



Environment, International Protection

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A. Introduction

1 '[T]he environment is not an abstraction but represents the living space, the quality of life and the very health of human beings, including generations unborn.' This statement, made by the International Court of Justice (ICJ) in the Nuclear Weapons Advisory Opinions (*Legality of the Threat or Use of Nuclear Weapons [Advisory Opinion]* [1996] ICJ Rep 226, 241) succinctly captures the paramount importance that an intact environment, ie the integrity of air, climate, water, soil, flora, fauna, and natural ecosystems, has for the well-being of the human species. While this reasoning represents a compelling rationale for environmental protection, the environment arguably also deserves to be protected for its intrinsic value which is independent from any utilitarian, spiritual, aesthetic, or other worth it might have for humans (see also Environmental Ethics).

2 Whether for anthropocentric or ecocentric reasons, it is beyond doubt that our environment is in dire need of being protected. According to the fourth Global Environment Outlook of the United Nations Environment Programme (UNEP) of 2007 ('GEO4 Summary'), climate change with its increases in global average air and ocean temperatures causes rising sea levels, decreased food security, loss of biodiversity, and more frequent and intense heat waves, storms, floods, and droughts; indoor and outdoor air pollution leads to the premature death of more than two million people annually; the 'ozone hole' is currently the largest it has ever been (but is expected to recover from 2060 on); land degradation driven by unsustainable land use and climate change causes desertification and the disruption of biological cycles; global freshwater availability is declining; aquatic ecosystems are being overexploited; and species are driven to extinction (GEO4 Summary 4). GEO4 Summary also states that

[t]hese unprecedented changes are due to human activities in an increasingly globalized, industrialized and interconnected world, driven by expanding flows of goods, services, capital, people, technologies, information, ideas and labour, even affecting isolated populations. (at 4; see also Globalization)

If the causes and effects of current environmental threats thus transcend national boundaries, the responses must be international in character as well. Although today environmental degradation is to a large extent caused by private activities, such as the commercial exploitation of resources or the emission of greenhouse gases resulting from privately owned industries or the driving of one's car, States as the relevant units in international relations also remain the dominant actors in devising and implementing international remedial measures against ecological decline, with international organizations and even the private sector, however, playing an ever greater role. The main tool at their disposal is international environmental law ('IEL'), which can be defined as the corpus of international law norms pertaining to environmental matters which guides all actors in international environmental governance. Increasingly, use is also made of international environmental soft law, which lacks the normative force of conventional international law, but which nevertheless—or perhaps exactly for this reason—is valued as a flexible instrument for inducing international cooperation in environmental affairs.

B. Historical Development of International Environmental Law

3 IEL emerged as a separate branch of international law in the 1970s (see also Fragmentation of International Law). While the first international treaties dealing with environmental protection date back to the late 19th century and activity in this realm increased after World War II, only from then on did IEL develop the conceptual underpinnings, substantive maturity, and institutional structures allowing for it to be qualified as a functionally defined issue-area of international law.

4 The rationale behind the earliest, mostly bilateral, international agreements concerning the management of natural resources such as marine living resources, wildlife, or transboundary

watercourses was utilitarian rather than environmental, aiming to accommodate conflicting utilization interests by neighbouring States and producing environmental benefits, if any, as a mere side effect. Later multilateral agreements were more genuinely concerned with the conservation of natural resources. Thus, the 1900 Convention Designed to Ensure the Conservation of Various Species of Wild Animals in Africa which are Useful to Man or Inoffensive or the 1933 Convention relative to the Preservation of Fauna and Flora in their Natural State regulated the protection of flora and fauna in Africa. It needs to be noted, however, that these conventions, which were concluded by the colonial powers in reaction to the degradation of natural resources resulting from European exploitation, 'impacted quite harshly on the lives of Africans who had not seriously contributed to the problem and who had no possibility of influencing how conservation would be undertaken' (Mickelson 59), hence bearing witness to the close interrelation between natural conservationism and colonialism in the early stages of environmental protection efforts.

5 In the creation of the post-World War II international legal order, environmental protection was not a major concern, as reflected in the silence of the United Nations Charter regarding the environment. Nevertheless, already in 1941, an arbitral award had been rendered which was to become a cornerstone of transboundary environmental protection. The Trail Smelter Arbitration, settling a dispute between the United States of America and Canada concerning transboundary air pollution (Air Pollution, Transboundary Aspects), established a fundamental rule for solving problems concerning environmental utilization conflicts arising between neighbouring States.

6 In the three decades following the *Trail Smelter Arbitration* award, environmental protection efforts focused on important, but still relatively narrowly defined environmental problems mainly resulting from industrialization, such as oil pollution, the dumping of waste at sea, the loss of wetlands, or the protection of freshwater resources. Albeit representing significant progress in the state of environmental protection, these efforts were not supported by coordinated institutional structures, lacked overarching guiding principles, and generally did not involve the developing countries as active participants.

7 These shortcomings were addressed, and to a certain extent remedied, at the UN Conference on the Human Environment ('UNCHE'; 'Stockholm Conference'), held in Stockholm, Sweden, from 5–16 June 1972. The UNCHE was convened by UN General Assembly ('UNGA') Res 2398 (XXIII) of 3 December 1968. With this initiative, the UNGA responded to increased public awareness of environmental pollution which had emerged in the 1960s due to influential publications such as Rachel Carson's *Silent Spring*, published in 1962, and major environmental disasters such as the *Torrey Canyon* oil spill of 1967 (Torrey Canyon, The). Despite the lack of an original environmental mandate in the UN Charter, the UN had become involved in environmental protection efforts soon after its creation, primarily through its specialized agencies such as the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Educational, Scientific and Cultural Organization (UNESCO), and through the Economic and Social Council (United Nations, Economic and Social Council [ECOSOC]). However, only after the Stockholm Conference, the first conference to comprehensively deal with environmental problems of broad international significance, was environmental protection firmly established as falling within the competence of the UN system. This institutional development was fostered by the creation, still in 1972, of UNEP through UNGA Res 2997 (XXVII) of 15 December 1972, following a recommendation for the creation of a permanent institutional arrangement for environmental protection and improvement within the UN system, contained in the Resolution on Institutional and Financial Arrangements ([15 June 1972] A/CONF.48/14/REV.1, 29), one of the three legally non-binding instruments adopted at the UNCHE.

8 The other two key outcomes of the Stockholm Conference were the Action Plan for the Human Environment ([16 June 1972] UN Doc A/CONF.48/14 and Corr.1, Chapter II; 'Action Plan') and the Stockholm Declaration of the United Nations Conference on the Human Environment ('Stockholm Declaration'; Stockholm Declaration [1972] and Rio Declaration [1992]). The Action Plan contains 109 recommendations grouped into three types of action related to environmental assessment,

environmental management, and supporting measures, ie education, public information, financing, and technical cooperation. The Stockholm Declaration consists of 26 'principles' of varying normative content, some of which have come to be accepted as customary international law. Yet even as a soft law instrument, the Stockholm Declaration decisively influenced the further development of IEL.

9 The Stockholm Conference constituted a milestone of international environmental cooperation for another reason, having been the first quasi-universal conference on international environmental protection (see also Summit Meetings). Among the 113 participating States were many developing countries which collectively negotiated as the Group of 77 (G77). This involvement, sparked by the Founex Report on Development and Environment of 1971, led to the recognition at the UNCHE that environmental and development concerns were interrelated and set in motion the evolution of the concept of sustainable development, which reached a first peak at the UN Conference on Environment and Development ('UNCED'; 'Rio Conference'), held in Rio de Janeiro, Brazil, from 3–14 June 1992.

10 UNCED was convened by UNGA Res 44/228 of 22 December 1989 in order to 'elaborate strategies and measures to halt and reverse the effects of environmental degradation in the context of increased national and international efforts to promote sustainable and environmentally sound development in all countries'. The Stockholm aftermath had been characterized by international efforts to define and concretize the emerging concept of sustainable development, among them the World Conservation Strategy, developed by the International Union for Conservation of Nature in 1980, or the World Charter for Nature, adopted as UNGA Res 37/7 of 28 October 1982. In 1983, the UNGA created the World Commission on Environment and Development, also known as the Brundtland Commission. Its report 'Our Common Future' (also known as the 'Brundtland Report'), delivered in 1987, contains probably the best-known definition of sustainable development as development that 'meets the needs of the present without compromising the ability of future generations to meet their own needs' (at 24). The integration of development and environmental protection understood in this sense permeated all outcomes of the Rio Conference.

