

Improving coherence in the post-Paris global climate governance architecture

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Abstract

This discussion paper examines the broader architecture for global climate governance after Paris and offers suggestions for improving coherence within international climate governance that can be implemented by Parties to the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, Parties to other international legal instruments, non-Party stakeholders, and other relevant actors. It begins with an overview of three significant areas of climate action initiated outside of the UNFCCC – focusing on other international legal regimes, multilateral climate coalitions and actions by non-Party stakeholders – and offers some indications of how such action may evolve in light of the Paris outcome. It then discusses the ways in which the United Nations climate regime is linked to action taken in other venues, with a focus on the Paris Agreement. The discussion paper ends with three suggestions on how those relationships could be strengthened, namely: (1) enhancing the visibility of non-UNFCCC climate action; (2) developing operational linkages; and (3) monitoring and review).

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1 Introduction

The year 2015 marked a major step forward for multilateral climate diplomacy under the UNFCCC.¹ The Paris Agreement forms the basis for a new era of international cooperation on climate change, putting in place obligations that apply to all its Parties. Yet the achievements in Paris do not mean that the United Nations climate regime is the only venue for climate action. Indeed, the Paris outcome itself offers strong indications that action outside of the UNFCCC's remit will play a key role in the struggle against climate change, acknowledging and encouraging action by voluntary efforts, initiatives, and coalitions. The reason why such initiatives and coalitions matter beyond Paris is the flexibility that the Agreement offers in its implementation. Parties are not only free to choose their nationally determined contributions (NDCs); they are also free to choose how they implement them. In addition to the discretion offered in the implementation phase, the Paris Agreement does not cover all possible areas of climate change mitigation, and other international institutions can still play an important complementary role by addressing sectors or gases that are not covered by the Agreement.

Against this background, this discussion paper examines the broader architecture for global climate governance after Paris and offers suggestions for improving coherence within international climate governance that can be implemented by Parties to the UNFCCC and the Paris Agreement, Parties to other international legal instruments, non-Party stakeholders, and other relevant actors (e.g. the UNFCCC Secretariat). It begins with an overview of three significant areas of climate action initiated outside of the UNFCCC, offering some indications of how such action may evolve in light of the Paris outcome. It then discusses the ways in which the United Nations climate regime is linked to action taken in other venues, with a focus on the Paris Agreement. The paper then offers three suggestions on how those relationships could be strengthened, before offering some concluding remarks.

2 Climate action outside the UNFCCC before and after Paris

This section provides an illustrative overview of climate action undertaken outside of the UNFCCC context, focusing on: (1) developments in three other international legal regimes focusing on specific sectors or gases, namely the International Civil Aviation Organization (ICAO), the International Maritime Organization (IMO), and the Montreal Protocol on Substances that Deplete the Ozone Layer; (2) the rise of minilateral climate coalitions to address climate change; and (3) initiatives undertaken by non-state and subnational actors. The section is not meant to offer a comprehensive analysis of the developments in each area of climate action outside the UNFCCC, but serves to illustrate the point that important initiatives to mitigate climate change are developing outside of the UNFCCC context, and that this trend will very likely continue beyond Paris.

¹ This discussion paper is a shortened and updated version of Van Asselt and Bößner (2016).

2.1 Non-UNFCCC international legal regimes

The International Civil Aviation Organization

Greenhouse gas emissions from the aviation sector are growing rapidly, with an increase of 76.1 percent between 1990 and 2012 (Lee et al. 2009: 3520; UNFCCC 2014: 11). Even though new technologies have led to considerable improvements in fuel efficiency, and biofuels may hold further potential to reduce emissions, their benefits are outstripped by an ever-growing demand for air travel. While emissions from domestic aviation are covered by the UNFCCC, the Kyoto Protocol mandated Annex I Parties to discuss measures to mitigate international aviation emissions through the ICAO (Article 2.2).

