1. The changing architecture of international climate change law

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CHAPTER OVERVIEW

This chapter offers a bird's eye view of the overall architecture of international climate change law. Following a discussion of the defining features of climate change law, it discusses the origins and development of the 1992 United Nations Framework Convention on Climate Change (UNFCCC) and subsequent arrangements adopted under its auspices, notably the 1997 Kyoto Protocol and the 2010 Cancún Agreements. The chapter shows that while the UNFCCC process has grown more complex over time – in terms of its rules, institutions and the actors involved – so has international climate change law and governance more generally. It illustrates this argument by drawing attention to six observable trends: (i) the multiplication of international forums addressing climate change; (ii) the softening of commitments; (iii) the changing nature of differentiation; (iv) the utilization of innovative policy instruments; (v) the increasing focus on litigation; and (vi) the growing importance of nonstate actors and transnational governance.

1. INTRODUCTION

More than 20 years of international cooperation to tackle the problem of climate change have seemingly not produced the desired results in terms of climate stabilization. Even though there is a solid scientific basis for international action to mitigate the causes and impacts of climate change, the gap between pledged emission reductions and the internationally agreed goal[1]

[1] United Nations Framework Convention on Climate Change (UNFCCC), 'Decision 1/CP.16, Outcome of the Work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention', UN Doc FCCC/CP/2010/7/Add.1 (15 March 2011) para 4.

to keep temperature increases below 2°C relative to pre-industrial times, is still widening.[2]

Scientists have provided a clear indication that keeping temperature increases below 2°C with a considerable degree of certainty (over 93 per cent) would require that greenhouse gases are stabilized at 350 parts per million volume (ppm) carbon dioxide (CO_2)-equivalent.[3] Indeed, for some scientists, this value represents one of the 'planetary boundaries': a value that would keep a safe distance from reaching dangerous climate change.[4] Assessments indicate that to stay below 2°C with over 75 per cent certainty, it is necessary to limit cumulative CO_2 emissions between 2000 and 2050 to 1000 gigatonnes.[5] Approximately half of this trillion tonne budget has already been emitted,[6] meaning that at the rate CO_2 is currently being emitted, net emissions would need to be zero around 2050.[7]

Despite lofty long-term goals being set by political leaders, there is still a strong perception that international climate change law and policy is ineffective in 'saving the climate'. The reactions following the disappointing Copenhagen Conference of the Parties (COP) in 2009 are illustrative. Environmental nongovernmental organizations (NGOs) referred to the outcomes of the summit with terms like 'abject failure' and 'crime scene', whereas delegates from critical developing countries – not without a sense of drama – referred to terms like 'suicide pact' and '*coup d'état*'.[8]

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[2] United Nations Environment Programme (UNEP), *The Emissions Gap Report. Are the Copenhagen Accord Pledges Sufficient to Limit Global Warming to 2°C or 1.5°C? A Preliminary Assessment* (UNEP 2010); UNEP, *Bridging the Emissions Gap* (UNEP 2011); UNEP, *The Emissions Gap Report 2012* (UNEP 2012).

[3] Malte Meinhausen, 'What Does a 2°C Target Mean for Greenhouse Gas Concentrations? A Brief Analysis Based on Multi-Gas Emission Pathways and Several Climate Sensitivity Uncertainty Estimates' in Hans-Joachim Schellnhuber and others (eds), *Avoiding Dangerous Climate Change* (CUP 2006) 265, 270.

[4] Johan Rockström and others, 'Planetary Boundaries: Exploring the Safe Operating Space for Humanity' (2009) 14 *Ecology and Society* 32.

[5] Malte Meinshausen and others, 'Greenhouse-Gas Emission Targets for Limiting Global Warming to 2°C' (2009) 458 *Nature* 1158, 1158.

[6] Myles R. Allen and others, 'Warming Caused by Cumulative Carbon Emissions towards the Trillionth Tonne' (2009) 458 *Nature* 1163, 1163.

[7] Myles Allen and others, 'The Exit Strategy' (2009) 3 *Nature Reports Climate Change* 56, 57.

[8] BBC, 'Copenhagen Deal Reaction in Quotes (*BBC*, 19 December 2009) <http://news.bbc.co.uk/2/hi/8421910.stm> accessed 13 February 2014. For an analysis, see Daniel Bodansky, 'The Copenhagen Climate Conference: A Postmortem' (2010) 104 *AJIL* 230.

There are indeed various weaknesses that critics can point to.[9] In addition to the inadequacy of countries' aggregate ambition under the United Nations Framework Convention on Climate Change (UNFCCC),[10] the Kyoto Protocol[11] is characterized by the non-participation of one of the world's largest emitters (the United States) and does not contain emission targets for other major emitters (such as China and India). The treaty's market-based mechanisms have also come under fire for being ineffective and unfair.[12] Furthermore, its mechanisms to promote compliance have been criticized for not providing sufficient incentives to remain within the treaty – as illustrated by the case of Canada's withdrawal.[13] More generally, it is inherently difficult to find consensus among an international community of more than 190 countries on a range of contested issues. This is not helped by the fact that a growing number of issues are subsumed in the negotiation process, including broader development questions, energy security, biodiversity, human rights and international trade.

By contrast, commentators that see the glass as half-full have stressed achievements gained in two decades.[14] These include notably the fact that the Kyoto Protocol put in place legally binding targets for the first time. It accompanied these targets with systems for monitoring, reporting and verification (MRV), thereby enhancing the transparency of countries' actions. Moreover, the regular climate meetings continuously keep climate

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[9] See, e.g., Steve Rayner, 'How to Eat an Elephant: A Bottom-up Approach to Climate Policy' (2010) 10 *Climate Pol'y* 615; and David G. Victor, *Global Warming Gridlock* (CUP 2011).

[10] United Nations Framework Convention on Climate Change (adopted 9 May 1992; entered into force 21 March 1994) 1771 UNTS 163 (UNFCCC).

[11] Kyoto Protocol to the United Nations Framework Convention on Climate Change (adopted 11 December 1997; entered into force 16 February 2005) 2303 UNTS 148 (Kyoto Protocol).

[12] See, e.g., Michael W. Wara and David G. Victor, 'A Realistic Policy on International Carbon Offsets' (Stanford University Program on Energy and Sustainable Development 2008); and Harro van Asselt and Joyeeta Gupta, 'Stretching Too Far: Developing Countries and the Role of Flexibility Mechanisms beyond Kyoto' (2009) 28 *Stan Envtl LJ* 311.

[13] BBC, 'Canada to Withdraw from Kyoto Protocol' (*BBC*, 13 December 2011) <http://www.bbc.co.uk/news/world-us-canada-16151310> accessed 13 February 2014.

[14] See, e.g., Joanna Depledge and Farhana Yamin, 'The Global Climate-Change Regime: A Defence' in Dieter Helm and Cameron Hepburn (eds), *The Economics and Politics of Climate Change* (OUP 2009) 433, 439–43; William Hare and others, 'The Architecture of the Global Climate Regime: A Top-Down Perspective' (2010) 10 *Climate Pol'y* 600.

change on the political agenda. This 'momentum'[15] ensured that all countries continued moving forward – albeit sometimes painfully slowly and incrementally – towards a common goal of avoiding dangerous climate change. Finally, from a cognitive perspective, the climate regime provides an important marketplace for ideas.

This chapter seeks to put these contrasting views in a broader perspective, by examining the changing architecture of international climate change law. Biermann and colleagues define 'architecture' as 'the overarching system of public and private institutions that are valid or active in a given issue area of world politics. This system comprises organizations, regimes, and other forms of principles, norms, regulations, and decision-making procedures'.[16] Their definition – like other notions raised in the literature, such as 'regime complex'[17] – draws attention to the fact that the international legal regime for climate change is part and parcel of a broader system in which rule-making is no longer confined to the state or to intergovernmental negotiations alone. This raises several challenging questions as regards interactions between the different governance arrangements and the United Nations (UN) climate regime, the overall effectiveness of the overall architecture in tackling climate change as well as its legitimacy in the eyes of various state and nonstate actors.

To examine the shifts in the architecture of international climate change law, the chapter first puts forward several defining features of climate change law. It then offers a short history of the international legal regime for climate change. It complements this rather standard account by analysing six crosscutting trends that characterize the changing architecture of international climate change law: (i) the multiplication of international forums addressing climate change; (ii) the softening of commitments; (iii) the changing nature of differentiation; (iv) the utilization of innovative policy instruments; (v) the increasing focus on litigation; and (vi) the growing importance of non-state actors and transnational governance.

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[15] Depledge and Yamin (n. 14) 439.

[16] Frank Biermann and others, 'The Fragmentation of Global Governance Architectures: A Framework for Analysis' (2009) 9 *Global Envtl Pol* 14, 15.

[17] Kal Raustiala and David G. Victor, 'The Regime Complex for Plant Genetic Resources' (2004) 58 *Intl Org* 277; Robert O. Keohane and David G. Victor, 'The Regime Complex for Climate Change' (2011) 9 *Perspectives on Politics* 7; Amandine Orsini, Jean-Frédéric Morin and Oran Young, 'Regime Complexes: A Buzz, a Boom, or a Bust for Global Governance?' (2013) 19 *Global Governance* 27.