11 Like the Stockholm Conference, the Rio Conference produced a declaration and a political action programme, namely the Rio Declaration on Environment and Development ('Rio Declaration') and Agenda 21. The Rio Declaration emulated its predecessor in formulating a catalogue of 27 'principles' which also included innovative concepts such as common but differentiated responsibilities. The acceptance of these concepts at Rio, including that of sustainable development, has been described as a 'global bargain' struck between developed and developing countries which induced the developing countries to give up their attitude of contestation still prevailing at Stockholm in favour of increased participation in the environmental discourse (Najam 311). Agenda 21, designed to convert the concept of sustainable development into concrete actions at the national, regional, and international levels, contains a comprehensive catalogue of recommendations grouped into 40 chapters dealing with specific environmental media such as the atmosphere, land resources, forests, and biological diversity, but also with cross-sectoral issues such as combating poverty, changing unsustainable consumption patterns, and the participation of major groups. Following a recommendation contained in Agenda 21, ECOSOC, at the request of the UNGA, created the Commission for Sustainable Development (CSD) in 1993 to ensure the effective follow-up of the Rio Conference and to monitor implementation of Agenda 21. However, a UNGA Special Session convened in 1997 to review and appraise Agenda 21 implementation, dubbed 'Rio+5', had to acknowledge that no significant progress towards sustainable development had been made in the intervening years. This lack of implementation still afflicts Agenda 21 today. Nevertheless, Agenda 21 has remained an influential standard-setting document for national and international approaches to sustainable development.

12 Another outcome of the Rio Conference was the Non-legally Binding Authoritative Statement of

Principles for a Global Consensus on the Management, Conservation and Sustainable Development of all Types of Forests ([14 June 1992] UN Doc A/CONF.151/26/Rev.1 [Vol. I], 480; 'Forest Principles'), containing 15 generally applicable, but vaguely worded 'principles' relating to forest management (Forests, International Protection). Moreover, the UN Framework Convention on Climate Change ('UNFCCC'; Climate, International Protection) and the Convention on Biological Diversity ('CBD'; Biological Diversity, International Protection) were opened for signature at the conference. The Stockholm Conference had led to the increased adoption of bilateral and multilateral environmental agreements ('MEAs'; Environment, Multilateral Agreements), most of which still aimed at transboundary environmental protection in the traditional sense, some of which, however, already addressed genuinely global environmental problems such as ozone depletion (Ozone Layer, International Protection). The UNFCCC and the CBD then formed the prototype of MEAs dealing with environmental goods whose preservation is a 'common concern of humankind' (see also Community Interest).

13 The UNCED was global not only with regard to the environmental problems under consideration, but also concerning participation, having been attended by 172 States. What is more, the Rio Conference set new standards for civil society and business participation in environmental matters. Some 2,400 representatives of non-governmental organizations ('NGOs') attended the conference, and 17,000 people participated in the Global Forum, an NGO event held in parallel with the UNCED (Environment, Role of Non-Governmental Organizations). NGOs also took part in the preparatory process and issued statements during the negotiations. Nevertheless, the UNCED outcomes were still framed in traditional inter-State terms.

14 The post-Rio process resulted in the adoption of new MEAs, such as the 1994 Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa ('UN Desertification Convention') or the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks ('Fish Stocks Agreement'; Straddling and Highly Migratory Fish Stocks). Existing framework agreements were further developed through implementing protocols, among them the 1997 Kyoto Protocol to the United Nations Framework Convention on Climate Change ('Kyoto Protocol') and the 2000 Cartagena Protocol on Biosafety to the Convention on Biological Diversity ('Cartagena Protocol'). States' 'support for the principles of sustainable development, including those set out in Agenda 21' was reaffirmed in the Millennium Declaration, endorsed as UNGA Res 55/2 of 8 September 2000 (United Nations, Millennium Declaration), and to 'ensure environmental sustainability' became one of the eight Millennium Development Goals. However, as already indicated, the post-Rio process at the same time suffered from a considerable lack of implementation of the UNCED commitments. This can be interpreted as a 'symptom typical of post-modernity' (Sand [2007] 40) or else be ascribed to the reluctance of States to disburse the necessary financial and other resources for far-reaching economic and social transformations required to achieve sustainable development. For example, the commitment of developed countries to direct 0.7% of their gross national product to official development assistance, first stipulated in UNGA Res 2626 (XXV) of 24 October 1970 and repeated inter alia in Agenda 21 and in the Monterrey Consensus of the International Conference on Financing for Development ('Monterrey Consensus') of 2002, still awaits its fulfilment.

15 The World Summit for Sustainable Development ('WSSD'), held in Johannesburg, South Africa, from 26 August–4 September 2002, was the third comprehensive UN conference related to the environment. The WSSD was convened by UNGA Res 55/199 of 20 December 2000 in order to reinvigorate, ten years after the UNCED, the implementation of the Rio outcomes. In the tradition of the two preceding summits, two legally non-binding documents were adopted at the WSSD, the Johannesburg Declaration on Sustainable Development and the Johannesburg Plan of Implementation (World Summit on Sustainable Development 'Report' [26 August–4 September 2002] UN Doc A/CONF.199/20).

16 Unlike its predecessors, the Johannesburg Declaration does not contain a statement of principles but only vaguely worded commitments and aspirations pertaining to sustainable development. Even so, the participating States agreed to

assume a collective responsibility to advance and strengthen the interdependent and mutually reinforcing pillars of sustainable development—economic development, social development and environmental protection—at the local, national, regional and global levels. (Johannesburg Declaration para. 5)

This new mode of defining the constitutive elements of sustainable development, which previously were generally understood to consist of only two equivalent components, ie development and environment, attests to the increased weight given to developmental issues at the WSSD. The Johannesburg Plan of Implementation equally focused on development, inter alia addressing poverty eradication, unsustainable consumption, and production patterns or what was labelled ‘protecting and managing the natural resource base of economic and social development’ (Chapter IV). Its commitments essentially consolidated the outcomes of the Millennium Declaration, the Monterrey Consensus, and the 2001 Declaration on the Doha Round of Multilateral Negotiations ([14 November 2001] WT/MIN(01)/DEC/1) adopted by the fourth Ministerial Conference of the World Trade Organization (WTO) (Sand [2002] 22–23).

17 The Johannesburg Summit thus largely accommodated the developmental concerns of the developing countries. It failed, however, to give significant impetus to the environmental agenda through measurable commitments on the inter-State level. Instead, a major outcome of the WSSD was the institutionalization of public private partnership[s] for sustainable development to be entered into by State and non-State actors on a voluntary basis. At Johannesburg, about 220 partnerships were officially announced. The Partnerships Database, administrated by the CSD, listed 348 such partnerships as of February 2010. These ‘Type II outcomes’ are the most visible indicator of the emergence of new actors in global environmental governance (see also Environment, Private Standard-Setting). Too often, however, they are advocated by States trying to mask their own lack of meaningful environmental action.

18 The trend to treat environmental issues as part of the development agenda continued at the High-Level Plenary Meeting of the 60th Session of the UNGA, called the ‘2005 World Summit’, convened from 14–16 September 2005. Against the backdrop of the dominant preoccupation with the ramifications of economic globalization and global terrorism, environmental degradation was mainly treated as a ‘soft threat’ to human security. The security dimension of environmental degradation was reinforced when the UN Security Council held a debate on the impact of climate change on international peace and security in April 2007 and a respective draft resolution was prepared by the UNGA in October 2008 and adopted as UNGA Res 63/281 of 11 June 2009 (‘Climate Change and Its Possible Security Implications’ UN Doc A/RES/63/281).

19 In sum, it can be said that international environmental protection efforts have come a long way from sporadic conventions focusing on the locally confined management of natural resources to sophisticated quasi-universal regimes dealing with global environmental problems. But although IEL now constitutes a separate branch of international law, its regulatory and institutional framework is still too fragmentary and incoherent to provide a holistic cure for the interrelated and interdependent phenomena of global environmental deterioration. Nonetheless, a number of key concepts structure the various approaches to environmental protection.

C. Key Concepts of International Environmental Law

20 Sovereignty concerns often prevent States from adopting MEAs with unambiguous legally binding obligations in response to environmental threats. Instead, initial agreements frequently emphasize States’ commitment to key concepts of IEL, such as common but differentiated responsibilities and sustainable development. Despite their structuring function, the normative

quality and status of these concepts are far from clear. Most of them belong to the group of 'twilight norms' which are situated at the bottom of the normative hierarchy of modern IEL—in the grey area between international 'hard law' and 'soft law'.

