International Climate Politics in the post-Paris era

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"COP21 was a success, but that was the easy part"-
Christina Figueres, Executive Secretary United Nations Framework Convention on Climate Change
(2010-2016)

Introduction

On the 12th of December 2015, over 20 years of international climate change diplomacy culminated in the Paris Agreement, succeeding the Kyoto Protocol as a universal and binding agreement to curb greenhouse gas emissions beyond 2020. Its central objective is to keep the global average temperature rise "well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels" (UNFCCC 2015, Article 2(a)). The Paris Agreement was concluded on overtime and signed by over 190 countries of the United Nations Framework Convention on Climate Change (UNFCCC)'s at the 21st Conference of Parties (COP). Yet, while the road to get to this agreement had been long and bumpy, the Executive Secretary of the UNFCCC declared that the hard part was now set to begin. The Paris Agreement offers a political framework for implementing the goals in the Agreement through voluntary national climate plans - national determined contribution (NDCs) - submitted by the states. The details on how to enhance ambition of NDCs and review commitments is however subject to continued political contestation. In other words, after more than 20 years of contentious international negotiations on climate change, the Paris Agreement is not the final destination, but merely the start of a long process for the world to address climate change.

The recent release of the Intergovernmental Panel on Climate Change's (IPCC) special report on 1.5°C illustrates the gap between scientific findings and effective policy response: the predicted temperature rise is closer to 3°C based on current pledges by states under the Paris Agreement (IPCC 2018). Pertinent questions are thus: Why has international cooperation to address climate change been so difficult, what are the innovative features of the

Paris Agreement, and what is the outlook and prospects for climate change governance in the post-Paris era? The aim of this article is to provide an assessment of the efficacy of the Paris Agreement to generate policies and incentivize actions that can contribute to halt climate change significantly. In order to do so, we outline the history of international climate change politics and examine if/how the Paris Agreement can be seen as a successful multilateral agreement in curbing global climate change and decarbonizing the global economy. Moreover, the article outlines the nature, strengths and limitations of the Paris Agreement and analyses the prospects for effective action on climate change.

The article shows that the Paris Agreement in many ways represents a tectonic shift in global climate politics. First, as a global universal comprehensive treaty it eroded the Kyoto Protocol's 'firewall' between developed and developing countries where the latter were exempt from mandatory obligations to reduce emissions. Second, the Paris Agreement has replaced the Kyoto Protocol's top down 'targets and timetables' with a bottom-up 'pledge and review' process, thereby making domestic climate action central in multilateral climate policy. Third, the Paris Agreement has enacted a new model of 'hybrid multilateralism' whereby the function of a climate agreement is to direct, orchestrate, harness and mobilize climate action by sub-state and non-state actors such as cities, business, investors, regions and civil society (Andonova 2018, Bäckstrand 2017). While the Paris Agreement in itself will not have a significant impact on halting climate change, it can be effective if it contributes to changing behavior among states and non-state actors by providing an infrastructure, signal and direction for ramping up climate action and political commitments to decarbonization. As Christoff (2016) observes, the Paris Agreement is a promissory note where we cannot yet ascertain progress.

The article proceeds as follows. The next section outlines some structural features of climate change as a collective action problem that generates challenges of enforcement and thereby insufficient policy response to combat global warming. This is followed by a history of international climate diplomacy from the 1992 Rio to the 2015 Paris climate summit, with an emphasis on the 2009 Copenhagen summit that laid the foundation for the Paris Agreement. Thereafter, we assess the potential and limitations of the Paris Agreement to reduce greenhouse gas emissions before offering an analysis of what this agreement means for future international cooperation and effective policy response on climate change. We conclude by examining the prospect for global de-carbonization and offer policy recommendations.

Climate change as a public good, multilateral gridlock, and lack of effective action

What are the reasons for a protracted lack of effective policy response to global climate change for decades? Despite alarming reports from the Intergovernmental Panel on Climate Change (IPCC) every fifth year or so, the world is not on track for meeting the $2°C$ temperature target. We discuss below three features – the collective action problem, burden sharing and problem of enforcement.

