The Climate Change Regime

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The Climate Change Regime

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Summary and Keywords

In 1992, when the international community agreed on the United Nations Framework Convention on Climate Change (UNFCCC), the science of climate change was under development, global greenhouse gas (GHG) emissions were by and large produced by developed countries, and the concentrations of CO_2 in the atmosphere had just surpassed 350 ppm. Some 25 years later, climate change is scientifically uncontested, China has overtaken the United States as the world's biggest emitter of CO_2, and concentrations are now measured above 400 ppm. Against this background, states have successfully concluded a new global agreement under the UNFCCC, the 2015 Paris Agreement. Prior to the Paris Agreement, the climate regime focused on allocating emission reduction commitments among (a group of) countries. However, the new agreement has turned the climate regime on its feet by introducing an approach based on Nationally Determined Contributions (NDCs). Under this approach, states decide their ambition levels independently instead of engaging in negotiations about "who does what." The result is a more flexible system that for the first time includes all countries in the quest to reduce GHG emissions to keep temperature increase below 2°C compared to preindustrial levels. Moreover, the international climate regime has transformed into a regime complex, denoting the broad activities of smaller groups of states as well as non-party actors, such as cities, regions, companies, and non-governmental organizations along with United Nations agencies.

Keywords: climate change, mitigation, adaptation, UNFCCC, international regime, transnational climate governance, institutional fragmentation

Introduction

The global climate regime, including the norms, rules, and decision-making procedures that guide the behavior of actors in this policy field, has undergone a remarkable transformation over the last decade. In the early years after its inception in 1992, the United Nations Framework Convention on Climate Change (UNFCCC) functioned as a top-down mechanism through which economy-wide emissions reduction targets (made legally binding in the 1997 Kyoto Protocol) have been agreed among participating countries. A clear distinction was made between countries that had a responsibility to act based on their historic emissions (annex-1 countries) and those that did not have such responsibility (the developing countries, referred to as non-annex 1). This "firewall" between the rich and poor countries was based on the principle of common but differentiated responsibility and respective capabilities (CBDR-RC), enshrined in Article 3 of the UNFCCC. It essentially means that developed countries should take on more ambitious mitigation targets than developing countries and support the latter by providing finances and technology to facilitate low-carbon development. However, rapid industrialization among large developing countries such as China and Brazil alters the context in which the CBDR-RC was negotiated in the early 1990s. This, in turn, has catalyzed changes in the UNFCCC as developed countries demand more climate action by developing countries. The Paris Agreement (PA)—ratified and entered into force in 2015 and 2016, respectively—marked a watershed moment in the history of global climate governance by formalizing a new institutional architecture built on voluntary contributions by countries to reduce greenhouse gas emissions and adapt to climate change. Each country decides on its individual contribution based on national capacity, priorities, and development needs. This "bottom-up" approach is different from the earlier "top-down" approach manifested in the Kyoto Protocol in that it includes all countries into mitigation actions instead of just the developed world (for a discussion on the "top-down" vs "bottom-up" terminology, see Dubash & Rajamani, 2010).[1]

A brief look at the annual CO_2 emissions of the United States, European Union (EU), and China over the period 1992–2015 can help to explain the shift in global climate governance (see Figure 1). In 1992, global CO_2 emissions from fossil fuel use and industry processes totaled 22.7 billion metric tons (PBL, 2016).[2] The United States was the world's largest emitter with 5 billion tons, slightly more than the EU and twice that of China. By 1997, the year of the successful negotiation of the Kyoto Protocol that aimed to reduce GHG emissions by developed countries by some 5.2% below the 1990 baseline, China had already increased its emissions to 3.4 billion tons. At the time of the 2009 Copenhagen summit, China had become the world's largest emitter (8.2 billion tons), while both the United States and the EU had reduced their fossil fuel–based emissions (to 5.2 and 3.8 billion tons, respectively). The mitigation challenge had thus shifted from being a problem produced by developed countries to one being co-produced by a number of fast-growing developing countries such as China and India. This dynamic, driven by an expanding economic globalization, questioned the logic of universally agreed-upon emissions

reductions negotiated among countries. Countries that did not significantly contribute to climate change historically would have to decrease their emissions substantially. Countries that historically contributed significantly to climate change, on the other hand, did not have a sufficiently large share in global emissions to guarantee that the 2°C target would be met. Simply put, what was necessary in terms of mitigation was not fair to developing countries, and what was fair would not be sufficient to solve the problem. This deadlock, further enhanced by the CBDR-RC principle, effectively prohibited any real progress in the negotiations for quite some time.

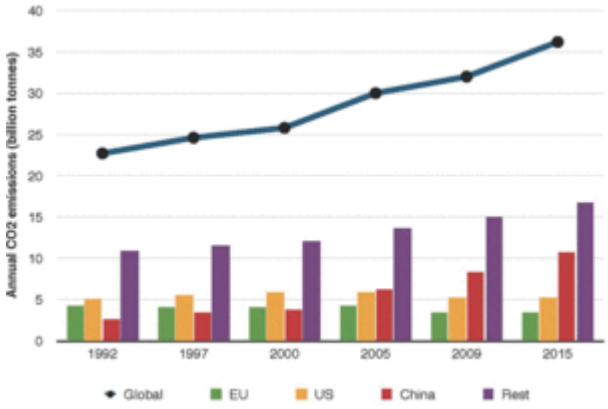

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Figure 1. Annual CO_2 Emissions (author's calculations based on PBL 2016).

The change that eventually led to the 2015 Paris Agreement emerged, ironically, after the disastrous 15th meeting of the parties to the UNFCCC (COP15) in Copenhagen. It was here that a group of states suggested for the first time to use a new system, termed "pledge-and-review," in which individual countries would offer mitigation targets based on national feasibility. The Paris Agreement cemented this transformative shift in global climate governance. What is more, the climate regime has expanded beyond the UNFCCC by engaging more actors, including smaller, club-like groups of states such as G20; hybrid constellations including states and non-party actors (e.g., companies, cities, regions, and non-governmental organizations [NGOs]); and purely private initiatives. How this "transnational sphere" of climate action will interact with the UNFCCC remains unclear, but it could generate another transformative shift for the climate regime (Chan et al., 2015). Some observers talk about a move from a "climate regime" to a "climate regime complex" to describe the loosely coupled set of institutions that govern climate change globally (Keohane & Victor, 2011).

This article explores the transformation of the international climate regime into a regime complex, covering three broad themes: (1) the UNFCCC's institutional setup (including the Kyoto Protocol and the Paris Agreement); (2) major issue areas and topics of the negotiations; and (3) climate governance beyond the UNFCCC (fragmentation, climate clubs, and the transnational regime complex). Its purpose is to provide a broad introduction to the emerging global climate governance system, including key analytical themes and readings.

The Foundations of the Global Climate Change Regime

The existing multilateral effort to mitigate greenhouse gas (GHG) emissions and adapt to climate change is organized around the UNFCCC. Two treaties have been negotiated under the UNFCCC, namely the Kyoto Protocol and the Paris Agreement. Together, the UNFCCC, the Kyoto Protocol, and the Paris Agreement form the foundations of the global climate change regime. The coming sections outline (1) the background to the UNFCCC, the Kyoto Protocol, and the Paris Agreement; (2) the institutional bodies of the regime; (3) a number of important issue areas, including reporting, emission trading, finance, technology transfer, REDD+, and compliance; (4) the negotiation groups under the UNFCCC; and (5) a brief assessment of the performance of the climate regime.