1. Theoretical Background

21 IEL can be imagined as a system of multifaceted concepts grouped into three layers, a thin first layer consisting of highly abstract ideals, a thicker second one with less abstract concepts, and a massive third one with concrete norms. In this three-layer normative system a few fundamental ideas, such as 'international solidarity' and 'international justice', have to be placed in the first layer (see also Equity in International Law). Due to their abstractness and vagueness, these ideals are not able to immediately steer States' behaviour on their own; however, they are important ethical sources from which less abstract concepts can flow. This is what happened with the emergence of concepts such as the prohibition on causing transboundary harm, polluter pays, precautionary action (Precautionary Approach/Principle), environmental impact assessment, common but differentiated responsibilities, sustainable development, and intergenerational equity. These key concepts figure in the 1992 Rio Declaration as co-equal 'principles'. Irrespective of their legal or extra-legal status, they considerably determine the purpose and structure of modern IEL. Some of them have the capacity to directly or indirectly steer the behaviour of their addressees. They altogether belong to the second layer of the IEL system. Functioning like a 'transmission belt' between abstract ideals and concrete international treaty or customary norms, they help transform the extra-legal ideals into legally binding rules which make up the great mass of norms in the system of international environmental law.

2. Single Key Concepts

22 The prohibition on causing transboundary environmental damage, the so-called 'no harm' rule, was key to the settlement of an environmental utilization conflict between the US and Canada in the *Trail Smelter Arbitration* in 1941 by an arbitral tribunal which stated:

[U]nder the principles of international law ... no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence. (at 1965)

Three decades later, 'no harm' was included in the 1972 Stockholm Declaration as Principle 21, which stipulated: 'States have ... the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction'. Albeit showing some uncertainties, such as whether it proscribes only significant, or also less serious, transboundary environmental damages, this obligation has been so widely accepted in subsequent State practice that it is recognized today as a rule of universal customary law (see *Legality of the Threat or Use of Nuclear Weapons [Advisory Opinion]* 242).

23 The duty of States to nationally undertake an environmental impact assessment ('EIA') 'for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority' (Principle 17 Rio Declaration) responds to the need to give intensive consideration to environmental factors at an early stage in the decision-making process at all administrative levels. It helps national administrative authorities to make environmentally sound decisions on the basis of adequate and early information, paying careful attention to minimizing significant adverse impact. According to the Convention on Environmental Impact Assessment in a Transboundary Context ('Espoo Convention'), this duty of States also applies in cases where proposed national activities are likely to cause significant environmental harm beyond the national jurisdiction. Pioneered by the US National Environmental Policy Act of 1969 (Pub L No 91–190, 83 Statutes at Large 852 [1970]), the EIA has become an important feature of many international environmental agreements and a large number of States' national laws. At

least in the European context, the EIA obligation has meanwhile grown to a (regional) customary legal rule.

24 'Precautionary action' is a concept designed to provide the basis for early international environmental action to address serious environmental threats in cases where there is ongoing scientific uncertainty with regard to the causes of these threats. It is correctly articulated in Principle 15 Rio Declaration which states that '[w]here there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.' Accordingly, this concept applies in cases where a State faces a situation indicating that the environment is going to be severely harmed unless an action averting this threat is taken, notwithstanding the remaining scientific uncertainty as to the causal effects for the time being. If these factors are given, taking adequate measures is not at the discretion of the State concerned, but only the choice of measures to be taken. Precautionary action meets the normative requirements of an action-oriented rule although its terms of application are subject of continued debate. There are good reasons for arguing that precautionary action is applied in today's general practice of States accompanied by the latter's *opinio iuris*; thus, it belongs to the emerging, if not already existing, customary rules.

25 'Polluter pays', as articulated in Principle 16 Rio Declaration, provides that

National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the costs of pollution. At first sight, this concept seems to state the obvious. However, the meaning and application of 'polluter pays' to particular cases and situations remains open to interpretation, particularly in relation to the nature and extent of the costs included. (see Sands 280)

While it was endorsed by the Organization for Economic Co-operation and Development (OECD) and the European (Economic) Community already in the early 1970s, even to date it meets with resistance from developing countries. Neither its indeterminateness nor its 'softened wording' in Principle 16 Rio Declaration ('should endeavour') hampers its classification as a (potential) legally binding rule. It is, however, unclear whether it has already become part of customary international law.

26 Another important key concept of modern IEL is 'common but differentiated responsibilities'. As expressed in Principle 7 Rio Declaration, it stipulates:

States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

This concept has gained considerable relevance in modern MEAs. As, for instance, applied to the Kyoto Protocol, it results in highly asymmetric environmental obligations on the parties regarding the reduction of greenhouse gas emissions, as well as a mechanism of compliance assistance. Both one-sidedly benefit the developing countries and lead to what can be called 'benign discrimination' of the South. However, it is an open question whether the Kyoto Protocol's rigid asymmetric scheme of substantive obligations proves to be wise environmental policy in the long run. As States' attitudes to this concept appear to be rather ambivalent as yet, it can hardly claim to be already part of today's customary international law.

27 The roots of the concept of sustainable development go back to the early 1970s. What it essentially means was already clearly articulated in Principles 9, 10, and 11 Stockholm Declaration, which emphasized that environmental protection and economic development must be understood as compatible and mutually reinforcing goals. At least since the 1992 Rio Conference, sustainable

development has become a crucial precept that governs all activities in international environmental and developmental relations. Already by 1987, the famous report 'Our Common Future' had pointed to the intra-generational and inter-generational dimension of sustainable development (Intergenerational Equity). As regards its normativity and status, sustainable development, because of its changeable content and scope, has to be assigned to the sphere of mere political ideals. At the same time, it is an important source from which subsequent legal norms can flow. The best example of this is 'sustainable use', a special emanation of sustainable development that meanwhile, in the context of the management of natural resources, has gained the status of a customary legal rule.

D. The Practice of International Environmental Law

28 The practice of IEL is dominated by international treaties, since only treaties can generate obligations specific enough to effectively steer States' behaviour in this particularly dynamic field of international law which is influenced by, and responds to, rapid technological and social change. Customary international law, although reflecting some of the most important key concepts of IEL, such as the prohibition to cause transboundary harm, is a rather weak steering instrument in an area where societal interests conflict and value judgments have to be made under conditions of scientific uncertainty.

29 These factors have also led to a change in the design of international environmental agreements. Instead of reflecting a static set of rules, most contemporary MEAs adopt regulatory approaches allowing for flexible incremental regime-building, mainly through two methods: the more traditional convention-annex approach, in which technical details are relegated to annexes which follow simplified adoption and amendment procedures (Treaties, Amendment and Revision), and the newer and by now very common framework convention-protocol approach, where broad framework agreements which set out the treaty aims and general obligations and establish procedural and institutional structures are brought to life by subsequent implementing protocols providing for concrete commitments. Moreover, oftentimes subsequent secondary-level regime-building takes place through decisions taken by the plenary treaty body, usually labelled 'Conference of the Parties' ('COP'; Conference (Meeting of States Parties; see also Environmental Treaty Bodies). This development is one reason for the considerable importance of soft law instruments in IEL, but it has also arguably transcended this purely non-legally binding setting, as some COP decisions produce 'quasi-legal' or '*de facto* binding' effects.

1. Air, Ozone, and Climate

30 The ecological problems of air pollution, the depletion of the ozone layer, and climate change have been addressed by MEAs which all follow the framework convention-protocol approach in order to keep up with scientific developments and States' increasing preparedness to engage in effective action.

(a) Air Pollution

31 The fact that pollutants can be transported by air for long distances entered public awareness when scientists discovered in the 1960s that sulphur emissions originating in continental Europe were responsible for the phenomenon of 'acid rain' experienced in Scandinavian countries. While the fundamental rule prohibiting the impairment of another State's environment through transboundary air pollution had already been established in the bilateral context by the 1941 *Trail Smelter Arbitration*, European and North American States particularly affected by long-range industrial air pollution got together under the auspices of the UN Economic Commission for Europe ('UNECE') in 1979 to find a multilateral solution for this problem. The Convention on Long-Range Transboundary Air Pollution ('LRTAP Convention') of 13 November 1979 provides for information exchange, consultation, and research and monitoring measures, and establishes an institutional

framework for further cooperation. Its general aim to limit and gradually reduce and prevent air pollution, including long-range transboundary air pollution, has been concretized by eight implementing protocols which evolved from regulating individual pollutants such as sulphur to addressing multiple pollutants such as heavy metals and persistent organic pollutants (POPs) and various effects of air pollution, such as acidification, tropospheric ozone formation, and eutrophication. The LRTAP Convention regime has managed to establish concrete and detailed regional environmental standards for air pollution control. It could therefore serve as a model for air pollution control agreements in newly industrialized parts of the world where similar regimes are still missing.

