>44</sup> See A. Pomade, *La société civile et le droit de l’environnement. Contribution à la réflexion sur les théories des sources du droit et de la validité* (Paris: LGDJ, 2010).

say that, with the exception of human rights,<sup>45</sup> no other area has experienced such a strong participation from civil society.

The participation of civil society is important to counterbalance the influence of economic interest groups, whose environmental externalities are often insufficiently addressed by State intervention or consumer behaviour. Organisations such as Greenpeace, the World Wildlife Fund ('WWF') or the International Union for the Conservation of Nature ('IUCN'),<sup>46</sup> are but a few prominent examples of a vast and thriving body of environmental NGOs active at both the national and international levels, who have devoted substantial efforts to raise public awareness regarding environmental degradation and to channel public pressure.<sup>47</sup> Indeed, the main functions performed by these NGOs can be classified into three main categories:<sup>48</sup> (i) the formulation of the interests of civil society, (ii) assistance in implementation and (iii) channelling public pressure. Of course, the performance of these functions can follow very different approaches. For example, the adoption of the POP Convention was significantly facilitated by the momentum created by the publication of a report with support from WWF.<sup>49</sup> Another example is the role of IUCN in the development of payment-for-ecosystem-services ('PES') mechanisms, such as reservoirs of biodiversity and of greenhouse gas emissions.<sup>50</sup> Finally, the intervention of NGOs can have significant influence on how a case is managed, as is evidenced by the famous Brent Spar case, where the intervention of Greenpeace prevented Shell from sinking an oil platform in the North Sea, by channelling public opinion against this form of decommissioning.<sup>51</sup>

This said, the relations between civil society and the private sector, or between the private sector and environmental protection, are far more complex. In fact, environmental protection can hardly be achieved without the co-operation or even the initiative of the private sector, as has been recognised previously, particularly at the 2002 Johannesburg Summit. The contribution of the private sector is particularly important in connection with (i) project financing, (ii) technology transfer and also (iii) environmental governance. The challenge, therefore, is not only to introduce certain checks on the activities of the private sector (such as corporate social responsibility

<sup>45</sup> See e.g. P. Alston (ed), *Non-State Actors and Human Rights* (Oxford University Press, 2005).

<sup>46</sup> Note that the IUCN is a mixed organisation with an intergovernmental component.

<sup>47</sup> On the role of NGOs, see A. K. Lindblom, *Non-Governmental Organisations in International Law* (Cambridge University Press, 2006).

<sup>48</sup> See D. Hunter, J. Salzman and D. Zaelke, *International Environmental Law and Policy* (New York: Foundation Press, 2007), Chapter 5.

<sup>49</sup> For a list of detailed examples, see *ibid.*, pp. 255-67.

<sup>50</sup> IUCN UNFCCC Newsletter; *Reducing Emissions from Deforestation and Forest Degradation*, 09/09, available at: [cmsdata.iucn.org/downloads/unfccc\\_newsletter\\_\\_september\\_09.pdf](http://cmsdata.iucn.org/downloads/unfccc_newsletter__september_09.pdf) (last visited 3 February 2012).

<sup>51</sup> On the ambiguous results of the intervention of Greenpeace, see Hunter et al., *supra* n. 48, pp. 827-9.

codes or accountability mechanisms<sup>52</sup>) but also to steer private interest in pro-environment projects. One way to do this is to enter into public-private partnerships or PPPs.<sup>53</sup> PPPs have been active in matters such as renewable energy, water purification or waste treatment, as well as in the channelling of financial resources towards environmental projects. The role of the private sector is currently the subject of much discussion, particularly with respect to the financing of projects relating to climate change mitigation and adaptation.<sup>54</sup>

## 2.4 The sources of international environmental law

The challenges faced by international environmental law have been instrumental in shaping not only its organisational features but also the processes through which environmental norms are generated. The complex aggregation of diverging State interests, the need to institutionalise environmental negotiations or the significant role played by NGOs in the development and implementation of environmental norms have all influenced the sources of international environmental law. Yet, this influence cannot be understood unless we also take into account an additional challenge, which has a much stronger impact on environmental regulation than on any other branch of international law, namely the need to cope with scientific and technological progress.

These difficulties have indeed a significant impact on how traditional methods of creating international law operate in the environmental context. Such impact lies at the roots of three important features of international environmental law: (i) the prevalence of treaties as a source of international environmental law, (ii) the frequent use of instruments of soft law<sup>55</sup> and (iii) the increasing development of a 'droit dérivé' or administrative law of the environment in the form of decisions adopted by the COPs established by MEAs.

<sup>52</sup> OECD Guidelines for Multinational Enterprises: revised in 2000, 11 September 2000, Doc. DAF/FE/IME/WPG(2000)9; Tripartite Declaration of Principles Concerning Multinational Enterprises and Social Policy, International Labour Organization, 2006; The Ten Principles of the Global Compact, and more particularly Principles 7 to 9, available at: [www.unglobalcompact.org/aboutthegc/thetenprinciples/index.html](http://www.unglobalcompact.org/aboutthegc/thetenprinciples/index.html) (last visited 3 February 2012). See E. Morgera, *Corporate Accountability in International Environmental Law* (Oxford University Press, 2009).

<sup>53</sup> See P. Glasbergen, F. Biermann and A. Mol (eds.), *Partnerships, Governance and Sustainable Development. Reflections on Theory and Practice* (Cheltenham: Edward Elgar, 2007).

<sup>54</sup> See P.-M. Dupuy and J. E. Viñuales (eds.), *Harnessing Foreign Investment to Promote Environmental Protection: Incentives and Safeguards* (Cambridge University Press, 2013); R. Stewart, B. Kingsbury and B. Rudyk, *Climate Finance: Regulatory and Funding Strategies for Climate Change and Global Development* (New York University Press, 2009).

<sup>55</sup> See P.-M. Dupuy, 'Soft Law and the International Law of the Environment' (1990/1991) 12 *Michigan Journal of International Law* 420.

### 2.4.1 The prevalence of treaties

Perhaps because of its recent vintage, the role of customary international law in international environmental law is still limited, although its importance should not be underestimated.<sup>56</sup> Apart from a few principles, such as those of no harm, prevention, co-operation and regular exchange of information, or equitable utilisation and joint management of shared natural resources, which were developed in the early 1970s in connection with transboundary pollution,<sup>57</sup> or the more recent requirement to conduct an environmental impact assessment or to provide adequate channels for public participation,<sup>58</sup> custom has had limited influence on international environmental law.

In contrast, the role played by treaties has grown steadily since the adoption of the Stockholm Declaration in the 1970s. We have already discussed in Chapter 1 the historical development of international environmental law, and we will analyse in detail the most important environmental treaties in subsequent chapters. Here, we discuss briefly the reasons explaining the prevalence of treaties in this area of international law.