First, climate change as an international problem stems from the nature of the climate issue as a 'public bad', where almost all countries will suffer depending on national capacity, vulnerability, geographical location and stages of economic development. Climate change is essentially a global collective action problem as greenhouse gases that give rise to climate change mix in the atmosphere globally, while the primary costs of policies to reduce emissions are borne within national jurisdictions (Victor 2011). Thus while the benefits of reducing greenhouse gas emissions are shared globally (although there could be additional benefits enjoyed locally, for example reduced air pollution), the costs are borne by the entity reducing emissions and decarbonizing. Climate change resembles the Prisoners dilemma as each country has an incentive to opt to free-ride on the climate abatement efforts of others rather than engage in cooperation (Barrett 2003). Thus, international cooperation is required to address climate change, but the form and function of this cooperation is subject to contestation.

Second, the contested issue of burden-sharing - what constitutes as fair distribution of costs and benefits of climate regulation – has plagued climate diplomacy for 25 years. The time lag between costly measures to reduce carbon emissions and future benefits in terms of discernable and improved climate impacts can span over several decades, and are also compounded by scientific uncertainty. Moreover, competing principles for assessing equity and fairness (total emission, per capita emissions, historical emissions, vulnerability, wealth etc) and different perceptions of fairness among states or negotiation blocs hampers progress on near and long-term action climate change.

Third, the decentralization of world politics and lack of hierarchy and sanctions makes enforcement of a global climate agreement difficult. International politics in general, and arguably international climate change politics in particular, is characterized by a heterogeneous set of state and non-state actors alike that seek to advance their particular interests in multilateral fora. The international political system is made up of almost 200 states that differ widely in terms of population, economic development, political system, greenhouse gas emissions, vulnerability to climate change, economic dependence on the sale or use of fossil fuels, views

about the importance of environmental protection and multilateral cooperation, etc. (Underdal 2017). As there is no supreme authority that can impose cooperation on these states, countries must negotiate to find common ground and regulate global carbon emissions. As previously discussed, for a public good such as reduced climate change, countries have an incentive to free ride on other countries' efforts to reduce carbon emissions to evade costly changes in their carbon economy (Keohane and Victor 2016). Self-enforcement will therefore need to rely on reciprocity between states, soft sanctioning mechanism such as "naming and shaming" by transnational advocacy networks and by mobilizing domestic interest groups and democratic publics in different countries (Keohane and Oppenheimer 2016).

In sum, different sets of compounding factors contribute to policy gridlock. The magnitude of the global climate threat is augmented by the fact that the major drivers of climate change are fossil fuel combustion and land-use change and therefore involves virtually all human activity. Climate change thus challenges the development path that the world has undertaken since the Industrial Revolution. Climate policies therefore need to address a range of difficult issues, from establishing fossil fuel-free energy, food and transport systems, to reducing deforestation and emissions from industrial and waste processes (Falkner 2016).

Milestones in international climate policy
The international climate negotiations have been described as "probably the most complex environmental diplomacy ever undertaken by the global political community" (Okereke 2010: 45). A look at the history of climate change negotiations explains why. The warming potential of greenhouse gas emissions has been known for over a hundred years, but it was not until the 1980s that climate change started to be dealt with as a major political issue. A meeting organized by the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP) in 1985 in Villach, Austria, concluded that states should consider developing an international climate convention (Bodansky 2001). Such a convention was opened up for signature during the Earth Summit in Rio de Janeiro, Brazil, in 1992. This convention, known as the United Nations Framework Convention on Climate Change, came into force in 1994 with the overarching objective to achieve "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" (UNFCCC 1992, Article 2).

The political battles fought to agree on the Convention provide a summary of what makes international climate diplomacy so complex. The key issue of contention has at the outset

been about who has responsibility for the cause and efforts to deal with climate change, i.e. burden sharing. With industrialized countries historically being responsible for the rise to the bulk of greenhouse gas emissions in their quest for economic growth, developing countries maintained that it would only be fair if industrialized countries also took the main responsibility for the costs of mitigating climate change. In this perspective, industrialized countries' call for shared responsibility was a distraction from developing countries' immediate and pressing problems of poverty alleviation and economic development. Industrialized countries however maintained that rapid industrialization and population growth in developing countries meant that they would soon be the largest emitters of greenhouse gases and therefore argued for efforts to address climate change from all countries. The political compromise that underpinned agreement in Rio was the principle of 'common but differentiated responsibility', meaning that all countries have a responsibility to address climate change but that this responsibility is dependent on states' national circumstances. Differences in opinion between countries over how this principle should be applied has been a key issue of contention in the different negotiation rounds since the signing of the Convention (Okereke 2010).

