

The Evolution of the UNFCCC

Jonathan Kuyper,^{1,2} Heike Schroeder,^{3,4}
and Björn-Ola Linnér^{5,6,7}

¹Department of Political Science, University of Oslo, 0317 Oslo, Norway;
email: j.w.kuyper@stv.uio.no

²Department of Political Science, Stockholm University, SE-106 91 Stockholm, Sweden

³School of International Development, University of East Anglia, Norwich NR4 7TJ, United Kingdom; email: h.schroeder@uea.ac.uk

⁴Tyndall Centre for Climate Change Research, School of Environmental Sciences, University of East Anglia, Norwich NR4 7TJ, United Kingdom

⁵Centre for Climate Science and Policy Research, Linköping University, 581 83 Linköping, Sweden; email: bjorn-ola.linner@liu.se

⁶Institute for Science, Innovation and Society, Oxford University, Oxford OX2 6JP, United Kingdom

⁷Stockholm Environment Institute, 104 51 Stockholm, Sweden

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UNFCCC, Kyoto Protocol, Paris Agreement, climate governance, coordinator role

Abstract

This article takes stock of the evolution of the United Nations Framework Convention on Climate Change (UNFCCC) through the prism of three recent shifts: the move away from targeting industrial country emissions in a legally binding manner under the Kyoto Protocol to mandating voluntary contributions from all countries under the Paris Agreement; the shift from the top-down Kyoto architecture to the hybrid Paris outcome; and the broadening out from a mitigation focus under Kyoto to a triple goal comprising mitigation, adaptation, and finance under Paris. This review discusses the implications of these processes for the effectiveness, efficiency, and equity of the UNFCCC's institutional and operational settings for meeting the convention's objectives. It ends by sketching three potential scenarios facing the UNFCCC as it seeks to coordinate the Paris Agreement and its relationship to the wider landscape of global climate action.

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INTRODUCTION

The United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1992, more than a quarter of a century ago, and today 196 countries as well as the European Union (EU) are parties to it. This article takes stock of its evolution during this time by undertaking a review of significant recent academic literature. Major landmarks in this evolution include the adoption of the Kyoto Protocol in 1997, the negotiation impasse in Copenhagen in 2009, and the Paris Agreement adopted in 2015. Despite noteworthy advancements in the orientation, institutional architecture, and operational settings of the UNFCCC, international efforts to mitigate climate change have not resulted in a concomitant reduction in global greenhouse gas (GHG) emissions.

As we should not expect a single framework convention to deliver this Herculean goal, the governance of climate change increasingly occurs in other international organizations, at the regional, national, and subnational level, and through a complex mix of private and public initiatives (1, 2). However, even amid this flurry of activity, there still remains a significant disconnect between the level of effort undertaken at the UNFCCC and outcomes in terms of mitigating and adapting to climate change, as well as generating adequate finance toward this. Why has the UNFCCC not provided more effective, efficient, and equitable outcomes? And why, despite notable failures and the shifting of governance functions to other parts of the climate governance landscape, has the UNFCCC maintained its prominence in world politics? To answer these questions, we argue that we need to look not only at the UNFCCC but beyond it too.

To discuss the evolution of the UNFCCC, we look at three shifts in approach or orientation. We look first at why it was prudent to move away from targeting historic (industrialized countries')

UNFCCC: United Nations Framework Convention on Climate Change

EU: European Union

GHG: greenhouse gas

emissions in a legally binding manner under the Kyoto Protocol to inviting voluntary contributions (nationally determined contributions; NDCs) from countries under the Paris Agreement. Whose interest has this served and to what end? Second, we discuss the reasons behind the shift from the top-down Kyoto architecture to the hybrid Paris outcome. What are the new roles of nonstate actors under the Paris Agreement, why have they emerged, and what are the implications for the UNFCCC? Third, we discuss the reasons for broadening the mitigation focus under Kyoto to a triple goal comprising mitigation, adaptation, and finance under Paris. How does this change impact larger low-carbon transitions and sustainability transformation agendas post-Paris? What are the effects of climate governance on other negotiations (e.g., Sustainable Development Goals; SDGs) and emerging sectoral agendas (e.g., water and energy security)? Where do these shifts leave assessments of the Paris Agreement moving forward?

Each of these shifts represents a breaking up of a binary feature fundamental to the original UNFCCC of 1992—developed versus developing (Annex I versus non-Annex I) countries, states (parties) versus nonstate actors (observer organizations), and climate change versus other global sustainable development problems. This review discusses the implications for the UNFCCC as these original structures have broken down. We argue that these shifts—and the emergent Paris Agreement—have cemented the UNFCCC as the central coordinator of global climate action, managing a wider set of interactions between states, nonstate actors, and issue areas. We unpack what these changes mean for the UNFCCC in terms of its goal of keeping global emissions low enough to avoid “dangerous anthropogenic interference with the climate system” (3).

NDCs: nationally determined contributions

SDGs: Sustainable Development Goals

THE UNFCCC: ORIGINS

The UNFCCC was opened for signatures at the 1992 Earth Summit in Rio de Janeiro, alongside the Convention on Biological Diversity (CBD), the United Nations Convention to Combat Desertification (UNCCD), and a set of nonbinding principles on forest management. Together these agreements ushered in an era of global environmental governance and negotiations that, 25 years later, has grown in scope and intensity to the extent that today climate change is seen as a global concern that is on a par with, or even surpasses, “hard” issues such as trade and security (4, 5).

The UNFCCC was designed as a framework convention, specifying its architecture and setting in motion a process toward meeting its ultimate objective (Article 2). Negotiations under this framework were supposed to evolve over time, pursuant to the emergence of new scientific evidence, social understandings, and political changes (6). The UNFCCC thus adopted the so-called convention-protocol approach, through which—as a first step—the institutional framework is established under the convention and only as a second step are commitments agreed upon to address the problem at hand through subsequent protocols (7). This followed the success of the ozone regime, which commenced with the 1985 Vienna Convention for the Protection of the Ozone Layer as the framework, and in turn led to the adoption of the more specific and ambitious 1987 Montreal Protocol and its later amendments and adjustments (8).

The UNFCCC practices decision making by consensus. Its decisions thus reflect the will of the laggards. The least-common-denominator political will in the early 1990s was such that there was no agreement on binding reduction commitments, mainly due to resistance by the United States, and thus the Convention included only a nonbinding aim to stabilize emissions at 1990 levels by 2000. The adopted baseline—1990—was chosen due to the availability of GHG inventories in many countries. The nonbinding target, however, benefitted some countries who reduced their emissions significantly just after 1990 (i.e., the United Kingdom’s “dash to gas” and Germany’s Berlin-Wall-fall profits) and disadvantaged others whose emissions had declined just before 1990

IPCC:

Intergovernmental
Panel on Climate
Change

COP: Conference of
the Parties

and risen again just after (Japan's economic bubble burst in 1988) (9). The "ultimate objective" of keeping warming below a threshold to prevent "dangerous anthropogenic interference" with the climate system (Article 2) represented a weak and vague target, as even today it is interpreted more politically than scientifically.¹ However, it can also be interpreted as a swift uptake of conclusions reached in the first assessment report of the Intergovernmental Panel on Climate Change (IPCC) two years prior that climate change would have profound consequences on human societies and ecosystems (10).

After entry into force of the UNFCCC in 1994, the first Conference of the Parties (COP)—its authoritative body made up of all parties to the UNFCCC and where decisions and new agreements are adopted—met for the first time in 1995. In its first decision, the Berlin Mandate, parties to the COP agreed that Annex I countries (industrialized countries) should take the first step in reducing GHGs, with non-Annex I (developing) countries following suit at a later stage. This was the premise on which negotiations toward a new treaty were launched that culminated in the Kyoto Protocol in 1997. However, this apparent consensus—whereby industrialized countries take the first step—was undermined by a US Senate resolution in the summer of 1997, which clearly laid out the conditions for the United States' ratification of a new agreement (11). It stated that the Senate would only ratify a new agreement if it included maximum flexibility in how emissions could be reduced and if developing countries would participate in reducing emissions. With the latter condition not met by the Kyoto Protocol, the stage was already set for the United States to eventually withdraw, even if it was the dominant shaper of all other provisions in the Kyoto Protocol (11). The Annex system and its division of emission responsibility was partly what led to the United States' departure from the Kyoto process.