The first reason is the relative 'novelty' of environmental problems and, as a result, the inadequacy of prior customary norms. It is only natural that new problems may call for new rules, better adapted to the regulatory object than norms originally developed for a different purpose. Second, environmental problems know no borders, and their scientific understanding evolves over time. Their regulation therefore has a significant institutional and procedural dimension, which can be better addressed through treaty law. Third, the reluctance of developing countries as regards measures that may hamper their economic development could also explain the appeal of treaties, which allow for some degree of differentiation between developed and developing countries. Differences in the perception of environmental regulation may also explain, to some extent, the attractiveness of non-binding 'soft law' in this area.

### 2.4.2 The role of soft law

Soft law has played a major role in the development of international environmental law since its modern inception.<sup>59</sup> The two texts that could be described as its founding documents, namely the 1972 Stockholm Declaration and the 1992 Rio Declaration, are instruments of soft law. We could also refer to many other examples, ranging from Resolution 1803 (XVII) on 'Permanent

<sup>56</sup> See P.-M. Dupuy, 'Formation of Customary International Law and General Principles' in Bodansky et al., *supra* n. 15, p. 450.

<sup>57</sup> See P.-M. Dupuy, 'Overview of the Existing Customary Legal Regime Regarding International Pollution' in D. Magraw (ed.), *International Law and Pollution* (Philadelphia: University of Pennsylvania Press, 1991), pp. 61-89; J. E. Viñuales, 'The Contribution of the International Court of Justice to the Development of International Environmental Law: A Contemporary Assessment' (2008) 32 *Fordham International Law Journal* 232.

<sup>58</sup> See *infra* Chapter 3. <sup>59</sup> See Dupuy, *supra* n. 55.

Sovereignty over Natural Resources' of 1962<sup>60</sup> to the 'World Charter for Nature' adopted in 1982,<sup>61</sup> the 'Forests Declaration' adopted at the 1992 Rio Summit<sup>62</sup> or, still, the 'Copenhagen Accord' of December 2009.<sup>63</sup>

To understand the operation of these instruments, it is useful to introduce a classic distinction between the instrument and its content. The use of the adjective 'soft' to describe the legal status of an instrument is intended to stress that the instrument as such is not legally binding, regardless of its content. The contents of the instrument may, however, be legally binding in some other way. In international environmental law, the most striking example of this phenomenon is the principle of prevention enshrined in both the Stockholm Declaration (Principle 21) and the Rio Declaration (Principle 2). This principle, which is currently considered a cornerstone of international environmental law, is not legally binding because of its inclusion in a number of soft law instruments, including the two aforementioned declarations, but by virtue of its customary status recognised by the International Court of Justice ('ICJ') on a number of occasions.<sup>64</sup> However, the ICJ would probably not have affirmed the customary nature of this principle had it not been for its restatement in such soft law instruments. The instruments themselves and the conferences and institutions that create them therefore have an important normative role as catalysts of new international norms. From this perspective, one can distinguish between organisations capable of expressing State practice (e.g. general assemblies of intergovernmental organisations or international conferences) and organisations that seek to influence this practice by adopting various instruments. The General Assembly of the UN or the Rio Conference on Environment and Development are examples of the first category, while the International Law Association ('ILA') and the Institut de Droit International ('IDI') are illustrations of the second category.

The normative role of the latter category of organisations must not be underestimated, both directly as 'entrepreneurs' of legally binding norms, and indirectly, through their influence on the development of legal instruments by the first category of organisations. Regarding the first hypothesis, we can mention, for example, the resolution adopted in 1963 by the IUCN, which later became the basis for the adoption of the Convention on International Trade in Endangered Species ('CITES'). As for the second hypothesis, it can be

<sup>60</sup> 'Permanent Sovereignty Over Natural Resources', 14 December 1964, UN Doc. Resolution 1803 (XVII).

<sup>61</sup> World Charter for Nature, *supra* n. 6.

<sup>62</sup> 'Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests', 14 August 1992, UN Doc. A/CONF/151/26 (vol. III) ('Forests Principles').

<sup>63</sup> Copenhagen Accord, 19 December 2009, UN Doc. FCCC/CP/2009/L.7.

<sup>64</sup> *Legality of Nuclear Weapons*, *supra* n. 7, para. 29; *Gabčíkovo-Nagymaros Project* (Hungary v. Slovakia), Judgment, ICJ Reports 1997, p. 7 ('*Gabčíkovo-Nagymaros Project*'), para. 53; *Pulp Mills on the River Uruguay* (Argentina v. Uruguay), Provisional Measures, Order (13 July 2006), ICJ Reports 2006, p. 113, para. 72 ('*Pulp Mills*').

illustrated by the influence of the 'Helsinki Rules' adopted in 1966 by the ILA<sup>65</sup> on the subsequent work of the UN International Law Commission ('ILC') on this matter, which, in turn, led to the adoption of a treaty under the aegis of the UN General Assembly.<sup>66</sup>

It must be added that even in cases where the contents of a soft law instrument do not become legally binding they may still be influential. For example, a number of financial intermediaries, such as the World Bank, the International Finance Corporation, regional development banks or even private lenders, have adopted environmental and sustainability standards which, because of their impact on the disbursement of funds, command significant authority.<sup>67</sup>

### 2.4.3 Droit dérivé

The French term 'droit dérivé' refers to the laws and regulations adopted by a body that is empowered to do so by a treaty. In the environmental context, it refers to the law enacted by such intergovernmental bodies as the General Assembly or the Security Council of the United Nations or, more specifically, the COPs and CMPs established by MEAs. The term 'dérivé' indicates that the legal validity of the resolutions, recommendations and decisions ('regulations') adopted by these bodies depends on the normative powers delegated to them by States parties in the constitutive treaty. As with soft law, these regulations are not strictly speaking a formal source of international law, which in this case would be the constitutive treaty. They remain, nevertheless, a very important technique for the development of international standards.<sup>68</sup>

In international environmental law, these regulations mainly take the form of decisions adopted by the COPs (or CMPs) on various subjects, such as:<sup>69</sup> (i) internal rules (procedural, administrative or financial), (ii) regulations implementing the obligations arising from a MEA or (iii) external regulations (on issues such as compliance, co-operation with other treaties, or the elaboration of a variety of standards intended to guide the conduct of States and other entities). Some examples will help illustrate these types of regulations.

The first is given by Article 2.9(a)(i) of the 1987 Montreal Protocol, which allows for the possibility of introducing 'adjustments' to the ozone

<sup>65</sup> Helsinki Rules on the Uses of the Waters of International Rivers; adopted by the International Law Association at its 52nd conference, Helsinki, 20 August 1966, International Law Association, Report of the Fifty-second Conference, London, 1967, p. 56.