While different interests between developed and developing countries explains much of the multilateral gridlock at the heart of the climate change negotiations in the past 20 years, the picture is further complicated by divisions within the developed and developing country blocs. This was already evident when states were negotiating the nature of the agreement prior to the Rio summit. While several European countries argued for the need to have an agreement with specific targets and time-tables, the US instead wanted a framework convention that allowed for a gradual development of tools to address climate change. The European countries were backed by small island states that are some of the most vulnerable countries to climate change. The position of the US was favored by many oil producing countries, who saw a targets and time-table approach as a threat to their main source of income. The European countries agreed to the US position since they wanted to secure US participation in the climate regime. That is why the UNFCCC signed in Rio is a broad and general framework convention without binding emissions targets (Okereke 2010).

EU, however, found allies in many developing countries for their targets and time-table approach on the condition that the targets would apply only to industrialized countries (Bäckstrand and Elgström 2013). Negotiations on such an agreement began in earnest when the UNFCCC entered into force and resulted in the signing of the Kyoto Protocol in December 1997. The Kyoto Protocol set out legally-binding emission reduction targets for 38 industrialized countries and economies in transition (mostly former countries of the Soviet

Union) for the first commitment period 2008-2012. The emission reduction targets for industrialized countries varied between different states but amounted to a modest average of 5% reduction target from 1990 levels. It also allowed for cost-effective emission reduction through the Kyoto Protocol's flexible mechanisms, including emissions trading, Joint Implementation and the Clean Development Mechanism (CDM). These mechanisms were designed to help developed countries fulfill their commitments by allowing the purchase of emission reduction credits through financial transactions between countries, for example by investing in emission reduction projects in developing countries (Bodansky 2001).

The Kyoto Protocol was historic as it set out the first mandatory emission reduction targets. However, while the emission reductions of the Kyoto Protocol were achieved, the aggregate reduction in emissions was largely attributed to the economic restructuring that took place in the economies in transition countries (Chan et al 2018a; Shishlov et al 2016). There are several factors that hampered the Kyoto Protocol's environmental effectiveness. First, the US never ratified the Protocol on the basis that developing countries including large emitters, such as China, were exempt from greenhouse gas emission reduction targets. Second, political compromises that were made to reach agreement led to loose targets particularly for the economies in transition, which were credited for emission reductions that happened as a result of economic restructuring after the fall of the Soviet Union rather than as a result of the Kyoto Protocol (Chan et al 2018a).

The Kyoto Protocol has been criticized for not offering a viable way forward in designing further agreements based on the targets and time-table approach (Keohane and Oppenheimer 2016; Victor 2011). This is because countries that had struggled or failed to meet their targets (illustrated by Canada's withdrawal from the Protocol in December 2011) were reluctant to sign up to a second commitment period of the Kyoto Protocol (Canada, US, Russia, Japan and New Zealand decided not to participate in a second commitment period). Furthermore, there was no plan for how to distribute emission reduction responsibilities also amongst developing countries over time. The focus on legally binding targets had turned the negotiations into a conflict over how to distribute the mitigation burden between countries (Falkner 2016). While developed countries' share of global greenhouse gas emissions had declined significantly from around 56% of global emissions in 1990 to around 39% in 2010, global emissions had risen by around 31% in the same time period, with most of the rise being associated with rapid growth in the emerging economies (Chan et al 2018a). Thus while developed countries urged developing countries to take on emission reduction targets,

developing countries resisted and argued that developed countries had done little to take the lead in reducing emissions.