(b) Depletion of the Ozone Layer

32 International action on combating the depletion of the ozone layer was equally prompted by advances in scientific knowledge, namely the discovery in the early 1970s that chlorofluorocarbon gases ('CFCs') combine with solar radiation to decompose in the stratosphere, thus destroying large numbers of ozone molecules and causing what became known as the 'ozone hole'. In response to this new global atmospheric concern, UNEP initiated the Vienna Convention for the Protection of the Ozone Layer ('Vienna Ozone Convention'), which was adopted on 22 March 1985. Even before its entry into force on 22 September 1988, this framework convention was complemented by the Montreal Protocol on Substances that Deplete the Ozone Layer of 16 September 1987 ('Montreal Protocol'). Today, both conventions enjoy almost universal membership. This is due not least to innovative approaches taken by the Montreal Protocol, which was the first convention to effectively implement the concept of common but differentiated responsibilities. Under the Montreal Protocol, industrialized as well as developing States are obliged to reduce and phase-out consumption and production of certain ozone-depleting substances. According to Art. 5 Montreal Protocol, labelled 'Special Situation of Developing Countries', developing countries are, however, entitled to delay their compliance with the Protocol's control measures for a grace period of ten years. Moreover, Art. 5 Montreal Protocol acknowledges that the ability of developing countries to comply with their obligations depends upon financial assistance and technology transfer by developed countries. While respective commitments of industrialized countries were not very stringent under the Vienna Ozone Convention and the original Montreal Protocol, the parties to the Montreal Protocol at their second meeting in 1990 established a Multilateral Fund for the Implementation of the Montreal Protocol (see also Environmental Funds) which finances the agreed incremental costs of developing countries' compliance with their obligations under the Montreal Protocol and thus gave developing countries the decisive incentive to join the ozone regime.

33 From the beginning, the Montreal Protocol was intended to be a dynamic instrument. Since 1987, several amendments and adjustments to the Protocol have been adopted, adding new controlled substances and adjusting existing control schedules. Compliance with this ambitious programme is high, resulting in the first signs of ozone layer recovery, and in the Montreal Protocol being considered the most successful MEA to date.

(c) Climate Change

34 Whereas the abolition of most ozone-depleting substances was relatively unproblematic since substitute substances were readily available, combating global anthropogenic climate change requires far-reaching economic restructuring in industrialized States and a change in the development path of developing countries. The enormity of this challenge explains why the climate regime, which was modelled on the ozone regime, has not (yet) been able to match the latter's effectiveness.

35 Prompted by the UNGA's recognition of climate change as a common concern of mankind in 1988 and its decision to establish an Intergovernmental Negotiating Committee on a framework convention on climate change in 1990 (see UNGA Res 45/212 [21 December 1990] UN Doc

A/RES/45/212), the UNFCCC was adopted on 9 May 1992. This first step towards finding a collective response to global climate change set the objective of achieving 'stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system' (Art. 2 UNFCCC). In line with the concept of common but differentiated responsibilities, it obliged developed countries to adopt national policies to mitigate climate change by limiting greenhouse gas emissions and protecting and enhancing greenhouse gas sinks and reservoirs. However, it neither imposed binding quantitative restrictions nor concrete timetables for reducing greenhouse gas emissions.

36 Aware that this would not suffice to reach the ultimate goal of Art. 2 UNFCCC, the first COP in 1995 adopted the Berlin Mandate initiating the process of elaborating a protocol to the UNFCCC which would concretize developed countries' commitments (Decision 1/CP.1, The Berlin Mandate: Review of the Adequacy of Article 4, paragraph 2 (a) and (b), of the Convention, Including Proposals Related to a Protocol and Decisions on Follow-up [28 March–7 April 1995] FCCC/CP/1995/7/Add.1, 4). The resulting Kyoto Protocol, adopted on 10 December 1997, obliges industrialized countries to reduce their overall emissions 'by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012' (Art. 3 (1) Kyoto Protocol). The Kyoto Protocol was made operational by the so-called Marrakesh Accords ([10 November 2001] FCCC/CP/2001/13), which were agreed on by the seventh COP in 2001 and formally adopted at the first Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol ('COP/MOP 1'), held in 2005 after the Kyoto Protocol's entry into force on 16 February 2005. The Marrakesh Accords operationalized in particular the so-called 'flexible mechanisms' of the Kyoto Protocol, designed to allow for the most efficient and cost-effective implementation of the Protocol's commitments. They include the joint implementation of reduction commitments, an international emissions trading system and the clean development mechanism, the only flexible mechanism to involve developing countries.

37 In view of evolving scientific knowledge as to the pervasive impact that anthropogenic climate change has and will have on the global ecosystem and thus on human welfare worldwide, it became increasingly evident that the measures provided for under the first commitment period of the Kyoto Protocol could only represent a small first step. In 2005, negotiations on obligations for the post-2012 period commenced. Running on two main tracks, they involve negotiations between Kyoto Protocol parties on future commitments for industrialized countries under the Kyoto Protocol, and negotiations between all UNFCCC parties on long-term cooperative action on climate change, intended to engage the major developing countries and the USA, which has not ratified the Kyoto Protocol, in constructive discussions on the future of the climate regime. In 2007, COP/MOP 3 agreed on the 'Bali Roadmap' (Decision 1/CP.13, Bali Action Plan [14–15 December 2007] FCCC/CP/2007/6/Add.1, 3) setting the agenda for the negotiation of comprehensive post-2012 commitments by December 2009, in time for COP/MOP 5 held in Copenhagen, Denmark. However, the outcome of this meeting was limited to the so-called 'Copenhagen Accord', a political statement of which the COP merely 'took note' (Decision 2/CP.15 [18 December 2009] FCCC/CP/2009/11/Add.1, 5). The Copenhagen Accord quantifies the ultimate objective of the UNFCCC to prevent dangerous anthropogenic interference with the climate system by recognizing that the increase in global temperature should be held below 2° Celsius, with the option to strengthen this goal to 1.5° Celsius by 2015. Instead of prescribing mandatory emission cuts to achieve the stated objective, the Copenhagen Accord invited voluntary pledges for emission targets from developed countries and for nationally appropriate mitigation actions from developing countries. It remains to be seen whether subsequent climate meetings will succeed in returning to a legally binding emissions reduction regime.

2. Flora and Fauna; Biological Diversity; Forests and Soils

38 Since the 1950s, States have invoked the principle of permanent sovereignty over all natural resources located in their territory, thereby excluding all other States from having access to these resources (Natural Resources, Permanent Sovereignty Over; see also Charter of Economic Rights

and Duties of States [1974]). The holder of this right may be called the 'custodial State'. Today, the principle of permanent sovereignty over natural resources still applies, but is operationally restricted by the custodial State's commitment to ensure that its resources will be sustained and preserved from extinction. By doing so, the custodial State serves fundamental interests of the international community of States. It can therefore be said to be a trustee acting in the latter's name.

(a) Flora and Fauna

39 The endeavours of States to conserve flora and fauna date back to the 19th century (Nature, International Protection). As to nature protection in Africa, two early conventions, namely the already mentioned 1900 Convention Designed to Ensure the Conservation of Various Species of Wild Animals in Africa which are Useful to Man or Inoffensive, and the 1933 Convention relative to the Preservation of Fauna and Flora in their Natural State, were concluded. They were followed by the African Convention on the Conservation of Nature and Natural Resources as adopted within the Organization of African Unity (African Union [AU]) on 15 September 1968. The Revised African Convention on the Conservation of Nature and Natural Resources ('Maputo Convention') was adopted under the aegis of the AU on 11 July 2003. It has been designed to supersede its predecessor upon its entry into force (which has not, as yet, occurred). In the Americas, the Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere of 12 October 1940 is still in effect, while the ASEAN Agreement on the Conservation of Nature and Natural Resources of 9 July 1985 still awaits entry into force (Association of Southeast Asian Nations [ASEAN]).

40 The most important universal instruments concerning the protection of flora and fauna were developed in the 1970s. Among them are the Convention on Wetlands of International Importance Especially as Waterfowl Habitat of 2 February 1971 (Wetlands); the Convention for the Protection of the World Cultural and Natural Heritage of 16 November 1972 (World Natural Heritage); the Convention on International Trade in Endangered Species of Wild Fauna and Flora of 3 March 1973 ('CITES'; Endangered Species, International Protection); and the Convention on the Conservation of Migratory Species of Wild Animals of 23 June 1979 ('CMS'; Migratory Species, International Protection). These universal MEAs, as well as the regional Convention on the Conservation of European Wildlife and Natural Habitats ([done 19 September 1979, entered into force 1 June 1982] CETS No 104) have in common that they are aimed at striking a balance between the sovereignty of the custodial State over its wildlife species and natural habitats and the common interest in species conservation.

41 Until the late 1970s, a rigid conservation approach was typical of MEAs on wildlife resources. Today, the relevant treaty practice reflects a shift from strict conservation to sustainable use of wildlife. At least in southern Africa, this shift seems to be accompanied by endeavours to ensure the active participation of the local and indigenous communities in all important decision-making processes relating to the sustainable use of wildlife resources; the 1999 Southern African Development Community (SADC) Protocol on Wildlife Conservation and Law Enforcement and the 2003 Maputo Convention evidence this trend.