<sup>66</sup> See United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses, 21 May 1997, 36 ILM 700. This convention entered into force in 2014 but, before, some of its provisions were viewed as a statement of customary international law. See L. Caffisch, 'La convention du 21 mai 1997 sur l'utilisation des cours d'eau internationaux à des fins autres que la navigation' (1997) 43 *Annuaire français de droit international* 751, at 770.

<sup>67</sup> See B. J. Richardson, *Socially Responsible Investment Law* (Oxford University Press, 2008).

<sup>68</sup> See J. Brunnée, 'COPing with Consent: Law-making under Multilateral Environmental Agreements' (2002) 15 *Leiden Journal of International Law* 1.

<sup>69</sup> See G. Ulfstein, 'Treaty Bodies' in Bodansky et al., *supra* n. 15, pp. 880-8.

depleting potentials of regulated substances by means of a decision of the Meeting of the Parties adopted by a qualified majority and binding on all the parties (Article 2.9(c)-(d)). The second illustration is given by a set of decisions of the COP of the UNFCCC known as the 'Marrakesh Accords' (subsequently approved by the CMP of the Kyoto Protocol), which govern the details of the three 'flexible mechanisms' provided for in the Protocol, namely joint implementation,<sup>70</sup> the clean development mechanism<sup>71</sup> and emissions trading.<sup>72</sup> The third illustration concerns the architecture of certain implementation mechanisms known as 'non-compliance procedures' ('NCPs') established within the framework of several MEAs.<sup>73</sup> We will discuss these mechanisms in Section 2.5.4 below and, more generally, in Chapter 9.

Given the importance of the issues managed by way of 'droit dérivé', it is not an overstatement to say that such regulations are critical for the operation of MEAs.

## 2.5 The implementation of international environmental law

### 2.5.1 Overview

The implementation of international environmental law presents a number of specific features that are worth mentioning as part of the overview provided in this chapter. Several techniques have been developed to cope with such implementation challenges as resistance from economic interest groups, political and strategic considerations, or the need to constantly adapt to an evolving scientific and technological landscape.<sup>74</sup>

Faced with such difficulties, the traditional mechanisms used for the implementation of international law, i.e. the characterisation of a given conduct as a breach of a legal norm and the determination of the ensuing legal

<sup>70</sup> Decision 2/CMP.1, FCCC/KP/CMP/2005/8/Add.1 ('Decision 15/CP.7'); Decision 9/CMP.1, FCCC/KP/CMP/2005/8/Add.2 ('Decision 16/CP.7'); Decision 10/CMP.1, FCCC/KP/CMP/2005/8/Add.2; Decision 2/CMP.2, FCCC/KP/CMP/2006/10/Add.1; Decision 3/CMP.2, FCCC/KP/CMP/2006/10/Add.1; Decision 3/CMP.3, FCCC/KP/CMP/2007/9/Add.1; Decision 5/CMP.4, FCCC/KP/CMP/2008/11/Add.1.

<sup>71</sup> See Decision 2/CMP.1, FCCC/KP/CMP/2005/8/Add.1 ('Decision 15/CP.7'); Decision 3/CMP.1, FCCC/KP/CMP/2005/8/Add.1 ('Decision 17/CP.7'); Decision 4/CMP.1, FCCC/KP/CMP/2005/8/Add.1 ('Decision 21/CP.8 and 18/CP.9'); Decision 5/CMP.1, FCCC/KP/CMP/2005/8/Add.1 ('Decision 19/CP.9'); Decision 6/CMP.1, FCCC/KP/CMP/2005/8/Add.1 ('Decision 14/CP.10'); Decision 7/CMP.1, FCCC/KP/CMP/2005/8/Add.1; Decision 8/CMP.1, FCCC/KP/CMP/2005/8/Add.1; Decision 1/CMP.2, FCCC/KP/CMP/2006/10/Add.1; Decision 2/CMP.3, FCCC/KP/CMP/2007/9/Add.1; Decision 9/CMP.3, FCCC/KP/CMP/2007/9/Add.1; Decision 2/CMP.4, FCCC/KP/CMP/2008/11/Add.1.

<sup>72</sup> See M. Wara, 'Measuring the Clean Development Mechanism's Performance and Potential' (2008) 55 *UCLA Law Review* 1759.

<sup>73</sup> See T. Treves et al. (eds.), *Non-Compliance Procedures and Mechanisms and the Effectiveness of International Environmental Agreements* (The Hague: TMC Asser Press, 2009).

<sup>74</sup> See J. E. Viñuales, 'Legal Techniques for Dealing with Scientific Uncertainty in Environmental Law' (2010) 43 *Vanderbilt Journal of Transnational Law* 437.

consequences,<sup>75</sup> are ill-suited to manage cases of non-compliance resulting from the inability (financial or technical) of a State to abide by a norm. This observation lies at the roots of a new approach to compliance with international law,<sup>76</sup> which considers compliance as a process that must be managed through a variety of non-adversarial methods, such as financial and technical assistance or procedures where the adversarial character of traditional dispute resolution mechanisms is attenuated. In this section, we provide an overview of the types of techniques available to 'facilitate' compliance and 'manage' non-compliance. A more detailed analysis is provided in Chapter 9.

## 2.5.2 Incentive mechanisms

Incentive mechanisms for the respect of environmental standards have two principal objectives, namely to increase efficiency (by reducing the cost of compliance) and to compensate for the lack of technical and financial capacity in some countries (through assistance mechanisms). The search for efficiency is mostly relevant for developed countries, whereas developing countries are mainly interested in technical and financial assistance.

Examples of techniques that promote efficiency may be found in the flexible mechanisms under the Kyoto Protocol and, to some extent, under the Montreal Protocol.<sup>77</sup> To understand how these mechanisms can reduce the costs of compliance with environmental standards, let us take a closer look at some of these mechanisms. Pursuant to Article 3 of the Kyoto Protocol, the countries listed in Annex I to the UNFCCC must limit their average emissions of greenhouse gases during the periods 2008-12 and (when the amendment enters into force) 2013-20 to a certain percentage (set out in Annex B of the Protocol) of their emissions in 1990 (base year). To comply with this obligation, States may adopt 'national' and/or 'international' measures. Within the latter, Article 17 of the Protocol sets up a system of emissions trading to allow Annex B States (or companies based in those States) to meet their obligations more efficiently. The efficiency gain comes from the fact that the ability to emit a tonne of carbon dioxide (or its equivalent of another regulated greenhouse gas) has a different value according to the situation of each State or company. Such variation stems from differences in the production process used by States/companies or from the relative costs (from one State/company to another) entailed by the introduction of cleaner technology or, still, from

<sup>75</sup> See *infra* Chapter 8.

<sup>76</sup> See A. Chayes and A. Handler Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements* (Cambridge MA: Harvard University Press, 1995); E. Brown Weiss and H. K. Jacobson (eds.), *Engaging Countries: Strengthening Compliance With International Environmental Accords* (Cambridge MA: MIT Press, 1998).