These were the circumstances that negotiators found themselves in when they met for the Copenhagen climate conference in 2009 intended to create a successor agreement to the Kyoto Protocol. There was strong pressure on negotiators to reach agreement on the Kyoto Protocol's second commitment period and a long-term cooperative action framework with the aim to encompass all countries. Despite two weeks of intensive negotiations, however, the conference did not reach agreement on the outstanding issues. Instead, a small group of heads of 28 states negotiated what became the Copenhagen Accord – a political compromise that offered a new approach to the climate negotiations. Instead of targets and time-tables, all countries were to offer voluntary domestic pledges as a basis for climate action. The Copenhagen Accord thus blurred the distinction between developed and developing countries for reducing emissions, with the promise of climate finance to support mitigation and adaptation in developing countries. Thus while the conference did not produce any new binding agreements and was seen as a great disappointment at the time, it paved the way for a pledge and review system institutionalized in the Paris Agreement in 2015 (Falkner 2016). In response to the perceived failure of the Copenhagen summit, the 2011 Durban climate conference adopted the mandate to "develop a protocol, another legal instruments or an agreed outcome with legal force under the Convention applicable to all parties". 187 voluntary intended nationally determined contributions (INDCs) were submitted by states in advance of the Paris climate summit covering 95% of global emissions. However, the ambition level of the collective INDCs was not sufficient to keep the temperature goal below 2°C (Rogelj et al 2016).

The Paris Agreement, Nationally Determined Contributions and Global Climate Action

The Paris Agreement signals a new phase of international climate diplomacy and a major break with the Kyoto Protocol approach of quantified legally binding targets for industrialized countries only. By cementing a domestic logic of international climate politics, the Paris Agreement is more aligned with the realities and changing geopolitical context of climate politics. States' voluntary pledges and domestic action to mitigation - the NDCs - remain the centerpiece of the Paris Agreement for the post-2020 period (Falkner 2016). The dichotomous distinction between developing and developed countries in the Kyoto Protocol is abandoned, as all countries are obliged to submit national climate plans. However, it leaves much discretion to countries to formulate and implement their NDCs. The Paris Agreement marks a shift in

global climate policy from a top-down, centralized legally binding response of target and timetables of greenhouse gas emissions to a bottom-up decentralized and voluntary pledge and review of reduction targets by states. In essence, the Copenhagen Accord laid the foundation for the pledge and review system which was six years later formalized in the Paris Agreement.

The Paris Agreement specifies a clear objective and goals based on the stabilization objective of the UNFCCC. Article 2 of the Paris Agreement contains the overall purpose for the global response to climate change in: a) the temperature goal of "holding the increase of the global average temperature to well below 2°C above preindustrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels"; b) facilitating adaptation to the adverse effects of climate change to ensure climate-resilience; as well as c) "making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development" (UNFCCC 2015). It further specifies that global net greenhouse gas emissions should be phased out "in the second half of this century" in order to achieve the 2°C or 1.5°C temperature goal (Art 4.1). Global net greenhouse gas emissions should be phased out by 2050, which essentially means that the Paris Agreement sets the direction for a global de-carbonization within the next decades.

By making domestically driven climate policy central to the treaty, the Paris Agreement escapes some of the reasons for multilateral gridlock that permeated global climate policy for decades. First, it lowers the barriers for participation of major emitters such as the US, which has been reluctant to take on quantified targets for emission reductions as illustrated by its decision not to ratify the Kyoto Protocol. Second, it dampens distributional conflicts related to negotiations of burden-sharing and distribution of emission reductions that have been at the heart of the international climate negotiations since the Kyoto Protocol. Domestic climate action such as those outlined in the NDCs can catalyze climate action and experimentation toward de-carbonization by a wide array of actors at the subnational (municipal and state/provincial) and non-state level (Bernstein and Hoffman 2018). Research has shown that the process of asking countries to come forward with pledges has already set in motion a wave of national climate change strategies around the world. According to Iacobuta et al (2018, p. 1114), "economy-wide GHG reduction targets witnessed a strong increase in the build up to 2015 and are adopted by countries covering 89% of global GHG emissions (76% not counting USA) and 90% of global population (86% not counting USA) in 2017". Third, the Paris Agreement puts in place a dynamic ambition mechanism for international review and ratcheting up of domestic mitigation plans. This include rules to ensure the transparency of countries' climate action and their accountability, a 5-year global stock-take of existing NDCs and an