The UNFCCC

The seeds for a global agreement on climate change were planted in the late 1970s when scientists concluded that “climate change is a serious threat to mankind” (Vellinga, 2015, p. 350). During the 1980s, several scientific and political meetings contributed to framing climate change as a problem requiring a global solution (Gupta, 2010). It prompted the UN’s General Assembly to establish an Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (INC) in December 1990, tasked with negotiating a convention with “appropriate commitments” (Bodansky, 1993). After an intense 2-year negotiation period, the UNFCCC was adopted in June 1992 in conjunction to the Earth Summit in Rio de Janeiro and entered into force in March 1994.

The UNFCCC’s primary objective is to stabilize greenhouse gas concentrations in the atmosphere “at a level that would prevent dangerous anthropogenic interference with the climate system” (UNFCCC, 1992). The treaty itself contains no set targets for GHG emissions reduction by individual countries, no provisions for how to reduce GHG emissions, and no enforcement or compliance mechanisms. It is thus a legally non-binding treaty (Vellinga, 2015, p. 350). The UNFCCC outlines different roles and obligations for the parties. Since industrialized nations have emitted more GHGs over time than developing countries, the UNFCCC differentiates between countries in terms of historical responsibility and vulnerability to adverse effects of climate change. The different treatment of countries is stipulated in the principle of “Common but Differentiated Responsibilities and Respective Capabilities” (CBDR-RC). The CBDR-RC requires industrialized countries to take the lead in mitigating climate change and assist developing countries with financial and technological resources for fulfilling the goals of the regime. The Convention operationalizes the CBDR-RC by dividing countries into three annexes: Annex 1 comprises developed countries and countries in transition; Annex 2 includes 24 OECD member-countries from Annex 1; and Non-Annex 1 lists developing

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countries. In particular, Annex 2 countries are obliged to provide additional resources toward climate action in developing countries. Moreover, technical and administrative issues such as reporting frameworks also recognize the different capabilities of countries.

The language of the Convention is vaguely formulated, and details were left to be hammered out in subsequent treaties (sometimes called “Protocols”). The UNFCCC is thus a “framework-protocol” type of multilateral environmental agreement (MEA) “designed to postpone difficult negotiating issues, but to keep at them” (Brunnée, 2002, p. 8). Protocols and treaties negotiated within the UNFCCC add detail to the regime, such as GHG emission reductions or decarbonization timelines, and divide large difficult problems into more manageable subparts (Brunnée, 2002). Moreover, the UNFCCC’s key decision-making body, the Conference of the Parties (COP), comprising all Parties to the Convention, adds even more rules to the regime by reviewing current implementation and making new administrative and institutional arrangements. The COP decisions thus form an important part of the rule-development of the climate regime, often taking defining decisions for the development of the UNFCCC. These decisions are traditionally named after the location of the COP. For instance, COP1 decided in the Berlin Mandate on more ambitious goals than agreed to in Rio and called for legally binding standards emission levels; COP7 decided on the Marrakech Accords, which detailed operating rules for the Kyoto Protocol’s flexible mechanisms (see next section), as well as rules on compliance mechanisms and accounting guidelines (Gupta, 2010); COP13 agreed on the Bali Roadmap, which included the Bali Action Plan setting out the negotiation tracks to decide on a post-2012 climate regime replacing the then-current Kyoto Protocol; at COP17 the Durban Platform was created to negotiate a post-2020 climate regime; and, at COP21, the Paris Agreement was adopted, staking out the future of the UNFCCC.

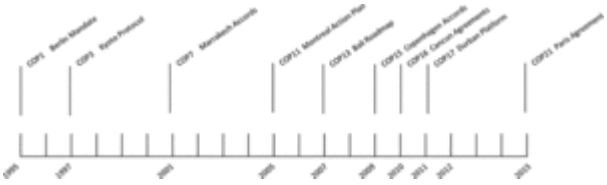

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Figure 2. UNFCCC COP Timeline.

The UNFCCC negotiations have not always been an easy ride, and the COPs failed twice to reach a decision. First, the talks broke down during COP6 in the Hague in November 2000, partly due to a rift between the United States and the EU (Grubb & Yamin, 2001). The negotiations were suspended and continued in 2001, leading to the “Bonn Agreement” in July 2001 and the “Marrakesh Accords” at COP7. Then, negotiators failed during COP15 in Copenhagen in 2009 to craft a formal outcome, resulting in the Copenhagen Accords negotiated by some 28 countries. In hindsight, COP15 became a defining moment in the history of the regime, moving away from the design elements in the Kyoto Protocol. It also revealed the major turn in the “axis of the negotiations” from United States–EU to developed–developing countries (Bodansky, 2010, p. 232). The breakdowns of both COP6 and COP15 attracted swaths of criticism directed at the institutional design of the regime (see, e.g., Falkner, Stephan, & Vogler, 2010; Victor, 2004). Despite the two major crises of the UNFCCC talks since 1992, the regime has proven

remarkably resilient, enjoying continued near-universal support. As of June 2017, 197 Parties have joined the UNFCCC, of which 196 are countries and one a regional economic cooperation organization, the European Union.

The Kyoto Protocol

The Kyoto Protocol became the first treaty negotiated under the UNFCCC, establishing internationally binding GHG emission reduction targets and timetables for countries. Adopted in 1997 in Kyoto, Japan, the Protocol called upon developed countries to reduce their GHG emissions by roughly 5% during the period 2008 to 2012 and provided a set of market-based mechanisms to ensure cost-efficient mitigation. It entered into force in 2005, prompting the first meeting of Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP), which is the governing body of the Protocol.

Under the Kyoto Protocol, only Annex 1 countries, i.e., developed countries and countries in transition, had individual emission reduction targets ranging from −8% to +10%, listed in Annex B of the Protocol (Yamin & Depledge, 2004, p. 25). To reach their targets, the Kyoto Protocol formalized a market-based approach to implement the UNFCCC's goal. The centerpiece of the approach was to be a carbon market where GHG emission allowances could be traded. This commodification of GHGs was intended to internalize the cost of climate change into the price of other commodities by putting a "price on carbon." The Kyoto Protocol introduced three mechanisms for creating a carbon market: International Emission Trading (IET), the Clean Development Mechanism (CDM), and Joint Implementation (JI). IET was based on the idea that countries with mitigation commitments (Annex B Parties) would be allowed to buy and sell emission allowances depending on their allowed targets. To enable trading, emissions commitments were divided into Assigned Amount Units (AAUs) to function as a commodity. The CDM made it possible for countries with a commitment to receive Certified Emission Reduction (CER) credits if they invested in emission-reducing projects in developing countries. JI allowed Annex 1 Parties to receive Emission Reduction Units (ERUs) for investing in emission-reducing projects in other Annex 1 Party countries. The mechanisms were expected to provide flexibility for countries to reach their Kyoto targets while transferring technology and know-how to developing countries. Intricate systems of monitoring, reporting, and verification were developed, and, only for the CDM, over 7,700 projects have been registered as of June 2017. Following up on the first commitment period under the Kyoto Protocol (2008–2012), the Doha Amendment to the Kyoto Protocol was adopted in 2012, stipulating new commitments for 2013 and 2020. That said, the attempt to establish a truly global carbon market has by and large failed, and important countries such as Russia, New Zealand, and Japan have refrained from renewing their Kyoto Protocol commitments.