While environmental protection was not part of ICAO's original mandate, the organisation's technical expertise and its significant experience in setting (non-legally binding) international standards in the sector makes it an ideal candidate to tackle emissions from aviation. Indeed, the organisation has lately been striving to reduce aviation emissions by voluntarily promoting fuel efficiency among its members and by agreeing on a market-based measure (MBM) to tackle emissions. ICAO adopted a series of measures, including a global goal of improving annual average fuel efficiency by 2 percent, and an aspirational goal of keeping global carbon emissions from 2020 onwards at the same level (i.e., ensuring carbon-neutral growth). In October 2016, within a year after the adoption of the Paris Agreement, the organisation further adopted a market-based mechanism to offset emissions growth in the sector from 2020 onwards, the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).² An outstanding question is the extent to which this mechanism will draw on existing experience with similar mechanisms created under the Kyoto Protocol, notably the Clean Development Mechanism (CDM).

The International Maritime Organization

As with aviation emissions, the Kyoto Protocol suggests that the regulation of emissions from international shipping should be dealt with in another venue, in this case the IMO (Article 2.2). The IMO was established in 1948, initially with a focus on maritime safety, but has covered related areas such as marine pollution from an early stage onwards. The IMO's Marine Environment Protection Committee is the primary body responsible for matters relating to environmental pollution from ships while its main governing body is the IMO Assembly.

A wide range of treaties has been adopted under the auspices of the IMO, including the binding and successful technology-oriented 1973/1978 International Convention for the Prevention of Pollution from Ships. Like ICAO, the IMO has also adopted a series of measures to address shipping emissions. Following a series of studies, the organisation's Marine Environment Protection Committee adopted a mandatory Energy Efficiency Design Index for new ships in 2011, and required a Ship Energy Efficiency Management Plan for all ships. By doing so, the IMO put in place the first mandatory international sectoral agreement on greenhouse gas emissions applying to both developed and developing countries (Bodansky 2011: 7). The measures are expected to yield a significant effect on

² <http://www.icao.int/environmental-protection/Pages/market-based-measures.aspx>.

greenhouse gas emissions, with an IMO study estimating an annual reduction of carbon dioxide emissions of 13-23 percent compared to business-as-usual between 2020 and 2030 (Bazari and Longva, 2011). However, those technical and operational measures alone are insufficient to meet global objectives (Lee et al. 2013) and, unlike ICAO, discussions on adopting a market-based mechanism under the IMO have not led to any agreement, with several developing countries questioning the competence of the IMO in this area.

Montreal Protocol on ozone-depleting substances

The Montreal Protocol (1987), which aims to phase out ozone-depleting substances, is generally seen as a success not only from the perspective of addressing ozone depletion but also for reducing greenhouse gas emissions, as the chlorofluorocarbons (CFCs) it seeks to phase out also contribute to global warming. Scholars tend to argue that, compared to the climate problem, ozone-depleting substances covered by the Montreal Protocol could be phased out more easily because the group of companies producing ozone-depleting substances was small, the countries producing these substances were also significantly affected by the problem, substitutes were readily available, and industries involved in the production of harmful substances benefited from developing those substitutes (Falkner 2005).

There has been awareness of the linkages between the two regimes since the early days of the climate regime, with the UNFCCC – and later on the Kyoto Protocol – covering only ‘greenhouse gases not controlled by the Montreal Protocol’. In effect, this means that Annex I Parties under the Kyoto Protocol were not able to use CFC reductions to meet their Kyoto targets. Arguably, the Montreal Protocol has contributed more to climate protection than the first commitment period of the Kyoto Protocol by tackling CFCs (Velders et al. 2007). The treaty also provides for the phasing down of hydrochlorofluorocarbons (HCFCs), and Parties in 2007 significantly accelerated their phase-out for both developed and developing countries (UNEP 2007).

