3 Climate Change Governance Past, Present, and (Hopefully) Future

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Introduction

The news on climate change was not good to begin with, and is getting worse. This chapter examines our collective efforts to address this increasingly grave and urgent problem. I trace the evolution of the climate regime and the shift from "old" to "new" governance. Despite its relative newness compared to other global issues, there has been a transformation in climate governance over the last two decades. Most characterize this as a transition from a traditional hierarchical model of governance, embodied by the Kyoto Protocol to a more bottom-up approach codified in the Paris Agreement. I argue that this is an overly simplified distinction. In fact, Kyoto contained both markets and networks, which were significant parts of its design. Similarly, Paris preserves an important – and indeed expanded – role for states.

Nonetheless, there is a shift in how the climate regime operates now versus "then." I detail these differences and suggest two primary drivers for the change. First, profound geopolitical changes – namely the rise of the BRICs (Brazil, Russia, India, and China) – quickly made the Kyoto Protocol politically untenable. Second, the rise of global rationalization meant that states conceived of climate change primarily as a technical problem. All the while market ideologies of governance were lurking in the background, reinforcing the notion that markets, rather than governments, could provide the necessary innovation and action to address climate change. This view papered over profound political conflicts which ultimately led to Kyoto's failure.

I suggest that the new governance, embodied by the Paris Agreement, goes further to address these problems. And while the *processes* institutionalized by Paris provide some reasons for optimism, the *outcomes* fall far short of what is needed. At present the Paris Agreement falls well short of its own stated goal of limiting warming to 1.5 degrees Celsius. "New governance" has clearly been good for building new institutions, and is a more flexible and politically realistic approach to climate change.

The bet is that this arrangement is better suited to both the realities of domestic politics and profound uncertainty surrounding climate change than the old governance model. If we are correct then we have created the enabling conditions for decarbonization. The question is: will it happen fast enough?

It is not an overstatement to say that the answer to this question is critical both for the future of the planet and the legitimacy of global governance. Climate change will likely exacerbate existing problems in world politics such as armed conflict and mass migration. And the iron law of climate change is that those least responsible will be most affected, creating an ever greater need for global action. A shift to a "new" global governance architecture means little if climate change continues apace. To preserve the legitimacy of the climate regime, as well as much of the fabric of the current liberal international order (such as it is), actors will have to move more swiftly and decisively toward a fossil fuel-free world.

What Is Happening? From Kyoto to Paris

The changes in climate governance can be understood as a *proliferation* of authority rather than a shift in its locus. The Paris Agreement is best viewed as a "choose your own adventure" approach to climate governance: like the children's books of old, many types of actors get to select what types of measures they will take to address climate change. This includes non-state actors, firms, and subnational actors such as cities and regions. States too, both developed and developing, get to decide what types of climate policies are optimal.

The "choose your own adventure" approach has not lessened state authority in any way; if anything it has expanded the possibility for states to exercise authority, since there are now many more opportunities to engage with and coordinate non-state and subnational rule-makers. Thus, as I have argued elsewhere, authority in the climate regime is best conceived of as positive sum rather than zero sum.²

To understand the proliferation of authority it is useful to juxtapose the design of the Kyoto Protocol with the Paris Agreement. The transformation of the climate regime illustrates that hierarchies, networks, and markets are present at both phases, though the emphasis has changed somewhat. Kyoto is typically depicted as a top-down hierarchical model, while the Paris Agreement is billed as bottom up.³

¹ Busby 2018; Mach et al. 2019. ² Green 2014. ³ Green et al. 2014.

While this is true in the main, a closer examination demonstrates that both phases of the climate regime have aspects of all three modes of governance: networks, markets, and hierarchies. The transformation of the climate regime is not a change from one mode of governance to another, but is best understood at the reconfiguration of the embedded relationships among these three modes.

The Kyoto Protocol: Both Market and Hierarchy

The Kyoto Protocol is now ancient history, but is critical to understanding the current state of climate politics. Even at its moment of conception in 1997, Kyoto was a tenuous political agreement. It divided the world into two – developed and developing nations. Developed nations were required to reduce their collective emissions to 5 percent below 1990 levels by the end of 2020. States recognized even then that this was a minuscule reduction in light of the science of climate change. Moreover, the 5 percent target was an average across all developed nations. Thus, leaders like Germany agreed to reduce their emissions significantly (by 21 percent) while middle-income nations were allowed to increase their emissions. This was hardly a path to decarbonization.