The institutional design of the Kyoto Protocol embodied an approach to global climate governance that relied on what Falkner and colleagues term a "global strategy … predicated on the idea of negotiating a comprehensive, universal and legally binding treaty that prescribes, in a top-down fashion, generally applicable policies based on previously agreed principles" (2010, p. 253). Given the lack of tangible performance in reducing GHG emissions globally, however, the global strategy came under increasing scrutiny. The Kyoto Protocol's design did not deliver the desired effects, partly due to a

rapidly changing world in terms of energy production and consumption. In 2006, China overtook the United States as the world's largest GHG emitter, and similar trends were visible in other large developing countries such as India. At the same time, EU and U.S. emissions remained stagnant and even decreased. Consequently, the context under which the Kyoto Protocol was negotiated changed dramatically, leading to a stalemate in the UNFCCC. A breakdown in the negotiations during COP15 in 2009 highlighted the troubled situation the UNFCCC was in (Bodansky, 2010). Observers called for a new and more dynamic approach that would allow countries to be more flexible in their commitments, adapting the institution to a changing world (e.g., Falkner et al., 2010; Rayner, 2010; Victor, 2011). The next sections describe how these debates resulted in a new landmark treaty under the UNFCCC—The Paris Agreement—that embodies a fundamentally different institutional design compared to the Kyoto Protocol, characterized by more flexibility and context-specific solutions.

The Paris Agreement

The Paris Agreement was adopted by the UNFCCC on December 12, 2015, at COP21 in Paris, following years of protracted negotiations, and was immediately heralded as a historic moment for global cooperation to combat climate change (Keohane & Oppenheimer, 2016; Rajamani, 2016). The Paris Agreement rests on two pillars. First, it requires the commitment of the international community to reduce emissions to keep global temperature increase well below 2°C above pre-industrial levels while pursuing efforts to limit it to 1.5°C. Parties agreed to reach global peaking of greenhouse gas emissions as soon as possible and to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of the 21st century (§2). Second, the Paris Agreement introduced the mechanism of Nationally Determined Contributions (NDCs) to achieve the temperature goal. NDCs are national action plans in which countries communicate their GHG reduction goals and associated instruments. Under Article 4 of the Paris Agreement, Parties have decided on guidelines for drafting the NDCs. For instance, NDCs should reflect each Party's "highest possible ambition" (§4.2); developed countries should take the lead "by undertaking economy-wide absolute emission reduction targets" (§4.4) in the spirit of the CBDR-RC; they should be clear and transparent (§4.8); and they should take into account existing methods and guidance under the UNFCCC (§4.14). All NDCs will be recorded in a public registry maintained by the UNFCCC Secretariat (Article 4.12). Besides these very general guidelines, the NDCs provide signatories with considerable leeway in mitigation commitment levels and measures for implementation. The NDCs are to be designed in accordance with national circumstances and tailor them to suit domestic constituencies.

Under what has been dubbed the "ratcheting mechanism," the NDCs are supposed to be renewed and submitted in cycles of five years, aiming to improve country pledges and increase ambition over time. The first cycle started before COP21 when countries submitted their first NDCs. By 2020, those countries with a 2025 timeline in their target

are to submit a second round of pledges, and those with a 2030 timelines are to communicate or update their pledge. By 2025, all countries are to submit a third round of NDCs. To assess the collective progress toward achieving the long-term goals of the Paris Agreement, a “facilitative dialogue” will be held in 2018. This is meant to help countries understand where they are vis-à-vis the global long-term targets (peak emissions as soon as possible and achieve net zero emissions by second half of century) and determine if and what additional action that is needed. Thereafter, cycles of global assessments called “stocktakes” will take place before the second round of NDCs on mitigation, adaptation, and finance and then continue every five years from 2023 onward. The outcomes of the stocktakes are intended to be accommodated by the next round of NDCs, thereby continuously increasing the ambition levels in the global regime.

The introduction of NDCs constitutes a departure from the Kyoto Protocol’s model of establishing global emission reduction pathways, distributing targets among the Parties along with clear timetables toward a “bottom-up” structure where countries are free to set their own targets. The final sections of this article elaborate further on the merits of the new system. The next section describes the main institutional bodies governing the UNFCCC, the Kyoto Protocol, and the Paris Agreement.

Institutional Bodies

The UNFCCC’s main decision body is the COP, which also serves as a meeting to the Parties to the Kyoto Protocol (CMP) and the meeting of the Parties to the Paris Agreement (CMA). The CMP and the CMA oversee the implementation of the two treaties, and UNFCCC Parties that have decided not to join the Kyoto Protocol and/or the Paris Agreement participate as observers. Under the COP, CMP, and CMA, over 25 years of negotiations have created a dense web of bodies and working groups[3] for governing the different elements of the global climate regime. A simple overview of the institutional system of bodies and other working groups is provided in Figure 3.

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Figure 3. UNFCCC Organigram

(*Source*: UNFCCC, 2017, http://unfccc.int/bodies/items/6241.php).

The coming sections describe some of the most important bodies, including the bureau and the permanent subsidiary bodies, the ad hoc working group, and the secretariat. Some of the other bodies are mentioned in subsequent sections describing various issue areas discussed under the UNFCCC.

The Bureau and the Permanent Subsidiary Bodies

Presiding over each COP is the president, who is a member of the bureau consisting of 11 people; one president, seven vice-presidents, a rapporteur, and two chairs of the subsidiary bodies (see next paragraph), chosen at the start of each session (Yamin & Depledge, 2004). The COP president plays an important role in trying to forge a consensus among the Parties. The other bureau members support the president in his or her tasks and deal with procedural issues during the COP.

Two open-ended subsidiary bodies have been established to support the COPs. The Subsidiary Body for Scientific and Technological Advice (SBSTA) meets at least twice a year and assists the COPs on matters of science and technology, as well as methodological development of guidelines for national emission inventories and communications. The Subsidiary Body for Implementation (SBI) supports the COPs monitoring the progress of the Convention, taking on monitoring, reviewing, and verifying (MRV) functions, as well as advising on budgetary and administrative issues. The two bodies generally meet back to back and work together on cross-cutting issues.

Ad Hoc Working Groups

The COPs regularly establish ad hoc working groups to discuss current issues or processes. For example, the first CMP created an Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP) to discuss future commitments for industrialized countries under the Kyoto Protocol. The Bali Action Plan, decided upon at COP13, held in Bali in 2007, established the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention (AWG-LCA), aiming to support the discussions for a post-2012 climate regime, to be presented at COP15 in Copenhagen in 2009. After finishing their objectives, both the AWG-KP and the AWG-LCA were terminated in 2012. More recently, the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP), also called the “Durban Platform,” was established at COP17 in Durban, to support the COPs’ work toward the Paris Agreement. Also, the decision of COP21 (1/CP.21) established an Ad Hoc Working Group on the Paris Agreement (APA) responsible for preparing for entry of force of the Paris Agreement. APA is thus an important venue for negotiating the implementation of the Paris Agreement in the short term, including highly technical issues such as accounting standards, the shape of the NDCs, guidelines for transparency, and preparing for the global stocktakes. Ad hoc working groups are generally dissolved once they have fulfilled their purpose.

The Secretariat

Daily management of the UNFCCC, the Kyoto Protocol, and the Paris Agreement is carried out by the Secretariat. Based in Bonn, Germany, it has about 500 staff members and supports the UNFCCC in technical, institutional, and administrative matters. A central task for the Secretariat is to act as an information hub for the climate regime by collecting, storing, and analyzing information provided by the Parties to the Convention (Busch, 2009). Another important task is to organize, facilitate, and coordinate the negotiations and interim meetings by the bodies of the UNFCCC (Busch, 2009).

Issue Areas

The evolution of the climate regime has resulted in a broader range of issues than originally envisaged by its creators. Issues such as adaptation and forestry, for instance, have come to play central parts in the negotiations only during the latter half of the regime's existence. The following paragraphs describe a selection of issues covered by the UNFCCC, including reporting, finance, technology transfer, adaptation, REDD+, and compliance.