<sup>77</sup> See Arts. 2.5 (transfers of production) and 2.8(a) (mechanism known as the 'bubble') of the Montreal Protocol on Substances that Deplete the Ozone Layer, 16 September 1987, 1522 UNTS 3 ('Montreal Protocol').



differences in the energy matrix of a country. It has been observed that Canada, which has increased its emissions by 29 per cent compared to the base year (1990), will only be able to fulfil its obligations (reductions of 6 per cent compared to 1990) by acquiring emission credits accumulated by Russia, sometimes referred to as 'Russian hot air'.<sup>78</sup> Flexible mechanisms give Canada, as well as other States such as Spain or Japan, the possibility of acquiring rights to emit owned by or generated in other States, such as Russia, at a lower cost. However, this possibility poses a number of problems that will be discussed in Chapter 5.

Articles 6 and 12 of the Kyoto Protocol contemplate two other flexible mechanisms. We will discuss their operation in Chapter 5, but it may be useful to make a brief reference here to the 'clean development mechanism' ('CDM') provided for in Article 12. The CDM allows an industrialised country (Annex B of the Protocol) to sponsor a project to reduce emissions in a developing country and to obtain, at the end of a verification procedure, an amount of carbon credits equal to the reduction of emissions achieved (i.e. the difference between the level of emissions achieved as a result of the project and those that would have resulted in the absence of the project). These credits can provide some efficiency gains for industrialised countries. Indeed, achieving such reductions in a developing country is normally cheaper than reducing emissions in the industrialised country by other means, such as the introduction of environmental taxes, emissions caps or technology requirements.<sup>79</sup> At the same time, the developing countries where such projects are conducted benefit from a contribution of capital and technology, which constitutes a form of assistance.

The latter point serves as a transition to the discussion of assistance mechanisms. Several MEAs recognise the special situation of some of their member States and, in particular, their need for assistance to fulfil their obligations. For example, Article 4(2) of the Basel Convention<sup>80</sup> requires States to set up adequate disposal facilities, if possible located within their territory, allowing for the 'environmentally sound' management of hazardous waste. However, for this requirement to be met, a certain level of technological advancement is necessary. In this regard, Article 14(1) contemplates the establishment of regional and sub-regional financial<sup>81</sup> and technology transfer

<sup>78</sup> See 'Carry on Kyoto', *The Economist*, 7 October 2004. Canada has not subscribed to the second commitment period (2013-20) adopted at the Doha Conference, in December 2012.

<sup>79</sup> The economic dimension of efficiency gains that are permitted by this mechanism is analysed in M. A. Toman, R. D. Morganstern and J. Anderson, 'The Economics of "When" Flexibility in the Design of Greenhouse Gas Abatement Policies' in *Resources for the Future Discussion Paper 99-38-REV, 2-3*, 1999.

<sup>80</sup> Basel Convention, *supra* n. 29.

<sup>81</sup> A technical assistance fund has been created to this end, sustained by voluntary contributions. It is known as the 'Trust Fund to Assist Developing Countries and Other Countries in Need of Technical Assistance in the implementation of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal'. See 'Enlargement

mechanisms.<sup>82</sup> Similarly, under the CITES, a fund has been established to finance technical assistance activities.<sup>83</sup> These are only two examples of a recurrent feature of MEAs.<sup>84</sup>

In the last years, the question of financial and technological assistance has received sustained attention in climate negotiations. A Green Climate Fund has been set up, based in South Korea, to finance measures for the mitigation of climate change and the adaptation to its effects. Until then, the main source of multilateral climate finance had been the GEF. The GEF also serves as the financial mechanism of other MEAs, such as the CBD, the POP Convention or the UNCCD.<sup>85</sup> In addition, environmental finance is also available from regional development banks<sup>86</sup> as well as from a number of market mechanisms, including the CDM or, potentially the so-called 'REDD' (Reduced Emissions from Deforestation and Forest Degradation).

### 2.5.3 Managing scientific uncertainty

Some of the techniques mentioned above are also important to tackle one of the main challenges faced by environmental regimes, namely scientific and technological change.<sup>87</sup>

To facilitate the understanding of these techniques, it is useful to distinguish four main stages in the development of an environmental regime.<sup>88</sup> The first stage concerns the identification of an environmental problem, despite the potentially significant scientific uncertainties surrounding the question, as well

of the Scope of the Technical Cooperation Trust Fund', Decision V/32, Conference of Parties, 5th meeting, Report of the Fifth Meeting of the Conference of the Parties to the Basel Convention, Annex, 10 December 1999, UN Doc. UNEP/CHW.5/29, p. 57.

<sup>82</sup> See Basel Convention Regional and Coordinating Centres brochure prepared by the Secretariat of the Convention, available at: [www.basel.int](http://www.basel.int) (last visited 3 February 2014).

<sup>83</sup> Technical Cooperation, Resolution of the Conference of Parties, Third Session, New Delhi (India), 25 February-8 March 1981, CITES Conf 3.4.

<sup>84</sup> See, in particular: Protocol to the 1979 Convention on Long-range Transboundary Air Pollution, on the Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe ('EMEP'), 28 September 1984, 1491 UNTS 167, the Small Grants Fund of the Ramsar Convention (SGF), [www.ramsar.org/SGF/](http://www.ramsar.org/SGF/) (last visited 3 February 2014); Multilateral Fund on the Implementation of Montreal Protocol (better known by its acronym 'MFMP'), 29 June 1990, UN Doc. UNEP/OzL.Pro.2/3; World Heritage Fund, Convention for the Protection of the World Cultural and Natural Heritage, 16 November 1972, 1037 UNTS 151, Art. 15ff. On this subject, see L. Boisson de Chazournes, 'Technical and Financial Assistance' in Bodansky et al., supra n. 15, pp. 945-73.

<sup>85</sup> Instrument for the Establishment of the Restructured Global Environmental Facility, GEF, October 2011, pp. 7-41, Art. I(6), available at: [www.thegef.org](http://www.thegef.org) (last visited 3 February 2014).

<sup>86</sup> African Development Bank (AFDB) and the African Development Fund, Asian Development Bank (ADB) and the Asian Development Fund, Inter-American Development Bank (IDB) and its Fund for Special Operations.

<sup>87</sup> See Viñuales, supra n. 74.

<sup>88</sup> See H. Breitmeier, O. R. Young and M. Zurn, *Analyzing International Environmental Regimes: From Case Study to Database* (Cambridge MA: MIT Press, 2007).