2. WHAT IS CLIMATE CHANGE LAW?

Slightly over two decades ago, when Patricia Birnie and Alan Boyle published the first edition of their seminal treatise on international environmental law, they started out by asking whether such a thing as 'international environmental law' even existed.[18] For them, the answer to this question was pragmatically resolved by defining international environmental law as 'the corpus of international law, public and private, relevant to environmental issues and problems'.[19] At the same time, they emphasized that it nonetheless remains 'nothing more, or less, than the application of international law', meaning that it does not constitute a separate body of rules independent from the wider body of international law.[20]

At first glance, this intuitive approach might also appear a good starting point for a definition of 'international climate change law', which could then be understood as the sum of international legal norms seeking to address the phenomenon of climate change. Because law as a social institution operates through rules and principles that affect behaviour, the scope of this body of norms would by necessity be limited to our responses to climate change, both in terms of addressing its causes as well as protecting against its impacts.[21] Only our actions or lack thereof can be subject to normative prescriptions, not the physical phenomenon itself, although it may variously serve as a benchmark or point of reference for legally vested rules.

Like international environmental law, this body of rules has seen the emergence of a distinct set of objectives, principles, and instruments, all of which are outlined in the following sections.[22] Preoccupation with climate change has been so prolific in legal scholarship, in fact, that it

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[18] Patricia W. Birnie and Alan E. Boyle, *International Law and the Environment* (OUP 1992) 1.

[19] Ibid., 1–2.

[20] Ibid., 2.

[21] Interestingly, the UNFCCC (n. 10) in its article 1(2) narrows the definition of climate change to changes which are 'attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods'. As far as adaptation is concerned, however, it is not uncommon for legal provisions to also seek improved resilience against natural climate variability, whose negative impacts can be just as devastating as human-induced climate changes, and are altogether difficult to set apart; seeking to exclude everything but purely anthropogenic climate change from the scope of international climate law may thus be unnecessarily restrictive.

[22] See infra, Sections 3 and 4.4.

has engendered two dedicated journals, several monographs, and specialized institutes and course programs at a number of law schools.[23] Some observers have even criticized the ascendancy of climate law for 'crowding out' traditional environmental concerns.[24] In part, this level of attention is justified by the broad scope and magnitude of the underlying challenge.

But aside from commandeering resources and scholarly interest to the possible detriment of other areas of study, it also reflects a deeper structural predicament, namely the overlap of climate law with numerous other issue areas, such as nature conservation, trade policy and energy governance. At the domestic level, such overlap is readily apparent, for instance in the disruption of incumbent electricity markets spurred by climate policy mandates; yet common principles and institutions, including overarching constitutional frameworks, tend to provide a degree of coherence in rule making, implementation and adjudication. At the international level, however, where these issue areas have traditionally been dealt with through separate regimes, the absence of a similar unifying paradigm has raised concerns about the fragmentation of the international legal order, and climate change provides a particularly fertile case study of linkages and tensions with neighbouring, yet formally separate issue areas. How the resulting fragmentation manifests itself in different contexts and can be managed through improved coordination is discussed separately below.[25] Nonetheless, it is important to acknowledge the cross-cutting nature of climate change, which has immediate implications for

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[23] See, for instance, the journals *Climate Law* (Brill) and *Carbon & Climate Law Review* (Lexxion); course textbooks such as Richard G. Hildreth and others, *Climate Change Law: Mitigation and Adaptation* (West 2009); Hari Osofsky and Lesley McAllister, *Climate Change Law and Policy* (Aspen 2012); Chris Wold, David Hunter and Melissa Powers, *Climate Change and the Law* (LexisNexis 2009); essay collections such as Michael B. Gerrard (ed.), *Global Climate Change and US Law* (ABA 2007); Erkki J. Hollo, Kati Kulovesi and Michael Mehling (eds), *Climate Change and the Law* (Springer 2012); Rosemary Rayfuse and Shirley V. Scott (eds), *International Law in the Era of Climate Change* (Edward Elgar Publishing 2012); academic institutes such as the Center for Climate Change Law at Columbia Law School; and postgraduate programs such as the LLM in Climate Change and Energy Law and Policy at the University of Dundee; the LLM in Global Environment and Climate Change Law at the University of Edinburgh; and the LLM in Climate Change Law and Policy at the University of Strathclyde.

[24] Discussing this critique Chris Hilson, 'It's All About Climate Change, Stupid! Exploring the Relationship Between Environmental Law and Climate Law' (2013) 25 *J Envtl L* 359, 361.

[25] See infra, Section 4.1.

its regulation through law, and which in turn has repercussions for other legal regimes.[26]

But the specific difficulties hardly end there. Climate law is also faced with substantial methodological challenges, as a growing body of scholarly endeavour attests.[27] And it should perhaps come as no surprise that a phenomenon which has been designated a 'super-wicked problem'[28] renders it particularly demanding as an area of academic enquiry. Its adequate regulation calls for true interdisciplinarity, given that a proper understanding of the causes, impacts and solutions will necessarily require contributions from both the natural and social sciences. Geographically, climate change is perhaps the most transboundary of any environmental threat to date, and thus acquires relevance across horizontal jurisdictions and vertical regulatory planes. And finally, its pervasive scale requires involving a large number of public and private actors, diluting traditional categories of international law.

For lawyers, however, what may be the most troubling property of climate law is the gradual erosion of its formal legal nature in recent years. Numerous trends have converged to precipitate a trajectory that would, if left unchecked, result in a paradigmatic shift of the nature and meaning

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[26] Nowhere more so, perhaps, than in the substantial overlap with energy law and energy market regulation, which are being fundamentally affected by legal norms addressing climate change; the link between these two issue areas is so strong that energy and climate change have become integrated in many jurisdictions at the level of policymaking and administrative institutions. See, for instance, the integrated climate and energy policy of the European Union, first set out in European Commission, An Energy Policy for Europe, COM(2007) 1, and the Department of Energy and Climate Change (DECC) in the United Kingdom. See also Duncan French and Tawhida Ahmed, 'Situating Climate Change in (International) Law: A Triptych of Competing Narratives' in Stephen Farrall, Tawhida Ahmed and Duncan French (eds), *Criminological and Legal Consequences of Climate Change* (Hart 2012) 243.

[27] See, for instance, Cinnamon Piñon Carlarne, 'Exploring Methodological Challenges Within the Context of Climate Change Law and Policy' (2011) 105 *Am Soc'y Intl L Proc* 255; Duncan French and Lavanya Rajamani, 'Climate Change and International Environmental Law: Musings on a Journey to Somewhere' (2013) 25 *J Envt L* 437; Hilson (n. 24) 361.

[28] Climate change has been designated a 'super-wicked problem' because it is characterized by contingent definitions and understandings of the problem, vastly asymmetrical interests and capacities in identifying solutions, a virtually open-ended time horizon, and unprecedented scale and economic cost. See Kelly Levin and others, 'Overcoming the Tragedy of Super Wicked Problems: Constraining Our Future Selves to Ameliorate Global Climate Change' (2012) 45 *Policy Sciences* 123; and Richard Lazarus, 'Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future' (2009) 94 *Cornell L Rev* 1153.

of the climate regime. Informal bodies with limited membership and no negotiating mandate increasingly define the political agenda for international climate cooperation; regional or sectoral initiatives see greater support than multilateral action with universal participation; voluntary pledges progressively supplant binding commitments; private actors are involved in the determination of compliance; and the list continues. Each of these developments is occurring for a reason and may reflect the only viable option given current political and economic realities. Yet it is, at the same time, advisable to bear in mind the benefits afforded by law as a form of social order distinct from other norms, such as transparent and predictable procedures, clearly defined rights and duties, and avenues for dispute settlement and litigation. For all its drawbacks, the formality of international law has also been described as an important condition of its legitimacy.[29] In a policy arena populated by sovereign actors with vastly divergent interests and different economic and social capacities, the formal equality of even the weakest and most vulnerable state may come to represent the last vestige of civilization in an otherwise anarchic world.[30]

Before discussing these trends in more detail, the chapter first offers a more traditional look at international climate change law, by discussing the evolution of the UN climate change regime.

3. THE CLIMATE CHANGE CONVENTION AFTER TWO DECADES

Following new scientific insights indicating the scope of the challenge, as well as heightened media and political attention in the late 1980s,[31] negotiations on a multilateral climate change treaty started in the lead-up to the UN Conference on Environment and Development in Rio de Janeiro 1992. Yet the adoption of the UNFCCC in Rio was merely the start of the development of international climate change law.

The UNFCCC aims to achieve 'stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous

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[29] Martti Koskenniemi, *From Apology to Utopia; the Structure of International Legal Argument* (Lakimiesliiton Kustannus 1989) 431.

[30] David Kennedy, 'A New World Order: Yesterday, Today, Tomorrow' (1994) 4 *Transnat'l L & Contemp Probs* 1, 2 has described this function of international law as 'a quixotic effort to establish a public law alternative to the sovereign, a countervailing power, balance wheel, a safety valve'.