Reporting

Comparable data on progress to reduce GHG emissions are key to implementing the UNFCCC. Hence, establishing national GHG emission inventories, using comparable methodologies, became one of the first tasks for signatories to the Convention. Reporting requirements were differentiated between the developed and developing nations, a practice that continues to this day. A reporting regime has been established where Annex 1 parties are to report GHG inventories annually providing updates on seven GHGs (carbon dioxide (CO_2), methane [CH_4], nitrous dioxide [N_2O], perfluorocarbons [PFCs], hydrofluorocarbons [HFCs], sulfur hexafluoride [SF6], and nitrogen trifluoride [NF3]) from six sectors (energy; industrial processes and product use; agriculture; land use, land-use change and forestry (LULUCF); and, waste). They are to follow guidelines provided by the IPCC and a common reporting format. Annex 1 countries must also submit national communications on their relevant policies and measures (PAMs) every fourth year and, since COP16, submit biennial reports outlining their climate actions. Non-annex 1 countries are also obliged to report on GHG emissions, but with more narrow coverage, and encouraged to use common guidelines and reporting formats. While they also are obliged to provide information in national communications and biennial reports on actions taken toward implementing the Convention, the reporting requirements are significantly more relaxed than those for developed countries (Ellis & Moarif, 2015).

In the Paris Agreement, the Parties agreed to develop a "transparency framework" intended to enhance the existing reporting regime (§13). Under Article 13, Parties have to regularly provide: a national greenhouse gas inventory, prepared using methodologies approved by the Intergovernmental Panel on Climate Change (IPCC) and agreed by the CMA; and information necessary to track progress made in implementing and achieving

its mitigation NDC. Developing countries will receive support to implement transparency measures. The adopting decision establishes a Capacity-building Initiative for Transparency to meet the enhanced transparency requirements of the Paris Agreement.

Emission Trading

A centerpiece of implementing the climate regime has been to create a carbon market where GHG emission allowances could be traded (see section on the "KYOTO PROTOCOL"). The Paris Agreement alters the premises for a global carbon market as it lacks binding global targets that lend themselves to market-based approaches (Mansell, 2016). A radically different approach for creating a global carbon market would thus be needed compared to the Kyoto Protocol. Article 6 under the Paris Agreement alludes to market-based approaches by recognizing "voluntary cooperation in the implementation of their nationally determined contributions" and the use of "internationally transferred mitigation outcomes" (ITMOs) that could bear similarities to the Kyoto Mechanisms. Also, many NDCs express interest in carbon market mechanisms for reaching their targets, and the International Carbon Markets Partnership has identified 19 different Emission Trading Schemes (ETSs) in place in 2017 (ICAP, 2017). These represent a great variety in form, scope, and function. The negotiation process has yet to establish if and how countries can use ITMOs; how they would relate to existing ETSs; how to establish an accounting system across ETSs that accounts for overlaps and ensures environmental integrity; and how many countries will join such a system.

Climate Finance

Article 4.3 in the UNFCCC stipulates that developed countries should transfer financial resources to assist developing countries combating climate change. In the Copenhagen Accord from 2009 developed countries pledged to mobilize $100 billion annually by 2020 toward climate action. Delivering climate finance, however, has created an intricate web of institutions and mechanisms. From the outset, the Global Environmental Facility (GEF) serves as the financial mechanism to the Convention. The GEF, consisting of 18 implementing partners including the large development banks, is guided by COP decisions through a Memorandum of Understanding on how to spend its resources. The relationship between the GEF and the UNFCCC has not been problem-free, which is mirrored in the proliferation of climate finance instruments over the past decade (Nakhooda, 2012). Consider, for instance, the decision at COP16 in Cancun to establish the Green Climate Fund (GCF) as the main instrument for delivering on the Copenhagen pledge. Despite the proliferation of delivery mechanisms, climate finance remains an area of contestation. Central points for discussion are the “additionality” requirement, which stipulates that funds have to be additional to Official Development Assistance (ODA), and whether to report only funds coming from public money or to include finance leveraged from the private sector. Connected to these debates are the mechanisms for sourcing climate finance, which can be roughly divided into non-market and market-based approaches (Jakob, Steckel, Flachsland, & Baumstark, 2015). Non-market approaches consist of direct transfers of funds to public or private actors from developed to developing countries. Market-based approaches introduce an emission-trading element that could potentially leverage funding from private actors toward climate action. Finally, it is uncertain what should be counted as climate finance. In 2015, the Climate Policy Initiative (CPI) estimated global climate finance flow to be $391 billion, of which nearly 60% came from private sources (Buchner, Trabacchi, Mazza, Abramskiehn, & Wang, 2015). At the same time, the Green Climate Fund’s “Pledge Tracker” reported that $10.3 billion had been raised, equaling 2.6% of CPI’s estimate and only 10% of the goal set in the Copenhagen Accord, thereby revealing the difficulty in estimating whether the financing goal is being met.

The Paris Agreement reaffirms UNFCCC’s article 4.3 by calling on developed countries to provide finance to developing countries to assist them with mitigation and adaptation efforts and establishes an obligation for developed countries to report their public financial contributions to developing countries in a detailed manner every two years. Developing countries are invited to make voluntarily contributions. The adopting decision states that the existing collective mobilization goal ($100 billion per annum by 2020) will continue until 2025. The CMA is authorized to set a new quantified goal with $100 billion as a floor prior to 2025 (§53).

Technology Transfer

The UNFCCC and the Kyoto Protocol require cooperation between Parties to promote transfer of technologies “pertinent to climate change” (UNFCCC Articles 4.1(c), 4.3, and 4.5 and KP Article 10 (g)) (Yamin & Depledge, 2004). A framework for technology transfer was created in the Marrakech Accords consisting of five themes: technology needs assessment, enabling environments, technology information, capacity building, and mechanisms for technology transfer. It was meant to create a country-driven process and involve multiple stakeholders at national and sector levels (Yamin & Depledge, 2004). Technology transfer encompasses more than the physical components of technology by including know-how and learning, R&D, capacity building, financing mechanisms, and macroeconomic policies enabling uptake of low-carbon technologies, primarily in developing countries. Under the Kyoto Protocol, the Clean Development Mechanism (CDM) has been credited with providing ancillary benefits in terms of technology transfer (De Coninck, Fischer, Newell, & Ueno, 2008). To reduce emissions, some CDM projects import climate-friendly technologies from developed countries and thus accelerate technology transfer without having been explicitly mandated to do so (Murphy, Kirkman, Seres, & Haites, 2015). More recently, the Cancun Agreements from 2010 formalized the creation of the Technology Mechanism aiming to re-invigorate technology transfer toward more innovation, public–private partnerships, and technology road maps, among other things. The Technology Mechanism consists of a policy arm, the Technology Executive Committee (TEC), and an implementation arm, the Climate Technology Center and Network (CTNC). The Paris Agreement requires Parties to strengthen their cooperation on technology development and transfer. It also establishes an overarching technology framework (§10.4) to provide guidance to the work of the already existing Technology Mechanism under the UNFCCC.

A long-standing issue in the discussions on technology transfer has been intellectual property rights (IPR). In a highly polarized debate, IPR could be seen as a force for fostering innovation or as a barrier to transfer of climate-friendly technologies. There have been calls for creating a “climate-friendly” IPR regime tailored to increase technology transfer to developing countries (De Coninck & Sagar, 2015). Since IPR brings costs in terms of, for instance, patents, developing countries have put forward proposals for adapting the current IPR regime (primarily the Agreement on Trade-Related Aspects of Intellectual Property Rights [TRIPS]) to allow more transfer of climate-friendly technologies. The suggestions include everything from removing patents entirely to simply allowing the UNFCCC to discuss and agree on language pertaining to IPR. Industrialized countries, however, have resisted any wording that hints at IPR being a “barrier” to climate mitigation or adaptation (see Abdel-Latif, 2015, for an overview of the debate). Consequently, language on IPR has remained for the most part outside the UNFCCC’s negotiated outcomes.