After the United States' withdrawal under President Bush in early 2001, the only way that international negotiations could continue was to create a second negotiating track alongside the Kyoto Protocol in which the United States could participate. This second negotiating track widened its scope to explore "long-term cooperative action" beyond Annex I and industrialized country emissions. This process began in 2005 through a series of dialogues, and was formalized through the 2007 Bali Action Plan (outlining a time line toward a new international agreement and creating another negotiating body). This happened prior to the end of the First Commitment Period (2008–2012) under the Kyoto Protocol. So, in this way, the Berlin Mandate was never fully operationalized, given that the Annex I countries never made the first step in actually reducing emissions before developing country emission reductions were on the agenda.

SHIFT 1: FROM TARGETING INDUSTRIALIZED COUNTRY EMISSIONS TO RAISING GLOBAL AMBITION

Over the past 25 years, there has been a seismic shift in how emission reductions are distributed between states under the UNFCCC. In the Kyoto Protocol, the focus on mitigation commitments tracked the Annex division tethered to the 1990 baseline. This changed under the Paris Agreement to represent more global ambition, whereby all states make contributions to mitigation, with adaptation and finance also rising in prominence, and nonparty stakeholders are called upon to contribute to these goals as well (as discussed below). This signifies a shift on the part of the UNFCCC toward a coordinator role that befits the multi-actor, multisector, and multilevel landscape of climate governance.

¹Interestingly, scientific literature is continuously aiming to translate the target into concrete goals. However, creating climate models in this pursuit is also a deeply political exercise, building in a variety of assumptions, which are themselves often politically motivated (12).

The approach to climate change under the Kyoto Protocol—narrowly on mitigation—was one of ascribing emission reductions (formally Quantified Emission Limitation or Reduction Objectives; QELROs) to industrialized countries. In practice, at COP-3 in Kyoto in 1997, this was done through a mixture of voluntary offers by individual countries and international pressure, albeit only on some key countries. That explains why Australia, for example, was permitted an 8% increase beyond 1990 levels and Russia was allowed to stabilize their emission, Japan was pressured to agree to a 6% reduction, the United States to a 7% reduction, and the EU an 8% reduction target from 1990 levels (11). Pressure was being put on these countries due to either large gross emission shares (the United States being the largest emitter at the time) and/or political significance (Japan as host of COP-3). The politics surrounding the assignment of QELROs was made more cumbersome by different levels of unease across countries with 1990 as the base year for most countries; only certain countries that had not yet had emission inventories in place by 1990 were given a base year of 1995. Although perhaps efficient, this approach was certainly not equitable given the different trends of GHG emission increases (or decreases) across countries. It was perhaps also not effective as the emissions did not slow in many states and industrialized countries became less willing to sign up to the Kyoto Protocol's Second Commitment Period (2013–2020).

From Quantified Emission Limitation or Reduction Objectives to Nationally Determined Contributions

Post-2012 negotiations departed from this approach, moving from QELROs to deciding to create a registry and support mechanism for Nationally Appropriate Mitigation Actions (NAMAs) by developing countries at COP-13, to inviting pledges of “commitments” right before and right after COP-15 in Copenhagen and finally to pledges of “contributions” at COP-19 in Warsaw. This was received by many as another sign of watering down the responsibility of countries to demonstrate their share of commitment to mitigation.

Although the Kyoto Protocol set the goal of reducing Annex I country GHG emissions by 5.2% from 1990 levels by 2012, the Paris Agreement would eventually set a “global ambition” goal of “holding the increase in global average temperature to well below 2°C above preindustrial levels” and “pursuing efforts” to limit it to 1.5°C (UNFCCC 2015, Article 2; <https://unfccc.int/resource/docs/2015/cop21/eng/i09r01.pdf>). Additionally, it was noted that global emissions should peak “as soon as possible” (Article 4.1) so that a balance could be maintained by the end of the century between GHG sources and sinks that could capture and store emissions, such as forests and oceans. In this pursuit, the Paris Agreement stipulated that each party “shall prepare, communicate and maintain successive nationally determined contributions that it intends to achieve” (Article 4.2). Unfortunately, the link between the global goals and the nationally determined contributions is not well defined in the Paris Agreement (13).

The sum of NDCs submitted under the Paris Agreement is therefore likely not sufficient to achieve the goals noted in Articles 2 and 4, and thus the effectiveness of this approach is far from guaranteed. As of 2017, the Climate Action Tracker calculated that following the US withdrawal, if all other governments fully implemented their NDCs, there would be a median global temperature increase of 3.16°C above preindustrialized levels in 2100 (compared to 2.84°C estimated in 2016 with the US's NDC included) (14). Resultantly, the success of the Paris Agreement hinges on the raising of ambition along the way. This will occur through a variety of mechanisms, including global stocktakes every five years to regularly monitor progress and raise ambition: The first will be held in 2023. Likewise, the “Talanoa Dialogue”—commenced in early 2018—is supposed to aid the ratcheting-up of ambitions by building trust, informing actions, and giving voice to all.

CO₂: carbon dioxide

GtCO₂: gigatonnes
of CO₂

BRICS: Brazil,
Russia, India, China,
and South Africa

Talanoa is a traditional word used in Fiji and its surrounding region that refers to a dialogue that is inclusive, participatory, and transparent. Moreover, the addition of the ambition to limit warming to 1.5°C—a surprise outcome to some (15)—can be understood as a reference to “global” ambition. China, in particular, will play a significant role, given the possibility to peak its GHG emissions sooner than 2030, as pledged in its NDC.

Although the 2°C and 1.5°C temperature limit goals are certainly ambitious, the actual NDCs of many countries—not just China—are conservative, perhaps to some extent due to a political tactic to minimize the risk of governments failing to achieve what they pledge (15). This leaves ample potential for overperformance and increased ambition in future cycles of global stocktakes. This has served the interest mainly of Umbrella Group countries (Annex I countries outside the EU) who have seen their emissions rise significantly post-1990. Although the weight of emissions put into the atmosphere is arguably less significant today than it has been historically, the majority of the historical carbon budget [estimated amount of carbon dioxide (CO₂) emissions able to be made without contributing to significant temperature rise] has already been spent: 2,100 gigatonnes of CO₂ (GtCO₂) with the remaining budget potentially being ~800 GtCO₂ (12). There are now several numbers emerging from the literature, even for the same temperature target (see e.g., 16). Global ambition addresses the emissions being added today and into the future, which are increasingly from BRICS countries (Brazil, Russia, India, China and South Africa). Today, the combined emissions of China, the United States, and India make up approximately half of global emissions, and their relative share may increase further in the future (17).

The New Kids (Countries and Technologies) on the Block

The question of who are the significant countries in international climate governance, and who will be significant as we move into the implementation of NDCs, is changing with the emergence of new markets and uptake of noncarbon technologies, both through the UNFCCC’s technology transfer provisions and beyond.² In 2007, China overtook the United States as the highest gross emitter of GHGs. This ushered in a shift in focus from historical emissions to emission rate increases of rapidly developing countries, in particular China, but also India, Brazil, South Africa, and Mexico. Article 2 could no longer be achieved without the meaningful participation of these countries, decreasing the priority of addressing historical emissions. This has led some to suggest countries are moving toward common but more differentiated responsibilities (and related capabilities), i.e., away from a binary understanding of this principle in the Kyoto Protocol to a more nuanced and multifaceted engagement with it (18).