[31] Daniel M. Bodansky, 'The United Nations Framework Convention on Climate Change: A Commentary', (1993) 18 *Yale JIL* 451, 458–61.

anthropogenic interference with the climate system',[32] a goal that, as mentioned in the introduction, has been translated into avoiding temperature increases more than 2°C above pre-industrial levels. The Convention further introduces several 'principles',[33] including those of inter-generational and intra-generational equity, common but differentiated responsibilities and respective capabilities of developed and developing countries,[34] the need for a precautionary approach,[35] the right to sustainable development,[36] and the promotion of a supportive, open economic system.[37]

The UNFCCC has been widely ratified – including by all major emitters – and launched an ongoing international negotiation process. As a framework convention, the treaty contains broad principles and commitments, but it lacks the 'bite' in the sense of specific and time-bound emission limitation or reduction targets. Parties quickly realized this, and at the first COP in 1995 a mandate was adopted to negotiate 'a protocol or another legal instrument'.[38] The Kyoto Protocol established emission targets – albeit only for industrialized countries – and introduced three market-based flexibility mechanisms to assist countries in achieving cost-effective emission reductions: Joint Implementation,[39] the Clean Development Mechanism (CDM),[40] and international emissions trading.[41] The Protocol further put in place a compliance mechanism that combined the virtues of two schools of thought in compliance theory: through the Enforcement Branch of the Compliance Committee, it allows for penalties in case Kyoto Parties do not meet key obligations (reflecting the 'enforcement' school in compliance theory); and through its Facilitative Branch, it assists countries to return to compliance (corresponding to the 'managerial' school).[42]

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[32] UNFCCC (n. 10) art 2.
[33] Bodansky (n. 31) 501–2.
[34] UNFCCC (n. 10) art 3(1). See also infra Section 4.3.
[35] Ibid., art 3(3).
[36] Ibid., art 3(4).
[37] Ibid., art 3(5).
[38] UNFCCC, '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', UN Doc FCCC/CP/1995/7/Add.1 (6 June 1995) preamble.
[39] Kyoto Protocol (n. 11) art 6.
[40] Ibid., art 12.
[41] Ibid., art 17.
[42] A prime example of the 'enforcement' school is George W Downs, David M Rocke, and Peter N Barsoom, 'Is the Good News about Compliance Good News about Cooperation?' (1996) 50 *Intl Org* 379. A key contribution to the 'managerial' school is Abram Chayes and Antonia Handler Chayes, *The New Sovereignty: Compliance with International Regulatory Agreements* (HUP 1995). On compliance

Following a series of dramatic events – including the failed COP in The Hague in 2000 and the United States' withdrawal from the Protocol a year later – the ratification of the Protocol by Russia cleared the way for the Protocol's entry into force in February 2005.[43] In these years, the focus was primarily on implementation of the existing climate treaties, and the rulebook of the climate treaties expanded significantly.[44]

At the same time, attention increasingly shifted towards the future: what would need to be done when the Kyoto targets expire in 2012? In the 2007 Bali Action Plan, Parties agreed that a new climate agreement should be adopted at the fifteenth COP in Copenhagen in 2009. However, the Copenhagen summit, which was attended by an unprecedented number of participants, never managed to meet the high expectations.[45] The negotiation process was characterized by distrust between countries – aggravated by the Danish Presidency's circulation of a separate negotiation text – and the resulting Copenhagen Accord was only 'taken note of' by the COP, rather than adopted by consensus.[46]

Despite the setback in Copenhagen, Parties in Cancún a year later managed to restore hope in the UNFCCC process by adopting the Cancún Agreements.[47] While the Agreements lack the ambition and specificity to achieve meaningful greenhouse gas emission reductions,[48] they brought country emission reduction pledges made in the context of the Copenhagen Accord into the formal UNFCCC framework through a COP decision. Furthermore, they added details on MRV for mitigation commitments and actions for developed and developing countries; established a new funding mechanism (the Green Climate Fund) and a new Technology Mechanism; and incorporated an agreement on reducing

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in the climate regime generally, see Jutta Brunnée, 'The Kyoto Protocol: Testing Ground for Compliance Theories?' (2003) 63 *ZaöRV* 255; Sebastian Oberthür and Rene Lefeber, 'Holding Countries to Account: The Kyoto Protocol's Compliance System Revisited after Four Years of Experience' (2010) 1 *Climate L* 133; and Jutta Brunnée, Meinhard Doelle and Lavanya Rajamani (eds), *Promoting Compliance in an Evolving Climate Regime* (CUP 2012).

[43] Kyoto Protocol (n. 11) art 25(1).

[44] See Farhana Yamin and Joanna Depledge, *The International Climate Change Regime: A Guide to Rules, Institutions and Procedures* (CUP 2004).

[45] For some, these expectations can be said to have been unrealistically high. See Antto Vihma and Harro van Asselt, *Great Expectations: Understanding Why the Climate Talks Seem to Fail* (Finnish Institute of International Affairs 2012).

[46] UNFCCC, 'Decision 2/CP.15, Copenhagen Accord', UN Doc FCCC/CP/2009/11/Add.1 (30 March 2010) recital.

[47] Decision 1/CP.16 (n. 1).

[48] Joeri Rogelj and others, 'Copenhagen Pledges are Paltry' (2010) 464 *Nature* 1126, 1126.

emissions from deforestation and forest degradation (REDD+). The Cancún summit thus seemingly (re)affirmed the central importance of the UNFCCC process. At the very least, it showed its resilience.

The direction of the UNFCCC process remains open, but there are some clear signs.[49] Parties at the seventeenth COP in Durban in 2011 agreed to negotiate, by 2015, 'a protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties'[50] through the newly created Ad Hoc Working Group on the Durban Platform for Enhanced Action.[51] While this agreement will only 'come into effect and be implemented from 2020',[52] Parties also continue to negotiate options for enhancing mitigation ambition before 2020.

The negotiations on the 2015 agreement face several challenges: they require a balance between a 'top-down' and a 'bottom-up' approach to international climate policy;[53] they need to be flexible and dynamic enough to accommodate changes in scientific insights and socio-economic and political conditions, yet be predictable enough to ensure that the ultimate objective is not lost out of sight. Building on the current architecture of the international climate regime, a 2015 agreement will further need to, at the very least, address mitigation and adaptation commitments of Parties; access to finance, technology and capacity building; market and non-market instruments; as well as MRV and compliance control.[54]

4. TRENDS IN INTERNATIONAL COOPERATION ON CLIMATE CHANGE

To put the developments within the UN climate change in a broader perspective, this section presents an overview of six key trends in international cooperation on climate change. These trends both influence and are affected by developments in the climate regime, and are crucial for understanding the shifts in the wider architecture of international climate change law.

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[49] See generally Daniel Bodansky, *The Durban Platform: Issues and Options for a 2015 Agreement* (C2ES 2012).

[50] UNFCCC, 'Decision1/CP.17, Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action', UN Doc FCCC/CP/2011/9/Add.1 (15 March 2012) para 4.

[51] Ibid., para 2. For an analysis, see Lavanya Rajamani, 'The Durban Platform on Enhanced Action and the Future of the Climate Regime' (2012) 61 *ICLQ* 501.

[52] Decision 1/CP.17 (n. 50) para 4.

[53] See infra, Section 4.2.

[54] Erik Haites, Farhana Yamin and Niklas Höhne, 'Possible Elements of a 2015 Legal Agreement on Climate Change' (2014) 8 *Carbon & Climate LR* 3.

4.1 Institutional Fragmentation

The drivers of climate change, as well as its impacts across the world, are intrinsically linked to nearly all sectors of society. This simple fact reveals that it is difficult, if not impossible, for the legal regime established by the UNFCCC to govern climate change in clinical isolation. It is therefore not surprising that one of the major trends, particularly in the last decade, has been an increasing relevance of international institutions outside the UNFCCC and a certain degree of institutional fragmentation.[55]

Existing institutions have begun to acknowledge the interlinkages between their respective issue areas and the climate problem. This trend can most clearly be observed in other areas of international environmental law. For instance, the Montreal Protocol on ozone layer depletion has played an increasingly active role.[56] At first, this was linked to the fact that some ozone depleting substances are also powerful greenhouse gases, as is acknowledged also in the climate treaties. Later, however, the realization that substitutes used for ozone depleting substances were also important climate pollutants, led to increased activity by Parties to the Montreal Protocol, who adopted a decision in 2007 significantly accelerating the phase-out of the consumption and production of one of the substitutes, hydrochlorofluorocarbons (HCFCs).[57] A similar proposal for another major category of greenhouse gases, hydrofluorocarbons (HFCs), proved

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[55] There is a burgeoning literature on the subject. See, e.g., Biermann and others (n. 16); Keohane and Victor (n. 17); Rayfuse and Scott (n. 23); Harro van Asselt, Francesco Sindico and Michael A Mehling, 'Global Climate Change and the Fragmentation of International Law' (2008) 30 *L & Pol'y* 423; Camilla Bausch and Michael Mehling, *Addressing the Challenge of Global Climate Mitigation – An Assessment of Existing Venues and Institutions* (Friedrich-Ebert Stiftung 2011); Fariborz Zelli, 'The Fragmentation of the Global Climate Governance Architecture' (2011) 2 *WIREs Climate Change* 255; Margaret A Young, 'Climate Change Law and Regime Interaction' (2011) 4 *Carbon & Climate LR* 147; Remi Moncel and Harro van Asselt, 'All Hands on Deck! Mobilizing Climate Change Action beyond the UNFCCC' (2012) 21 *RECIEL* 163; Harro van Asselt, *The Fragmentation of Global Climate Governance: Consequences and Management of Regime Interactions* (Edward Elgar Publishing 2014).