Adaptation

Adapting to the adverse effects of climate change such as sea level rise, changes in precipitation patterns, and extreme weather conditions has historically received far less attention under the UNFCCC than mitigation. Adaptation was by some considered "defeatist" and accused of representing a fatalistic worldview (viewing cooperation on mitigation as inherently difficult), and therefore unconstructive for building political support (Schipper, 2006). Moreover, the central goal for the Convention is stabilizing GHG concentrations in the atmosphere through abatement of GHGs (i.e., not adaptation), with adaptation provisions under both the UNFCCC and the KP spread across different paragraphs in the texts (Yamin & Depledge, 2004). The early 2000s, and in particular the Marrakech Accords in 2001, however, propelled adaptation up the agenda by developing policy responses to adaptation such as adopting guidelines for National Adaptation Programs of Action (NAPAs) for Least Developed Countries (LDCs) and funding for adaptation activities through the LDC Fund, the Adaptation Fund, and the Special Climate Change Fund (Ott, 2002; Schipper, 2006). Moreover, the Cancun Adaptation Framework (CAF) was established in 2010, outlining the objectives for adaptation under the regime and establishing an Adaptation Committee tasked with monitoring, reviewing, and promoting implementation of adaptation. Under the CAF, developing countries are encouraged to draw up a National Adaptation Plan (NAP), which engages countries in developing medium- to long-term approaches to adaptation. NAPs differ from NAPAs in that they are more flexible in their setup, they are not directly linked to a funding source, and all developing countries are invited to develop one, not only the LDCs (McGray, 2014). Finally, the decision of the Green Climate Fund to aim for a 50:50 allocation division between mitigation and adaptation projects funded is an indicator of the important role adaptation has been given in the regime. The Paris Agreement confirmed the important role of adaptation vis-à-vis mitigation by adopting a global goal on adaptation, resilience, and vulnerability under Article 7 (Mogelgaard, McGray, & Amerasinghe, 2015; see also "FRAGMENTATION AND THE EMERGING REGIME COMPLEX"). It calls for an adequate adaptation response in the context of the 2°C goal. All countries should submit adaptation communications detailing adaptation priorities, support needs, plans, and actions, to be updated periodically. Collective adaptation efforts will also be subject to review under the global stocktaking process.

Loss and Damage

The issue of “loss and damage” (L&D) is an example of how the UNFCCC continuously expands into new institutional territories. L&D refers to discussions about the negative impacts of climate change, primarily in developing countries. Such effects can be increased environmental stressors or changed frequency in weather-related events that occur due to climate change. L&D emerged on the agenda in 2007 and was mentioned in the COP13 decision (1/CP.13), but only after COP15 was it firmly established itself as an issue area. Following a couple of years of deliberation, COP19 in Warsaw established the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts (Loss and Damage Mechanism). The Paris Agreement recognizes the need to address L&D from climate change impacts—it incorporates the Loss and Damage mechanism and calls for its strengthening under the guidance and authority of the CMA. In addition, the adopting decision charges the Executive Committee of the Warsaw International Mechanism with establishing a clearinghouse for information on risk transfer and insurance (§48), creating a task force to develop recommendations for approaches to climate change induced displacement (§49), and reporting on progress in its annual report (§50). The issue has become associated with compensation and liability and therefore turned into a highly contentious issue. Given the historical responsibility of developed countries in climate change, developing countries affected by climate change have opened up for compensation claims, something that is vehemently rejected by developed countries. Consequently, the institutional saliency of L&D is disputed among the UNFCCC parties because developed countries think it folds into discussions on adaptation whereas developing countries, primarily Small-Island Developing States (SIDS), believe that it constitutes a separate pillar next to mitigation and adaptation (Petherick, 2016). It also lacks a clear and formally approved definition.

REDD+

In the context of climate mitigation, forests are important sinks or sources for carbon. Deforestation and forest degradation, driven by changes in land use and forest management practices, is estimated to account for roughly 12% of global GHG emissions (Van der Werf et al., 2009). As with adaptation and L&D, forests have gained importance in the climate regime over the past decade. The idea behind Reducing Emissions from Deforestation and Forest Degradation (REDD) is to attach a financial value to forests relating to their provision of ecosystem services, more specifically sequestering carbon. Thereby, developing countries with large forest covers are incentivized to engage in REDD activities. REDD has enjoyed a relatively fast integration into the climate regime (Besten, Arts, & Verkooijen, 2014). In the absence of a stand-alone global legal regime for forests (Dimitrov, 2003) a group of countries called the “Coalition for Rainforest Nations” raised deforestation as an agenda item during COP11 in Montreal in 2005 (Levin, McDermott, & Cashore, 2008). It became the starting point for discussions on a framework for REDD under the UNFCCC. REDD’s role in the regime was cemented by its inclusion in the Bali Action Plan (BAP) and the setup of a REDD fund (the World Bank’s Forest Carbon Partnership Facility [FCPF]) in 2007 (Besten et al., 2014). The BAP also recognized the “+”

in REDD, adding sustainable carbon management and conservation and enhancement of carbon stocks to the concept. Another key moment came during COP19, when negotiated a “Warsaw Framework for REDD+” further detailed Parties’ obligations in terms of forests in seven decisions. The Warsaw Framework includes, inter alia, key pillars of getting policies and strategies in place as well as modalities for MRV, national monitoring systems, technical assessments, and baseline levels (Voigt & Ferreira, 2015). Forests and REDD+ are included under article 5 in the Paris Agreement, building on the Warsaw Framework for REDD+. While it could be considered a manifestation of REDD+’s growing importance on the global climate agenda, the language is fairly vague and falls short of establishing a new mechanism for forests and deforestation (Obergassel et al., 2016).

Compliance

Exploring compliance, here understood as the level to which states conform to the rules set out under the UNFCCC, begs the question: What happens if UNFCCC Parties fail to live up their commitments? Compliance mechanisms in the UNFCCC, just like in other multilateral environmental agreements, are not based on traditional dispute settlement mechanisms, which are generally confrontational and adversarial processes between two states, but instead geared toward a "proactive, non-confrontational, and preventive" approach (Yamin & Depledge, 2004, p. 378). Instead of punishing parties in non-compliance with the Convention through, for instance, compensation measures, the climate regime tries to incentivize the non-compliant Party by financial or technical means or other types to support fulfillment with their commitments. Non-compliance mechanisms are highly relevant in cases where the Parties have agreed on quantified emission reduction targets with specified baseline, start-end dates, and reduction levels. They are thus tightly linked with MRV procedures (Oberthür, 2014; Yamin & Depledge, 2004), described earlier.

Questions regarding implementation are dealt with under Article 13 in the Convention. In it, Parties were asked to consider establishing a "multilateral consultative process," which eventually resulted in COP4 adopting text on creating a Multilateral Consultative Committee (MCC) to deal with compliance issues (Yamin & Depledge, 2004, p. 384). Due to disputes regarding the composition of the committee, however, the COP has never agreed on the specifics of the MCC, nor has any Party attempted to use it, leaving it yet to become operational (Oberthür, 2014). The Kyoto Protocol established a Compliance Committee made up by a facilitative branch, which supports Parties with advice and assistance to become compliant, and an enforcement branch, which determines whether a Party is in non-compliance. During the KP's first commitment period (2008–2012), it successfully dealt with MRV-related issues for eight different developed countries. Its ability to deal with cases of missed emission targets is yet to be proven (Oberthür, 2014). The Paris Agreement (§15.1) establishes a new mechanism to "facilitate and promote compliance" and is intended to be "facilitative" as well as "transparent, non-adversarial, and non-punitive" in its functioning (§15.2) (for an overview of how compliance entered the Paris Agreement, see Voigt, 2016). The mechanism will consist of a committee of 12 experts, paying particular attention to the respective national capabilities and circumstances of Parties. It remains to be seen what type of role and teeth this body will get as future COPs decide on its modalities. However, recent developments in the UNFCCC, where Parties are moving away from negotiating "targets and timetables" toward more voluntary "pledges and review," is complicating compliance. This will be further discussed in "EVALUATING THE UNFCCC'S PERFORMANCE."