Importantly, in accordance with states' "common but differentiated responsibilities," Kyoto did not require developing countries to reduce their emissions. The UN Framework Convention on Climate Change (UNFCCC), which provides the legal basis for the Kyoto Protocol, notes that "that the share of global emissions originating in developing countries will grow to meet their social and development needs." Common but differentiated responsibilities was, until Paris, a defining feature of the climate regime. And it proved to be the undoing of Kyoto. As a result the USA – the world's largest emitter at the time – refused to ratify. In a strong and sweeping statement to the rest of the world the US Senate adopted the Byrd–Hagel Resolution in 1997 stating that the USA should not become a signatory to the Kyoto Protocol, with a vote of 95–0.

While Kyoto can primarily be understood as hierarchical in its rule-making and implementation,⁶ network and market approaches were also present. One of the main innovations of the Kyoto Protocol was the creation of an international market on carbon offsets, called the Clean

⁴ UNFCCC 1997. ⁵ UNFCCC 1992, preamble.

⁶ The protocol itself is silent on the matter of enforcement. Subsequent negotiations established an enforcement branch to facilitate compliance but it had little in the way of punitive powers.

Development Mechanism (CDM).⁷ The CDM allowed developed countries to offset their emissions by paying for emissions reducing projects in the developing world. Indeed, by many accounts the market mechanisms were the linchpin to securing consensus.⁸ Developed countries now had a much-needed escape hatch: if domestic reductions became too politically onerous or costly then states could instead pay for mitigation activities in the developing world. Developing countries, for their part, saw the CDM as an important revenue stream in promoting sustainable development.

The creation of the CDM gave rise to a booming offset market and the proliferation of many different types of actors to support it. CDM projects required project designers, investors, monitors, verifiers, and of course implementers. A number of business and environmental NGOs created their own rules to create and commodify carbon offsets, creating a voluntary market in parallel to the CDM. These were (and still are) sold to interested buyers – often firms – who seek to reduce their carbon footprint voluntarily. However, the weaknesses of offsets quickly became evident.

The climate regime has also had networked governance structures since its inception. The Global Environment Facility has served as the financial mechanism for the convention since its entry into force in 1994. It administers a variety of special funds created by states which address adaptation and the needs of least developed nations. The Green Climate Fund, another financial mechanism of the climate regime, was created in 2010 to help developing countries address climate change. Both are independent organizations whose work is closely tied to the UNFCCC. In addition the three "Rio Conventions" – signed at the Rio Conference on Environment and Development in 1992 – created the Joint Liaison Group in 2001. The three multilateral environmental agreements – on biodiversity, desertification, and climate change - have clear and substantive overlap. As rule-making and implementation of each agreement expanded the secretariats of each created the "Joint Liaison Group" as a way to coordinate their efforts. Other UN bodies, such as the UN Environment Programme and the UN Development Programme, also have climate change as major programmatic priorities.

Thus, even in its early phase, this group of international organizations had elements of networked governance, as defined by the editors of this volume in the Introduction. They worked for a common purpose

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There were two other markets created by Kyoto: one for offset initiatives conducted jointly by developed nations and one for trade in emissions allowances.
 Werksman 1998.
 See, e.g., Green 2013; Peters-Stanley and Gonzalez 2014.

through voluntary arrangements. As international organizations (IOs) they enjoy formal equality, despite varying levels of resources and authority. In the parlance of theorists of regime complexity this early instantiation of the climate regime had loosely coupled sets of rules with little in the way of formal procedures to adjudicate among them, which is further evidence of networked governance.¹⁰

Paris: Choose Your Own Adventure

Fast-forward fifteen years to the Paris Agreement. There are three main differences between Kyoto and the Paris Agreement. First, the nature of the commitment has changed. Second, and related to the former, the breadth of state participation has vastly expanded. Under Paris climate change is no longer the sole responsibility of the developed world; all nations must do their part, even though the extent of these contributions varies widely. Third, non-state and subnational actors now occupy a prominent role in both rule-making and implementation. ¹¹ This shift is an explicit acknowledgment of the interdependence of many different types of actors in addressing climate change.

After a series of failures in the run-up to Paris, states committed to the "choose your own adventure" approach to climate governance. Instead of setting hard reduction targets each state submits its own "Nationally Determined Contribution" (NDCs) detailing the measures it will implement to reduce emissions, and in the case of many developing nations adapt to the effects of climate change. Although the agreement calls for limiting temperature increases to below 2 degrees Celsius below preindustrial levels, most analyses indicate that the NDCs will not achieve that goal. 12 The "choose your own adventure" approach allowed the climate regime to expand its participation. The Kyoto model, which excluded developing nations, was barely politically workable at the time of drafting, and became impossible after the rise of the BRICs. Once China had surpassed the USA as the world's largest emitter in 2007 few states could countenance giving it, or others nations with growing emissions, a complete pass on reductions. This remained true for the USA, and became true in developed nations where conservative governments had come to power, like Australia and Canada. As a result Paris replaced the principle of common but differentiated responsibility with a more verbose but politically acceptable principle: "common but differentiated responsibilities and respective capabilities in the light of

 $^{^{10}}$ Raustiala and Victor 2004. 11 Hsu et al. 2015; Hale 2016; Bäckstrand et al. 2017. 12 UNEP 2020.

different national circumstances."¹³ Under Paris every state has to do *something* to address climate change, however small.