Along with this, technological capacity and capability will play major roles in raising ambition moving forward. For example, the change in the price of solar power through initial R&D in Germany and elsewhere, and then mass-market production in China, has made a huge difference in uptake of renewable energy across the globe (19), and it will continue to be the most significant contributing force to global ambition. Fostering and incentivizing technology transfer is thus crucial. Interestingly, studies have shown that there has been a shift away from conventional forms of technology transfer such as through foreign direct investment and licensing toward new ones including R&D partnerships and acquisition of foreign firms (20, 21). These researchers move away from mitigation technology and toward a more inclusive paradigm of international

²The main provisions include the 2010 Technology Mechanism for accelerating and enhancing climate technology development and transfer and the Technology Framework under the 2015 Paris Agreement to support implementation of the Paris Agreement and NDCs.

collaboration and local innovation and call for recognition of the increasing importance of developing countries as sources of advanced climate-friendly technologies and South—North and South—South transfers (20, 21).

NAZCA: Non-State
Actor Zone for
Climate Action

Counting Carbon and Coordinating Cooperation and Partnerships

Thus, although climate change is a “common concern of humankind” (3), which country, and which sector for that matter, has what level of responsibility, and—perhaps especially—the respective capability to mitigate climate change, is far more complex to ascertain than the earlier debates would attribute. It opens up a Pandora’s Box of not only the possibility of doubly (or triply) counting carbon (22), but also the opportunities that might come with cooperation and partnerships linking across levels of governance, types of actors, and forms of political arenas (23) within and beyond the climate regime (24). These two issues are particular challenges the UNFCCC is facing in its quest to promote and coordinate global ambition.

On the question of how to count carbon, should carbon be counted in the production or the consumption phase (25)? Conventionally, it is at production, making the emissions of China look higher than they would otherwise be, given that a large share of its emissions comes from export-led production (26). Furthermore, carbon stocks and flows are not pre-given in that they have to be discovered, constructed, and made visible (27). Practices have emerged that—through a series of tools, models, and databases—convert CO₂ into CO₂ equivalent (CO₂e), often from messy material and social contexts. In transferring information between multiple actors, a unit of carbon—and its equivalent—is potentially simplified, approximated, and subjected to errors, discrepancies, and omissions (28). Such approaches to carbon accounting have intersected with broader discussions about allocating emissions responsibilities and examining mitigation strategies at national and international levels, and they have offered alternative grounds for assigning responsibility for mitigating climate change and expanding the range of available policy options (29). One can argue that the shift from industrialized country emissions to global ambition started with the so-called flexibility mechanisms under the Kyoto Protocol, which included emissions trading, such as the European Union Emissions Trading System (EU ETS); the Clean Development Mechanism (CDM), where an Annex I country can earn emission reduction units by helping to lower emissions in a developing country; and joint implementation (JI), where the industrialized countries can earn the units by reducing emissions in Annex I countries that are Economies in Transition in the former Eastern Bloc.

On the back of opportunities arising from cooperation and partnerships, transnational climate governance (30) has accelerated the force with which cities and urban areas have come to the fore in climate governance. This occurs through networks such as ICLEI (Local Governments for Sustainability, founded in 1990 as the International Council for Local Environmental Initiatives, to coordinate local governments and local government organizations that have made a commitment to sustainable development) and C-40 (a cities climate leadership group—a network of now 90 megacities committed to addressing climate change to facilitate dialogue among city officials) (see, e.g., 31). This change has led the UNFCCC to recognize the proliferation of non-state and subnational climate governance activities through setting up several climate governance coordination platforms. The Lima-Paris Action Agenda and its accompanying Non-State Actor Zone for Climate Action (NAZCA) portal launched by Peru at COP-20 in 2014 were set up to both document nonstate actor climate governance and to help them set goals in line with those of the UNFCCC, specify quantifiable targets, and uphold broad democratic principles such as inclusiveness (32). Action on climate change has broadened from emission reductions by nation-states to catalyzing global action harder or impossible to attribute to single countries through, for example,

the international divestment movement, large-scale people's climate marches joined by the ranks of the UN Secretary-General and Pope Francis, and the World Bank committing to phasing out financing for coal power (17). It has also led to several additional coordination platforms outside the UNFCCC, such as the Climate Initiatives Platform launched in 2014 by Ecofys, in partnership with Cambridge University, WRI and the Nordic Council of Ministers, to collect, share, and track 184 climate initiatives involving more than 20,000 diverse participants (32), among others.

Thus, for reasons found inside as much as outside the climate regime, the Paris Agreement has ushered in an era where climate governance is more than ever before multi-actor, multisector, and multilevel, making coordination and inventorying of emissions reduced key in establishing progress toward achieving the Paris Agreement's goals. Significant progress in building global ambition will likely come from facilitating and promoting coordination of activities inside the UNFCCC, complemented by efforts to coordinate and facilitate activities outside, thus putting a premium on building productive links between the UNFCCC and the broader climate governance landscape (23).

Open Questions

The breakdown of the Annex system through the Paris Agreement, and the rise of NDCs in which all states make contributions to achieving the Paris goals on mitigation, adaptation, and finance, has led to a situation in which more nonstate and substate actors than ever before are taking on reduction commitments. What is the reason for this acceleration? Is it because the shift toward NDCs has opened up, or even promoted, outreach by governments to push non-state actors forward to help implement their NDCs? Or, is it that the weakness of state actions and the voluntary nature of NDCs is such that nonstate actors have to compensate for a lack of state action? We cannot at this point sufficiently answer these questions, but they should serve as avenues for future research. We begin to unpack them in the section below.

SHIFT 2: FROM TOP-DOWN KYOTO ARCHITECTURE TO HYBRID PARIS OUTCOME

We move now to the second shift, highlighting a departure from top-down administration toward a hybrid combination of bottom-up and top-down elements to achieve global ambition. This shift has seen the issues covered by the UNFCCC grow and, concomitantly, the number of participants from governments and observer organizations surge.

As participants from all over the world gathered in Bonn for COP-23, *Deutsche Welle* columnist Felix Steiner complained, "The costs of putting on the UN's climate summit are grossly out of proportion with the benefits [...] The majority of the conference's 25,000 attendees are not even involved in negotiations" (33). These observers, allegedly "not involved with negotiations," include actors representing environmental organizations, business, trade unions, researchers, cities, indigenous people, women, and youth, among others. Steiner's comment misses the mark in two ways. First, he has greatly exaggerated the number of non-negotiators. In recent years, approximately one-third of the participants are accredited as observers, if we exclude the media; it was only up until Copenhagen that observers outnumbered party delegates (34; see also http://unfccc.int/parties_and_observers/observer_organizations/items/10271.php). Indeed, the number of government representatives has increased significantly over the past few years, which reflects a greater priority among governments, and mirrors the restrictions placed on observer organization in terms of delegation size (35). Second, many observers do play a role in negotiations in formal and informal senses, sitting on delegations, monitoring activities, lobbying at the domestic level,

etc. In general, however, Steiner is correct: Nonstate actors now play a visible and increasingly important role in climate governance, the benefits and consequences of which have been widely discussed after Copenhagen.

The depth of interactions between nonstate actors and the UNFCCC has grown over time. Formally speaking, the 1992 UNFCCC treaty text makes no reference to either nonstate actors or observer organizations. However, starting with the Intergovernmental Negotiating Committee's establishment of the framework, business and industry NGOs as well as environmental NGOs were recognized as constituencies. Ensuing the committee's recognition of nonstate actors, the negotiations of the text in Rio de Janeiro were followed by 650 NGOs. Agenda 21—the 1992 action program of the United Nations Conference on Environment and Development, where the climate convention was opened for signatures—identified a host of different nonstate actors as critical to the success of the action program. The motivation to include these actors in the Rio action plan was not only to spur implementation, but also to enhance the procedural fairness of the negotiation process.