[56] Protocol on Substances that Deplete the Ozone Layer (adopted 16 September 1987; entered into force 1 January 1989) 1522 UNTS 3 (Montreal Protocol). See Sebastian Oberthür, 'Linkages between the Montreal and Kyoto Protocols: Enhancing Synergies between Protecting the Ozone Layer and the Global Climate' (2003) 1 *Intl Envtl Agreements: Polit, L & Economics* 357.

[57] Montreal Protocol, 'Decision XIX/6, Adjustments to the Montreal Protocol with Regard to Annex C, Group I, Substances (Hydrochlorofluorocarbons)', UN Doc UNEP/OzL.Pro.19/7 (21 September 2007).

to be more contentious, and remains under discussion.[58] Parties to the Convention on Biological Diversity[59] have also become increasingly aware of the interlinkages with the climate regime, and have adopted a series of decisions tackling biodiversity-related aspects of climate change, such as REDD+ and climate engineering.[60]

The scope of the climate problem has not been limited to international environmental agreements, however. Climate change considerations now feature in legal regimes as diverse as international trade law;[61] human rights law;[62] the law of the sea;[63] refugee law;[64] and even the law of outer space.[65]

This dense complex of institutions gives rise to new questions and challenges. First, what are the consequences of the increasingly complex mosaic of overlapping institutions? While opportunities may arise for an 'all-hands-on-deck' approach to combating climate change, with each institution fulfilling a different task, the multitude of institutions may also lead to mixed signals to state and nonstate actors, and even normative conflicts or forum shopping in the event of disputes.[66] An often

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[58] Sebastian Oberthür, Claire Dupont and Yasuko Matsumoto, 'Managing Policy Contradictions Between the Montreal and Kyoto Protocols: The Case of Fluorinated Greenhouse Gases' in Sebastian Oberthür and Olav S. Stokke (eds), *Managing Institutional Complexity* (MIT Press 2011) 115, 128–9; Durwood Zaelke, Stephen O. Andersen and Nathan Borgford-Parnell, 'Strengthening Ambition for Climate Mitigation: The Role of the Montreal Protocol in Reducing Short-lived Climate Pollutants' (2012) 21 *RECIEL* 231, 240–42.

[59] United Nations Convention on Biological Diversity (adopted 5 June 1992; entered into force 29 December 1992) 1760 UNTS 79 (CBD).

[60] See, e.g., CBD, 'Decision X/33, Biodiversity and Climate Change', UN Doc UNEP/CBD/COP/10/27 (20 January 2011). See also Elisa Morgera, 'Far Away, So Close: A Legal Analysis of the Increasing Interactions between the Convention on Biological Diversity and Climate Change Law' (2011) 2 *Climate L* 85; and Harro van Asselt, 'Managing the Fragmentation of International Environmental Law: Forests at the Intersection of the Climate and Biodiversity Regimes' (2012) 44 *NYUJILP* 1205.

[61] See, e.g., Ludivine Tamiotti and others, *Trade and Climate Change* (World Trade Organization Secretariat 2009); Tracy Epps and Andrew Green, *Reconciling Trade and Climate* (Edward Elgar Publishing 2010).

[62] See, e.g., Stephen Humphreys (ed.), *Human Rights and Climate Change* (CUP 2009).

[63] See, e.g., Rosemary Rayfuse, 'Climate Change and the Law of the Sea' in Rayfuse and Scott (n. 23) 147.

[64] See, e.g., Jane McAdam, *Climate Change, Forced Migration, and International Law* (OUP 2012).

[65] Francis Lyall, 'Climate Change and Space Law' in Rayfuse and Scott (n. 23) 175.

[66] Moncel and van Asselt (n. 55). On normative conflicts in general, see International Law Commission, 'Fragmentation of International Law: Difficulties

highlighted example in this regard is the adoption of trade measures informed by climate change concerns, which may lead to contradictions with world trade law.[67] Second, given the inevitability of institutional fragmentation, is there a need to reconsider the role of the UNFCCC in international climate change law? The diversity of international institutions suggests a need for coordination to avoid duplication of efforts and enhance synergies. The question is whether the UNFCCC should be the proverbial spider in the web, or whether it should leave certain issue areas to other institutions.

4.2 The Softening of Commitments

The Kyoto Protocol put in place legally binding targets and timelines, combined with a compliance mechanism to ensure that these targets and timelines are met. The Protocol has often been portrayed as a 'top-down' model for the legal architectural design of the climate change regime; a model that continues to be supported by a range of developing country Parties, the European Union, and many NGOs. This model has been contrasted to a 'bottom-up' model that favours a voluntary pledge-and-review approach to international climate policy, where national circumstances determine what a country signs up to. Proponents of this approach include countries, such as the United States, which are unwilling or unable to commit to binding targets for various reasons, including domestic realities or their position on other issues under negotiation, such as the instance or absence of commitments adopted by other Parties.[68] The climate change regime has witnessed a gradual shift towards such a bottom-up approach, particularly evidenced by the Copenhagen Accord and the Cancún Agreements, in which Parties agreed to a voluntary pledging process coordinated through the UNFCCC secretariat. The lack of a shared vision over the approach to the legal architecture has been characterized as the overarching disagreement in the run-up to the Copenhagen summit,[69] and remains a germane challenge for the 2015 agreement.

Arising from the Diversification and Expansion of International Law. Report of the Study Group of the International Law Commission', UN Doc A/CN.4/L.682 (13 April 2006).

[67] Ludivine Tamiotti and others (n. 61).

[68] See infra, Section 4.3.

[69] Navroz K. Dubash and Lavanya Rajamani, 'Beyond Copenhagen: Next Steps' (2010) 10 *Climate Pol'y* 593; Harro van Asselt and Fariborz Zelli, 'Connect the Dots: Managing the Fragmentation of Global Climate Governance' (2014) 16 *Envtl Economics & Policy Studies* 137.

While bottom-up and top-down approaches have often been regarded as distinct alternatives with unique implications, it is evident that this distinction is not black and white, that there are strengths and weaknesses to both approaches, and that there is much to be gained by combining aspects of both. Where a top-down approach tackles the collective action challenge that climate change encompasses by demanding collective bargaining and solving the free-rider problem,[70] a bottom-up approach appeals to a logic that addressing climate change effectively requires incentivizing local action to attain domestic goals, and that this is a more tangible political challenge than constructing institutions at the global level.[71] On closer inspection, the Kyoto Protocol also contains bottom-up elements, as its targets were not imposed by any kind of global authority, but were rather subject to bargaining and horse-trading among nations. Conversely, the Cancún Agreements, while based on national pledges, still put in place a process of 'international assessment and review' for developed countries and 'international consultation and analysis' for developing countries.[72] Yet while the top-down/bottom-up dichotomy as such is a false one, the balance is increasingly shifting towards nationally determined commitments combined with a more facilitative system of review. This was emphasized once again at the nineteenth COP in Warsaw, where Parties agreed to submit 'intended nationally determined contributions' (rather than 'commitments') in the context of a 2015 agreement.[73]

This softening of commitments raises questions on how the international regime can best guide and incentivize domestic action.[74] One important element in this regard will be the procedures in place for MRV of national commitments. Under the current regime, various procedures are already in place, with Parties being required to regularly report on their domestic situations through National Communications,[75] biennial reports,[76] inventories and other reports. While this type of regular

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[70] For a strong argument in favour of a top-down approach, see Hare and others (n. 14).

[71] See generally Rayner (n. 9).

[72] Decision 1/CP.16 (n. 1) paras 46 and 63.

[73] UNFCCC, 'Decision 1/CP.19, Further Advancing the Durban Platform', UN Doc FCCC/CP/2013/10/Add.1 (31 January 2014) para 2(b).

[74] See generally Xinyuan Dai, 'Global Regime and National Change' (2010) 10 *Climate Pol'y* 622.

[75] The frequency and content requirements for reporting depend on a Party's status under the Convention. See UNFCCC (n. 10), arts 4(1) and 12.