<b>Stage 1: Advocacy</b>	(1) <b>Precautionary reasoning</b>
<b>Stage 2: Design</b>	(2) <b>Framework-protocol approach</b> (3) <b>Advisory scientific bodies</b>
<b>Stage 3: Implementation</b>	(4) <b>Law-making by treaty bodies</b> (5) <b>Managerial approaches to compliance</b> (6) <b>Prior informed consent ('PIC')</b> (7) <b>Environmental impact assessment and monitoring</b>
<b>Stage 4: Reparation</b>	(8) <b>Provisional measures</b> (9) <b>Evidence</b> (10) <b>Facilitated liability</b>

Figure 2.2: Legal techniques for dealing with scientific uncertainty

as the advocacy efforts aimed at the development of a legal regime to manage the problem. The second stage focuses on regime design. In selecting the components of a regime and designing its structure, it is indeed very important to take into account the need to cope with scientific and technological change. The third stage concerns the implementation of the environmental regime thus designed. Over time, the regime will likely have to manage various sources of 'regime stress', either because the political or economic underpinnings of the treaty or the scientific understanding of the problem have changed. The fourth and final stage relates to the scientific uncertainties involved in repairing environmental harm that the regime has been unable to prevent. This distinction is of a purely analytical nature and may not always provide an accurate description of the life of an environmental regime. Moreover, some techniques may operate at more than one stage. Yet, the distinction remains useful to clarify those stages at which a given technique is more likely to operate or, in other words, to understand the critical junctures at which a given technique may be particularly useful.

Figure 2.2<sup>89</sup> links the four stages of regime development to a variety of legal techniques used to manage risk and uncertainty. At the first stage, the precautionary 'approach' or 'principle' may be a powerful technique to gather momentum on the need to regulate a given environmental problem.<sup>90</sup> The legal dimensions of this technique will be examined in Chapter 3. Suffice it to mention here that the main objective of precaution as a technique is precisely to encourage action on an environmental problem even when it is still poorly understood from a scientific standpoint. The earliest prominent illustration of the successful use of this technique is the

<sup>89</sup> Source: Viñuales, *supra* n. 74, p. 448.

<sup>90</sup> See A. Trouwborst, *Evolution and Status of the Precautionary Principle in International Law* (Dordrecht: Kluwer, 2002).

development of the 'ozone regime' (i.e. the Vienna Convention on the Protection of the Ozone Layer of 1985 and, most importantly, the Montreal Protocol of 1987). Indeed, the stringency of the phase out obligations introduced by the Montreal Protocol contrasts with the scientific uncertainty that (still) prevailed in late 1987 on the causes of stratospheric ozone depletion.<sup>91</sup>

Scientific uncertainty at stage one may significantly influence the regime features negotiated and incorporated in the final treaty at stage two. Regimes adopted in a context of scientific uncertainty must be capable of integrating changes in the scientific understanding of the problem regulated. A common technique is to conclude framework treaties laying out an institutional structure to facilitate the subsequent adoption of more specific obligations, usually in the form of protocols.<sup>92</sup> The Vienna Convention (framework) and the Montreal Protocol (specific obligations) offer a good illustration of this technique. Other prominent illustrations include the eight protocols adopted within the framework of the LRTAP Convention,<sup>93</sup> the UNFCCC and the Kyoto Protocol or the Convention on Biological Diversity and the two protocols adopted to specify the CBD's provisions (on Biosafety, in 2000, and on Access and Benefit Sharing, in 2010). Another important design feature of environmental treaties, whether old or new,<sup>94</sup> is the creation of subsidiary scientific bodies, which help adapt the regime to new scientific and technical data.<sup>95</sup> In some cases, scientific bodies are empowered to issue recommendations to the COP for the listing of new substances, as in the case of the POP Convention.<sup>96</sup>

The third stage, i.e. the implementation of the regime, involves the use of many techniques. Of particular note are the resort to 'droit dérivé' and the provision of financial and technical assistance, which have both been discussed earlier. In addition, some treaties set up a system of 'prior informed consent' to ensure that dangerous substances and activities are only sent to countries that are willing and capable of handling them properly.<sup>97</sup> In a similar vein, a number of treaties require the conduct of an environmental impact assessment

<sup>91</sup> This point is highlighted in a book by the chief US diplomat who negotiated the Montreal Protocol. See R. E. Benedick, *Ozone Diplomacy* (Cambridge MA: Harvard University Press, 1998).

<sup>92</sup> See on this subject: A. Kiss, 'Les traités-cadre: une technique juridique caractéristique du droit international de l'environnement' (1993) 39 *Annuaire français de droit international* 792.

<sup>93</sup> Convention on Long-range Transboundary Air Pollution, 13 November 1979, 1302 UNTS 217 ('LRTAP Convention'). These protocols are related to long-term financing of the co-operative programme for monitoring and evaluation of the long-range transport of air pollutants in Europe (EMEP), the reduction of sulphur emissions, of nitrogen oxides, of volatile organic compounds (VOCs), and the further reduction of sulphur emissions, of persistent organic pollutants (POPs), of heavy metals, and of acidification, eutrophication in the tropospheric ozone.

<sup>94</sup> See e.g. Convention on Wetlands of International Importance, especially as Waterfowl Habitat, 2 February 1971, 996 UNTS 245 ('Ramsar Convention') and Resolution 5.5 (1993) of the Ramsar COP.

<sup>95</sup> See e.g. the role of the EMEP in the LRTAP Convention, *supra* n. 93, Art. 9.

<sup>96</sup> See POP Convention, *supra* n. 29, Art. 8.

<sup>97</sup> International Code of Conduct on the Distribution and Use of Pesticides, adopted by the FAO Conference in Resolution 10/85, 28 November 1985; London Guidelines for the Exchange of Information on Chemicals in International Trade, Decision 15/30 of the UNEP Governing

to clarify the implications of embarking on a project that may affect the environment.<sup>98</sup> This requirement also arises from customary international law, although its specific contours remain to be specified.<sup>99</sup>

Finally, scientific uncertainty may also pose some difficulties in connection with the reparation of environmental harm. Several techniques have been developed to cope with uncertainty at this fourth stage, including some procedural tools used within judicial proceedings and a number of special liability regimes. The scientific uncertainties raised by the complex ecological processes linking a set of acts to the occurrence of environmental damage can be dealt with by shifting the burden of proof to the respondent, by relaxing the applicable standard of proof<sup>100</sup> and/or by making expert assistance more readily available for courts and tribunals.<sup>101</sup> However, even when the claimant has discharged its burden the author of the conduct under review may show that it took every reasonable step to prevent the damage (and that, therefore, it is neither subjectively at fault nor objectively in breach of an obligation) or that no specific link between its act and the damage can be established. Clarifying this link may be difficult or even impossible in the current state of science. By way of illustration, whereas the link between elements such as emissions of greenhouse gases, climate change and the adverse effects of climate change, is reasonably clear, the link between the specific emissions of a factory and the specific harm suffered by a given community is not. Instead of managing such uncertainty through evidentiary techniques, one could establish a multi-tiered regime focusing on the reparation of the harm arising from some activities involving a certain level of risk. 'Facilitated' liability regimes admit different degrees. Eliminating the need to prove fault or breach (strict liability) would be a way of tackling some forms of scientific uncertainty. Creating a reparation framework applicable to any damage connected (even if the causal link cannot be fully established) with a regulated activity would address other forms of scientific uncertainty. This said, strict liability regimes are exceptional in international law. With the exception of damage caused by space

Council of 25 May 1989; Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, 10 September 1998, 2244 UNTS 337 ('PIC Convention'). See P. Barrios, 'The Rotterdam Convention on Hazardous Chemicals: A Meaningful Step towards Environmental Protection?' (2004) 16 *Georgetown International Environmental Law Review* 679.