Over the years, new observer groups have been formally recognized as—and partitioned into—constituencies at the UNFCCC. At the first COP in 1995, local government and municipal authorities were formalized as a constituency, followed by indigenous peoples' organizations in 2001, the research and independent NGOs two years later, and the trade union NGOs in 2008. Women and Gender and youth NGOs entered in 2011 and, most recently with provisional status, Farmers. In addition, since 2016, the UNFCCC Secretariat also recognizes three informal NGO groups: Faith Based Organisations, Education and Capacity Building and Outreach NGOs, and Parliamentarians (36, 37). The largest group by far is the Environmental NGOs, with 38% of the formally accredited observers as of December 2017, followed by researchers, with 27%, and business with 16%. Two-thirds come from Western Europe and other developed countries, which include (for example) Australia, Canada, Israel, New Zealand, and the United States (38). Another category of observer organizations is constituted by Intergovernmental Organisations, such as the World Bank, OECD, and United Nations Environment Programme (UNEP). Starting out with 163 accredited nongovernmental organizations and 14 intergovernmental organizations in 1995, the cumulative admissions in 2017 is 2,133 and 126, respectively.

The widening of the constituencies is not only a sign of a heightened interest in climate policy, but tracks two other developments: the expanded sectoral agenda of the UNFCCC (discussed in shift 3) and the changing roles of nonstate actors from the first negotiations of the climate convention up to COP-15 in Copenhagen and beyond to COP-21 in Paris. We return to these two issues in the sections below on the broader palette of the UNFCCC and the changing roles for nonstate actors after Paris, but first we need to situate how the Paris Agreement relates to nonstate actors.

In the Paris Agreement, nonstate actors are specifically asked “to scale up their climate actions,” (39) and to register them in the NAZCA platform. 25 years on, then, the Paris Agreement's formal recognition of nonstate actors reflects the spirit of Agenda 21. This process has continued to evolve under the Marrakesh Platform for Global Climate Action Agenda (GCAA) at the first meeting of the Parties to the Paris Agreement, which today includes an impressive number of regions, cities, companies, and NGOs (40). The increased ambition by which nonstate actors were included in formal text was an attempt to strengthen the effectiveness critical for reaching the goals of the Paris Agreement, but also the efficiency of agreement as considerable transaction costs (monitoring, implementation, etc.) are absorbed by nonstate actors, instead of the UNFCCC's member countries.

These changes in the Paris Agreement ultimately solidify a form of “hybrid multilateralism” that splices together state and nonstate actions both in the state-defined contributions (i.e., NDCs),

UNEP: United Nations Environment Programme

GCAA: Global Climate Action Agenda

as well as in the efforts initiated by the UNFCCC to orchestrate nonstate initiatives to fulfill the climate convention (41). Nonstate actors are formally included as contributors to the Agreement and expected to participate in overseeing and facilitating NDC implementation. Resultantly, many countries—such as Burkina Faso, Dominica, Malaysia, and Niger—specifically mention the importance of environmental NGOs alongside business and industry in achieving the NDCs. Furthermore, nonstate actors are supposed to contribute to the transparency framework,³ participate in global stocktakes on the progress of different negotiation items, and engage in the Talanoa Dialogue in 2018 aimed at revisiting the NDC to either confirm or increase state ambitions. Nonstate actors are hoped to raise the effectiveness by delivering emission reductions, increasing adaptation action, and providing finance themselves (41–43).

The Ever-Broadening Palette

Why have nonstate actors risen in prominence during this time? We discuss two reasons here, both that require further research to substantiate. First, as discussed in shift 3, climate change is now widely understood to intersect with other issue areas and—as the UNFCCC grapples with these interconnections—new state and nonstate actors have been brought into the fold. As the negotiations of a second commitment period of the Kyoto Protocol commenced it was clear that, to obtain the support of the G-77, a new agreement required a wider focus. In addition to mitigation, adaptation, finance, and technology transfer were agreed to form the building blocks of the new agreement (44). Conversely, observers also helped to prepare for the inclusion of these building blocks. In particular, the side events—a platform for admitted observer organizations and Parties to present their work for Parties and other participants—were used to address items that could not formally be on the negotiation table, such as adaptation or mitigation by developing countries. The widened agenda in turn attracted new sets of nonstate and intergovernmental organizations.

At the same time, the mandate for the UNFCCC has increased, which is also reflected in a rising number of different ministries being represented. As the negotiation agenda became broader, it required expertise from different government ministries. Thus, delegations moved from being mostly composed of environment and energy ministry officials, to include also, for example, trade, finance, international development, and agriculture (35, 45). This development also prompted a wider set of participants from nonstate actors.

Even though the sectoral focus of the UNFCCC was expanding, the failure to reach an official UN agreement in Copenhagen impelled some analysts to call for a minilateral response (46, 47; see also 48, 49).⁴ The rationale was that the number of states involved in the negotiations had to be limited to make agreement manageable and efficient. One suggestion, among several, was to restrict negotiations to the major emitters or the 20 largest economies. But many other varieties of “climate clubs” have been heatedly discussed among scholars (50–52). Critics of minilateralism argued that such calls did not recognize that climate change is a wicked problem (46), with a multitude of interdependencies, and many causalities. Minilateralism would risk marginalizing adaptation and other needs of the most vulnerable or poorer countries as well as weakening the United Nations as an organization (43, 50, 53). Thus, it would not only be unfair, but also ineffective in addressing the global sustainable development context of climate change.

³ Article 13 of the Paris Agreement calls for a “facilitative, non-intrusive, non-punitive” transparency framework. Although the details are still being fleshed out, the framework will provide mechanisms for the communication and review of states’ efforts to feed into the global stocktakes.

⁴ The Copenhagen Summit produced an accord between 20 states that other member states could approve or reject, not an Agreement as many hoped.

In the end, more loosely organized clubs emerged in the lead-up to Paris. First, the Lima-Paris Action Agenda, a coalition of nonstate actors backed by states and the UNFCCC and a precursor to the GCAA, was established (54). Second, the High Ambition Coalition, which encompassed a wide range of approximately 100 states backed by nonstate organizations, also became a force. The joint basis was simple: to stimulate higher ambitions of a UNFCCC agreement. Thus, in the end, the club rationale turned out to be effective to spur a multinational agreement, but not because these clubs exhibited properties of minilateralism per se, but rather because they sought to uphold multilateralism. However, ultimately, despite all the discussion concerning the need for minilateralism to break negotiation deadlock and make credible commitments, the Paris Agreement was highly inclusive of both state and nonstate actors.

The Changing Roles of Nonstate Actors

The second reason for increased prominence is that nonstate actors themselves now take on a variety of different tasks and roles. The participation of nonstate actors at the UNFCCC is dependent on states granting them formal access and the Secretariat providing a supportive structure in the forms of information, documents, office space, and meeting venues (55). It has been in the interest of the Secretariat to facilitate observer organizations' participation to create legitimacy for the process, but also to keep momentum in negotiations, to raise awareness of certain topics through direct reports, and (not least) to heighten interest from the media (56). In recent years, this change is captured by the concept of orchestration, which is used to describe how international organizations employ soft power to steer the actions of state as well as nonstate actors (57, 58).

Research on governance beyond the state can be divided into three strands. First, much work focuses on how nonstate actors legitimize policy making (59). Many researchers have argued that an increased involvement of nonstate actors and grassroots movements addresses a democratic deficit in global governance (60–62). Second, other research looks at how nonstate actors increase the efficiency and effectiveness of international agreement. This is typically understood by looking at how nonstate actors promote compliance, monitor other actors, and reduce transaction costs for IOs and states (63). Finally, another strand of literature looks at how nonstate actors are involved at different moments of the policy cycle, as well as in transnational networks (i.e., public-private or multistakeholder partnerships), and as activists in protests. This final element, which we focus on here with respect to the UNFCCC, is primarily concerned with how nonstate actors use the policy cycle to gain and deepen their influence (64, 65).