Negotiation Groups and Observers

Most countries organize their UNFCCC negotiations by joining groups speaking on their behalf. The groups are composed of countries with common interests and preferences, economic status, and/or geographical characteristics. Membership is not mutually exclusive and may change over time. This section describes the largest and most important negotiation groups in the climate regime.

The Group of 77 (G-77) comprises nearly 135 developing countries from primarily the global south, with China as an associate member. It was created in 1964 and has become the largest and perhaps most important voice for developing countries in the UN system (Yamin & Depledge, 2004). The G-77 and China generally support a narrative where developed countries are the main culprits in climate change and are not mitigating GHG emissions with sufficient speed or ambition levels (Yamin & Depledge, 2004). Due to the diverse interest, size, and capacity of the many Parties in G-77, they often divide into smaller groups to represent more particular interests. For instance, the Alliance of Small Island States (AOSIS) represents 44 Small Island Developing States (SIDS) and observers from low-lying islands and coastal states. AOSIS is a highly active and capable grouping in the climate change negotiations, possibly due to the perceived existential threat some countries face from rising sea levels. They are generally proponents of ambitious climate action and often support developed countries, in particular the EU, in the negotiations. There are currently 48 Least Developed Countries (LDCs) in the UN system according the official list, which changes as countries “graduate” due to economic development, and the group is particularly active in questions regarding vulnerability and adaptation to climate change. The African Group consists of countries that are part of the African regional group in the overall UN system. The Like-Minded Developing Countries (LMDCs) is a rather new loose gathering of about 30 developing countries pushing for questions on equity and defending the CBDR-RC principle. Developed countries are primarily divided into the European Union, acting on behalf of its 28 member states, and the Umbrella Group, acting on the behalf of non-EU developed countries such as Norway, Australia, and Japan. Blaxekjaer and Nielsen (2015) list 22 different political groups active in the UNFCCC. Especially after COP15, countries started to organize themselves in new constellations reflecting a more diverse set of interests than merely the developed–developing country divide (see, e.g., Blaxekjaer & Nielsen, 2015).

Besides a proliferation in negotiation groups, participation by NGOs and intergovernmental organizations in the COPs has steadily increased. Currently some 1880 NGOs and 100 intergovernmental organizations are part of the UNFCCC. The UNFCCC has institutionalized participation from NGOs and organized them into nine constituencies: environmental NGOs (ENGOs), business and industry NGOs (BINGOs), local governments and municipal authorities (LGMAs), indigenous peoples organizations (IPOs), research and independent NGOs, trade union non-governmental organizations (TUNGOs), and farmers, women and gender, and youth (YOUNGO). Each constituency has a focal point that communicates with the Secretariat, organizes information sessions during UNFCCC meetings, and facilitates observer participation for NGOs. The

constituencies also have direct access to the negotiation by being invited to make interventions during Plenaries.

Evaluating the UNFCCC's Performance

To what extent has the UNFCCC been effective? If one understands regime effectiveness as a chain of events consisting of output (norms, principles, rules, and decision-making procedures) leading to outcomes (behavioral change resulting from the output) and, finally, impacts (environmental effects resulting from the outcomes) (Miles et al., 2001, pp. 6–8), then the UNFCCC may be considered effective at some levels but not others.

On an output level, the growth of the UNFCCC into a large and complex institutional structure suggests the global effort to reduce climate change is making headway. The Paris Agreement has been hailed as an "historic deal" (Worland, 2017) and a game-changer in international climate policy. Besides setting a highly ambitious goal to keep warming at 1.5°C, the Paris Agreement completed a regime shift that started after the COP15, moving from a "regulatory" to a "catalytic and facilitative" institutional model "that seeks to create conditions under which actors progressively reduce their emissions through coordinated policy shifts" (Hale, 2016, p. 12). Bodansky (2016, p. 3) argues that "If Paris indeed proves historic it will be because it institutionalizes a new paradigm that, over time, catalyzes ever stronger global action to combat climate change." In theory, the new paradigm allows Parties to better accommodate the interests of recalcitrant parliaments or national stakeholders more than under the Kyoto Protocol (Keohane & Oppenheimer, 2016). It also abandons the Kyoto Protocol's partition of countries into annexes, making the regime more adaptive for a changing world in terms of emissions and wealth. Also, through the ratcheting mechanism, the ambition levels should increase over time and the common transparency and accountability framework reduces the possibilities for free-riding behavior without being detected (Bodansky, 2016).

Whether the success in output will lead to a successful outcome or impact, however, remains uncertain. First, the potential effectiveness of the bottom-up pledge-and-review process has been questioned. With current NDCs adding up to 2.6–3.1°C warming by 2100 (Rogelj et al., 2016) and weak compliance mechanisms in place, it remains unclear how the international community will ensure an early enough peaking of emissions and thereby remain within a possible trajectory toward 1.5°C. Furthermore, current methodologies for checking and comparing NDCs are insufficient. Moreover, NDCs usually assume full and successful implementation of plans, while historic experience tells us that few policies have delivered precisely on what they have been developed for. Second, the non-binding nature of the agreement and shift away from developing country responsibility (end of the firewall) have prompted some observers to question how the CBDR-RC principle will play out, particularly related to historic responsibility (see Clémençon, 2016). Third, the Paris Agreement leaves the future of the market-based

mechanisms developed under the Kyoto Protocol uncertain. The question therefore is how the Paris Agreement will ensure efficient implementation of its ambitions without jeopardizing other important policy goals, such as social equity and poverty alleviation.

Climate Governance Beyond the UNFCCC

This section analyzes global climate governance beyond the UNFCCC. It discusses the emergence of a regime complex in which the UNFCCC is complemented by “minilateral” climate initiatives (smaller groups of states) and transnational climate governance including non-Party actors (such as cities, regions, companies, and NGOs). Michonski and Levi (2010), for example, identify 17 international institutions and agencies that could support global climate governance, and Widerberg, Pattberg, and Kristensen (2016) find nearly 90 climate initiatives active transnationally (see also Widerberg & Stripple, 2016). The section touches upon questions of performance in the regime complex and whether increasing fragmentation is desirable and discusses particular instances of climate governance beyond the UNFCCC: the G20, city networks, multi-stakeholder partnerships, and private standard-setting initiatives.

Fragmentation and the Emerging Regime Complex

While arguably the center of gravity in global climate governance, the UNFCCC is but one of many local, regional, national, transnational, and international institutions governing climate change. Scholars have started to investigate larger systems of institutions and governance mechanisms, variously referred to as regime complexes, clusters, or governance architectures (Biermann, Pattberg, van Asselt, & Zelli, 2009, p. 14). Following Raustiala and Victor’s (2004, p. 279) conceptualization of regime complexes as “an array of partially overlapping and nonhierarchical institutions governing a particular issue-area,” Keohane and Victor (2011) suggest that a regime complex for climate change has emerged.[4] Biermann and colleagues (2009) refer to these regime complexes as “fragmented,” with synergistic, cooperative, or conflictive consequences. Negative consequences of fragmented governance might include regulatory and legal uncertainty (van Asselt & Zelli, 2014) as well as high transaction costs and duplication of efforts, leading to a coordination gap between institutions, actors, sectors, and levels. Others have argued that growing fragmentation of the international regulatory order results in an increased and steady influence of the powerful states and their domestic constituencies (Benvenisti & Downs, 2007; Zelli, Gupta, & van Asselt, 2012).