Finally, and most importantly, Paris shifted to an "all hands on deck" approach, inviting and encouraging action by non-state and subnational actors. ¹⁴ This is evidenced by the Non-State Actor Zone for Climate Action (NAZCA), which was launched in 2014 and has since expanded to play a major role in the Paris regime. Major voluntary efforts under NAZCA include RE100, a network of multinational firms that plan to source 100 percent of their energy needs from renewables. ¹⁵ In all, NAZCA provides a hub for non-state and substate actors to document their voluntary commitments, which now number over 26,000. ¹⁶

Simultaneously, cities became a focus of transnational climate policy. Former New York City Mayor Bloomberg launched the C40 Cities initiative in 2005, which promotes information sharing and promotion of best practices among city governments around mitigation and adaptation. ¹⁷ A similar effort, the Covenant for Mayors, was launched in Europe in 2008. ¹⁸

In addition to the NAZCA platform, the Paris Agreement establishes a set of institutions to support these activities. Specifically, it creates an annual review process so that non-state efforts can be tracked over time. It also appoints two "champions" - governmental officials to essentially be in charge of this review process. This means that non-state actors are now part of the institutional infrastructure supporting Paris. NAZCA is an explicit signal from states that climate change does in fact require commitment and action by many different types of actors – an acknowledgment of interdependence and common purpose, both hallmarks of networked governance. But more significantly it demonstrates a willingness to integrate multiple efforts – and multiple sources of authority – into the international legal framework for climate change. This is not the same as true equality, since states are firmly in control of this multilateral process. Nonetheless, the ongoing efforts to incorporate non-state actors into what had been an exclusively state-driven process signals something of a shift to networked governance.

Paris also creates a more prominent role for market approaches, which are growing features of the new climate architecture. Article 6 of the Paris Agreement calls for the voluntary use of "internationally agreed mitigation outcomes" to help states achieve the goals set forth in their national pledges. This decision lays the foundation for a new form of market

UNFCCC 2015, article 2.2.
 Hale 2016; Chan et al. 2018.
 http://there100.org/.
 www.c40.org/.
 www.covenantofmayors.eu/index_en.html.

activity. It is not the same as carbon trading, since "mitigation outcomes" can include many different types of activities. States are still negotiating how, exactly, this would work. There are a variety of technical challenges to deal with, not least of which is how to standardize different carbon mitigation efforts so that they can be properly quantified and traded. Nonetheless, the logic is very much market-based: one country pays another to reduce emissions premised on the assumption that the marginal cost of reduction is lower in some jurisdictions than in others. The exchange is Pareto-improving both for the parties involved and the global climate.

Beyond the Paris Agreement carbon markets are catching on. Roughly 20 percent of global carbon emissions are now covered by a carbon price. The EU has the largest regional carbon market. Others include a growing market between the state of California and Canadian provinces, and a regional market in the Northeast and Midwest of the US. In December 2017, China launched a national carbon market covering the electricity sector. There is enthusiasm among some to link these disparate markets together to create a global carbon price. However, some have been wary of such an approach. In the carbon price of the covering the section of the covering the carbon price.

In sum, the evolution of the climate regime is best understood as a *growth* in authority rather than a shift from one form to another. Though state-based rule-making was perhaps the most prominent feature of the Kyoto phase it was by no means the only mode of governance. Markets and hierarchies were also present. The Paris Agreement marks a more pronounced commitment to markets, and networks, but these are in addition to (and in some instances also subject to) the hierarchical authority of states. Many of the "new governance" approaches have now been institutionalized in the Paris Agreement – thus rendering them part of the "traditional" approach to intergovernmental cooperation.

Why Is It Happening?