To understand how nonstate actors engage in the policy process, it is necessary to recognize that this broad category encompasses actors with different motivations and goals. Nonstate actors seek to be involved in agenda setting, policy formulation, decision making, implementation, monitoring, and enforcement of agreements depending on these goals. Although researchers recognize that nonstate actors are not a homogeneous group, their roles in the UNFCCC process as well as in broader climate governance efforts is often either discussed in general terms in the academic literature or studies generalize their function based on case studies of one actor category (66, 67). As nonstate actors seek to fill various functions and take on different roles, “to understand how change occurs in the world polity we have to unpack the different categories of transnational actors, and understand the different logic and process in these different categories” (68, p. 99). Nonstate actors then act, among many other roles, as information providers, watchdogs, monitors, outside activists, enforcers, and contributors.

Different groups of nonstate actors use these roles to attain authority and, relatedly, gain influence through a variety of sources. Some nonstate actors rely on symbolic sources by acting as representatives of certain interests or capacities. Others employ cognitive sources by providing

certain knowledge or expertise. A large group of nonstate actors utilizes social authority by having access to networks or supporters, whereas others use more traditional leverage by gaining access to key players or decision-making processes. Finally, a swathe of actors seek authority by providing material resources in the form of monetary payoffs or other economic advantages (69). The respective agency of nonstate actors in these roles can be seen as a function of unequal knowledge of rules, access to resources, differing levels of transnational connectivity, geopolitical status, as well as how other actors perceive their respective roles and how they contribute to effective, efficient, and equitable climate action (67, 69, 70).

After Paris: Effectiveness, Efficiency, and Fairness

Although most analysts paint a bright picture of nonstate participation, it is clouded by some concerns of overexpectations of their many roles to bring Paris to a successful implementation. Some legal scholars have pointed at the problem of the “surprisingly little attention paid in the Agreement” to the functions of nonstate actors, even though they have the crucial roles mentioned above (71, 72). The sweeping acknowledgments of the nonstate functions leave it unclear how these roles will play out in the implementation phase, which can impede their ability to contribute to the agreement’s effectiveness, efficiency, and fairness.

In terms of how nonstate actors are themselves effective and add to the effectiveness of the Paris Agreement, the ability of nonstate actors to respond to the growing tasks expected of them after Paris has been questioned. This is particularly important when we consider that nonstate actions are restricted in several of the countries that are among the major emitters. Bailey & Tomlinson (43) underscore that in both China and India, whose contributions are crucial for the Paris Agreement’s success, “the scope for environmental [civil society organizations] to influence government is narrowing” (p. 10). Although this may not be the case for some NGOs, such as business, the roles of civil society organizations are at risk of being inhibited. Moreover, many of the most vulnerable countries, where adaptation and financing are urgent, have also obstructed civil society organizations and media, which may hamper their ability to contribute to transparency and capacity building. Although private financing is critical for delivering the needed climate finance, adaptation support is at risk. As the bulk of the private finance targets mitigation, the expected balance of UN funds disbursed between adaptation and mitigation, such as the Green Climate Fund’s decision to have a 50:50 convergence over time, will be difficult to maintain (73–75).

As pertains to efficiency, nonstate actors will likely help to lower monitoring costs, as we already see with the NAZCA portal. The demand for transparency in how the contributions in the NDCs shall be measured, reported, and verified applies to states only. Still, many of the national contributions include nonstate initiatives, and nonstate actors are taking on mitigation, adaptation, and finance goals through NAZCA and other channels. Nonstate actors will therefore have to efficiently monitor each other and reduce the efforts needed by states in that pursuit. UNEP’s *Emission Gap Report 2015* estimated that between 33% and 70% of the emission reductions achieved through nonstate actions was already included in national targets (76). Thus, although nonstate actors are expected to promote transparency, the multitude of initiatives—from a wide host of actors—poses a formidable challenge for transparency ambitions. How, and whether, nonstate actors can contribute to efficiency of monitoring remains to be seen.

In terms of fairness and equity, the Paris Agreement was possible because of a “creative ambiguity” in many areas: That is, agreement could be reached because the text of the agreement allows for some flexibility in how to interpret some areas of conflict, such as how commitments should be verified (77). As such, it is hardly surprising that the nonstate roles were also mentioned in passing. But this also has the effect that states may pick and choose what aspect to follow, and

to what degree. How nonstate actors fill gaps when (or, optimistically, if) states fall short of their NDCs will be crucial as they seek to make the Paris Agreement more equitable.

Ultimately, how nonstate actors may contribute to the effectiveness, efficiency, and equity of the Paris Agreement will become clearer at the upcoming UNFCCC COPs and Intersessionals (the meetings of Parties that are held between the COPs). During this time, the transparency framework, the compliance mechanism, and much else will be elaborated and decided. However, until this occurs, the lack of certainty will have two very likely implications. First, nonstate actors—with their various roles, types, and levels of authority—will be important in closing mitigation, adaptation, and financing gaps, as contributors and/or monitors. Second, and relatedly, this ambiguity places an even stronger burden on the UNFCCC to act as a coordinator. The UNFCCC will have to find ways to coordinate state and nonstate actions pre- and post-2020 to ensure that these actors can employ the hybrid architecture to attain the goals of the Paris Agreement.

CBDR: common but differentiated responsibilities

SHIFT 3: FROM A MITIGATION FOCUS UNDER KYOTO TO A TRIPLE GOAL COMPRISING MITIGATION, ADAPTATION, AND FINANCE UNDER PARIS

The final shift marshalled under the UNFCCC and exemplified in the Paris Agreement is the broadening sectoral focus from the early fixation on mitigation to the inclusion of adaptation and finance. This widened scope impacts other issue areas in world politics which, in turn, reverberates back to the UNFCCC.

The core objective of the UNFCCC has always been to limit “dangerous anthropogenic interference” with the global climate system. As discussed in shift one, this task—for many years—revolved centrally around the mitigation of GHGs. As embodied in Article 4(a) of the Convention, states are required to publish and make available “national inventories of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, using comparable methodologies to be agreed upon by the Conference of the Parties” (3). Due to the initial lodestar of common but differentiated responsibilities (CBDR), Annex I countries—through Article 4.2(a)—specifically bound themselves to “adopt national policies and take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs” (3).

As the UNFCCC entered into force in 1994 and negotiations over the Kyoto Protocol emerged, this mitigation focus was cemented. For the 38 Annex I countries, this implied an emission reduction of 16.8 GtCO₂ during this first commitment period (i.e., budget period) of 2008–2012 (78). The Kyoto Protocol showed mixed success on the mitigation front. From 2007 to 2012, the number of countries with some form of climate mitigation policy rose from 23% to 39% of all UNFCCC signatories (79). Likewise, the successful diffusion of GHG emission reporting—pushed at the COPs—has proven critical in developing an infrastructure for, and norm of, monitoring, reviewing, and verifying (MRV) (80, p. 398). Michaelowa rightly notes that a surprise success of the Kyoto Protocol was the scale and reach of its market mechanisms in the pursuit of emission reductions (80, p. 399). The advent of emissions trading, the CDM, and JI are especially impressive given that market-based approaches were not referred to in the founding 1992 UNFCCC document. Finally, attempts to centralize global climate emission reduction under the Kyoto umbrella had the unexpected effect of increasing climate mitigation experimentation (81).

On the flipside, the lack of ratification by the United States (as discussed above), and the eventual exit of Canada in 2011, undermined the effectiveness of the Protocol. During the 1997 to 2006 period, global CO₂ emissions actually rose by 25% (82), despite a massive turnaround in

post-Soviet heavy manufacturing industries. Annex I states with targets showed variation in their reductions, with Japan, Russia, and the EU making cuts, but Australia, Canada, the United States, and other OECD countries all increasing emissions. GHGs were grouped into a single basket for mitigation despite pervasive differences in how each is produced, their impact on global warming, and their ease of mitigation. This caused distributional conflicts at the domestic and international levels (78, 83).⁵ COP-15 in Copenhagen—intended to lay the groundwork for a post-Kyoto cap-and-trade system for carbon reduction—was (by many accounts) a lamentable failure, supposedly highlighting the limits of a top-down, multilateral approach (49, 78). Resultantly, it took until COP-17 and the Durban Platform for a 2015 deadline for international climate action to be renegotiated. This delay compounded previous failures.