However, the Montreal Protocol also played an indirect, negative role through its promotion of hydrofluorocarbons (HFCs) as alternative to other ozone-depleting substances. HFCs are powerful greenhouse gases, but they do not contribute to ozone depletion. And although HFCs are used in only a limited set of applications, their use is increasing, mainly as a result of the decisions to phase out CFCs and HCFCs under the Montreal Protocol and the associated funding available through the Multilateral Fund for the implementation of the Montreal Protocol (UNEP 2011).

Although HFCs were part of the Kyoto Protocol’s basket of greenhouse gases, countries diverged on whether the Montreal Protocol or the climate regime would be the most appropriate venue for addressing them. This debate became centred on one of the key hurdles in international climate politics, namely ensuring some form of differentiation between developed and developing countries (Andersen et al. 2014; Akanle 2015). However, in October 2016, Parties to the Montreal Protocol ultimately reached agreement on an amendment to phase down HFCs. The Kigali Amendment is said to help avoid 0.5°C warming by 2050, based on (non-Intergovernmental Panel on Climate Change) HFC scenarios (Xu et al. 2013). The agreement maintains a differentiation between developed

and developing countries by granting developing countries a more flexible timeline for implementation.

2.2 Minilateral climate coalitions

In addition to these sectoral regimes, a range of country coalitions with limited membership have emerged over the past 10-15 years. As a collective action challenge, climate change requires participation by all countries to prevent free riding, i.e. countries benefiting from the efforts of other countries without contributing themselves. Crafting a global regime in which all countries have binding emission reduction targets has proved to be impossible, however, given long-standing contestations about the best way of sharing the effort to tackle climate change. Moreover, progress has been slow, due in large part to the fact that the multilateral climate regime involves 197 Parties, and decisions are adopted by consensus, meaning that one country or a small group of countries can block progress. 'Minilateral' climate coalitions – or 'climate clubs' – are said to overcome these problems (Victor 2015; Nordhaus 2015). One of the core ideas behind such coalitions is that it is easier to get to agreement among a smaller number of like-minded countries than through a multilateral negotiation process (Victor 2006; Naím 2009).

A minilateral approach was first tested in the 2000s, when the United States became involved in several initiatives involving a limited number of countries. One notable example was the Asia-Pacific Partnership on Clean Development and Climate (APP), which was launched in 2005, and brought together Australia, China, India, Japan, South Korea and the United States, later followed by Canada. The APP nations comprised some of the world's largest emitters, which was a major rationale for creating the APP and for its potential to be effective. However, notwithstanding enthusiastic efforts by some countries – notably Japan – the APP became defunct in 2011, following a change of administration in the United States and the subsequent drying up of government funding (van Asselt 2014). The United States also led a number of other technology-oriented initiatives (e.g., the Carbon Sequestration Leadership Forum), as well as a new dialogue process, the Major Economies Meeting on Energy Security and Climate Change (which later changed into the Major Economies Forum). The jury is still out on the performance of these initiatives: although they may have offered new venues for intergovernmental dialogue in a setting that is less politicised than the UNFCCC, it is unclear to which extent the various initiatives aimed at project implementation have performed (Weischer et al. 2012; Bausch and Mehling 2013).

Following the Copenhagen COP in 2009, several new initiatives emerged, such as the Climate and Clean Air Coalition, which addressed an issue hardly addressed by the UNFCCC, namely short-lived climate pollutants. With the emergence of new initiatives, and the inclusion of new partner countries in older initiatives, the narrative began to shift towards ways in which climate coalitions could complement, and offer support to, the multilateral climate regime. This narrative also prevailed in Paris, where several new

coalitions were announced, such as the Carbon Pricing Leadership Coalition,³ Mission Innovation,⁴ and the International Solar Alliance.⁵

To the extent that a limited group of countries finds that they have common interest in addressing specific climate change challenges – e.g. strengthening research, development on, and diffusion of clean energy technologies, designing or linking carbon markets, reducing emissions from deforestation, adaptation, reforming fossil fuel subsidies – it is likely that climate coalitions will continue to emerge and co-exist with the UNFCCC.