Given that there are many potential explanations behind the changing constellation of modes of governance, and many are likely correlated, the task is to sift through these varied drivers to find those that are most important, in the sense of being causally prior. In explaining the shift from Kyoto to Paris I argue that there are two structural variables that "begin" the story: changes in geopolitics and the rise of global rationalization. As I explain in this section, these two factors drive the failure of

¹⁹ World Bank Group 2019. ²⁰ Ranson and Stavins 2016. ²¹ Green 2017.

the Kyoto Protocol, which then gives rise to more modular approach of the Paris Agreement. There is also an important background condition: the pervasive neoliberal emphasis on markets and trade. As with many other areas of world politics, governance through markets was a hallmark of climate politics as early as the mid-1990s. In turn, the emphasis on markets provided an important entry point for a variety of non-state actors, further accelerating the diffusion of authority.

Geopolitics

The significance of the rise of the BRICs cannot be understated in mapping out Kyoto's failure. Common but differentiated responsibility (CBDR) is a principle of international environmental law that dates back to the mid-twentieth century. A number of environmental agreements identify parts of the environment that are the "common heritage of mankind." The notion of differentiated responsibility first appears in the 1970s, and its variants are found in significant agreements like the UN Convention on the Law of the Sea. Though the phrase "common but differentiated responsibility" does not formally appear until the 1992 Rio Declaration, it has been present in various forms for most of the life of contemporary environmental law.

Given the well-established history of CBDR, it was virtually unavoidable that the principle be applied to the Kyoto Protocol – especially given the fact that it was drafted in the years following the Rio Declaration. CBDR was first institutionalized in the climate regime through the Berlin Mandate of 1995, which stated that "developed countries should take the lead in combating climate change" and that no new commitments would be introduced for developing countries.²³ Thus, any subsequent agreements *would have to* be governed by CBDR. This was the first battle of many about the appropriate obligations for the developing world.

CBDR created problems from the earliest days of the climate regime. The decision not to require developing countries to reduce their emissions was the primary reason given by the George W. Bush administration for its decision not to ratify. And it made reluctant nations like Russia even more disinclined to participate. After the USA declined to ratify, Russian participation became essential; without it Kyoto would likely not have entered into force. (Entry into force required ratification by fifty-five countries, representing 55 percent of global emissions.) Russia flirted with ratification for several years. By the time it decided

²² Sands et al. 2012. ²³ UNFCCC 1995.

to join, its emissions had fallen well below the baseline level, creating a windfall of "hot air" which it could then sell on the newly created Kyoto carbon markets. Indeed, although Kyoto was signed in 1997 it did not enter into force for another eight years – once it had secured ratifications from states representing 55 percent of total global emissions.

Kyoto was built on shaky political foundations. But as the BRICs and other emerging economies began their meteoric economic growth in the early 2000s that foundation became even more precarious. Asian emissions roughly doubled between 2000 and 2011.²⁴ And critically in 2007, just two years after the Kyoto Protocol entered into force, China overtook the United States as the world's top emitter. It was no longer politically feasible that it remain unconstrained by global rules on greenhouse gases.

The rise of the BRICs could not have occurred at a more inopportune moment for the climate regime: just as states began to negotiate the terms of the second commitment period of the Kyoto Protocol. The Protocol was divided into two periods, the first from 2008 to 2012 and the second from 2012 to 2020. The Doha Amendment, adopted in 2012, laid out a more ambitious reduction target for the second commitment period: 18 percent below 1990 levels. But a number of nations declined to sign up for another round, including Japan, New Zealand, and Russia. In addition Canada withdrew in 2011 after it became clear that it would not meet its target. The stated reason, however, was the non-participation of the USA and China. Nonetheless, the USA held firm on its position not to ratify. Only the EU remained unwavering in its commitment to reductions – aiming for an ambitious 20 percent reduction below 1990 levels by 2020.

Thus, the rise of the BRICs and their emissions levels made the paradox of CBDR untenable. It was clear that any future climate regime could not be based on the Kyoto model and the principle of CBDR if it was to get continued support from the developed world. Something had to change.

The USA-China joint announcement on climate provided that much-needed change. In 2014, in the run-up to Paris, presidents Obama and Xi announced their joint commitment to climate change. The USA rolled out its Clean Power Plan, which aimed to reduce US emissions from electricity 26–28 percent below 2005 levels by 2025. At the same

²⁴ www.wri.org/blog/2014/05/history-carbon-dioxide-emissions.

www.theguardian.com/environment/2011/dec/13/canada-pulls-out-kyoto-protocol.

time China committed to peaking its emissions by 2030, and to increasing its share of renewables to 20 percent by the same date.²⁶

The announcement was significant for three reasons. First, it signaled that the two biggest emitters were willing to act on climate change without the commitment of other nations. Their actions demonstrated that this was no longer a free-rider problem which required consensus and commitment to avoid defection.²⁷ These pledges helped refocus climate politics as an issue of domestic policy. Second, though Obama had been in office since 2009, an intransigent Republican Congress had stymied federal legislation on climate change. The Clean Power Plan showed Obama's willingness to use his executive power to move climate policy forward. Similarly, President Xi's pledge demonstrated that China was ready to take on its role as an emerging economy and the concomitant responsibility to act on climate change. This was a definitive reversal from the Kyoto era, when developing countries resolutely insisted that the principle of common but differentiated responsibility exempted them from action. Finally, the joint agreement set the stage for the more variable, less rigid approach embodied by the Paris Agreement.