Although there were some successes for mitigation under the Kyoto Protocol, the broad goal of curbing global carbon emissions was not realized.⁶ The reasons behind this lack of success—and the ensuing gridlock in climate negotiations—have been explored in previous literatures. There scholars have shown that the wicked nature of climate change (its time-sensitive nature, its complexity, irrational discounting of the future), pathologies in institutional design of the UNFCCC (such as its consensus decision-rule), the lock-in of carbon-based energy systems (86), and divergence between national preferences (46, 78, 87, 88) contributed to said gridlock. Less well understood is why, given these problems, did a triadic focus on adaptation and finance emerge alongside mitigation in the Paris Agreement? What role did the UNFCCC play in this shift? And what does it mean for the Paris Agreement moving forward? The next two sections answer these questions. In line with the previous arguments, the shift reflects and portends a changed role for the UNFCCC and its Secretariat as it has moved toward being a coordinator of global climate action.

Mitigation, Adaptation, and Finance in Paris

How were adaptation and finance viewed during the pre-Paris period? Starting with adaptation, the UNFCCC founding document in Article 3 asked Annex I states to “take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects” (3). Article 4.1 required parties to protect the climate system “on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities” and cooperate “in preparing for adaptation to the impacts of climate change.” Despite these initial movements in the UNFCCC, adaptation was not defined in the Convention text and—especially during the 1990s and early 2000s—was considered the “poor cousin” of mitigation (89). It was not until the second and (especially) third IPCC report in 2001 that scholarly and policy interest toward adaptation grew (90). Therein, adaptation was defined as an “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities” (91). Since this time, there has been a steady increase in work on the conceptual, normative, and empirical dimensions of adaptation (92), as well as related concepts, such as resilience (93).

This increased interest in adaptation during the early-2000s sat uneasily with the emergence of the Kyoto Protocol. On one hand, Article 10(b) noted that states shall “[F]ormulate, implement,

⁵The GHGs lumped together were CO₂, methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

⁶In terms of unexpected success stories, the Copenhagen Accord was an important blueprint for aspects of the Paris Agreement, such as the finance goal, the aspirational 1.5° target, and the inclusion of loss-and-damage (73). Some scholars—such as Jessica Green (84) and Thomas Hickmann (85)—have also emphasized how Kyoto Protocol rules were essential in the creation of private governance standards and NGO efforts.

publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change and measures to facilitate adequate adaptation to climate” (3). In the lead-up to Kyoto, three climate funds were created: the Special Climate Change Fund, the Least Developed Countries Fund, and the Adaptation Fund (94). When the Kyoto Protocol came into force, the Adaptation Fund was brought within the Global Environmental Facility (GEF) and has—mostly using funds garnered through the CDM—distributed approximately \$354 million USD (as of late 2016) on adaptation projects in non-Annex I countries (see also Article 12.8 of the Kyoto Protocol). On the other hand, this shift had the unintended consequence that Annex I states could stop paying into the Adaptation Fund by reducing their emissions, which, given the necessity of adaptation due to the time-lag from emission reduction to climate consequence, is highly problematic (89). Moreover, the decision-making process of the Adaptation Fund suffers from vagueness in the operationalization of key terms (such as “vulnerability” and “adaptive capability”), making decisions opaque (95).

As the so-called taboo against adaptation gave way during the mid-2000s (89), Article 2 of the Paris Agreement would come to elevate the notion on par with mitigation (96). The Paris Agreement seeks to enhance adaptive capacity, strengthen resilience, and reduce vulnerability through technology transfer, finance, and capacity building [see Article 7 (on adaptation) and Article 11 (on capacity building)]. The Agreement, as noted above, also sets in motion a series of global stocktakes and a transparency framework to track progress on adaptation efforts. Finally, decision 1/CP.21 of the Paris Agreement highlights the need “to mobilize stronger and more ambitious climate action by all Parties and non-Party stakeholders, including civil society, the private sector, financial institutions, cities and other subnational authorities, local communities and indigenous peoples” (39).

Paralleling this change is the elevated importance of climate finance moving into the post-Paris period. Although adaptation has had a checkered past, climate finance has been a central element of climate governance since its inception. The UNFCCC stated that developed countries shall “provide new and additional financial resources to help developing countries fulfill their obligations [see Articles 3 (1), 4 (2), and 4 (4)] and set up a mechanism for providing financial resources through the COPs [Article 11 (73)]. In addition to the GEF and the Adaptation Fund, COP-16 in Cancun saw the establishment of the Green Climate Fund (GCF). In Paris, states have now agreed to target \$100 billion financing per year by 2020 (97). This will occur through a variety of channels such as global efforts (GEF, GCF, UN Women), regional advancements [the European Union External Investment Plan (EIP) or the Caribbean Climate Smart Coalition], collaborative partnerships between government and industry (such as UNEP and BNP Parisbas), and efforts by cities, firms, and civil society actors (98).

By current estimates, pushing developed and developing countries toward a low-carbon growth pathway will require approximately \$800 billion in renewable energy research between now and 2050 (99). Although the \$100 billion pledged under the Paris Agreement would go a long way toward promoting mitigation and adaptation in developing countries, there is currently a \$40 billion annual shortfall on most projections. Moreover, there will be ongoing disagreement about measuring the availability of climate finance (especially from private sources), how best to allocate what finance there is (i.e., whether adaptation or mitigation should be given precedence), and whether funds are being spent in normatively justified and empirically effective ways (96). For instance, at COP-23, G-77 countries argued against the plans to include the Adaptation Fund in the Green Climate Fund, as they feared adaptation financed might be downplayed in the latter. How the UNFCCC manages these challenges remains to be seen.

Ultimately, adaptation and finance have taken different pathways in the emergence of a triadic Paris Agreement. Adaptation’s importance was initially superficially touched upon by the

UNFCCC ignored in early Kyoto Protocol negotiations but eventually seen as a critical component of how parties should institutionalize responses to climate change. This gradual process occurred foremost due to the recognition that any low-carbon pathway would require adaptation efforts due to climatic change already set in motion, and that adaptation assistance would need to be offered to developing countries (89). By contrast, climate finance has been included more centrally in UNFCCC efforts from the outset, but its rise in importance was paralleled by—even intertwined with—adaptation. Mitigation and adaptation efforts have drawn on—and will require—different sources of funding. As the Annex system has broken down, but the CBDR principle has solidified in the NDC process, finance has emerged as a key way to understand state and nonstate commitments to climate problems.⁷

Although this pragmatic explanation—that adaptation will be needed to deal with past emissions, and finance is essential to both mitigation and adaptation—surely holds weight, the specific reasons why the Paris Agreement embodies this triadic split are harder to parse out. Three reasons why this may have occurred are plausible. First, creating issue-linkages between mitigation and adaptation/finance in the Agreement may have shifted the win-sets of different states. That is, when gridlock occurs in a negotiation, linkage means that concessions in other issue areas can be offered to foster agreement. These linkages, often taking the form of “side-payment,” help otherwise unwilling actors to take part in a bargain and revise their win-set (100). Second, the emphasis by the G-77 on adaptation became increasingly prominent as the second commitment period of the Kyoto Protocol was negotiated (101). This prominence meant that developing states could put adaptation onto the agenda. This explanation is compatible with the previous one, insofar as developing states may have been willing to take on mitigation burdens if developed states elevated the importance of adaptation and finance. Finally, the decline of the Annex system and the rise of nonstate actors led to a broadened agenda as these historically peripheral actors bring new voices, ideas, and interests to the negotiations. These increased voices, and concomitant influence, may have prompted a wider range of issues to be considered.