(b) Biological Diversity

42 The CBD of 1992 attempts to strike a compromise between the sovereign right to use genetic resources and the obligation to conserve them by means of a system offering mutual incentives. Industrialized States are obliged to support developing countries by means of financial and technological transfer. As a quid pro quo, the latter engage in species conservation. At the same time, access of industrialized States to genetic resources in developing countries is guaranteed under the CBD. Developing countries in turn can count on a fair and equitable share of the benefits arising from biotechnologies based upon these genetic resources. In order to further specify the rules on access and benefit sharing, the Sixth COP to the CBD adopted the 2002 Bonn Guidelines

(Decision VI/24, Access and Benefit-Sharing as Related to Genetic Resources—A. Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization [7–19 April 2002] UN Doc UNEP/CBD/COP/6/20, 262). The Bonn Guidelines had been developed by the Ad Hoc Open-ended Working Group on Access and Benefit Sharing, which was entrusted with the elaboration, by 2010, of an international regime on access and benefit sharing. This regime should ensure that the developing countries hosting the biological resources being accessed, as well as their indigenous and local communities, will substantially participate in all relevant decision-making processes regarding the utilization of genetic resources and have a fair and equitable share in the benefits arising from foreign use of these resources (see also Environment and Indigenous Peoples).

43 In 2000, the Cartagena Protocol was established. Its aim was to protect the environment from risks posed by the transboundary transport of living modified organisms created by modern biotechnology by making any such transport dependent on consent to be given in an advance informed agreement procedure (Prior Informed Consent).

44 The International Treaty on Plant Genetic Resources for Food and Agriculture of 3 November 2001, elaborated under the auspices of the FAO, is designed to ensure the conservation and sustainable use of plant genetic resources, as well as the sharing of the benefits arising out of their use.

(c) Forests and Soils

45 A comprehensive system of forest protection is still missing in international environmental law. The International Tropical Timber Agreement ('ITTA') of 27 January 2006 with its predecessors of 1983 and 1994, the only instrument available in this field that is legally binding, propagates a number of rather broadly worded treaty objectives. It is administered by the International Tropical Timber Organization ('ITTO').

46 The Forest Principles, adopted at the 1992 Rio Conference, can best be considered to be a first global consensus on forests which may serve as a basis for developing a future instrument for establishing a regime on the management, conservation, sustainable development, and rehabilitation of all types of forests. In the aftermath of UNCED, neither the Intergovernmental Panel on Forests ('IPF') nor its successors, the Intergovernmental Forum on Forests ('IFF') and currently the UN Forum on Forests ('UNFF'), have been able to successfully fulfil these tasks as yet. Although the annual rates of net loss of tropical, temperate, and boreal forests worldwide remain alarmingly high, prompting the UNGA to adopt the Non-Legally Binding Instrument on All Types of Forests (UNGA Res 62/98 [31 January 2008] UN Doc A/RES/62/98), there is still no consensus on the need for a global forest convention.

47 As to the protection of soils, which is closely connected with the conservation of biological diversity, only a few isolated rules of international law exist, such as the 1998 Protocol on the Implementation of the Alpine Convention of 1991 in the Field of Soil Conservation ([done 16 October 1998] [2005] OJ L337/29), and, in particular, the UN Desertification Convention. The UN Desertification Convention aims at preventing land degradation in arid, semi-arid, and dry sub-humid areas, especially in Africa. It urges the affected countries and regions to take their own initiatives in this respect (a so-called 'bottom up' approach). Industrialized States commit themselves to mobilizing the financial means needed for taking such initiatives. Although the UN Desertification Convention still shows serious deficits as to its implementation in practice, there is hope that in the longer run it will grow to be an effective instrument for addressing the needs of the rural poor in developing countries by combating desertification and eradicating poverty.

3. Marine Environment

48 A vast array of agreements with universal and regional scope are concerned with the

protection of the marine environment (Marine Environment, International Protection). By and large, they can be grouped into those aiming at the protection of marine living resources (Marine Living Resources, International Protection) and those whose purpose is the prevention, reduction, and control of marine environmental pollution. In a sense, this is an artificial distinction, as efforts to combat marine pollution also serve to protect species and their habitats. The connection is exemplified by Art. 194 (5) UN Convention on the Law of the Sea (Law of the Sea), according to which measures to prevent, reduce, and control pollution of the marine environment 'shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life', and implemented through innovative techniques such as marine protected areas. However, the distinction illustrates the diversity of threats facing the marine environment: 'classical' overexploitation of marine living resources has received competition from new threats resulting from growing international maritime traffic, the extraction of non-living marine resources, the disposal of waste, and other forms of industrialized utilization of the world's seas and oceans.

(a) Marine Living Resources

49 Aside from early fisheries treaties dating back to the 19th century concerned with the allocation of resources between States (Fisheries Agreements), one of the first contractual regulations regarding marine living resources (in this case, fur seals and sea otters) was spurred by the *Bering Sea Fur Seals Arbitration (Great Britain v United States)* which resolved a dispute between the US and the United Kingdom over the pelagic sealing of fur seals (see also Marine Mammals). Initial conventions regulating whaling were concluded in 1931 (Convention for the Regulation of Whaling [opened for signature 24 September 1931, entered into force 16 January 1935] 155 LNTS 349) and 1937 (International Agreement for the Regulation of Whaling [signed 8 June 1937, entered into force 7 May 1938] 190 LNTS 79). On 2 December 1946, the current International Convention for the Regulation of Whaling ('Whaling Convention') was adopted, which established the International Whaling Commission. The decisions of this treaty body, in particular the decision, taken in 1982, to place a temporary moratorium on commercial whaling due to scientific uncertainties surrounding the catch limits capable of producing the highest continuing yield, have given a preservationist veneer to the utilization-oriented agreement.

50 The adoption of the UN Convention on the Law of the Sea changed the frame of reference for the protection of marine living resources by redefining the jurisdictional and enforcement competences of States over the seas and oceans. The introduction of exclusive economic zone[s] ('EEZs') had a particular impact, as coastal States were given the sovereign right to explore and exploit, conserve, and manage the living and non-living resources within their 200 nautical mile EEZs (Art. 56 (1) (a) UN Convention on the Law of the Sea). The broad framework provisions of the UN Convention on the Law of the Sea prescribing proper conservation and management of living resources in the EEZs (Arts 61–68) and also those intended to prevent the over-exploitation of marine living resources in the high seas (Arts 116–20), however, do not dispel the need for international agreements which answer the call for cooperation between States voiced in the convention.

51 The Fish Stocks Agreement of 4 August 1995 is such an agreement with global scope. It implements the respective UN Convention on the Law of the Sea provisions and develops them further by adopting an ecosystem approach. Most other treaties dealing with the protection of marine living resources, however, are regional in character. Examples are the Convention on the Conservation of Antarctic Marine Living Resources (Antarctica); the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (with Annex) ([signed 17 March 1992, entered into force 29 March 1994] 1772 UNTS 217, as amended in the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas: Adoption of an Amendment [done 9 May 2006, entered into force 3 February 2008] [12 October 2010]), and the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area

([done 24 November 1996, entered into force 1 June 2001] 2183 UNTS 303), concluded under the umbrella of the CMS; the Inter-American Convention for the Protection and Conservation of Sea Turtles ([signed 1 December 1996, entered into force 2 May 2001] 2164 UNTS 31); and the South Indian Ocean Fisheries Agreement ([signed 7 July 2006, not yet entered into force] [12 October 2010]).

(b) Marine Pollution

52 Part XII UN Convention on the Law of the Sea establishes a comprehensive framework for the protection and preservation of the marine environment. The general obligation of States to protect and preserve the environment (Art. 192 UN Convention on the Law of the Sea) is complemented by provisions obliging States to adopt laws and regulations to prevent, reduce, and control pollution among others from land-based sources, by dumping, from vessels, and from or through the atmosphere. Part XII UN Convention on the Law of the Sea furthermore lays down framework rules regarding inter alia global and regional cooperation, technical assistance, monitoring and environmental assessment, enforcement, and responsibility and liability. The approach adopted by the UN Convention on the Law of the Sea towards the protection of the marine environment, together with the relevant recommendations contained in Agenda 21, have strongly influenced subsequent universal and regional agreements on marine environmental protection and oftentimes have led to the revision or adaptation of preceding ones.