On the other hand, some highlight the possible positive consequences of fragmented governance architectures. Abbott (2013), for example, argues that the flexibility of the system enables adaptation for addressing emerging and dynamic problem issues across different scales, opportunities for actors sharing similar interests and values to form

productive clubs, as well as opportunities for learning and experimentation. Along the same line, Keohane and Victor (2011) emphasize the value of flexibility and adaptability of a regime complex in coping with uncertainties associated with the process of governing complex human–environment interactions. Accordingly, a great deal of literature emphasizes the potential of fragmented governance in the diffusion of innovation and opportunities for innovation in policies and policy instruments (Kellow, 2012), experimentation with alternative regulatory frameworks, and learning (van Asselt & Zelli, 2014).

Minilateralism

The gridlock in which global climate policy long found itself was attributed by some observers to the difficulty of consensus-based decision-making among more than 190 countries (e.g., Victor, 2011). It was considered too easy for recalcitrant countries to hijack negotiations and push the outcomes to a lowest common denominator. The regime design generated unambitious results and hampered more aggressive mitigation action by progressive countries. A recurring suggestion for breaking the gridlock has been to divide the problem and/or the countries into smaller parts (Rayner, 2010). By creating "minilateral" institutions (versus multilateral institutions) or "climate clubs," countries wishing to go faster in combating climate change could engage in trust-building, generate "club-goods," or perhaps discuss disputed issues pertaining to the negotiations (Falkner, 2015b; Stewart, Oppenheimer, & Rudyk, 2013). For example, if a smaller group of countries agree to transfer low-carbon technologies between themselves, they create an attractive model that could generate emission reductions as a by-product (Weischer, Morgan, & Patel, 2012). Economists have modeled how the hypothetical scenario of introducing small penalties or sanctions for "non-participants" in a club could mitigate free-riding problems that figure prominently in the current institutional design (Nordhaus, 2015).

Exactly how to design a minilateral initiative, for instance using "functional" areas such as forests and adaptation or the optimal number of countries, is heavily debated (e.g., Falkner, 2015a; Falkner et al., 2010). Some authors have questioned the normative and democratic aspects of minilateralism, highlighting the importance of procedural justice by including "the most capable, the most responsible and the most vulnerable" countries (Eckersley, 2012, p. 26). Falkner (2015a) posits that currently three different rationales underpin proposals for minilateralism. The first proposal suggests improving the dialogue, bargaining, and trust among major emitters by allowing informal dialogue; the second, creating exclusive "club-goods"; and the third, creating small-n clubs between great powers, acknowledging their important roles, and linking them to the UNFCCC (Falkner, 2015a, pp. 6–7). Each proposal suggests different optimal numbers, procedures, and functions for creating minilateral groupings.

A well-known example of a minilateral group is the group of 20 (G20) consisting of 20 major world economies, primarily created to improve global financial and economic stability, but which has repeatedly put climate change and energy governance on its agenda. Since it includes some of the world's fastest growing users of fossil fuels, the G20 may have more potential to address climate change then smaller clubs such as the G7. The group regularly publishes communiqués stating their support for different climate change–related policy measures. After the 2009 London Summit, for instance, the G20 leaders promised to gear the economic recovery toward a transition using resource-efficient and low-carbon technologies, as well as affirming their commitment to address climate change. A communiqué following the 2009 Pittsburgh Summit made several references to clean energy production and included an entire section on "Energy Security and Climate Change." It also brought up the problem of inefficient fuel subsidies, primarily a problem in developed countries that amounted to $312 billion globally in 2009. Considering that four of the five largest fuel subsidizers—Saudi Arabia, Russia, India, and China—are members to the G20, it seemed like a good place to start discussing reductions in subsidies (Ebinger & Avasarala, 2013). Over recent years, the G20 has also become increasingly involved in climate finance. In 2012, the G20 Los Cabos summit established a Climate Finance Study Group to explore approaches for mobilizing resources. President Barak Obama also used the 2014 Brisbane Summit to announce the U.S. contribution of $3 billion to the Green Climate Fund (GCF). Despite the G20's attention to climate change, however, its formal decision-making power is limited. Its primary role has been to put climate-related issues, such as fossil fuel subsidies, on the agenda rather than "taking over" tasks from the UNFCCC. Moreover, references to climate change in G20 communications are generally followed by a referral to the UNFCCC as the appropriate place for climate governance, indicating the group's reluctance to engage more substantially with climate mitigation and adaptation.

Beyond the UNFCCC: Transnational Climate Governance

As discussed earlier, the UNFCCC, via the LPAA and NAZCA, has attempted to better connect to the broad range of climate change initiatives that have emerged largely outside of official international negotiations. This section provides practical examples of transnational climate governance in this still insufficiently charted terrain of climate governance, city networks, and subnational actors.

City networks and subnational administrative units that aim at mitigating and adapting to climate change via peer-learning and exchange of best practices are among the frequently discussed alternatives to governance failures at the international and national level (Kousky & Schneider, 2003). Barber (2013, p. 5), for example, argues that local actions and global cooperation among cities could bring about a “miracle of civic ‘glocality’ promising pragmatism instead of politics, innovation rather than ideology and solutions in place of sovereignty” and thereby might circumvent the cumbersome international negotiations under the UNFCCC. The embodiment of this trend is the many transnational municipal and regional networks created to unite cities and regions in their fight against climate change. The C40 network is an example of this form of climate governance beyond the UNFCCC. The C40 network was initiated by the mayor of London in 2005 and comprises 90 of the world’s largest cities from across the globe (as of 2017). These represent a broad spectrum in terms of location, political systems, economic development, and degree of globalization and cover more than 600 million people and around 25% of the world’s total GDP (Lee & Koski, 2014). C40 seeks to address climate change through 17 specific city networks operating across 7 initiative areas: water and adaptation, energy, solid waste management, urban planning and development, measurement and planning, finance and economic development, and transportation (C40 Cities, 2017). The networks are designed to connect city officials, inspire innovation, exchange knowledge and advice based on experience with projects and policies as well as influencing national and international policy agendas. C40 reports over 10,000 climate-related actions across the participant cities. Together they have pledged to reduce more than 3Gt CO_2e by 2030. An analysis of C40 members in 2011 indicated that the initiative was effective in motivating city-level policy and action (Lee & Koski, 2014).

Multi-stakeholder Partnerships

Multi-stakeholder partnerships, that is, networks among different societal actors, including governments, international organizations, companies, research institutions, and civil society organizations, have been widely endorsed and applied across a number of global public policy arenas, ranging from health to sustainable development. Partnerships now also form an integral part of the non-state action agenda on climate change (Chan et al., 2015; Pattberg, 2010). One example of such a multi-stakeholder initiative is the REN21 network. The Renewable Energy Policy Network for the 21st Century (REN21) is a multi-stakeholder partnership founded in Paris in 2005. As of 2017 it brings together 61 actors from national governments, international organizations, civil society organizations, academia, and industry associations, all working in the field of renewable energy (REN21, 2016). The Network’s primary foci are global renewable energy policy development and joint actions, which it enables primarily through facilitating knowledge exchange and

information dissemination (REN21, 2017, p. 21). REN21 promotes renewable energy to meet the needs of both industrialized and developing countries and seeks to foster energy security, development, and poverty alleviation. In its efforts to promote a rapid transition toward renewable energy, REN21 facilitates information dissemination through a range of reports including regional and global renewables status reports, future scenario reports, and annual reports (REN21, 2017, p. 21). In addition, the network facilitates the REN21 academy, a community of information contributors and seekers, and organizes workshops and seminars at relevant climate change and energy conferences such as the UNFCCC's COPs (REN21, 2016). REN21 is successful in its knowledge dissemination, which can be gauged by its presence on social media or by the 1,700 news articles covering the most recent REN21 Global Status Report across 92 countries (REN21, 2016). Finally, it engages in several strategic partnerships with large international organizations, including The World Bank, UNEP, and the International Renewable Energy Agency.