agreement to enhance ambition and build in progression in future of climate plans. The overall purpose of the ambition mechanism is to close the gap between existing NDCs and what would be required to achieve the temperature goal over time. An innovative feature of the Paris Agreement is the combination of bottom-up domestic pledges with top-down review and comparisons of mitigation action. Another particular feature of the Paris Agreement is that the procedural aspects of submitting NDCs and the transparency framework are legal obligations whereas the content of the climate plans in terms of mitigation and adaptation measures are not (Bodansky 2016). The transparency mechanism will thus be a central element in holding states accountable as it will be putting pressure on states to update their climate pledges every five years. This periodic global stock-take will take place in 2023 with the goal to ratchet up ambition to reach the long term temperature goal (Falkner 2016). The facilitative ('Talanoa') dialogue at COP24 in Katowice in 2018 will be the first test to the upscaling of ambition to revise NDCs with peer accountability by states. Moreover, the global stock-take will create opportunities for civil society to use "naming and shaming" for laggard countries not delivering on their pledges. While non-state actors do not have any formal role in the periodic review under the Paris Agreement, the Climate Tracker and Civil Society Review are tools for NGOs to monitor and pressure governments toward compliance. A second limitation is that the Paris agreement does not mandate reviews of state's individual NDCs, but it is a review of the collective ambition and a synthesis of NDCs. Yet, even if the targets formulated in the NDCs submitted by the 170 parties to the Paris Agreement, are met, the world is likely to see a temperature rise of 3°C above the preindustrial level.

The Paris Agreement with its bottom-up approach to multilateral climate diplomacy paved the way for an enhanced role for non-state actors, such as regions, cities, companies, investors and civil society. The recognition that current NDCs if implemented are not on track to achieving the Agreement's objective, has prompted calls for mobilization of non-state and sub-state actors to close the emission gap (Nasiritousi 2016). The COP decision accompanying the Paris Agreement authorized the appointment of two full-time High-Level Champions to mobilize non-state climate action, and engage non-state actors for the pre-2020 period (UNFCCC 2015). The French Presidency of COP21 and the Moroccan Presidency of COP22 nominated each a senior diplomat for 2016-2018 culminating in the adoption of the Marrakech Partnership for Global Climate Action (GCA) (UNFCCC 2016). The Marrakech Partnership subsequently coalesced into the Global Climate Action Agenda (GCAA) with the aim to enhance pre-2020 action (Chan et al 2018b).

Moreover, non-state actors play an increasing important role in shaping and monitoring NDCs submitted by the states. At COP Lima in 2014, the Lima-Paris Action Agenda (LPAA) and the Non-State Actor Zone for Climate Action (NAZCA) were launched to 'galvanize the groundswell of actions on climate change mitigation and adaptation from cities, regions, businesses and civil society organizations' (Chan et al. 2015, p. 467). The numbers of participants at the annual COPs have increased over the years, peaking in Paris with more than 28,000 accredited participants, of whom 8000 were registered as non-state observers (Lövbrand et al 2017). With the adoption of the Paris Agreement, the observer groups present at the annual COPs are now invited to play a more integrated role in multilateral processes through, for instance, monitoring of national action and experimentation with local, regional and transnational mitigation and adaptation strategies.

The Paris Agreement refers to NAZCA, a platform established and hosted by the UNFCCC that to date has registered more than 19 000 individual or cooperative climate commitments by companies, investors, civil society, regions and cities. The function of NAZCA is to mobilize the mitigation potential of transnational climate action and thereby help close the global emissions gap. While the Paris Agreement primarily rests upon NDCs submitted by states, the COP decision formally recognizes that 'non-Party stakeholders' can contribute to the goal of limiting global warming well below 2°C. As such, the agreement spells out a new role for the UNFCCC as 'orchestrator' of transnational climate action.

Thus the Paris Agreement has several innovative features that sets it apart from the Kyoto Protocol. It combines mandatory and non-mandatory provisions, mixes top-down and bottom-up features, and involves states and non-state actors. Moreover, it sets ambitious targets and applies to both developed and developing countries. The Paris Agreement thereby sends a signal to actors on the long-term direction of travel for the global economy. The lack of details in the Paris Agreement, however, raises the question of whether this signal is strong enough (Falkner 2016).