[76] In Durban, Parties agreed on guidelines for biennial reports for developed country Parties, and guidelines for biennial update reports for developing country Parties. UNFCCC, 'Decision 2/CP.17, Outcome of the Work of the Ad

reporting ensures that national governments put information into the public domain, it does not in itself ensure that action is taken at the national level. Others have therefore proposed a 'portfolio' approach to combine bottom-up and top-down models.[77] Under such an approach, Kyoto Parties could continue to operate under the Protocol, with other countries designing home-grown policies to achieve globally agreed benchmarks (e.g. for emissions reductions), and least-developed countries (LDCs) pursuing a purely bottom-up approach based on national actions. Ultimately, theory must meet practice, and a compelling argument for finding the middle ground between top-down and bottom-up is the need to ensure that the national actions, in aggregate, achieve internationally agreed goals. This highlights the importance of a review process that ensures that national pledges add up.[78]

Intrinsically linked to the discussion of the overall legal architecture is the question of legal form. International environmental law in general, and international climate change law in particular, 'undermines the common assumption that hard law is inevitably more effective than soft law'.[79] Although founded upon two treaties – quintessential 'hard' law – the legal development of the climate regime has been largely determined by a wide range of COP decisions, whose legal nature is less straightforward.[80] Important milestones in the development of the climate regime, such as the Bali Action Plan and the Cancún Agreements, have taken the shape of 'soft' law instruments. Furthermore, the legal form of the 2015 agreement, as noted above, still remains to be decided. This arguably signifies a shift from hard to soft law. However, while the soft law instruments may not be

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Hoc Working Group on Long-term Cooperative Action under the Convention' UN Doc FCCC/CP/2011/9/Add.1 (15 March 2012) paras 12–22 and 39–44, respectively.

[77] Dubash and Rajamani (n. 69) 596.

[78] The review process in the lead-up to the 2015 agreement has not yet been specified. However, national contributions submitted for review need to be presented 'in a manner that facilitates [their] clarity, transparency and understanding', Decision 1/CP.19 (n. 73) para 2(b). For an overview of options on designing such a review process in practice, see Jennifer Morgan and others, *A Pathway to a Climate Change Agreement in 2015: Options for Setting and Reviewing GHG Emission Reduction Offers* (WRI 2013).

[79] Stephen Toope, 'Formality and Informality' in Daniel Bodansky, Jutta Brunnée and Ellen Hey (eds), *The Oxford Handbook of International Environmental Law* (OUP 2007) 107, 108, cited in French and Rajamani (n. 27) 444.

[80] See generally Jutta Brunnée, 'COPing with Consent: Law Making under Multilateral Environmental Agreements' (2002) 15 *LJIL* 1; Annecoos Wiersema, 'The New International Law-makers? Conferences of the Parties to Multilateral Environmental Agreements' (2009) 31 *Mich JIL* 231.

considered 'law', they nevertheless may have legal effects.[81] For instance, decisions on the functioning of Kyoto's flexibility mechanisms have been of crucial importance for the functioning of national and regional carbon markets; and the decision launching negotiations on the Kyoto Protocol played an important part in foreshadowing the final agreement.[82] Conversely, provisions in the climate treaties are not always sufficiently precise and unambiguous.[83] In other words, while the move towards soft law instruments seems undeniable, this does not mean in itself that the legal effects of the climate regime are diminishing.

4.3 The Changing Nature of Differentiation

The principle of common but differentiated responsibilities and respective capabilities lies at the heart of the international legal regime on climate change. The principle incorporates a compromise between developing and developed countries that allowed them to agree on the UNFCCC, but diverging interpretations of the principle continue to influence the ongoing negotiations. Developing countries have consistently argued that developed countries are the main culprits responsible for climate change. As such, the argument goes, developing countries should be exempted from key commitments in the climate treaties, and receive technological, financial and capacity-building support. Conversely, developed countries have framed the principle by arguing that their level of economic development and capacity to address the climate problem gives them a moral responsibility to aid developing countries.[84]

The operationalization of the principle is most pronounced in the climate treaties' Annex system, which roughly distinguishes between developed (Annex I/B) countries and developing (non-Annex I/B) countries. Both the UNFCCC and Kyoto Protocol introduce commitments that apply to all countries, but add specific commitments for Annex I/B countries. Notably, non-Annex B countries do not have any emission reduction commitments under the Kyoto Protocol.

Two decades later, it is not surprising that national circumstances – and

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[81] Cf Joost Pauwelyn, 'Is it International Law or Not, and Does it Even Matter?' in Joost Pauwelyn, Ramses Wessel and Jan Wouters (eds), *Informal International Lawmaking* (OUP 2012) 125, 127–30.

[82] French and Rajamani (n. 27) 444–6.

[83] Ibid., 446. See generally Antto Vihma, 'Analyzing Soft Law and Hard Law in Climate Change' in Hollo, Kulovesi and Mehling (n. 23) 143.

[84] Lavanya Rajamani, *Differential Treatment in International Environmental Law* (OUP 2006) 86.

the differences between individual countries – have changed. In 1992, the largest CO_2 emitter was the United States; in 2013, it was China, whose emissions are still rapidly growing.[85] Also in terms of economic development, the situation is no longer the same. Non-Annex B countries like Singapore and South Korea have reached levels of economic development that surpass some Annex B countries like the Czech Republic,[86] yet they are still in the same group of countries as some LDCs. These developments have led to calls by developed countries, supported by some small island states and LDCs, for abandoning the distinctions introduced by the Annexes of the climate treaties. Such calls have met with fierce resistance from several developing countries, particularly China and India, who have insisted that the 'firewall' of the Annexes needs to be maintained, arguing that the situation for developing and developed countries remains different notwithstanding the aforesaid growth trends.

These diverging views came sharply into focus during the negotiations on a follow-up agreement to the Kyoto Protocol in the mid-2000s. A first departure from the 'firewall' approach to differentiation was agreed in the 2007 Bali Action Plan, which called for 'nationally appropriate mitigation commitments or actions' by developed country Parties (rather than referring to Annex I/B countries) and 'nationally appropriate mitigation actions' for developing country Parties (rather than referring to non-Annex I/B countries).[87] This trend continued with the agreements reached at COPs in Copenhagen, Cancún, and Durban. Notably, the decision launching the Durban Platform on a future climate agreement specifies that such an agreement will be 'applicable to all Parties'.[88]

More importantly, further differentiation is already quite common in the climate regime.[89] The UNFCCC, for instance, refers to the 'special

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[85] John Vidal and David Adam, 'China Overtakes US as World's Biggest CO_2 Emitter' (*The Guardian*, 19 June 2007) <http://www.theguardian.com/environment/2007/jun/19/china.usnews> accessed 13 February 2014.

[86] World Bank, 'World Development Indicators 2013' <http://wdi.worldbank.org/> accessed 13 February 2014. The Republic of Korea's per capita gross national income in 2012 was US$20,870; that of the Czech Republic was US$18,720.

[87] UNFCCC, 'Decision 1/CP.13, Bali Action Plan', UN Doc FCCC/CP/2007/6/Add.1 (14 March 2008) paras 1(b)(i) and (ii). For a critique, see Lavanya Rajamani, 'From Berlin to Bali and Beyond: Killing Kyoto Softly?' (2008) 57 *ICLQ* 909.

[88] Decision 1/CP.17 (n. 50) para 2.

[89] See, e.g., Joost Pauwelyn, 'The End of Differential Treatment for Developing Countries? Lessons from the Trade and Climate Change Regimes' (2003) 22 *RECIEL* 29; and Jutta Brunnée and Charlotte Streck, 'The UNFCCC as a

situations of the least developed countries';[90] to 'economies that are vulnerable to the adverse effects of the implementation of measures to respond to climate change';[91] to countries 'undergoing the process of transition to a market economy';[92] and to the special needs and circumstances of a range of different countries, including 'small island countries', 'countries with low-lying coastal areas', fossil-fuel producing countries, etc.[93] Differentiation can also be observed in specific issue areas. In the CDM, initiatives have sought to promote the 'equitable distribution' of CDM projects, for instance through capacity-building initiatives in sub-Saharan Africa[94] and a loan scheme for countries with fewer than ten projects.[95] Likewise, over the years a differentiated approach to climate finance has been followed. The Cancún Agreements, for example, stipulate that 'funding for adaptation will be prioritized for the most vulnerable developing countries, such as the least developed countries, small island developing States and Africa'.[96]

It remains to be seen whether this issue-specific trend towards further differentiation will spread to other (contested) issue areas, such as the distribution of emission reduction commitments. Furthermore, it will be interesting to see to what extent Parties are willing to make underlying criteria for further differentiation explicit, thereby allowing for a possible system of 'graduation'.[97] Finally, it should be acknowledged that the trend towards more differentiation entails certain risks. Particularly, it could facilitate 'divide-and-rule' strategies by developed countries in the

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Negotiating Forum: Towards Common but More Differentiated Responsibilities' (2013) 13 *Climate Pol'y* 589.

[90] UNFCCC (n. 10) art 4(9).

[91] Ibid., art 4(10).

[92] Ibid., art 4(6).

[93] Ibid., art 4(8)(i).

[94] See <http://cdm.unfccc.int/Nairobi_Framework/index.html> accessed 13 February 2014.