Private Standard-Setting Initiatives

A third form of climate governance beyond the UNFCCC is private standard-setting initiatives such as the voluntary carbon market that has been growing in parallel to the regulated carbon market within the Kyoto Protocol (e.g., the European Emissions Trading System [EUETS]). On the voluntary carbon market, buyers can purchase assurance for a certain amount of mitigated CO_2 in the form of a certificate. The rules and regulations governing the mitigation actions that produce voluntary carbon offsets are made by private standard-setting initiatives. CarbonNeutral is discussed as an example in the field. Initiated by Natural Capital Partners (NCP) in 2002, the CarbonNeutral Protocol is a private standard-setting initiative providing a methodology for companies that wish to develop towards carbon neutrality (Natural Capital Partners, 2017A). Today it contracts more than 300 clients, including companies such as Microsoft, UPS, and Tata Steel, across 37 countries. NCP governs the Protocol and collaborates with several internationally recognized bodies including the UN Global Compact and CCB Standards and the International Emissions Trading Association (Natural Capital Partners, 2017B). The CarbonNeutral Protocol outlines a set of criteria, continuously updated, to help companies reduce their GHG emissions to net zero. Once achieved, they will receive the CarbonNeutral certification. GHG reduction is mainly achieved through employing a mixture of carbon credits and renewable energy instruments, depending on whether the emissions are direct or indirect (Natural Capital Partners, 2017B). These instruments rely on projects commonly implemented through NCP's partners. So far, on behalf of its clients, NCP has been instrumental in initiating 344 projects across 47 countries, which has produced over 20 million tons worth of carbon credits (Natural Capital Partners, 2017B).

The Future of Climate Governance "Beyond the UNFCCC"

Climate governance “beyond the UNFCCC” is becoming increasingly interlinked with the formal negotiations. During the years before the Paris Agreement was signed, non-Party actors (cities, companies, non-governmental organizations, international organizations, and their various collaborations) were slowly moving to the center of attention. In a groundswell of climate action, non-state actors were expected to have “considerable potential to mitigate climate change, to help affected communities to adapt to its effects, and leverage financial and other resources” (Chan et al., 2015, p. 3). The links between the Party-driven multilateral process and the non-Party–driven bottom-up process also became increasingly institutionalized, for example, through the Lima-Paris Action Agenda and the Non-State Actor Zone for Climate Action, discussed below.

In the run-up to COP21, four partners acting under the name “the Quartet”—the Peruvian COP20 Presidency, the French COP21 Presidency, the UNFCCC Secretariat, and the UN Secretary-General’s office (UNSG)—launched the Lima-Paris Action Agenda (LPAA) at COP20 in Lima, Peru. The LPAA was a new type of initiative aiming to “catalyze action on climate change, to contribute to the objective of the UN Framework Convention on Climate Change, to further increase ambition before 2020 and support the 2015 agreement” (LPAA, 2014). The LPAA specifically targeted individual and collaborative climate actions by state and non-state actors, such as companies, investors, cities, subnational regions, and civil society organizations (CSOs). It sought to capture the momentum started after the New York Climate Summit, convened by the UN Secretary-General Ban Ki-moon in September 2014, which gathered over 100 government representatives and heads of state as well as over 800 private and civil society leaders, making it the largest climate event outside the UNFCCC meetings (Hsu, Moffat, Weinfurter, & Schwartz, 2015). The rationale was that governments would be more prone to ambitious climate actions and negotiating a deal in Paris if they were supported by large parts of the private sector and subnational governments (Widerberg, 2017).

In parallel to the LPAA, the Peruvian COP20 presidency, supported by the UNFCCC Secretariat, launched a new data platform called “the Non-State Actor Zone for Climate Action” (NAZCA). The primary aim of NAZCA was to showcase, track, and record climate actions, leveraging data from external providers on climate actions by non-state actors including the CDP and Carbon, becoming a central tool for the LPAA to showcase progress. Over 10,000 climate actions registered in NAZCA demonstrate the support from large corporations, investors, cities, and regions for a deal in Paris. Throughout 2015, the LPAA, together with NAZCA, became a vehicle for the Quartet to engage in proactive coalition building between governments and other public and private actors. Several observers have argued that the LPAA contributed to putting pressure on governments to negotiate the Paris Agreement (Chan, Brandi, & Bauer, 2016). The COP21 decision also acknowledges the success of the LPAA by establishing two Champions to continue its work. Under the heading the “Global Climate Action Agenda,” the Champions have moved toward a more institutionalized process, setting out a detailed roadmap for further integrating climate action beyond the state into the UNFCCC’s agenda.

Questions on “why,” “how,” “who,” “for what purpose,” and “with what outcomes” surrounding climate governance beyond the UNFCCC are still under much scrutiny by academics and practitioners, and an increasingly coherent picture is emerging. For instance, transnational climate governance is predominantly driven by developed countries and actors (Bansard, Pattberg, & Widerberg, 2016; Roger, Hale, & Andonova, 2016), they seem to perform slightly better than previous comparable transnational governance in other issue areas (Chan, Falkner, Goldberg, & van Asselt, 2016), and they possess a considerable potential for reducing GHG emissions (Hsu et al., 2015; Widerberg & Pattberg, 2015). Yet better understanding how to produce positive links between the UNFCCC and the wider climate governance landscape remains a central task for future research (Betsill et al., 2015).

Conclusion

The climate change regime, narrowly understood as the UNFCCC and its related legal instruments, and the climate regime complex, that is, the broader architecture of subnational, regional, transnational, and international institutions and organizations governing climate change, have come of age. After over 25 years of international cooperative effort to address the challenge of climate change and global warming, climate change is a highly institutionalized policy area, covering a wide range of issues, from reduced emissions from deforestation and forest degradation to loss and damage, technology transfer, and adaptation. The UNFCCC itself is embedded and linked to a much wider web of global climate governance. These observations could be interpreted as a success at the output level. However, at the impact level, the currently existing climate regime is far from being successful in addressing the problem of reducing GHG emissions and halting global warming. A quarter century of international climate politics has had no visible impact on GHG concentrations in the atmosphere. In addition, the NDCs submitted under the Paris Agreement to date do not add up to the required mitigation ambition to keep global mean temperatures below 2°C. The conclusion therefore must be that global institution building is a necessary but not sufficient condition for effective climate change governance.

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Notes:

(1.) It is important to note that the Paris Agreement does not constitute a radical departure from the earlier UNFCCC regime, although it utilizes a bottom-up approach. It in fact incorporates all institutional structures that have been negotiated in the UNFCCC, apart from the Kyoto Protocol, which will expire in 2020. This article therefore explains in more detail the historic development of the climate change regime before discussing the Paris Agreement and its implications.

(2.) The assessment excludes CO_2 emissions from deforestation and logging, from forest and peat fires, from the post-burn decay of remaining above-ground biomass, and from decomposition of organic carbon in drained peat soils.

(3.) The Climate Regime Map project has identified hundreds of institutional elements and their interactions.

(4.) For an alternative conceptualization, see Orsini and colleagues: “a network of three or more international regimes that relate to a common subject matter; exhibit overlapping membership; and generate substantive, normative, or operative interactions recognized as potentially problematic whether or not they are managed effectively” (2013, p. 29).

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