<sup>98</sup> Convention on Environmental Impact Assessment in a Transboundary Context, 25 February 1991, 1989 UNTS 309. See N. Craik, *The International Law of Environmental Impact Assessment* (Cambridge University Press, 2008).

<sup>99</sup> See *infra* Chapter 3.

<sup>100</sup> On the difficulties of evidence, see C. Foster, *Science and the Precautionary Principle in International Courts and Tribunals* (Cambridge University Press, 2011).

<sup>101</sup> On the recourse to experts, see L. Savadogo, 'Le recours des juridictions internationales à des experts' (2004) 50 *Annuaire français de droit international* 231.

objects,<sup>102</sup> there is no strict liability of States as such in international law. Where a strict liability regime has been introduced,<sup>103</sup> it is one of 'civil liability' whereby liability is channelled towards the economic operator who conducts or benefits from the regulated activity (e.g. the owner of the tanker transporting oil or of the nuclear facility producing electricity). A more innovative framework could potentially arise from the recent climate negotiations on the 'loss and damage' arising from the effects of climate change.<sup>104</sup>

#### 2.5.4 Management of non-compliance

The third type of technique concerns the management of non-compliance.<sup>105</sup> The concept of 'non-compliance' must be distinguished from that of 'breach'. Although there is some overlap between the two concepts, non-compliance has a broader scope because it encompasses not only clear 'breaches' but also conduct that is only temporarily inconsistent with an environmental obligation, immaterial breaches (e.g. purely procedural breaches), or even deficiencies that signal a potential breach (e.g. some initial steps of a composite conduct which, taken together, would amount to a breach). In addition, the concept of 'non-compliance' seeks to avoid the adversarial connotations entailed by the concept of 'breach'. It characterises the non-conformity with a standard as a deviation that must be 'contained' and 'managed' until it is corrected.

In this context, it is easier to understand the peculiar features of 'non-compliance procedures' ('NCPs'). First, NCPs can be triggered not only at the request of another State or the Secretariat of a treaty (as other adversarial mechanisms), but also by the State that is in a situation of non-compliance.<sup>106</sup> Second, NCPs are not subject to the same standards of evidence and due process as judicial proceedings.<sup>107</sup> Third, the primary objective of NCPs is not to deter, repair or punish a breach but to manage a deviation, whether voluntary or involuntary. As a result, more often than not, their outcome is the provision of financial or technical assistance rather than an outright sanction.<sup>108</sup> It is only when the body in charge of the procedure detects a

<sup>102</sup> See Convention on International Liability for Damage Caused by Space Objects, 29 March 1972, 961 UNTS 187, Art. 2.

<sup>103</sup> See A. Kiss and D. Shelton, 'Strict Liability in International Environmental Law', in T. M. Ndiaye and R. Wolfrum (eds.), *Liber Amicorum Judge Thomas A. Mensah* (Leiden: Martinus Nijhoff, 2007), pp. 1131-51.

<sup>104</sup> 'Approaches to Address Loss and Damage associated with Climate Change Impacts in Developing Countries that are Particularly Vulnerable to the Adverse Effects of Climate Change to Enhance Adaptive Capacity', Draft decision -/CP.18 (December 2012).

<sup>105</sup> See Treves et al., *supra* n. 73.

<sup>106</sup> See F. Romanin Jacur, 'Triggering Non-Compliance Procedures', in Treves et al. *supra* n. 73, pp. 373-87.

<sup>107</sup> See M. Montini, 'Procedural Guarantees in Non-Compliance Mechanisms', in Treves et al., *supra* n. 73, pp. 389-405.

<sup>108</sup> See E. Milano, 'The Outcomes of the Procedure and their Legal Effects' in Treves et al., *supra* n. 73, pp. 407-18.

wilful violation by the State concerned that the outcome may be a sanction. Finally, these sanctions are always internal in that they can only involve the suspension of the benefits arising from the treaty. Thus, the findings of an NCP procedure do not trigger, in principle, the secondary norms of international responsibility<sup>109</sup> but another set of secondary norms specifically designed for each treaty context.

We will explore in more detail the operation of these mechanisms in Chapter 9. Suffice it here to illustrate the transition from assistance to sanction with an example from the Kyoto Protocol.<sup>110</sup> The Kyoto NCP is managed by a Compliance Committee consisting of two 'branches', the 'facilitative' and the 'enforcement' branch. The first seeks to facilitate compliance through the provision of technical and/or financial assistance,<sup>111</sup> whereas the second is empowered to order sanctions, such as restricting access to the flexible mechanisms or even imposing a penalty reducing the overall amount of emissions available under the second commitment period.<sup>112</sup> In practice, however, the enforcement powers of Compliance Committees are very limited. Their main means of pressure seems to be the reputational damage that can be inflicted upon a State.

## 2.6 The legal environment of international environmental law

To conclude the brief characterisation of international environmental law provided in this chapter, it is worth briefly describing the overall position of this body of law within the international legal order. The specificities of international environmental law reviewed so far constitute in many respects a *lex specialis* derogating from the rules of general international law otherwise applicable.

But this is not to say that international environmental law as a branch or the more specific treaty regimes established by MEAs are to be considered as self-sustaining or self-sufficient regimes cut-off from the international order.<sup>113</sup> Rather, the array of norms and treaties that we refer to as international environmental law are part of international law and, in their historical development, they often had to rely on general international law. Despite their

<sup>109</sup> See L. Pineschi, 'Non-Compliance Procedures and the Law of State Responsibility' in Treves et al, *supra* n. 73, pp. 483-97.

<sup>110</sup> See Art. 18 of the Kyoto Protocol, *supra* n. 14 and Decision 27/CMP.1, FCCC/KP/CMP/2005/8/Add.3.

<sup>111</sup> See Decision 27/CMP.1, Annex, Section IV, para. 4 and 6.

<sup>112</sup> *Ibid.*, Section V, para. 6 and Section XV. The Committee has applied sanctions to Sections XV to Greece and Croatia. See Compliance Committee, Final Decision: Greece, 17 April 2008, CC-2007-1-8/Greece/EB; Compliance Committee, Final Decision: Croatia, 19 February 2010, CC-2009-1-8/Croatia/EB.