[95] UNFCCC, 'Decision 3/CMP.6, Further Guidance Relating to the Clean Development Mechanism', UN Doc FCCC/KP/CMP/2010/12/Add.2 (15 March 2011) para 64 and Annex III. On differentiation in the CDM, see Harro van Asselt and others, 'Differentiation in the CDM: Options and Challenges for Reform' in Michael Mehling, Amy Merrill and Karl Upston-Hooper (eds), *Improving the Clean Development Mechanism: Options and Challenges Post-2012* (Lexxion 2011) 27.

[96] Decision 1/CP.16 (n. 1) para 95.

[97] See, e.g., Joyeeta Gupta, 'Engaging Developing Countries in Climate Change: (KISS and Make-Up!)' in David Michel (ed.), *Climate Policy for the 21st Century: Meeting the Long-Term Challenge of Global Warming* (Johns Hopkins U Press 2003) 233.

negotiations, although such strategies could conceivably be countered by building issue-specific coalitions.[98] Further differentiation could arguably also lead to a 'race to the bottom', where the flexibility offered by further differentiation allows countries to lower their ambition unless there is a common sense of urgency.[99] While the trend towards further differentiation thus embraces the idea that equals should be treated equally, and unequals unequally, the underlying reasons for the introduction of the Annex system should not be forgotten.

4.4 The Rise of Innovative Policy Instruments

As mentioned in previous sections, climate change gives rise to challenges that are both qualitatively and quantitatively on a different scale than traditional environmental concerns. Addressing the causes and impacts of climate change through policy intervention will, therefore, have widespread economic consequences. Many climate policies have beneficial spill-over effects, such as improved resource efficiency, innovation and employment in growth industries, reduced health impacts, and decreased import dependence;[100] over time, moreover, the social cost of action is generally expected to be lower than the impacts of unabated climate change.[101] Yet in the near term, constraining greenhouse gas emissions or improving resilience against climate impacts can divert resources and capital away from the production of conventional goods and services, potentially impacting economic growth. Averting the threats posed by climate change will require unprecedented levels of investment into mitigation and adaptation efforts, rising over time as readily available abatement options are exhausted and more costly solutions need to be explored.[102] In

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[98] Pauwelyn (n. 89) 39.

[99] Ibid., 40.

[100] PricewaterhouseCoopers, *Decarbonisation and the Economy: An Empirical Analysis of the Economic Impact of Energy and Climate Change Policies in Denmark, Sweden, Germany, UK and the Netherlands* (PwC 2013) 4.

[101] Nicholas Stern, *The Economics of Climate Change: The Stern Review* (CUP 2006) 63, 191. Over the longer term, policy efforts are considered vital to limit the staggering social and environmental cost of climate change; see World Bank, *Turn Down the Heat: Why a 4°C Warmer World Must be Avoided* (World Bank 2012).

[102] Achieving the 2°C target and avoiding the worst impacts of climate change, for instance, is predicted to require mobilization of investments in sustainable technologies on the order of US$1 trillion annually until 2050; see Mark Fulton and Reid Capalino, *Investing in the Clean Trillion: Closing the Clean Energy Investment Gap* (Ceres 2014). Likewise, adapting to climate change will cost US$70–100 billion per year between 2010 and 2050 in developing countries alone,

the ensuing transformation of our economies, established production and consumption patterns may be disrupted and existing capital assets, such as infrastructure, patent rights or natural resources, may lose value or become wholly obsolete.[103]

Economic implications of this magnitude resonate strongly at the political level, where potential impacts of climate policies on vulnerable industries and disadvantaged social groups commonly dominate the public discourse. Attention has usually focused on the manufacturing sector and, in particular, producers of carbon-intensive goods. Because they may be reluctant or unable to pass through cost increases in international markets, the burden of carbon constraints may render them vulnerable to competition from manufacturers facing fewer or no abatement obligations. Uneven policy efforts are seen as potential contributors to competitive distortions and, by extension, to adverse effects such as relocation of economic activity, loss of employment, and 'leakage' of greenhouse gas emissions to jurisdictions with weaker standards.[104]

In the context of climate change, therefore, both the rationale of policy instruments and the manner in which they are implemented have been sensitive to economic concerns, prompting widespread exploration of suasive forms of governance alongside more coercive regulatory prescriptions.[105] The use of pricing instruments for climate policy is representative of this trend. Described as 'the logical foundation' of any mitigation regime,[106] these instruments seek to internalize the social cost of carbon by adding an explicit or implicit price to emitting activities,[107] yet afford flexibility for emission reductions to occur where they yield the greatest social net

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assuming warming of 2°C by 2050; see World Bank, *Economics of Adaptation to Climate Change: Synthesis Report* (World Bank 2010).

[103] See, e.g., Carbon Tracker, *Unburnable Carbon 2013: Wasted Capital and Stranded Assets* (Carbon Tracker 2013).

[104] Joseph E. Aldy and William A. Pizer, *The Competitiveness Impacts of Climate Change Policies* (Duke University 2012).

[105] Conventional regulation has been criticized for belonging to an 'extraordinarily crude, costly, litigious and counterproductive system of technology-based environmental controls'; see Bruce Ackerman and Richard B. Stewart, 'Reforming Environmental Law' (1985) 37 *Stan L Rev* 1333. This has given rise to calls for innovative approaches that 'improve the command system through better balancing of regulatory costs and benefits, improved risk analysis and management and greater flexibility'; see Richard B. Stewart, 'A New Generation of Environmental Regulation?' (2001) 30 *Cap U L Rev* 21.

[106] Stern (n. 101) 308; World Economic Forum, *Green Investing: Towards a Clean Energy Infrastructure* (WEF 2009) 39.

[107] Organisation for Economic Co-operation and Development, *Climate and Carbon: Aligning Prices and Policies* (OECD 2013) 9.

benefits.[108] An explicit price on carbon can be implemented through pricing controls, such as taxes and charges, as well as through quantity rationing, where tradable carbon units confer the right to discharge a specified amount of greenhouse gases and can be sold or purchased on the carbon market.[109] At the domestic level, both approaches to carbon pricing have seen a surge in recent years, with pricing initiatives implemented or scheduled in countries emitting nearly a quarter of global emissions.[110]

In different forms, pricing approaches have been commonplace in municipal environmental law for many decades. On the international stage, however, the use of such instruments breaks with a traditional reliance on clearly defined state obligations set out in customary law or an international treaty, subject to the binary categories of compliance or violation.[111] Already mentioned earlier in this chapter,[112] the inclusion of flexibility mechanisms in the Kyoto Protocol created a market for project-based offset credits that was worth in excess of US$30 billion annually[113] at its peak and engendered a vibrant new sector of carbon market service providers and facilitators. In a noteworthy departure from the orthodoxy of international law, it thereby afforded nonstate actors a critical role in the operation of the climate regime, be it as domestic compliance entities, project developers, or verifiers.[114]

It has also rendered the determination of compliance a far more involved process, necessitating an account of emissions and mitigation efforts as well as tracking of carbon unit transfers and cancellations. Determining whether a state is in compliance with its international obligations can thus become a logistical and accounting question as much as it is a legal challenge. Traditional international lawyers may view this evolution of commitments with concern. From the perspective of climate mitigation, however, any policy instrument that promises substantial cost savings

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[108] Joseph E. Aldy and Robert N. Stavins, 'The Promise and Problems of Pricing Carbon: Theory and Experience' (2012) 21 *J Envt & Dev* 152.

[109] Tom Tietenberg, *Emissions Trading: Principles and Practice* (RFF Press 2006).

[110] World Bank, *Mapping Carbon Pricing Initiatives: Developments and Prospects 2013* (World Bank 2013) 77.

[111] Martti Koskenniemi, 'Breach of Treaty or Non-Compliance: Reflections on the Enforcement of the Montreal Protocol' (1992) 3 *Yb Intl Envtl L* 123.

[112] See supra, Section 3.

[113] Karan Capoor and Philippe Ambrosi, *State and Trends of the Carbon Market 2009* (World Bank 2009) 1, calculating the value of the primary CDM market at US$ 6,519 million, the JI market at US$ 294 million, and the secondary CDM market at US$26,277 million in 2008.

[114] See also infra, Section 4.6.

offers the opportunity to enter more stringent abatement commitments;[115] conversely, more ambitious commitments are also key to the continued functioning of the international carbon market, which – not unlike major domestic markets – has seen an imbalance of supply and demand erode prices and market activity.[116] As the international community considers new instruments for the climate regime beyond 2020,[117] their success going forward is thus inherently dependent on, and also a potential condition for, significantly deeper mitigation efforts.

4.5 Increasing Climate Change Litigation

The broad definition presented in Section 2 suggests that the scope of climate change law is in the eye of the beholder. Climate change litigation as a concept is similarly broad and varied. It can encompass anything from a claimant appealing to a court to enforce existing climate laws to which the defendant is legally bound, to a claimant challenging the validity of a climate law.[118] Typologies and definitional analyses have been explored in the legal literature, presenting a range of understandings. For some, climate change litigation is limited to cases where a party of the judgment 'directly and expressly raise[s] an issue or fact of law' on climate change.[119] Others only regard a case to be part of climate change litigation if climate change issues are made part of the final ruling. Yet others consider whether climate change was a primary motivation of the litigant in initiating the case.[120] Irrespective of the definition adopted, it is clear that as climate law

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[115] Studies have estimated the savings in abatement cost from use of emissions trading at between 50 and 70 per cent; see Jonathan B. Wiener, 'Borrowing Something for Something Blue: Legal Transplants and the Evolution of Global Environmental Law' (2001) 27 *Ecology LQ* 1327; and Mark Lazarowicz, *Global Carbon Trading: A Framework for Reducing Emissions* (Office of Climate Change 2009).