International climate change cooperation after Paris

The speedy ratification and the sooner-than-expected entry into force of the Paris Agreement on 4 November 2016, attests to the Agreement's strength in providing a new regulatory approach for catalyzing and mobilizing climate change among governments, market and civil society actors. The Paris Agreement has however in its short time-frame faced two significant

challenges that undermine its effectiveness to combat climate change. The first was the announcement of President Trump in June 2017 that the United States would withdraw from the Paris Agreement (effective November 2020). This announcement raised concerns about the resilience of the Agreement, given the important role of the United States as the world's second largest greenhouse gas emitter (Chan et al 2018a). The second is the ongoing deadlock amongst states to agree on the implementing guidelines also known as the "Paris rulebook" setting out fair and effective rules for all countries to achieve carbon neutrality and climate resilience. The upcoming climate change negotiations in Katowice in December 2018 will need to resolve considerable differences amongst states on the rules for implementing the Paris Agreement.

In regards to the first challenge, the Paris Agreement has thus far shown itself durable in the face of the challenge presented by the United States' intention to withdraw from the Agreement. While other countries could have followed the example of the United States and abandoned the Paris Agreement, the political reactions to President Trump's announcement instead served to strengthen the support and legitimacy of the agreement as world-leaders have reaffirmed their commitments (Betsill 2017). Moreover, the reaction of a coalition of over 3,000 US sub-state and non-state actors under the banner of America's Pledge initiative testifies to the support for the Paris Agreement amongst a range of important US actors despite lack of federal support. The America's Pledge Initiative was launched by California Governor Jerry Brown and the UN Secretary-General's Special Envoy for Climate Action, Michael Bloomberg, to demonstrate non-state actor leadership on climate change in the absence of federal leadership. A recent report by the Initiative concludes that accelerated action by non-state actors can bring down US emissions by around 24 percent below 2005 levels by 2025, thereby nearly fulfilling the country's NDC pledge (America's Pledge Initiative on Climate 2018).

Governor Brown also hosted the Global Climate Action Summit in September 2018 which gathered 4,000 participants and showcased climate action by a range of actors such as cities, regions, investors and companies (Arroyo 2018). The summit featured several commitments and announcements by non-state actors, such as:

- "More than 60 state, regional and city governments and multinational businesses committed to 100% zero emission vehicles through The Climate Group's ZEV Challenge
- To unlock inclusive economic growth, 488 companies from 38 countries adopted emission reduction pathways in line with the Paris Agreement on climate change.
- Over 70 cities committed to carbon neutrality by 2050. " (Mead 2018)

Thus while the US decision to pull out of the Paris Agreement is a set-back for climate action, it has only slowed it down rather than reversed it, as it has galvanized cities, states and

companies actors to step up. This attests to the institutional feasibility of the Paris Agreement and its logic of bottom-up action. The Paris Agreement has thus proven itself resilient against this first challenge.

In regards to the second challenge, however, the flaws of the Paris Agreement become more apparent. The Paris Agreement is a carefully negotiated agreement with a range of political compromises that postponed many of the difficult decisions on detail that are necessary for the implementation phase. Negotiators set themselves a deadline for negotiating the rulebook for the Paris Agreement; the deadline is fast approaching as the upcoming round of negotiations in Katowice, Poland in December 2018 should see the agreement of the rules for implementing the Paris Agreement such as review of climate plans and the transparency mechanism. Even with an extra round of negotiations that took place in Bangkok in September 2018, however, countries are far from agreeing on such a text. One sticking point is the familiar issue of differentiation, whereby China and other developing countries argue that the same rules on NDC reporting and verification should not apply to all countries. The EU and US, however, are not keen on returning to a system whereby there are different rules for different categories of countries (ENB 2018). The conflicting views on this issue illustrate that the disagreements on how to apply the principle of common but differentiated responsibilities has not been adequately settled by the Paris Agreement.

A further hurdle in the negotiations on the rulebook for the Paris Agreement is the issue of climate finance to support climate action in developing countries. Developing countries argue that developed countries have fallen short of their promises on providing climate finance and want assurances of predicable financial flows from developed countries (ENB 2018). Thus the Paris Agreement has not overcome the general lack of trust between developed and developing countries that has marked the climate negotiations since the start. It is perhaps here that the US decision to withdraw from the Paris Agreement has its biggest effects, since the dwindling climate finance contributions of the US will be difficult to compensate for by other countries.