53 Nevertheless, on the global level, treaties establishing concrete obligations regarding marine pollution remain confined to dealing with specific sources of pollution or specific pollutants. The 1954 International Convention for the Prevention of Pollution of the Sea by Oil ([signed 12 May 1954, entered into force 26 July 1958] 327 UNTS 3) was a first, rather unsuccessful, attempt at regulating oil pollution from tankers (Marine Pollution from Ships, Prevention of and Responses to). It was superseded by the 1973 International Convention for the Prevention of Pollution from Ships, as amended by the Protocol of 1978 Relating to the 1973 International Convention for the Prevention of Pollution from Ships (both are known collectively as 'MARPOL 73/78') which also regulates other types of ship-based pollution. While MARPOL 73/78 is the main international instrument with regard to operational and accidental causes of marine pollution from ships, the International Convention on Oil Pollution Preparedness, Response and Co-operation, with its 2000 Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances ([opened for signature 15 March 2000, entered into force 14 June 2007] IMO Doc HNSOPRC/CONF/11/Rev 1) is intended to provide a global framework for international cooperation and national action in responding to major pollution incidents and threats thereof.

54 Dumping from ships is regulated by the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter of 1972 ('London Convention'), which was initiated by the Stockholm Conference. The Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, adopted on 7 November 1996 in response to the developments instigated by Agenda 21 ('1996 Protocol'), replaced the London Convention for those parties to the 1996 Protocol that are also parties to the London Convention upon its entry into force on 24 March 2006. In line with the precautionary principle, the 1996 Protocol reversed the approach of the London Convention: whereas the London Convention prohibited the dumping of certain substances listed in annexes to the convention or required special prior permits for it, the 1996 Protocol prohibits the dumping of all substances except for those enumerated in its 'reverse list'. A 2006 amendment to the 1996 Protocol allows for the storage of captured carbon dioxide in sub-seabed geological formations (International Maritime Organization Resolution 'Resolution LP.1(1) on the Amendment to Include CO₂ Sequestration in Sub-seabed Geological Formations in Annex 1 to London Protocol' [27 November 2006] LC-LP.1/Circ.5).

55 On 13 February 2004, the Convention for Control and Management of Ships' Ballast Water and Sediments was adopted, which has not yet entered into force.

56 On the regional level, States have come closer to achieving comprehensive marine environmental protection (Regional Seas, Environmental Protection). Comprehensive regimes have been developed, in particular within the framework of UNEP's Regional Seas Programme, a programme initiated in 1974 in the wake of the Stockholm Conference, which governs environmental protection efforts regarding the Mediterranean Sea (Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean of 1995 with related protocols), the Black Sea (Convention on the Protection of the Black Sea against Pollution of 1992 with related protocols), and eleven other regions. Similar regional instruments exist for the Baltic Sea (Convention on the Protection of the Marine Environment of the Baltic Sea 1992), the Caspian Sea (Framework Convention for the Protection of the Marine Environment of the Caspian Sea 2003), the Antarctic region (the 1991 Protocol on Environmental Protection to the Antarctic Treaty of 1959 [(signed 1 December 1959, entered into force 23 June 1961) 402 UNTS 71]), and the North-East Atlantic (Convention for the Protection of the Marine Environment of the North-East Atlantic of 1992).

4. International Watercourses

57 Utilization conflicts between neighbouring States related to international watercourses constitute another 'classical' topic of IEL, as illustrated, for instance, by the case concerning the *Diversion of Water from the Meuse [Netherlands v Belgium]* of 1937 (Meuse, Diversion of Water Case [Netherlands v Belgium]). Oftentimes, they resulted in contractual utilization regimes, eg regarding the Rhine River, the Danube River, the Niger River, the Mekong River, or international lakes such as Lake Constance and the Great Lakes (Great Lakes, North America). In general (the regime concerning the Ganges River constituting one of the exceptions), these regimes evolved over time to include measures aimed at genuine environmental protection of the watercourses (International Watercourses, Environmental Protection; see also Water, International Regulation of the Use of).

58 The UN Convention on the Law of the Non-Navigational Uses of International Watercourses ('Watercourses Convention'), adopted on 21 May 1997, reflects these different rationales. The Watercourses Convention is based on the work of the International Law Commission (ILC) which had been mandated by the UNGA in 1970 with the progressive development and codification of the rules relating to this topic (Codification and Progressive Development of International Law) and which submitted its respective Draft Articles on the Law of Non-navigational Uses of International Watercourses and Commentaries Thereto ('Watercourses Draft Articles') in 1994. Although the Watercourses Draft Articles, and with them the Watercourses Convention, for the most part reflect customary international law, they also exhibit innovative features. This is of relevance as the Watercourses Convention has not yet entered into force. Even so, the Watercourses Convention has exercised considerable influence on subsequent watercourse agreements and has been referred to by the ICJ in the *Gabčíkovo-Nagymaros Case (Hungary/Slovakia)* of 1997.

59 The Watercourses Convention codifies the principle of equitable and reasonable utilization of international watercourses (Art. 5), a customary law principle with regard to freshwater resources (see also Equitable Utilization of Shared Resources). This principle, however, needs to be reconciled with the eminent customary law obligation not to cause transboundary environmental harm, enshrined in Art. 7 Watercourses Convention. This long-standing problem had already been addressed by the famous *Lac Lanoux Arbitration* of 1957 (*Affaire du Lac Lanoux*). But even after the compromise solution adopted by the Watercourses Convention, according to which a riparian State is entitled to utilize an international watercourse in an equitable and reasonable manner, but in doing so is obliged to take all appropriate measures to prevent the causing of significant harm to other watercourse States, the relationship between the two concepts is still subject to debate (see *Freestone and Salmon* 351–61). The provisions of the Watercourses Convention dealing more specifically with the ecological protection and preservation of international watercourses (Arts 20–23) adopt the ecosystem approach and prescribe measures relating to the prevention, reduction,

and control of pollution, the introduction of alien or new species, and the protection and preservation of the marine environment.

60 In 2008, the ILC submitted its Draft Articles on the Law of Transboundary Aquifers ([2008] GAOR 63rd Session Supp 10, 19) to the UNGA with the recommendation to consider, at a later stage, the elaboration of a respective convention. If such a convention was to be adopted, its relationship with the Watercourses Convention would have to be clarified.

61 An important regional convention on international watercourses is the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes ('Water Convention'), which, although having been adopted prior to the ILC Watercourses Draft Articles on 17 March 1992, partly reflects the ILC draft rules. The Water Convention contains environmental provisions that are more detailed and comprehensive than those of the Watercourses Convention and which are guided by the concepts of precaution, polluter pays, and sustainability (Art. 2 Water Convention). In contrast to the Watercourses Convention, the Water Convention establishes a Meeting of the Parties as the treaty body charged with the further development of the treaty regime. The Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes of 17 June 1999, which aims to prevent, control, and reduce water-related diseases, obliges States to take all appropriate measures to ensure access to safe drinking water and adequate sanitation (Art. 4 (2)). It thus explicitly links the protection of international watercourses with human rights protection (Environment and Human Rights; Health, Right to, International Protection; Water, Right to, International Protection). A 2003 amendment to the Water Convention, which has not yet entered into force, envisages the geographical expansion of the Water Convention by allowing for the accession of countries from outside the UNECE area (UN ECOSOC 'Meeting of the Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes: Amendment to Articles 25 and 26 of the Convention' [12 January 2004] UN Doc ECE/MP.WAT/14).

5. Hazardous Waste and Substances

62 The international regulation of hazardous waste and substances (Hazardous Substances, Transboundary Impacts; Hazardous Wastes, Transboundary Impacts) became necessary to account for the negative consequences of the modern industrial lifestyle.

63 The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal ('Basel Convention') of 22 March 1989 was created in response to increased attempts to dump hazardous wastes originating from industrialized countries in developing countries after proper waste disposal in the place of origin had become increasingly expensive due to tightened environmental regulations. From the beginning, developing countries were strong proponents of a strict waste regulation system which would ban the transboundary traffic of hazardous waste. However, the Basel Convention's original scope was essentially restricted to regulating exports of hazardous wastes by means of a prior informed consent procedure under which both the exporting and the importing State are held responsible for the environmentally sound management of the waste. Yet the question of a ban was raised again at the Conferences of the Parties and in 1994 led to a COP decision, the 'Basel Ban', which was formally adopted in 1995 as an amendment to the Basel Convention prohibiting the export of hazardous waste from essentially OECD countries to non-OECD countries (Conference of the Parties to the Basel Convention 'Decision III/1: Amendment to the Basel Convention' [18–22 September 1995] [10 May 2010]). The amendment, however, has so far failed to garner the necessary support for entry into force. Nevertheless, a greater emphasis placed today under the Basel Convention regime on preventive instead of remedial measures, ie a shift in focus from the regulation of transboundary movements of hazardous waste to the minimization of hazardous waste generation, has alleviated the effects of this situation. In 1999, the fifth Conference of the Parties adopted the Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous

Wastes and Their Disposal ([signed 10 December 1999, not yet entered into force], in M Sunkin, DM Ong, and R Wight, *Sourcebook on Environmental Law* [2nd edn Cavendish London 2002] 369).