[116] Alexandre Kossoy and others, *Mapping Carbon Pricing Initiatives: Developments and Prospects* (World Bank 2013) 20.

[117] Kati Kulovesi, 'Negotiations on the New Market Mechanism and the Framework for Various Approaches: What Future Role for the UNFCCC in Regulating the Carbon Market' (2012) 6 *Carbon & Climate LR* 336.

[118] See 'Climate Change Litigation – A Rising Tide?' <http://cdkn.org/2012/05/postcard-from-london-rising-tide-of-climate-change-litigation/> accessed 13 February 2014.

[119] David Markell and JB Ruhl, 'An Empirical Survey of Climate Change Litigation in the United States' (2010) 40 *Envtl L Rep* 10644, 10647.

[120] A more complete summary of typologies of climate change litigation can be found in Lisa Vanhala and Chris Hilson, 'Climate Change Litigation: Symposium Introduction' (2013) 35 *L & Pol'y* 141, 144; see also Navraj Singh Ghaleigh, '"Six

matures both internationally and nationally, climate litigation is becoming increasingly common in both international and national courts. This has resulted in a variety of cases that have been brought against governments, corporations and individuals. The trend towards more climate change litigation can be attributed to slow progress under the UNFCCC and in domestic climate change policy: in the absence of effective and timely climate governance, concerned actors seek alternative venues to mobilize climate action. In other words, internationally and nationally, courts are being invoked to fill a governance gap.[121]

While climate change litigation has been initiated under various auspices, including human rights law,[122] access to information,[123] biodiversity protection,[124] and environmental impact assessment,[125] a significant proportion of international climate litigation has fallen under the functioning and enforcement of schemes to reduce and trade greenhouse gas emissions. This type of climate litigation – looking specifically to courts to play a role in determining how emissions should be regulated – has also increasingly been the focus of legal analysis on litigation.[126] Unsurprisingly, at the national level the litigation-eager United States has historically led the way in the trend of using litigation. In *Massachusetts v EPA*,[127] a landmark case brought by several US states and cities against the Environmental Protection Agency (EPA), the US Supreme Court ruled that CO_2 and other greenhouse gases qualify as pollutants under the Clean Air Act and must

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Honest Serving-men": Climate Change Litigation as Legal Mobilization and the Utility of Typologies' (2010) 1 *Climate L* 31.

[121] See Vanhala and Hilson (n. 120) 142; and Joyeeta Gupta, 'Legal Steps Outside the Climate Convention: Litigation as a Tool to Address Climate Change' (2007) 16 *RECIEL* 76.

[122] See, e.g., Inuit Circumpolar Conference Petition to the Inter American Commission on Human Rights Seeking Relief from Violations Resulting from Global Warming Caused by Acts and Omissions of the United States (7 December 2005) <http://www.inuitcircumpolar.com/files/uploads/icc-files/FINALPetitionICC.pdf> accessed 13 February 2014.

[123] See, e.g., European Court of Justice, Case C-204/09, *Flachglas Torgau GmbH v Federal Republic of Germany*, [2012] OJ C98/2.

[124] In the 2000s, several petitions were submitted to the World Heritage Committee, highlighting climate impacts on important natural areas, such as Sagarmatha National Park in Nepal. The petitions can be found at <http://www.climatelaw.org/cases/country/intl> accessed 13 February 2014.

[125] See, e.g., *Federal Court of Canada, Pembina Institute for Appropriate Development, et al v Attorney General of Canada and Imperial Oil*, [2008] 2008 FC 302.

[126] Vanhala and Hilson (n. 120) 141–9.

[127] *Massachusetts v Environmental Protection Agency*, [2007] 549 US 497.

therefore be regulated by the EPA. In Europe, a range of cases related to the European emissions trading system have similarly been brought before national courts and the Court of Justice of the EU, on issues ranging from national and sectoral emissions allocations, to challenging the inclusion of non-EU airlines in the EU's emissions trading system.[128]

Climate litigation has also expanded, albeit in a limited fashion, under the Kyoto Protocol. While Kyoto is often upheld as a model legally binding treaty with enforcement capabilities, in practice Kyoto's compliance mechanism has proven limited. Most cases brought before the Compliance Committee established in 2001 concerned issues of procedural compliance.[129] In one illustrative case, Greece was found to fall short of its monitoring and reporting obligations, and was barred from participating in Kyoto's flexibility mechanisms (a primary sanction under the Protocol), until it returned to compliance with its obligations.[130] However, at the end of the first compliance period of the Kyoto Protocol, the compliance procedures have proven relatively ineffective in ensuring compliance with the substantive obligations of the treaty (i.e. the emission reduction targets). Notably, they fail to capture Parties that did not comply under the first commitment period and then decided to abandon the Protocol, as has been the case with Canada. Litigation for compliance with the Kyoto Protocol also took place at the national level: when Canada withdrew from the Kyoto Protocol, judicial review was sought (but denied) in Federal Court.[131]

The longer-term impacts of climate change litigation, notably its influence (or lack thereof) on climate change law- and policymaking remain to be seen. Scholars are starting to come to grips with the impacts not only on climate change regulation but also on changed corporate and individual behaviour.[132] If climate change litigation is indeed being used to fill

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[128] For a discussion of litigation related to the EU emissions trading system, see Sanja Bogojević, 'EU Climate Change Litigation, the Role of the European Courts, and the Importance of Legal Culture' (2013) 35 *L & Pol'y* 184. For a detailed overview of climate litigation, see Columbia Law School Center for Climate Change's 'Climate Litigation Charts' <http://web.law.columbia.edu/climate-change/resources> accessed 13 February 2014.

[129] See generally Oberthür and Lefeber (n. 40).

[130] See 'Question of Implementation – Greece', CC-2007-1/Greece/EB <https://unfccc.int/kyoto_protocol/compliance/enforcement_branch/items/5455.php> accessed 13 February 2014.

[131] *Federal Court of Canada, Turp v Canada*, [2012] 2012 FC 893.

[132] See, e.g., Jacqueline Peel and Hari M Osofsky, 'Climate Change Litigation's Regulatory Pathways: A Comparative Analysis of the United States and Australia' (2013) 35 *L & Pol'y* 144.

a governance gap,[133] it is likely that the trend towards more, and perhaps also more innovative, climate litigation will continue into the foreseeable future. It is further probable that climate litigation will expand to other areas, with a potential example being compensation for climate damage, or loss caused by climate change impacts.[134]

4.6 From Public International Law to Transnational Governance

From the inception of the international climate change regime, nonstate actors such as industries and NGOs have played a significant role in international climate change law, both in the normative development of the regime and in the implementation phase.[135] Increasingly, however, attention can be drawn to a range of autonomous nonstate initiatives in the area of climate governance that do not neatly fall in the realm of public international law.

Examples of climate governance 'beyond the state' abound. Cities have become particularly active in the fight against climate change,[136] as exemplified by the C40 initiative – a global network of city governments seeking to exert leadership on reducing emissions and building resilience locally. Other relevant initiatives include actions to hold corporations to account for their carbon footprints, either through self-regulation (e.g. the Carbon Disclosure Project) or through scrutiny by civil society organizations such as Greenpeace.[137] Moreover, private actors that are specifically affected by climate change, such as the insurance industry, have started to respond to the risks posed by climate change by taking measures independently.[138] Another category consists of the wide variety of regulated and voluntary

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[133] Vanhala and Hilson (n. 120) 142.

[134] See Elena Kosolapova, *Interstate Liability for Climate Change-Related Damage* (Eleven 2013).

[135] See, e.g., Chiara Giorgetti, 'From Rio to Kyoto: A Study of the Involvement of Non-governmental Organizations in the Negotiations on Climate Change' (1999) 7 *NYU Envtl LJ* 201; Lars H. Gulbrandsen and Steinar Andresen, 'NGO Influence in the implementation of the Kyoto Protocol: Compliance, Flexibility Mechanisms and Sinks' (2004) 4 *Global Envtl Pol* 54; and Eric Dannenmaier, 'The Role of Non-state Actors in Climate Compliance' in Brunnée, Doelle and Rajamani (n. 42) 149.

[136] See, e.g., Harriet Bulkeley, 'Cities and the Governing of Climate Change' (2010) 35 *Annual Rev Envt and Resources* 229.

[137] Philipp Pattberg and Johannes Stripple, 'Beyond the Public and Private Divide: Remapping Transnational Climate Governance in the 21st Century' (2008) 8 *Intl Envtl Agreements: Polit, L & Economics* 367, 382–4.