Global Rationalization

A second critical driver in the shift from Kyoto to Paris is the cultural shift to global rationalization. Global rationalization is a process that valorizes rational-legal authority over other types of authority. It privileges standardized approaches to governance and creates a prominent role for international experts specializing in narrow areas within the regime. These are all the hallmarks of the Kyoto Protocol, which viewed climate change as a technical problem to be managed by experts and bureaucrats at the global and national levels rather than as a fundamental problem of distribution. But ultimately this approach to climate change resulted in the creation of a political institution that was doomed to fail – both politically and in terms of outcomes. The emphasis on standardization and expertise was an attempt to paper over profound political differences.

But, as others have pointed out, climate change is not simply a technical problem. It is not only – or for some states, even primarily – a question of emissions mitigation.²⁸ It is also a problem of adapting to a changing climate, intra and intergenerational equity, social justice, and

²⁶ https://obamawhitehouse.archives.gov/the-press-office/2014/11/11/fact-sheet-us-chinajoint-announcement-climate-change-and-clean-energy-c. Colgan et al. 2020. ²⁸ Roberts and Parks 2006.

²⁷ Colgan et al. 2020.

"deep decarbonization." 29 Yet, the dominance of global rationalization framed climate change as a first-world problem of emissions reductions, and made the politics of cooperation particularly contentious for three reasons.

First, global rationalization suggested that a standardized approach to climate change was appropriate. All countries would commit to a target – a specified level of emissions reductions.³⁰ This would be politically negotiated, but the assumption was that once states agreed the hard problem of overcoming free riding was solved.³¹ Then addressing climate change was "simply" a question of ensuring that states met their targets. But, in terms of domestic politics, these commitments were much more complicated than just agreeing on a number. Many countries committed to goals that were incompatible with domestic interests and politics.³² Once translated into national policies these targets created hard political questions about winners and losers. By the logic of the two-level game, then, the Kyoto Protocol should never have come into existence, since states overpromised on what they could reasonably deliver politically.³³

Although global rationalism has hardly disappeared from the climate regime, it looks different in the "new" governance of the Paris Agreement. In contrast to the "targets and timetables" approach espoused by Kyoto, Paris rejects a standardized approach. Instead it allows countries to propose policies most in line with their own needs and compatible with the domestic constraints. As a result the NDCs are incredibly varied. So, while the EU focuses on an ambitious emission reductions goal (40 percent reduction in all greenhouse gas emissions below 1990 levels by 2030), Brazil emphasizes adaptation as a fundamental part of its commitment. India is focused on scaling up renewable energy.

Second, and related to the first, global rationalization suggests that the "best" institutional solution to collective action problems is one that enhances efficiency. Thus, the concern surrounding climate change was to create institutions that deter free riding.³⁴ Yet, the contentious nature of the political debate meant that an enforcement mechanism for Kyoto was nearly impossible. Indeed, states studiously avoided the

²⁹ Bernstein and Hoffmann 2015.

³⁰ Since the Kyoto Protocol required that all developed (or Annex I) nations achieve a global average reduction of 5 percent below 1990 levels, some nations were actually allowed to increase their emissions. Others set more ambitious targets, well below the global average, to offset these permitted increases.

Barrett 2003.

32 Victor 2011.

33 Putnam 1

³³ Putnam 1988.

See, e.g., Aldy and Stavins 2007; Keohane and Victor 2016.

question of enforcement in drafting the Protocol, postponing discussion about it until after entry into force. They then created a weak oversight mechanism that has been little used, and even then primarily in its "facilitative" capacity – to help states that want to comply but lack the capacity to do so. Thus, while efficiency was a central preoccupation as mandated by the logic of global rationalization, politically an "efficient" institutional design was infeasible.