64 The Basel Convention does not cover nuclear waste disposal, which instead is addressed by the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management ([signed 29 September 1997, entered into force 18 June 2001] [1997] 36 ILM 1436).

65 Dissatisfaction with the regulatory stringency of the Basel Convention has spurred the development of regional agreements on hazardous waste regulation, such as the Bamako Convention on the Ban of Import into Africa and the Control of Transboundary Movement of Hazardous Wastes within Africa ([done 29 January 1991, entered into force 22 April 1998] [1991] 30 ILM 657), which prohibits the exports of hazardous wastes into Africa.

66 The technique of prior informed consent is also at the heart of the Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade ('Rotterdam Convention') of 10 September 1998. The Rotterdam Convention regulates commercial international trade of certain industrial chemicals and pesticides not intended for disposal. An annex to the Rotterdam Convention lists the chemicals and pesticides to which the prior informed consent procedure applies. In addition, any chemicals banned or severely restricted by an exporting party are subject to an information exchange requirement.

67 The Stockholm Convention on Persistent Organic Pollutants ('Stockholm Convention') of 22 May 2001 exceeds the regulatory scope of the Basel and Rotterdam Conventions. Besides regulating international trade, it requires parties to take measures to eliminate or reduce the production and use of certain POPs at the domestic level. This is necessary since POPs are long-lived and thus become widely distributed geographically, irrespective of their place of origin. The Stockholm Convention initially targeted a limited number of the most toxic POPs, the 'Dirty Dozen', but new chemicals have been added in line with its mechanism for the inclusion, 'in a precautionary manner', of additional substances (Art. 8 (9) Stockholm Convention).

68 In the European context, production and use of chemicals are regulated by 'REACH', an EC regulation of 2006 on the registration, evaluation, authorization, and restriction of chemical substances (Council Regulation [EC] 1907/2006 of 18 December 2006 concerning the Regulation, Evaluation, Authorization and Restriction of Chemicals [REACH], Establishing European Chemical Agency, Amending Directive 1999/45/EC and Repealing Council Regulation [EEC] No 793/93 and Commission Regulation EC No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC [2006] OJ L396/1).

69 Since 2007, an Ad Hoc Joint Working Group is charged with exploring opportunities for enhanced cooperation and coordination between the Basel, Rotterdam, and Stockholm Conventions.

6. Cooperation and Public Participation

70 The practice of IEL not only consists of agreements on single media, species, or substances, but has also generated contractual regimes designed to achieve integrated environmental protection through various forms of cooperation (see also Co-operation, International Law of) and public participation (Public Participation in Environmental Matters).

71 International cooperation is essential to IEL, as environmental deterioration does not stop at national borders. Although most IEL instruments contain obligations to cooperate, specific regimes implementing this principle initially emerged in particular with regard to hazardous activities and emergencies. Thus, on 26 September 1986, two conventions—the Convention on Early Notification of a Nuclear Accident ([adopted 26 September 1986, entered into force 27 October 1986] 1439

UNTS 275), and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency ([adopted 26 September 1986, entered into force 26 February 1987] 1457 UNTS 133)—were adopted in reaction to the devastating nuclear accident at a nuclear power plant in Chernobyl, Ukraine, in April 1986 (Environmental Accidents; see also Nuclear Energy, Peaceful Uses). While the two conventions only focus on cooperation to mitigate transboundary damage that has already occurred, the Helsinki Convention on the Transboundary Effects of Industrial Accidents ([done 17 March 1992, entered into force 19 April 2000] [1992] 31 ILM 1333) also calls for cooperative measures to prevent such accidents.

72 Broader in scope, the 1991 Espoo Convention, adopted under the auspices of the UNECE, requires EIAs to be conducted prior to the authorization or undertaking of certain activities which are likely to cause a significant adverse transboundary impact (Art. 2 (3) Espoo Convention) and provides for notification and consultation between the concerned parties in order to prevent, reduce and control such impacts. In addition, the Espoo Convention requires States to provide opportunities for public participation in EIA procedures (Arts 2 (2), 2 (6) Espoo Convention). An amendment to the Espoo Convention, which has not yet entered into force, expands the definition of the public to include not only natural or legal persons but also their associations, organizations, or groups in order to promote civil society and NGO involvement (UN ECOSOC, 'Decision II/14: Amendment to the Espoo Convention' [done 27 February 2001] ECE/MP.EIA/4).

73 With this, the Espoo Convention is indicative of a trend in IEL towards more public participation in environmental matters. In parallel with growing public participation at the international level through the involvement of NGOs, business, and other civil society groups in international conferences and meetings, IEL increasingly requires States to enable public participation also in the domestic sphere. Principle 10 Rio Declaration calls for access to information, the opportunity to participate in decision-making processes, and effective access to judicial and administrative proceedings for individuals at the national level (Access to Information on Environmental Matters; Access to Justice in Environmental Matters). This call was put into practice on a regional basis with another UNECE convention, the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters ('Aarhus Convention') of 25 June 1998. The Aarhus Convention constitutes the most sophisticated international legal instrument dealing with these matters today. In order to achieve its objective 'to contribute to ... the right of every person of present and future generations to live in an environment adequate to his or her health and well-being' (Art. 1 Aarhus Convention), it sets forth minimum standards for national level decision-making in the three pillars of 'environmental democracy' (Hunter, Salzman, and Zaelke 535). States Parties are required to establish the necessary legislative, regulatory, and enforcement framework for the implementation of their obligations under the Aarhus Convention to ensure public participation in environmental decision-making and access to environmental information and judicial review (Art. 3 (1) Aarhus Convention). Their performance can be reviewed through an innovative compliance mechanism established in accordance with Art. 15 Aarhus Convention which can, *inter alia*, be triggered by communications from the public.

74 Under the Aarhus Convention, attempts are made to re-import progress achieved at the national level back to the international level. In 2005, the second Meeting of the Parties adopted the *Almaty Guidelines* (UN ECOSOC, 'Decision II/4: Promoting the Application of the Principles of the Aarhus Convention in International Forums' [20 June 2005] ECE/MP.PP/2005/2/Add.5), intended to enhance public access to international forums in which the parties to the Aarhus Convention participate.

75 Like the Water Convention, the Espoo and Aarhus Conventions both envision the broadening of their geographical scope by enabling the accession of States not members of the UNECE. While this is already possible under the Aarhus Convention (Art. 19 (3)), the respective amendment to the Espoo Convention of 2001 has yet to enter into force.

E. Enforcement, Compliance Control, and Dispute Settlement

76 Traditionally, international law primarily provided for unilateral and repressive instruments for its enforcement. Firstly, there is the concept of State responsibility according to which States are responsible for all acts and omissions in breach of an international obligation. Secondly, States being victims of breaches of international obligations can, under certain conditions, take unilateral sanctions, particularly acts of retorsion and reprisal (Reprisals), against the infringer State. Thirdly, breaches of international obligations can be made the subject of various forms of judicial and non-judicial dispute settlement (Environmental Dispute Settlement).

77 At least in international environmental relations, these traditional ways and means of law enforcement, which are altogether confrontational rather than cooperative in character, proved to be only of limited efficacy. This is why in the 1980s and 1990s the States parties to MEAs tried new ways of addressing the problem of non-compliance. They developed forms of 'active treaty management' determined by four characteristics: collective rather than unilateral enforcement; cooperation in place of confrontation; prevention rather than repression; and compliance assistance instead of sanctions (Marauhn 735). In particular cases, a combination of cooperative methods of law-enforcement with authoritative methods may prove to be best suited for making parties to MEAs comply with their obligations (Environmental Compliance Control; see also Liability for Environmental Damage).

1. Enforcement

78 According to the ILC Draft Articles on Responsibility of States for Internationally Wrongful Acts ('Draft Articles on State Responsibility') as adopted on second reading in August 2001, States are responsible for breaches of international obligations, including those occurring in international environmental relations. Although the Draft Articles on State Responsibility have not yet gained the status of legally binding rules, State and non-State litigants in international judicial proceedings, as well as the courts and tribunals concerned, increasingly rely on them as an authoritative source of State responsibility norms. Arts 42 and 48 Draft Articles on State Responsibility provide that in a case where a State has breached an international obligation owed to the international community as a whole, the injured State and any other State can invoke the responsibility of the infringer State. Some international obligations relating to the protection of common environmental goods such as the atmosphere can arguably be qualified as such international environmental obligations *erga omnes*, or, if they flow from an MEA, as obligations *erga omnes partes*, rendering them potentially enforceable by any State or State Party respectively (see Institut de Droit International, 'Resolution on Obligations *erga omnes* in International Law' [2005] 71 (2) AnnIDI 286). However, as yet the invocation of State responsibility, eg by means of bringing claims against the infringer State before an international court or arbitral tribunal, has not been much used in practice for the enforcement of States' compliance with international environmental obligations. The same holds true for the use of unilateral sanctions, including (non-military) reprisals. Generally perceived as rather expensive, of delayed effectiveness, and hard to maintain in the longer term, sanctions proved to be largely unsuitable for enforcing international environmental obligations.