It is worth recognizing, however, that these are potential explanations only, with further research needed to adjudicate between them. This is important because some theoretical perspectives would predict against the triadic focus. For instance, many scholars argue that issue-linkages and side payments add complexity to negotiations, sometimes making agreement more difficult. Standard international relations literature also suggests that issue-area integration should not emerge when positive spillovers exist, but only to guard against negative spillovers (102). Given the supportive relationship between mitigation, adaptation, and finance, the result may be theoretically surprising (103). Likewise, although the G-77 might have pushed for adaptation and finance, we should also expect that powerful states have more leverage in negotiations, and that institutional design will generally reflect this balance. Finally, the breakdown of the annex system and increased prominence of nonstate actors could also have deepened gridlock by further diversifying preferences under a consensus-based system. As such, the shift observed here offers useful testing ground for different theoretical positions.

Adjudicating between—and assigning causal weight to—these different arguments is therefore essential. But whatever the precise (combination of) reasons, it became clear during the Kyoto Protocol period that adaptation and finance could no longer be ignored as the effects of mitigation

⁷According to Article 4.3 of the Paris Agreement, each successive NDC will reflect each state’s “highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.”

would not be felt for some time, especially as net-zero emissions is targeted for “some time” between 2050 and the end of the century. What is certain, then, is that this triadic split will have (and indeed is already having) an impact on how the UNFCCC operates within the wider architecture of global climate governance. Most centrally, the complexity of mitigation, adaptation, and finance will mean that the UNFCCC increasingly takes on a coordinative function for that wider landscape, offering a venue for global stocktakes, developing a transparency framework, sharing best practice, engaging nonstate actors, and much more (21). By thinking about this role, we can begin unpacking how effective, efficient, and equitable the Paris Agreement will likely be.

Effectiveness, Efficiency, and Equity of the Paris Agreement

How does this triadic shift matter for the effectiveness, efficiency, and equity of the Paris Agreement—and therefore UNFCCC—moving forward? In general terms, this split will entail more formal overlap between the UNFCCC and different issue areas and sectors. For instance, although they are negotiated separately, the Paris Agreement and the emergence of the 2015 SDGs are deeply intertwined: Advancing one is intended to advance the other. Likewise, emerging sectoral agendas—such as water and energy security—are tied to the Paris Agreement in direct and indirect ways (103–107). One cannot accurately consider the efficiency, effectiveness, and equity of the Paris Agreement without looking at these broader effects.

However, this is a demanding task. Determining the effectiveness of the Paris Agreement—the ability to reach its specified goals—is complicated by at least three factors. First, effective compared to what? Stipulating the relevant counterfactual is a difficult, value-laden task (77). If the counterfactual was “no agreement,” then all effects of the Paris Agreement will be viewed as positive. If the relevant counterfactual was a binding agreement reached years previously with stringent targets and timetables, the Paris Agreement will likely be viewed as ineffective. Second, what is the right measure of effectiveness? Although limiting global temperature rises to within 2° of pre-Industrial levels (and, hopefully, within 1.5°) is the key goal, the expanded focus on adaptation means that finance will have to be spread in different ways, and trade-offs between goals will likely emerge. For instance, scholars have already shown that UNFCCC policies targeting energy efficiency will likely enhance attainment of the SDGs and carbon capture and storage will conflict, whereas a focus on renewables would have mixed effects depending on the technology type (103, 108). Finally, establishing causal relations will be very difficult. Global climate governance encompasses a wide array of interdependent actors with differential impact on climatic systems. Ascertaining who is responsible for effects both positive and negative will likely prove extremely difficult, and at the least, will require a broad range of methodological tools: interpretive, qualitative, quantitative, and experimental.

In terms of efficiency—outcomes achieved related to resources invested—the UNFCCC is already on the back foot. Although the Paris Agreement is legally binding in procedural terms, this relates only to the global stocktakes (i.e., the peer-review mechanism aimed at fostering compliance), the transparency framework, and the ratcheting-up of NDCs over time (109). As a matter of international law, the NDCs themselves are not legally binding on states. The ability of the UNFCCC to provide an efficient realization of the goals of the Paris Agreement is stymied by this initial design, and the lack of resources marshalled by the Secretariat. This body will have to rely on “soft power” to induce compliance with NDC targets, such as naming-and-shaming, providing expertise, and directing discussion at the COPs (110, 111). Perhaps most centrally, this is where the ability of the UNFCCC Secretariat to act as coordinator will matter most: Achieving goals with limited resources will require much mobilization, steering, and facilitation.

Finally, in terms of equity—issues of fairness in process and outcome—the Paris Agreement targets lofty standards. By aiming for procedural fairness (i.e., transparency, deliberation at COPs, inclusive mobilization, etc.), we should hopefully see more equitable outcomes (i.e., a more sustainable low-carbon transition in which the costs are appropriately tied to national circumstances). There is good evidence that more inclusive, deliberative, and fair procedures promote better decision making and compliance, so this symbiosis is possible (59). However, there are significant doubts over the ability of the UNFCCC to deliver a truly inclusive and deliberative space (112, 113). However, as the Paris Agreement engages more actors and sectors, fostering meaningful procedures will be essential, not just as a matter of equity, but also for effectiveness: securing compliance, enhancing epistemic quality, and managing complexity.

CONCLUSION

In this article, we have analyzed three shifts in the evolution of the UNFCCC: first, the move away from legally binding emissions targets for industrialized countries under the Kyoto Protocol to voluntary contributions in the form of NDCs under the Paris Agreement; second, the emergence of a hybrid Paris Agreement displacing the top-down Kyoto architecture; and third, the addition of adaptation and finance under the Paris Agreement to the initial Kyoto focus on mitigation. Where do these three shifts leave us in terms of thinking about the future of the UNFCCC as the implementation of the Paris Agreement begins in 2020? Our core argument has been that despite all the effort put into COP negotiations under the UNFCCC over the years, GHG emissions have continued to rise (114). Indeed, it was recently shown that 2017 saw an increase of global CO₂ emissions of approximately 1.4% or 450 MtCO₂ above the previous year (115). This was due largely to increased energy demand in the form of coal and oil, with renewables holding steady (and thus decreasing their relative share). This deflates the hope that environmental degradation and economic growth had finally “decoupled,” where the latter would not necessarily rely on the former.

These more-or-less continual rises in CO₂ usage are perhaps unsurprising given that climate change is a wicked problem: States hold divergent preferences; those most needed to act have incentives not to; actors often heavily discount the future, thereby delaying action and passing the costs on to future generations; and there is only a weak centralization of authority (42). Expecting the UNFCCC to be the primary driver of mitigating climate change was always likely to run into political and economic realities. Over the past 25 years, however, negotiations under the UNFCCC have shifted, partially in response to these problems. We have seen a disintegration of the Annex system, the rise of nonstate actors, and the emergence of adaptation and finance alongside mitigation reflecting the need for a more comprehensive, multifaceted agreement (eventually reached in Paris). This change signifies a shift for the UNFCCC in more general terms: that from implementer to coordinator.

How will the UNFCCC—its Secretariat and COP—manage to coordinate global climate action moving forward? Although this remains to be seen, we envisage three possible scenarios that could unfold. We do not make a strong prediction about the likelihood of any specific scenario. But, as we move forward, it will be important for scholars and policy makers to think about the promises and pitfalls of each scenario, to identify which scenario is unfolding, and to help direct activity in productive ways. Given the importance of path dependencies in institutional evolution, putting the UNFCCC on the right track early to lock in attendant benefits should be a central goal.