The view of climate change as a collective action problem was further cemented by the success of the Montreal Protocol to address the depletion of the ozone layer. The Montreal Protocol provided the template for Kyoto. The ozone regime began with a framework convention – a soft law instrument in which states declared their intention to address the problem with greater ambition in the future. Like Kyoto, the Montreal Protocol divided the world into developed and developing nations. Developed nations had to begin phasing out the production of ozone-depleting chlorofluorocarbons (CFCs) almost immediately. Developing nations, by contrast, got a pass. They would *eventually* have to phase out production, but had at least a decade before they had to address the issue. The same playbook was replicated in Kyoto – which began with a framework convention and was then followed by a legally binding protocol, which distinguished among developed and developing country commitments.

It is beyond the scope of this chapter to provide an in-depth analysis of the Montreal Protocol.³⁵ However, Montreal's success is not only, or even principally, due to its institutional design. Compared to climate change, ozone depletion was an easy technological fix (though ironically the main substitutes for CFCs, called hydrofluorocarbons, are extremely powerful greenhouse gases). The biggest producer, the United States, backed the treaty, and indeed, as Barrett shows, would even have benefited hugely from unilateral action.³⁶ Thus, the assumption that the Montreal model could be readily exported to the problem of climate change was a miscalculation of epic proportions. Unsurprisingly, when large emitters pulled out of Kyoto (or failed to ratify in the first place) collective action quickly unraveled. A logic of global rationalization indicated that there was an "optimal" institutional design for global environmental problems. However, the empirical record demonstrates the flaws in this thinking.

Finally, global rationalization was the driving factor behind the creation of carbon markets in the Kyoto Protocol. An army of international

³⁵ Benedick 1991. ³⁶ Barrett 2003, chapter 8.

bureaucrats and expert nongovernmental organizations (NGOs) understood that carbon markets could provide some flexibility in how states met their targets; again, this served the purpose of lessening political conflict. They also recognized that markets could become a mainstay of their own activities, creating a potential influx of resources. Yet, carbon markets – particularly offset markets – have been widely criticized. Rather than create actual emissions reductions, critics argue that they simply create a new commodity to be bought and sold. Indeed, thus far there is evidence that existing markets have contributed relatively little to emissions reductions.³⁷ Prices are far too low to produce the needed changes in behavior, much less a viable pathway to decarbonization. By contrast there is ample evidence that carbon markets are a politically palatable approach to mitigation, even if the outcomes are less than robust.³⁸ Markets provided some of the political momentum that allowed Kyoto to totter along, as well as the questionable results that prompted a rethinking of climate governance.

These two drivers set climate policy on a course for failure. The change in geopolitics and the rise in global rationalization allowed states to strike a deal they shouldn't have. It quickly began to unravel. Political momentum slowed, and gridlock ensued.³⁹

New Actors, New Ideologies of Governance

Thus far I have argued that geopolitical shifts and the imprint of global rationalization set in motion a tenuous agreement which was unlikely to be viable in the long term. In addition to these key causal factors, additional elements influenced the shift from "old" to "new" governance. In particular the presence of non-state actors and the emergence of "liberal environmentalism" as an ideology of governance are important to understanding the evolution of the climate change regime.

Environmental issues have typically been viewed as "low politics" and therefore more permeable to non-state actors. ⁴⁰ NGOs in particular have been active in international climate politics from the outset. As early as 1992 major international environmental NGOs including Greenpeace, the World Wildlife Fund, and Friends of the Earth organized into a transnational advocacy network. ⁴¹ In the early days of the climate regime they were typically "leader" international NGOs – with lots of resources and mainstream views and a technocratic approach to climate change. ⁴²

Cullenward and Victor 2020.
 Wara 2014.
 Victor 2011.
 Betsill and Corell 2008.
 Hadden 2015, chapter 2.
 Stroup and Wong 2017.

As the regime shifted the number and types of non-state actors also grew, many becoming integral to the implementation of the Paris Agreement.

At the same time liberal environmentalism became an important norm in global environmental politics. 43 Liberal environmentalism conveniently viewed free markets as entirely compatible with environmental protection. Thus, policies focused on market-based mechanisms, business partnerships, and open markets. As Bernstein notes, "norms of liberal environmentalism predicate international environmental protection on the promotion and maintenance of a liberal economic order."44

Liberal environmentalism first emerged in the early 1990s and became more pronounced over time. The enthusiasm for markets provided a logical entrée for more non-state actors. Beyond just NGOs, firms, subnational actors, and transnational networks increasingly became part of the institutional landscape. 45 Using market-based and expert authority, new non-state actors were able to find niches in an ever-expanding governance landscape. 46

In response to the gridlock of the intergovernmental process, and the increasing urgency coming from the scientific community, non-state actors became regulators in their own right. 47 Non-state actors had already mobilized around the intergovernmental process; acting independently of this process was the next logical step. Firms began to realize that climate change was a risk management issue – for their reputations and their supply chains. 48 And subnational governments began to see climate change as a local issue about air pollution, extreme weather, land use change, and any number of other topics. This pluralization of actors resulted in shifting new policy activity on climate outside the intergovernmental rule-making process.