A successful outcome at the Katowice conference thus depends on difficult political compromises being made for agreeing on the Paris rulebook. This is important for establishing the credibility of the Paris Agreement, as the regulatory approach of voluntary NDCs requires mechanisms for holding states accountable. Without robust rules for transparency and verification, the upward spiral of trust and learning from best practices envisaged by the architects of the Paris Agreement risk turning into a downward spiral of distrust and lack of ambition by countries (Falkner 2016).

Yet, should there be a successful outcome in Katowice, the biggest challenge for the Paris Agreement will still be how to ratchet up ambitious climate action. The world is not on track to meeting the Paris Agreement's temperature goal of 2C and even less so for the 1,5 C goal (UNEP 2017; IPCC 2018). As for meeting the aspirational goal of keeping temperature rise below 1.5C, as small-island states have pushed for, this would require transformation of energy, transport and food sectors on an unprecedented scale. According to one of the authors of the IPCC's special report on the impacts of global warming of 1.5C above pre-industrial levels, reaching the 1.5C target is "technically possible, [but] it's extremely improbable, absent a real sea change in the way we evaluate risk. We are nowhere near that" (Drew Shindell, in Milman 2018).

This implies that a strong rulebook for the Paris Agreement is a necessary yet not sufficient condition for effective climate action. A strong rulebook would provide clarity on the direction of travel. However, breaking the path dependency of the global fossil fuel economy is likely to require additional instruments to complement the regulatory approach of the Paris Agreement. In this regard, the UNFCCC is one of many building blocks of a climate regime that consists of a range of institutions whose work affects climate action. While the UNFCCC has a central role in the climate regime, it interacts with many other institutions and public-private initiatives in a complex governance landscape (Hjerpe and Nasiritousi 2015). Such examples include the G20, the Clean Energy Ministerial, the Climate and Clean Air Coalition, the Friends of Fossil Fuel Subsidy Reform, the Carbon Pricing Leadership Coalition and many others.

This institutionally complex climate governance order reflects the nature of the climate change problem in that an effective response requires action on multiple political levels, jurisdictions and sectors. Climate change is thus a very different type of problem compared to the ozone hole, for example, where the Montreal Protocol has been accredited for providing an adequate response. For the ozone problem, the solution was readily identified and relatively easily implemented through international cooperation. For climate change, however, there are no quick fix solutions and cooperation needs to take place on many levels and in many sectors because of the complex nature of the problem (Victor 2009). This is why the world has seen the emergence of the numerous political initiatives and an "all hands on deck" approach to combat climate change (Hale 2016). The question, which we turn to next, is whether these initiatives add up to provide an effective response or whether additional initiatives are necessary to address climate change.

Outlook and policy recommendations

Over 20 years of international climate change politics has resulted in a climate regime that consists of important norms, principles and institutions. However, at the same time, the Kyoto Protocol proved to be a dead-end as it failed to produce an effective response to halting greenhouse gas emissions. The Kyoto Protocol's second commitment period that ends in 2020 only covers 15% of the world's emissions. As the global climate regime failed to deliver, experimental governance entailing decentralize, multi-level and bottom-up climate action independent of state-centric bargaining processes emerged (Hoffman 20111; Bernstein and Hoffman 2018). The Paris Agreement provided a new framework for curbing climate change and decarbonizing the economy through voluntary action by state and non-state actors. Hybrid multilateralism captures the changing nature of global climate negotiations where the UNFCCC takes on the role as orchestrator, facilitator and coordinator of NDCs submitted by states and voluntary climate action by non-state and sub-state actors (Bäckstrand et al 2017)

Climate governance thus appears as more institutionally complex, experimental and 'polycentric' illustrated by the emergence of a range of public and private institutions, fora and transnational initiatives that also seek to address the climate change challenge beyond the realm of the UNFCCC (Bulkely et al 2014; Jordan et al 2015; 2018) . The 'climate regime complex' (Keohane and Victor 2011) as it is currently shaped thus provides benefits in terms of offering a diversity of venues through which climate cooperation can be advanced, it offers space for learning and experimentation, and it provides actors with different sets of priorities and capabilities flexibility in how to undertake climate action, thereby reflecting political realities. The drawbacks of this type of climate regime, however, are that the fragmented governance landscape may lead to coordination and legitimacy gaps that undermine the regime (Bäckstrand et al 2018; Zelli and van Asselt 2015). The multitude of institutions and initiatives that seek to address climate change could lead to an unnecessary duplication of efforts if actors are not adequately coordinated.