<sup>113</sup> See generally P.-M. Dupuy, 'L'unité de l'ordre juridique international: cours général de droit international public (2000)', (2002) 297 *Recueil des cours de l'Académie de droit international de La Haye*, 9-489, 428 ss.

specificities, the main actors and formal sources of international environmental law are indeed those of international law. Similarly, some of its principles, such as the principles of no-harm, prevention, co-operation or reasonable utilisation, are in many respects adaptations of broader principles derived from considerations of good neighbourliness.<sup>114</sup> Finally, normative priority among different norms (including norms of international environmental law) is also governed by the general conflict rules arising from international law, in particular the overriding character of *jus cogens*.

One important question in this connection is the relationship between different forms of allocating priority. Some environmental norms could conflict either with another (non-environmental) *lex specialis* or with general norms that command authority as a result of their substance. To understand the relationship between environmental norms and the other two categories of norms, it is necessary to examine the substantial hierarchy of international environmental norms. This is, of course, an exercise that can only be carried out on a norm-by-norm basis. But some general observations appear nevertheless useful to clarify the terms of the inquiry.<sup>115</sup> In international law, the substantive hierarchy of a norm can be expressed in many ways, including through its characterisation as a peremptory norm,<sup>116</sup> an *erga omnes* obligation,<sup>117</sup> or the expression of an essential interest within the meaning of the customary necessity defence.<sup>118</sup> These concepts trigger different hierarchical effects. Whereas the key feature of peremptory norms is that they cannot be derogated from, *erga omnes* obligations are peculiar in that they are owed to all other States and could potentially give a right of action to any State.<sup>119</sup> An 'interest' can be characterised as an 'essential interest', and thus open the gate to the customary necessity defence, through a variety of channels, including by reference to an existing customary norm protecting that interest.<sup>120</sup>

In the current state of international law, it seems difficult to consider that some environmental norms are of a peremptory nature.<sup>121</sup> Although in the

<sup>114</sup> See *infra* Chapter 3.

<sup>115</sup> See J. E. Viñuales, 'La protección del medio ambiente y su jerarquía normativa en derecho internacional' (2008) 13 *Revista Colombiana de Derecho Internacional* 11.

<sup>116</sup> See A. Orakhelashvili, *Peremptory Norms in International Law* (Oxford University Press, 2006).

<sup>117</sup> See M. Ragazzi, *The Concept of International Obligations erga omnes* (Oxford University Press, 2000).

<sup>118</sup> In international practice, there are also some adjectives intended to attach particular importance to certain norms by virtue of their substance. See in this regard: R. Kolb, 'Jus cogens, intangibilité, intransgressibilité, dérogation "positive" et "négative"' (2005) *Revue générale de droit international public* 305.

<sup>119</sup> See F. Voeffray, *L'actio popularis ou la défense de l'intérêt collectif devant les juridictions internationales* (Paris: Presses universitaires de France, 2004).

<sup>120</sup> See Viñuales, *supra* n. 57, 248-9.

<sup>121</sup> On this debate, see E. Kornicker, *Jus cogens und Umweltvölkerrecht. Kriterien, Quellen und Rechtsfolgen zwingender Völkerrechtsnormen und deren Anwendung auf das*



Gabčíkovo-Nagymaros case, the ICJ left this question open and, therefore, did not rule out this possibility,<sup>122</sup> two further elements suggest the absence of peremptory environmental norms. The first is the withdrawal by the ILC, following opposition from a number of States, of Article 19 of the 1996 Draft Articles on the Responsibility of States for Internationally Wrongful Acts, which characterised wilful and massive environmental damage as a 'crime'.<sup>123</sup> The second element can be derived from the conclusions of the ILC Study Group on the Fragmentation of International Law.<sup>124</sup> The group analysed the difference between the concepts of jus cogens (or peremptory norms) and erga omnes obligations and concluded as follows:

It is recognized that while all obligations established by jus cogens norms, as referred to in conclusion (33) above, also have the character of erga omnes obligations, the reverse is not necessarily true. Not all erga omnes obligations are established by peremptory norms of general international law. This is the case, for example, of certain obligations under 'the principles and rules concerning the basic rights of the human person', as well as of some obligations relating to the global commons.<sup>125</sup>

Conversely, this observation suggests that certain environmental norms, because of their purpose, have an erga omnes character. This conclusion is confirmed by the work of the ILC on State Responsibility. Article 48 of the 2001 ILC Articles<sup>126</sup> mentions the possibility that the responsibility of a State may be invoked by a State other than the injured State, if the obligation that has been breached is owed to a group of States or to the international community as a whole. Paragraph 7 of the commentary to the ILC Articles refers, as an example, to obligations for the protection of the environment.<sup>127</sup>

The importance given to environmental considerations is also reflected in the status of 'essential interest' that the ICJ has granted to the protection of the environment, first in the Gabčíkovo-Nagymaros case<sup>128</sup> and then in the Pulp Mills case.<sup>129</sup> This significant step was possible thanks to a subtle interaction

Umweltvölkerrecht (Basel: Helbing Lichtenhahn Verlag, 1997). This author has summarised her thesis in E. Korniker, 'State Community Interests, Jus Cogens and Protection of the Global Environment: Developing Criteria for Peremptory Norms' (1998-1999) 11 *Georgetown International Environmental Law Review* 101.

<sup>122</sup> Gabčíkovo-Nagymaros Project, *supra* n. 64, para. 112.

<sup>123</sup> See M. Fitzmaurice, 'International Protection of the Environment', (2001) 293 *Recueil des cours de l'Académie de droit international de la Haye*, 9-488, 141.

<sup>124</sup> Conclusions of the work of the Study on the Fragmentation of International Law: Difficulties arising from the Diversification and Expansion of International Law, (2006) 2(2) *Yearbook of the International Law Commission*.

<sup>125</sup> *Ibid.*, conclusion 38 (italics added).

<sup>126</sup> Draft Articles on the Responsibility of States for Internationally Wrongful Acts, (2001) 2(2) *Yearbook of the International Law Commission*.

<sup>127</sup> See Draft Articles on the Responsibility of States for Internationally Wrongful Acts and Commentary, (2001) 2(2) *Yearbook of the International Law Commission ad Art. 48*, para. 7 of the Commentary.

<sup>128</sup> Gabčíkovo-Nagymaros Project, *supra* n. 64, para. 53. <sup>129</sup> Pulp Mills, *supra* n. 64, para. 72.

between the emergence of a customary norm and the recognition of the importance attached to the interest protected by this norm. This link is spelled out in the paragraph of the *Gabčíkovo-Nagymaros* decision where the ICJ recognises the essential character of environmental protection.<sup>130</sup> Indeed, the Court refers, *inter alia*, to its Advisory Opinion on the Legality of Nuclear Weapons,<sup>131</sup> issued the previous year, to emphasise 'the great significance that it attaches to respect for the environment, not only for States but also for the whole of mankind'.<sup>132</sup> The importance attached to environmental protection has also other legal effects. It is mentioned by the Court to buttress its conclusion that new environmental protection norms must be taken into account in implementing the treaty in question.<sup>133</sup>

Overall, the foregoing observations suggest that in the current state of international law some environmental norms can be considered as *erga omnes* obligations. In addition, the protection of the environment may also qualify as an essential interest of a State within the meaning of the customary necessity defence.