The explosion of transnational climate governance in the late 2000s and early 2010s provided much-needed momentum for a flagging intergovernmental process. Through a mutual process of pushing from nonstate actors and leadership from inside the intergovernmental arena 49 this transnational activity was gradually integrated into the climate regime. In 2014 states created NAZCA. NAZCA provides a platform within the UNFCCC for sharing information about non-state and substate climate activities.

 ⁴³ Bernstein 2001.
 44 Bernstein 2002, 1.
 46 Abbott et al. 2016.
 47 Green 2018. ⁴⁵ See, e.g., Bulkeley et al. 2014.

Dauvergne and Lister 2013; Green 2014. ⁴⁹ See, e.g., Galvanizing the Groundswell for Climate Action, which seeks to build and expand an institutional framework for non-state action within the UNFCCC. http://www .climategroundswell.org/.

The Paris Agreement simply institutionalized NAZCA through a process of annual reviews and designated officials to direct the review process. From a political perspective this institutionalization is important. Non-state actors are now formally part of the institutional infrastructure supporting Paris.

Hindsight, of course, is 20–20, but in this retelling it seems clear that Kyoto could not have been a successful model. Because of the age-old practice of CBDR in international environmental law developing countries could not be drafted into the fight against climate change. The rise of the BRICs and concomitant increase in emissions made this division politically untenable. Political differences were further papered over by the trend toward rationalization, which emphasized technocratic approaches to what are fundamentally distributional problems. As non-state actors proliferated, due in part to the privileging of market-based logics, the structure of the climate regime was turned on its head.

How Does It Matter?

Though political scientists may be interested in explaining how we got here, the most important question, in terms of the future of our planet, is what this shift in governance arrangements means for our collective ability to produce sound climate policies or the political processes that lead to those policies. By sound climate policies I mean moving quickly toward deep decarbonization and implementing adaptation and resilience policies to protect societies from the impacts of climate change that are already underway, particularly the most vulnerable. The latest United Nations Environment Programme emissions report estimates that in order to achieve Paris's goal of limiting warming to 2 degrees Celsius we must approach net zero emissions by mid-century. In short, we want to know whether Paris will produce processes and outcomes that Kyoto could not.

Of course, it is early days to make assessments about outcomes. As such, I start by looking at the processes that the Paris approach has put in place. And here there are reasons to be cautiously optimistic.

First, the Paris Agreement has provided much-needed momentum to the intergovernmental process. After it became clear that many major emitters would not sign on to the second commitment period of Kyoto

⁵⁰ UNEP 2020.

there was genuine concern about whether a successor agreement was politically possible. This was further compounded by the view that the 2009 climate negotiations in Copenhagen were a failure. By comparison, the elation in Paris showed not only that an agreement was possible, but also that it could include the developing world. In turn, this development lessened the importance of free riding as a political obstacle to cooperation. Paris has demonstrated that climate cooperation is possible without the "you first" logic built into the Kyoto Protocol. ⁵¹ It is noteworthy that the commitment to action persisted, despite the Trump administration's nonsensical withdrawal from the agreement.

Second, the Paris approach has made significant progress in institutionalizing processes for learning. While climate change is at base a political problem, there are technical issues involved, and "new governance" can help address this subset of issues. This argument is captured by work on experimentalist governance, where "actors facing uncertainty can jointly explore practical ways to realize their goals." This approach is particularly useful when there is "thin consensus" – agreement that there is a problem that requires action but no clear sense of how to proceed. Experimentalist governance is essentially structured, institutionalized trial and error, with additional information informing future plans. In the case of some of the more technical aspects of climate mitigation it may prove to be helpful. Some have gone further, arguing that experiments are not merely improving rationalist approaches to policy-making but can give rise to normative shifts and transformational changes.

Third, the Paris process can potentially catalyze larger political and normative changes. Hale has recently suggested that climate change is not an n-person prisoner's dilemma, as rational institutionalists maintain, but rather is best conceived of as a "tipping point problem." In this view, "catalytic" institutions help early movers act; over time these early actors lower costs to action, thus incentivizing the more recalcitrant to follow suit. ⁵⁶

Bernstein and Hoffman similarly argue that pathways to decarbonization can lock in transformational changes.⁵⁷ The question, then, is not how to "deepen commitments" but how to make the necessary energy transformation both inevitable and irreversible. Seen through this lens the Paris pledges are not "shallow" but rather the first steps in changing

Aklin and Mildenberger 2020; Colgan et al. 2020; Hale 2020.
 Sabel and Victor 2017, 18.
 Sabel and Victor 2017.
 Hale 2020.
 Bernstein and Hoffmann 2018.

others' incentives to act. The only question becomes whether incentives can be shifted quickly enough to avoid catastrophic climate change.