In essence, the flexibility offered by the climate regime will only prove to be an advantage if countries engage in a cooperative manner. If countries instead set their narrowly defined national interests first, this type of climate regime will fail to drive up climate ambition. The challenge to multilateralism coming from some parts of the world today does not bode well for international climate change cooperation. As there are no enforcement mechanisms and sanctions at the international level to force countries to decarbonize their economies, other

measures are necessary to change the cost-benefit calculations of countries in order to ratchet up climate ambition.

Some positive steps have already been taken in that regard. First, Agenda 2030 and the Sustainable Development Goals have introduced a nexus thinking showing that many goals for sustainable development are interlinked. It has increasingly become clear that climate action is necessary to fulfill other goals such as on hunger and poverty (IPCC 2018). Conversely, fulfilling goals on sustainable consumption and production will also work to help address climate change. The latest New Climate Economy report (The Global Commission on the Economy and Climate 2018) shows the positive externalities that climate actions can have, for example when taking into account co-benefits such as health benefits and enhanced energy security. Greater nexus thinking can thus change the cost-benefit calculations of countries in favor of more ambitious climate action.

Second, the building of catalytic linkages between different actors at the international, regional, national and local levels through so-called 'orchestration' efforts could lead to greater ambition (Bernstein and Hoffman 2018; Chan et al 2018b). The Swedish government's multistakeholder platform Fossilfritt Sverige (Fossil Free Sweden) serves as an example of how national efforts to engage non-state actors can foster learning and lead to shared visions that can facilitate implementation of more ambitious climate action.

While such developments are encouraging, a decarbonization of the global economy is likely to require new economic frameworks to drive a transition away from fossil fuels. For example, a study of the largest oil and gas companies showed that these companies do not see enough political pressure to change their businesses in a fundamental way (Nasiritousi 2017). Moreover, a survey conducted at the climate negotiations showed that state and non-state actors agree that to effectively address climate change, a new economic model valuing sustainability is needed (Nasiritousi et al 2014). This may imply new ways of thinking about economic growth. But it could also mean a new economic framework being developed by a group of like-minded, ambitious countries.

Such a proposal was presented recently by Richard Samans, the managing director of the World Economic Forum. According to him, a coalition of vanguard countries should use market pull effects to drive the decarbonization of the economy that go beyond simply introducing a carbon tax or a cap-and-trade system. In his words, these countries should make use of "tariffs, procurement, financing, corporate governance, subsidies, technical standards, targeted tax, investor disclosure, or emission trading rules and policies" in order to increase demand for low-carbon products (Samans 2018). This is in line with the scholarship on a group

of countries taking the lead through the creation of a climate club where membership comes with the condition of ambitious climate policies with particular benefits accrued to members. By coordinating policy responses amongst ambitious states and accruing club-benefits on first movers, such ideas are expected to reduce the economic and political barriers to decarbonization (Pahle et al 2018).

In sum, while the Paris Agreement has provided a direction for the global response on climate change, the difficult political compromises underpinning the Agreement and the political battles that will need to be settled in Katowice to agree on the rulebook, reflect a world where the incentives for taking ambitious action are still not strong enough to fulfill the Agreement's objective. Political leadership by different actors will be key for increasing the momentum on climate action and tip the balance for decarbonization. All actors with the capacity to embark on rapid decarbonization must pave the way for a transformation of societies in accordance with the science. Setting a clear vision through dialogue with citizens and coordinating actions by a multitude of stakeholders will be key tools for realizing the objectives of the Paris Agreement. For example, there could be transformative coalitions built around objectives such as zero-energy buildings, zero-emissions aviation and other sectors facing a decarbonization challenge (Höne et al 2016). Moreover, rapid transformation of economies will require capacity building and implementation of just transitions to facilitate climate-resilience (Rosemberg 2010). While the NDCs have led to expanding the capacity of many developing country governments to include climate considerations in their national plans, there is a continuing need for capacity building and support for developing countries. In particular, many of the NDCs of developing countries are partially conditional on support by developed countries. In short, therefore, greater international cooperation is urgently needed to build on the Paris Agreement and create a reinforcing upward spiral of climate action by state, sub-state and non-state actors in all parts of the world.

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