### Select bibliography

- Andonova, L., 'Public-Private Partnerships for the Earth: Politics and Patterns of Hybrid Authority in the Multilateral System' (2010) 10 *Global Environmental Politics* 25.
- Boisson de Chazournes, L., 'Le fonds sur l'environnement mondial, recherche et conquête de son identité' (1995) 41 *Annuaire français de droit international* 612.
- 'Technical and Financial Assistance' in D. Bodansky, J. Brunnée and E. Hey (eds.), *The Oxford Handbook of International Environmental Law* (Oxford University Press, 2007), pp. 945-73.
- Breitmeier, H., O. R. Young and M. Zurn, *Analyzing International Environmental Regimes: From Case Study to Database* (Cambridge MA: MIT Press, 2007).
- Brown Weiss, E., 'International Environmental Law: Contemporary Issues and the Emergence of a New World Order' (1995) 81 *Georgetown Law Journal* 675.
- Brown Weiss, E. and H. K. Jacobson (eds.), *Engaging Countries: Strengthening Compliance With International Environmental Accords* (Cambridge MA: MIT Press, 1998).
- Brunnée, J., 'COPing with Consent: Law-making under Multilateral Environmental Agreements' (2002) 15 *Leiden Journal of International Law* 1.

<sup>130</sup> See Viñuales, *supra* n. 57, pp. 248-9.

<sup>131</sup> In its opinion, the ICJ held as follows: 'the environment is not an abstraction but represents the living space, the quality of life and the very health of human beings, including generations unborn. The existence of the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control is now part of the corpus of international law relating to the environment', *Legality of Nuclear Weapons*, *supra* n. 7, para. 29.

<sup>132</sup> *Gabčíkovo-Nagymaros Project*, *supra* n. 64, para. 53 in fine. <sup>133</sup> *Ibid.*, para. 112 in fine.

- Churchill, R. R. and G. Ulfstein, 'Autonomous Institutional Arrangements in Multilateral Environmental Agreements: A Little-Noticed Phenomenon in International Law' (2000) 94 *American Journal of International Law* 623.
- Desai, B. H., *Multilateral Environmental Agreements. Legal Status of the Secretariats* (Cambridge University Press, 2010).
- Dupuy, P.-M., 'Formation of Customary International Law and General Principles', in D. Bodansky, J. Brunnée and E. Hey (eds.), *The Oxford Handbook of International Environmental Law* (Oxford University Press, 2007), pp. 449-66.
- 'Où en est le droit international de l'environnement à la fin du siècle?' (1997) *Revue générale de droit international public* 879.
- 'Soft Law and the International Law of the Environment' (1990-1991) 12 *Michigan Journal of International Law* 420.
- Dupuy, P.-M. and J. E. Viñuales (eds.), *Harnessing Foreign Investment to Promote Environmental Protection: Incentives and Safeguards* (Cambridge University Press, 2013).
- Francioni, F. and P.-M. Dupuy, *Preliminary Feasibility Study for the Establishment of a UN Environmental Organisation or Agency* (Florence: European University Institute, 2005).
- Haas, P., R. O. Keohane and M. A. Levy (eds.), *Institutions for the Earth: Sources of Effective International Environmental Protection* (Cambridge MA: MIT Press, 1993).
- Iovane, M., 'La participation de la société civile à l'élaboration et à l'application du droit international de l'environnement' (2008) *Revue générale de droit international public* 465.
- Ivanova, M., 'UNEP in Global Environmental Governance: Design, Leadership, Location' (2010) 10 *Global Environmental Politics* 30.
- Kerbrat, Y., 'La Cour internationale de justice face aux enjeux de protection de l'environnement' (2011) *Revue générale de droit international public* 39.
- Kiss, A., 'Les traités-cadre: une technique juridique caractéristique du droit international de l'environnement' (1993) 39 *Annuaire français de droit international* 792.
- Korniker, E., 'State Community Interests, Jus Cogens and Protection of the Global Environment: Developing Criteria for Peremptory Norms' (1998-9) 11 *Georgetown International Environmental Law* 101.
- Lavieille, J. M. (ed.), *Conventions de protection de l'environnement, Secrétariats, Conférences des parties, Comités d'experts* (Limoges: PULIM, 1999).
- Martin, J.-C., 'The United Nations Compensation Commission Practice with Regards to Environmental Claims', in S. Maljean-Dubois and Y. Kerbrat (eds.), *The Transformation of International Environmental Law* (Oxford: Hart Publishing, 2011), pp. 251-67.
- Morgera, E., *Corporate Accountability in International Environmental Law* (Oxford University Press, 2009).
- Pomade, A., *La société civile et le droit de l'environnement. Contribution à la réflexion sur les théories des sources du droit et de la validité* (Paris: LGDJ, 2010).
- Richardson, B. J., *Socially Responsible Investment Law. Regulating the Unseen Polluters* (Oxford University Press, 2008).
- Romanin Jacur, F., *The Dynamics of Multilateral Environmental Agreements. Institutional Architectures and Law-Making Processes* (Naples: Editoriale Scientifica, 2013).

- Savadogo, L., 'Le recours des juridictions internationales à des experts' (2004) 50 *Annuaire français de droit international* 231.
- Speth, J. G. and P. Haas, *Global Environmental Governance* (Washington D.C.: Island Press, 2006).
- Stewart, R., B. Kingsbury and B. Rudyk, *Climate Finance: Regulatory and Funding Strategies for Climate Change and Global Development* (New York: NYU University Press, 2009).
- Streck, C., 'The Global Environmental Facility - A Role Model for International Environmental Governance?' (2001) 1 *Global Environmental Politics* 71.
- Treves, T., L. Pineschi, A. Tanzi, C. Pitea, C. Ragni and F. Romanin Jacur (eds.), *Non-Compliance Procedures and Mechanisms and the Effectiveness of International Environmental Agreements* (The Hague: T.M.C. Asser Press, 2009).
- Viñuales, J. E., 'The Contribution of the International Court of Justice to the Development of International Environmental Law: A Contemporary Assessment' (2008) 32 *Fordham International Law Journal* 232.
- 'Legal Techniques for Dealing with Scientific Uncertainty in Environmental Law' (2010) 43 *Vanderbilt Journal of Transnational Law* 437.
- 'Managing Abidance by Standards for the Protection of the Environment', in A. Cassese (ed.), *Realizing Utopia* (Oxford University Press, 2012), pp. 326-39.