The first scenario is a cooperative one. In this instance, as the Paris Agreement rolls out, we will see a virtuous cycle emerge. This will entail states making strong and comprehensive

commitments through the NDCs. The global stocktake will offer robust comparisons across states with the transparency framework enabling monitoring, verification, and review of these efforts. These NDCs will represent the upper threshold of each states' potential contributions to the goals of the Paris Agreement in terms of mitigation, adaptation, and finance. Each successive NDC will build on the previous stocktake to increase ambition, and a cycle of trust will emerge. When some actors fail to meet their commitments, others will fill the breach on the assumption that derogation is due to an exogenous shock, and a positive equilibrium is maintained. Finally, nonstate actors will play many productive roles befitting their multidimensional composition, monitoring state NDCs, fostering transnational climate action, reducing their own emissions, etc.

Within this cooperative scenario, the UNFCCC's role as coordinator will be primarily facilitative. The UNFCCC will provide the architecture for the NDCs to be recorded and reviewed. The COPs will be run smoothly to enable trust to build, and the data supporting the compliance mechanism and review framework will be open, transparent, and impartial. The UNFCCC will push states to balance mitigation, adaptation, and finance as appropriate for each country's unique ability. Any efforts at naming and shaming by the UNFCCC will result in a quick attempt by the "shamed" party to either justify their actions or alter their behavior to become compliant. Conversely, those who show leadership by example will be praised. Moreover, nonstate actors will be facilitated in their various functions: NAZCA and the GCAA will have clear metrics for participation, the high-level champions will promote schemes to ensure productive links with other sectors (such as energy, water, etc.) and the SDGs. This scenario will ultimately entail that the UNFCCC build productive links within the field of climate governance, foster symbiosis with actors in related sectors, and secure a virtuous cycle of increasing ambition as the world moves toward a net-zero carbon trajectory.

The second scenario is a conflictual one. It is the inverse of the previous scenario insofar as a vicious cycle of defection develops. It would see states increasingly weaken implementation of their NDCs as they perceive that other states are not living up to their "fair share" in light of different national circumstances. Each stocktake will be combative, with states disagreeing over how CO₂ emissions should be counted, which adaptation efforts are most urgent, and finance being withheld. Nonstate actors—far from making monitoring, reporting, and verification more robust—will provide contested data, therefore stoking the embers of wider conflict. Eventually, states will either withdraw or simply fail to comply with the demands of the Paris Agreement, shifting blame onto others.

If this scenario unfolds, the role of the UNFCCC as coordinator will be one of patchwork—constantly trying to fix problems rather than build a productive path. The body will have to convince states and nonstate actors that the framework of the Paris Agreement is the only one with enough coverage to tackle the wicked cooperation problem of climate change. The UNFCCC will have to work hard to persuade states to increase their commitments, be prepared to determine clear standards for judging whether NDCs reflect appropriate national circumstances, and to name-and-shame states that fail to live up to their commitment. Increasingly, states will withdraw—as the current US situation portends (1)—and this will lead to a series of defections that the UNFCCC struggles to curb. Nonstate actors, recognizing this trend, will also demur from their commitments under the GCAA and NAZCA, and actors in other issue areas will seek to distance themselves from the failures of the Paris Agreement. The UNFCCC will struggle to keep mitigation, adaptation, and finance high on the international agenda, lose their coordinative function in the wider landscape of climate governance, and eventually be unable to solve problems leading to the eventual collapse of the Paris Agreement.

Between these two poles is a wide middle ground. This third scenario is one of compromise. The UNFCCC will attempt to fix problems as they emerge and push positive developments when they

become feasible. In this instance, states recognize the benefits of increasing climate ambitions, but uncertainty surrounding the actions of other states inhibits a Pareto-optimal solution emerging, even as the stocktakes and NDCs establish an iterated game (100). Some states will then seek to minimize their obligations, whereas others strive to uphold the demands of the Paris Agreement. Equally, some nonstate actors will recognize the benefits of decarbonization and divestment, whereas others will defect from transnational agreements and undermine the broad goals of the Paris Agreement, while most will support different parts of the agreement depending on their roles and interests. Between cooperation and conflict, then, compromise will undergird interactions.

In this case, the UNFCCC will act as a mediator, endeavoring to maintain communication across different nodes in the climate governance landscape. The UNFCCC will not simply facilitate a positive pathway, nor just block negative developments. Rather, their goal will be to foster productive links with other actors and sectors, and to reduce the damage of negative spillovers. This will require the expenditure of both energy and resources on behalf of the UNFCCC. However, this role will be essential: States will have reasonable disagreements about their “national capacities” and nonstate actors will also vary widely in terms of their emissions reductions, adaptation efforts, financial capacities, as well as awareness raising and capacity building priorities. Ensuring that the Paris Agreement is effective, efficient, and equitable is therefore extremely demanding. But it will involve the UNFCCC in a brokering role: convincing states and nonstate actors to stay in the Agreement, encouraging increasing commitments, and building links with other issue areas across the broad climate governance landscape.

The role of the UNFCCC in the wider landscape requires emphasis here. The UNFCCC started as the central node in the organization, arrangement, and operation of global climate governance. Although this centrality has waxed and waned over time—most notably during the Kyoto Protocol and exemplified by the weak accord reached at the Copenhagen Conference—the centrality of the UNFCCC was reasserted in Paris. Divisions between developed and developing states have been overcome through the NDC system. Nonstate actors bucked the trend toward unilateralism and helped induce a universal and inclusive agreement. Finally, failures on mitigation were not met with disillusionment, but rather states and nonstate actors have pushed for a multisectoral approach to dealing with the myriad effects of climate change.

Although these changes are all important in the evolution of the UNFCCC, the Paris Agreement will likely usher in an era whereby the UNFCCC has to act as a coordinator between multilateral efforts and transnational action, both within and beyond climate governance. The expansion of mitigation commitments from Annex I to all states, from states to nonstate actors, and from mitigation to adaptation and finance makes this task all the more demanding. These shifts, we suggest, mean that the UNFCCC will likely find itself dealing with a diverse landscape of climate governance that is not easily characterized as a single regime, or even a single regime complex. Instead, it may be useful to think about the emergence of different regime complexes in the areas of mitigation, adaptation, and finance (116).

Although mapping these regime complexes is beyond the scope of this review, much recent literature points in this direction. Work in surrounding fields on polycentricity, fragmentation, and transnational climate governance all suggest that a multilevel, multi-actor, and multisectoral field is emerging (84, 117–120). The UNFCCC will need to mediate these interactions moving forward if the goals of the Paris Agreement are to be reached (85). And this is ultimately the challenge facing the UNFCCC. The Paris Agreement cements this body as the central node of dealing with climate change; however, past efforts have fallen short of lofty ambitions. Coordinating nearly 200 states, countless nonstate actors, and the complexity of different issue areas will be an enormous task, but one befitting the challenge of developing a low-carbon transformation for the global system.

SUMMARY POINTS

1. The negotiations toward the Paris Agreement have ushered in a new era of multi-actor, multisector, and multilevel climate governance.
2. Major shifts faced and propagated by the UNFCCC over the past 25 years include the breakdown of the Annex system, the rise of nonstate actors, and the increase in linkages between mitigation, adaptation, and finance; these major shifts represent the core of the Paris Agreement.
3. Despite increasing complexity, the UNFCCC is consolidated as the epicenter of global climate action, raising questions about how effective, efficient, and equitable this framework might be.
4. The Paris Agreement will require the UNFCCC to take on a strongly coordinative role, especially in relation to NDCs, nonstate initiatives, and the interactions between transnational climate governance and related issue areas.

FUTURE ISSUES

1. Pre-2020 action—and especially the Talanoa Dialogue—will be essential for building trust and sending credible commitments among states and nonstate actors.
2. Different scenarios are possible for the Paris Agreement, ranging from cooperation, to compromise, to conflict. The coordinative role of the UNFCCC will need to change depending on which scenario emerges.
3. The linkages between climate change and the SDGs will run increasingly deep over time and will therefore require active attention to ensure efficiency of efforts.

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