[138] See, e.g., Sverker Jagers and Johannes Stripple, 'Climate Governance beyond the State' (2003) 9 *Global Governance* 385.

carbon markets that have been established especially after the adoption of the Kyoto Protocol.[139] Lastly, various public-private partnerships were launched in the mid-2000s, focusing on the development and diffusion of low-carbon technologies.[140]

There are myriad reasons for the creation of these new forms of climate governance, including systemic factors such as the general shift from government to governance,[141] developments in international climate policy (e.g. the entry into force of the Kyoto Protocol, and the US' non-ratification of the treaty), as well as specific factors such as profit-making or an enhanced sense of urgency.[142]

An important feature of various initiatives outside the UNFCCC is their transnational nature, meaning that such initiatives cross national boundaries and jurisdictions.[143] The growth in transnational climate governance arrangements is remarkable, especially when contrasted with the stagnation of intergovernmental arrangements since the 2000s.[144] Yet lawyers have been hesitant to engage with transnational governance. This can in part be explained by a general unease with the idea that norms can emerge without (or through weaker forms of) state consent.[145] Such attitudes seem to be changing though: for instance, international lawyers have started to acknowledge that international

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[139] Steven Bernstein and others, 'A Tale of Two Copenhagens: Carbon Markets and Climate Governance' (2011) 39 *Millennium* 161.

[140] Heleen de Coninck and others, 'International Technology-Oriented Agreements to Address Climate Change' (2008) 36 *Energy Pol'y* 335.

[141] See, e.g., Kees van Kersbergen and Frans van Waarden, '"Governance" as a Bridge between Disciplines' (2004) 43 *Eur J Political Research* 143.

[142] Matthew J. Hoffmann, *Climate Governance at the Crossroads* (OUP 2011) 64–71.

[143] See generally Pattberg and Stripple (n. 137); Liliana B. Andonova, Michele M. Betsill and Harriet Bulkeley, 'Transnational Climate Governance' (2009) 9 *Global Envtl Pol* 52; Kenneth W. Abbott, 'The Transnational Regime Complex for Climate Change' (2012) 30 *Envt & Planning C* 571; Harriet Bulkeley and others, 'Governing Climate Change Transnationally: Assessing the Evidence from a Database of Sixty Initiatives' (2012) 30 *Envt & Planning C* 591.

[144] Kenneth W. Abbott, Jessica F. Green and Robert O. Keohane, 'Organizational Ecology and Organizational Strategies in World Politics' (2013) 20–21 <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2293678&download=yes> accessed 13 February 2014.

[145] See also Nico Krisch, 'The Decay of Consent: International Law in an Age of Global Public Goods' (2014), 108 *AJIL* 1–40. Normative development in international organizations has already set a precedent in this regard. See, e.g., Robin R. Churchill and Geir Ulfstein 'Autonomous Institutional Arrangements in Multilateral Environmental Agreements: A Little-Noticed Phenomenon in International Law' (2000) 94 *AJIL* 623; Brunnée (n. 80); Wiersema (n. 80).

law may well emanate from sources other than the state or international organizations.[146]

Still, not all transnational climate governance arrangements are likely to be considered transnational climate regulation (let alone 'law'), simply because the functions they fulfil are not jurisgenerative. The main functions of several transnational initiatives include agenda setting, information sharing, networking, capacity building, and financing[147] as opposed to target setting, rule making, or other activities that could be regarded as norm production. A key area where rule making beyond the state does take place is the carbon market. The creation of regulatory and voluntary markets for trading emission credits has led to the emergence of new arrangements that seek to govern these markets. For instance, voluntary carbon offset standards such as the Voluntary Carbon Standard and the Gold Standard have been created to ensure some level of oversight of the voluntary – as well as some regulatory – markets in the absence of regulatory bodies.[148] While rule making also takes place in other initiatives (e.g. accounting standards; voluntary business commitments), the majority of rule-making activity in transnational climate governance takes place in relation to the carbon market.[149]

Although this form of rule making has generally been welcomed as a way of 'greening' carbon markets,[150] it also highlights new challenges. For instance, private actors may develop rules on the emission reductions of offsetting projects, projects' wider (sustainability) impacts, or both. The approach ultimately adopted will affect which projects will receive a standard, which may subsequently be reflected in the price of resulting credits on the carbon market. More generally, the rise of transnational climate regulation raises questions about who sets the rules, based on what authority, and with what effects; questions pointing to issues of accountability. Although various notions of accountability exist,[151] the term generally refers to the idea that those bestowed with power need to take responsibility for their actions. Various questions can be raised under this heading:

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[146] See the various contributions in Pauwelyn, Wessel and Wouters (n. 81).

[147] Abbott (n. 143) 579–80; Bulkeley and others (n. 143) 595–6.

[148] Anja Kollmuss, Helge Zink and Clifford Polycarp, *Making Sense of the Voluntary Carbon Market: A Comparison of Carbon Offset Standards* (WWF 2008); Heather Lovell, 'Governing the Carbon Offset Market' (2010) 1 *WIREs Climate Change* 353.

[149] Abbott (n. 143) 579.

[150] See James Salzman and William Boyd, 'The Curious Case of Greening in Carbon Markets' (2011) 41 *Envtl L* 73.

[151] Jonathan G.S. Koppell, *World Rule: Accountability, Legitimacy, and the Design of Global Governance* (U Chicago Press 2010).

who should be held accountable, to whom should they be accountable; for what exactly; and using which standards?[152] Importantly, it should be noted that there is not one type of accountability and that there may be tradeoffs between the different types (e.g. a private business actor involved in climate governance may find it difficult to be accountable both to its shareholders and to public authorities).[153] Legal administrative standards and good governance principles could be used to discipline transnational regulatory power.[154] Inspiration in this regard can be sought by looking at ongoing research projects on global administrative law[155] and on the 'exercise of international public authority'.[156] Under these headings, scholars have sought to identify ways to address a possible accountability deficit.

In addition to accountability issues, the rise of transnational climate governance also raises questions about the relationship between such initiatives and 'traditional' lawmaking and regulation. For instance, it has been suggested that in the area of tackling emissions from deforestation, nonstate governance arrangements can work to support international negotiations.[157] More generally, 'orchestration' of transnational governance arrangements by intergovernmental organizations has been raised as a prospective strategy to ensure that the various initiatives work in concert.[158] Questions remain, however, regarding the feasibility of these proposals and, more importantly, the identification of the conditions under which informal and formal approaches could further each other's objectives.

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[152] Tim Corthaut and others, 'Operationalizing Accountability in Respect of Informal International Lawmaking Mechanisms', in Pauwelyn, Wessel and Wouters (n. 81) 310.

[153] Cf Koppell (n. 151) 55–66. For an example in the biofuels sector, see Seita Romppanen, 'The Role and Relevance of Private Actors in EU Biofuel Governance' (2013) 22 *RECIEL* 340, 348–50.

[154] Veerle Heyvaert, 'What's in a Name? The Covenant of Mayors as Transnational Environmental Regulation' (2013) 22 *RECIEL* 78, 87–9.

[155] See, e.g., Benedict Kingsbury, Nico Krisch and Richard Stewart, 'The Emergence of Global Administrative Law' (2005) 68 *L & Contemp Probs* 15.

[156] Armin von Bogdandy and others (eds), *The Exercise of Public Authority by International Institutions: Advancing International Institutional Law* (Springer 2010).

[157] Andrew Long, 'Global Climate Governance to Enhance Biodiversity and Well-Being: Integrating Non-State Networks and Public International Law in Tropical Forests' (2011) 41 *Envtl L* 95.

[158] Abbott (n. 143) 587–8; see also T. Hale and Charles Roger, 'Orchestration and Transnational Climate Governance' (2014) 9 *Rev Intl Organizations* 1, 59–82; Kenneth W. Abbott, 'Strengthening the Transnational Regime Complex for Climate Change' (2014) 3 *Transnat'l Envtl L* 1, 57–88; and van Asselt and Zelli (n. 69).

5. CONCLUSION

This chapter has described an international climate regime that is in existential flux; born out of the lofty aspirations of classical multilateralism, the formal treaty architecture which engendered the original framework of international climate cooperation has given way to a far more complex, less clear-cut governance architecture, where limited membership bodies and formal and informal clubs operate alongside the established UNFCCC structures, and voluntary pledges, nonstate actors and flexible policy instruments supplant or complement traditional treaty obligations. Some international lawyers will observe these trends with a sense of unease, as they put to question some of the central purposes and *raisons d'être* of a legally vested international regime, such as the importance of state consent, clear accountability mechanisms, transparency, and enforceable obligations.

Yet to the extent that global aspirations to avoid dangerous climate change remain unachieved, it is likely that we will continue to see a diverse array of governance approaches emerging. Indeed, perhaps the sheer scale, cost and complexity of climate change have made the current assemblage an inevitable necessity. Furthermore, given the urgency of the climate challenge, arriving at practical solutions should arguably take precedence over formal preoccupations. The fact that climate change now permeates collective and individual decision-making processes in ways that were difficult to conceive two decades ago could be seen as an important sign that international climate change law is, at long last, maturing.