79 The topic of liability for injurious consequences of conduct not prohibited by international law has been the subject of separate work within the ILC (Liability for Lawful Acts). In this context, the ILC adopted the Draft Principles on the Allocation of Loss in the Case of Transboundary Harm Arising out of Hazardous Activities ([2006] GAOR 61st Session Supp 10, 106) in 2006 which deal with liability for this kind of damages.

2. Compliance Control

80 The 1987 Montreal Protocol was the first MEA to provide for mechanisms of compliance control aimed at avoiding, or responding to, compliance deficits in a non-adversarial manner. Oftentimes, a quite decisive cause of inadequate compliance with international environmental obligations lies in

deficits in the administrative, economic, and technical infrastructures of the States concerned rather than in wilful non-compliance (Chayes and Handler Chayes 188–97). Accordingly, compliance control mechanisms are nowadays typically directed towards cooperation and partnership rather than confrontation. Thus, a non-complying State party, instead of being publicly ‘named and shamed’, can count on being supported by other parties in the form of capacity-building, transfer of technology, and/or finance. Although every single MEA needs its own tailor-made compliance control mechanism, these mechanisms show a number of commonalities.

81 A decisive first step towards effective compliance control is the establishment of facts. The most important techniques of fact-finding are reporting obligations. As the data communicated by States to the treaty body heading the compliance control procedure need to be verified as to their validity, leeway must be given to this body for additional fact-finding, including the gathering of information from private sources.

82 As a rule, compliance with concrete environmental standards to be met within a fixed time limit is more easily measurable than compliance with an only abstractly defined obligation to take action. Accordingly, fact-finding regarding non-compliance with ‘action-oriented’ obligations (eg in CITES, the Espoo Convention, and the CBD), and the evaluation of these facts are more difficult than those regarding ‘result-oriented’ obligations (eg in the Montreal Protocol, the protocols to the LRTAP Convention, the Kyoto Protocol, and the Stockholm Convention).

83 The MEA-specific compliance control bodies disposing of ascertained facts regarding non-compliance have to evaluate these facts and decide on possible reactions. Mostly, these responses are determined by cooperation and partnership; however, they can also be a mixture of cooperative and confrontational means. Under the non-compliance procedures of the LRTAP Convention and the Montreal Protocol, the parties mainly rely on non-confrontational responses to non-compliance, such as giving advice to the non-complying party, assisting in the elaboration of ‘compliance plans’, and giving financial or technical support. However, non-compliance procedures (‘NCPs’) can also provide the possibility of reacting to compliance deficits by giving ‘negative incentives’, including formal cautions, public ‘naming and shaming’, and other sanctions, such as the suspension of certain treaty rights or privileges. A recent example of the latter type of non-compliance procedure is the Kyoto Protocol compliance regime as established by the 2001 Marrakesh Accords. The Kyoto Protocol compliance body is divided into a ‘Facilitative Branch’ and an ‘Enforcement Branch’. While the first branch takes decisions relying on facilitative forms of ensuring compliance, the second branch can impose sanctions in the form of reductions of future emission allowances on those States failing to reach their emission targets.

84 Different entities can be entitled to trigger an NCP. Frequently, the secretariats to MEAs, as well as the non-complying States themselves, can do so. Some MEAs even envisage a triggering right for any other contracting party.

85 As most MEAs envisage the possibility of employing dispute settlement proceedings in parallel to compliance control mechanisms, the question as to the interrelationship between these two forms of ensuring compliance arises. Due to the fact that compliance control mechanisms typically aim at seeking a non-confrontational solution of the matter, there are good reasons to argue that these mechanisms as a specific kind of dispute avoidance must take priority over authoritative dispute settlement proceedings, without precluding the parties to the dispute from resorting to the latter. This might raise the difficult question whether a decision that has been taken in an NCP is res iudicata; in any case, it should be respected in subsequent judicial settlement proceedings as far as possible.

3. Environmental Dispute Settlement

86 States can resort to diplomatic methods of peaceful dispute settlement such as negotiation, good offices, and conciliation, as well as judicial dispute settlement (Judicial Settlement of

International Disputes) and arbitration. Prima facie, it may appear to be promising to sue a State being in breach of international environmental law before an international court or arbitral tribunal. However, hitherto States have been rather reluctant to make use of this kind of law enforcement in international environmental relations. Even in cases of environmental accidents where the facts were clear, such as Chernobyl or Sandoz, the injured States sought negotiated solutions to the disputes rather than their judicial settlement. While several inter-State environmental utilization disputes were submitted to ad hoc arbitration (eg *Trail Smelter Arbitration* [1941]; *Lac Lanoux Arbitration* [1957]), the ICJ only rarely had to deal with cases with environmental implications (eg *Gabčíkovo-Nagymaros Case* [1997]; *Pulp Mills on the River Uruguay (Argentina v Uruguay)* [2006 and 2010]). A small number of WTO cases (eg the US–Shrimp Case) involved trade-related environmental questions (see also Trade and Environment). Under Part XV UN Convention on the Law of the Sea, disputes concerning the marine environment and living resources potentially fall within the compulsory jurisdiction of international tribunals, leaving States Parties the choice between various forms of arbitration, the ICJ, or the International Tribunal for the Law of the Sea (ITLOS).

87 In 1993, the ICJ established a special chamber for environmental cases. As States never requested that a case be dealt with by it, it was abolished in 2006. Calls for the establishment of an International Environmental Court so far have met with no response. A certain alternative to contentious inter-State environmental litigation is offered in Art. 96 UN Charter which empowers the ICJ to give advisory opinions, upon the request of the UNGA or the UN Security Council, as well as other organs and specialized agencies of the UN, so long as they have the authorization of the UNGA. Its 1996 *Legality of the Threat or Use of Nuclear Weapons (Advisory Opinion)* shows that the ICJ's advisory jurisdiction might contribute to making States comply with their environmental obligations *erga omnes*. This lies in the common interest of States.

F. Conclusion

88 States and their human societies are faced with a multitude of global environmental problems, above all climate change. These problems threaten to degrade the earth's ecosystem to such an extent as to endanger the quality of life of current and future generations. Notwithstanding the increasing readiness of States to accept that the protection of global environmental goods, such as the climate or biological diversity, is a common concern of humankind, they do not yet constitute a community acting in concert as faithfully as needed for achieving this end. Humankind is still divided into prosperous industrialized societies, on the one hand, and marginalized societies in the Third World, on the other. Correspondingly, inter-State cooperation in environmental and developmental matters continues to suffer from the so-called 'North–South divide'.

89 The ideas of solidarity and justice should be the theoretical starting-point for enhancing the international legal framework for environmental and developmental inter-State cooperation. These abstract ideas are important ethical sources for developing more concrete concepts, such as sustainable development, common but differentiated responsibilities, or inter-generational equity, which in turn lay the ground for broadening and solidifying the system of MEAs—especially in the North–South dimension.

90 All States must have a just and fair share in all important international environmental negotiation and decision-making processes. Co-equal participation in environmental cooperation at the inter-State level should be complemented by the participation of individuals and groups of individuals. In this respect, the human rights dimension of international environmental protection should be more clearly emphasized in the future.

91 Modern IEL still shows some serious shortcomings in structure and effectiveness which ought to be urgently cured. Among these, two are especially noteworthy.

92 First, the MEA practice suffers from undue fragmentation. This flaw could best be remediated by giving MEAs a more integrative regulatory approach and providing for better cooperation between the treaty organs concerned. Such inter-institutional cooperation should be aimed at coordinating the respective treaty implementation measures as closely as possible. Thereby, overlaps and norm conflicts between the competing MEAs can be avoided or at least mitigated.

93 Second, the efficiency of MEAs continues to severely suffer from structural deficiencies in implementation and enforcement. Ensuring compliance with MEAs begins with sound treaty-making, especially framing treaty obligations in a clear-cut and definite manner, so as to enable their effective control. MEAs should always be conceptualized in such a way that the benefits which each party draws from compliance outweigh the costs of non-compliance. Apart from that, there is a need for developing flexible mechanisms that allow intelligent reactions to cases of non-compliance, either by giving responses determined solely by cooperation and partnership, or by resorting to a mixture of cooperative and confrontational means.

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