While there are reasons to believe that the Paris approach can set us collectively on a path toward better climate policies, it would be remiss not to discuss the shortcomings of the new governance model.

First, the pledges are not enough. The most recent models state that the Paris pledges only get about one-third of the way to the 2 degree target.⁵⁸ This suggests that the "choose your own adventure approach" may produce optimism about the *process* of cooperation but ultimately lead to outcomes that are insufficient to avoid dangerous climate change – at least thus far.

Second, the Paris Agreement does not explicitly address the problem of obstructionism from those industries, states, and firms that stand to lose out from climate policy. A growing body of literature identifies obstructionism as the key obstacle to climate action, rather than free riding. ⁵⁹ But the voluntarism of the Paris pledges is particularly vulnerable to obstructionists.

Third, we have little way of assessing the aggregate effects of the NAZCA initiatives. The efforts of subnational and non-state actors are numerous and diverse. We know a lot about what these pledges look like⁶⁰ but relatively little about how they have performed. There are serious challenges to assessing NAZCA's impacts. It is difficult to compare – let alone add – apples (states' actions) and oranges (transnational activities). Even parsing transnational activities from state pledges is a challenging undertaking.⁶¹

There are a number of initiatives underway to help evaluate the impacts of transnational activities. The Greenhouse Gas Protocol, created by two NGOs, is a series of tools to measure and report greenhouse gas emissions and reductions. ⁶² It has vastly expanded since its creation in 2010 and is now creating new tools precisely for the purpose of evaluating national pledges and non-state activity to implement Paris. ⁶³ In the age of global rationalization measurement has become a key form of governance. ⁶⁴ But right now the necessary measurement tools are only in their earliest stages. Without them it will be difficult to assess progress.

Fourth, the continued reliance on carbon markets is worrisome. The evidence on their effectiveness at reducing emissions is mixed, and it is

http://web.unep.org/emissionsgap/.
 Colgan et al. 2020; Stokes 2020.
 http://visuals.datadriven.yale.edu/climateaction/.
 Green 2014, chapter 6.
 Green forthcoming.
 Kelley and Simmons 2015.

clear that other types of mitigation policies are much more effective.⁶⁵ Yet the Paris Agreement creates a prominent role for carbon markets to continue into the future – despite the fact that negotiations remain contentious and unresolved.

Finally, there will undoubtedly be interactive effects among the governance activities of this diversity of actors. New governance is complex: there are lots of actors with many connections between them. 66 Complex systems behave in non-linear ways, producing unexpected outcomes and interactions among policies. For instance, despite its ambitious climate policies the European Union's cap and trade scheme performed inconsistently. Since its creation in 2005 it has struggled to establish a strong price signal. Much ink has been spilled to deconstruct the shortcomings of the EU market. But one piece of the explanation stems from the interactive effects of other climate policies. The EU has committed to generating 20 percent of its energy from renewables by the year 2020. This has resulted in a huge increase in the amount of installed capacity of renewables, particularly wind. 67 The growth in renewables has reduced the demand for carbon allowances in the cap and trade market, further depressing prices. Thus, while both policies are working toward the same goal – a reduction in greenhouse gas emissions – the interactive effect has produced some unintended and unwanted outcomes.⁶⁸ These perverse and unanticipated effects will become more prominent as complex governance grows - presenting new challenges for policy design and management.

Conclusion

In the end it seems that in the realm of climate politics "new governance" has been good for building new institutions, and has provided a more flexible and politically realistic approach to climate change. The bet is that this arrangement is better suited to both the realities of domestic politics and profound uncertainty surrounding climate change than the old governance model. If we are correct then we have created the enabling conditions for decarbonization, though obstructionism remains a challenge. The question is: will it happen fast enough?

The timeline is incredibly tight. The Intergovernmental Panel on Climate Change states that the globe must have "net zero" emissions

Wara 2014. See also, Green 2021.
 Kahler 2016.
 Vaughan 2017.
 Green 2017.

by 2050 in order to limit warming to 1.5 degrees Celsius. And the difference between 1.5 degrees and 2 degrees is immense in terms of impacts, so every bit of avoided warming is critical. In this view, governance processes to facilitate change are not enough. What is needed is immediate and drastic action.

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