The extent to which such coalitions can bring about ‘transformational’ change remains unclear, however (Weischer et al. 2012). Their effectiveness will depend, among others, on their ability to build trust and create solidarity, generate and attract public and private funding, share diffuse clean technologies, and incentivise and scale up climate action on the ground. Grubb et al. (2015) suggest that a club can bring about benefits if it leads to coordinated actions among the club members in three areas, namely (1) introducing a domestic carbon price according to the stage of economic development countries; (2) strengthening domestic technology programmes and international technology collaboration along the innovation chain; and (3) agreeing on the treatment of the trade in carbon-intensive and low-carbon technologies and products, in line with international trade rules. More generally, van Asselt (2017) points to three lessons for the development of clubs, namely: (1) starting with a small and dedicated number of members, incrementally attracting further (enthusiastic) members; (2) keeping the door open to multilateralism to maintain connections to global climate efforts and avoid the impression of pursuing an alternative (rather than complementary or supporting) approach; and (3) being transparent about the activities and achievements of the club.

Although, like international legal regimes, minilateral climate coalitions are still largely driven by national governments (see also Hale and Roger 2014), other actors have also started to assume a more prominent role in global climate governance, as the next subsection will show.

2.3 Non-state and subnational climate action

Non-state actors play a variety of roles in the context of the international climate regime, including as lobbyists, expert advisers, and by helping to hold states to account (van Asselt, 2016). In the years leading up to the Paris climate conference, however, the role they play in the implementation of climate action has come increasingly to the foreground (Hoffmann 2011: 70ff.; Abbott 2012: 571; Bulkeley et al. 2014).

Initiatives by non-state and subnational actors, it is argued, can help bridging the emissions gap (UNEP 2013; 2015b; CISL and Ecofys 2015; Hsu et al. 2015b; Roelfsema et al. 2015; Graichen et al. 2016). By the end of 2016, the UNFCCC’s Non-State Actor Zone for Climate Action (NAZCA) platform⁶ listed 12,549 climate actions by a range of actors

³ <http://www.carbonpricingleadership.org>.

⁴ <http://mission-innovation.net/>.

⁵ <http://www.intsolaralliance.org/>.

⁶ <http://climateaction.unfccc.int>.

including 2,138 companies, 238 civil society organisations, and 2,578 cities in 118 countries (Yale Data-Driven Environmental Solutions Group, 2016). Looking at a subset of non-state action, namely international cooperative initiatives, estimates of the mitigation potential range from 2.5 gigatonnes of CO₂ equivalent (GtCO_{2e}) by 2020 (Roelfsema et al. 2015) to 2.9 GtCO_{2e} by 2020 (UNEP 2015a). The extent to which this helps bridge the emissions gap depends on the overlap with countries' NDCs. While this overlap can be significant (Roelfsema et al. 2015) and many uncertainties remain in the estimates, UNEP (2016: xxi) concludes that "the aggregated impact of the initiatives are in the order of a few GtCO_{2e} in 2030 beyond the current Intended Nationally Determined Contributions", going some way towards bridging the emissions gap.

Non-state and subnational climate action can involve both public and private actors. In the public sphere, subnational governments are key actors. These include public authorities such as cities, municipalities, and regional governments, which have been increasingly active through transnational networks (Bulkeley 2010: 229; Bansard et al. 2017), such as the International Council for Local Environmental Initiatives (which hosts the Cities for Climate Protection campaign⁷), the C40 Cities Climate Leadership Group,⁸ and the Covenant of Mayors for Climate and Energy.⁹ Such initiatives can circumvent or reinforce national legislation, or leverage regional or municipal authorities' weight in international forums (Betsill and Bulkeley 2006: 141).

In the private sector, initiatives can be linked to mandatory (compliance) or voluntary carbon markets. In the context of the latter, a variety of standards has emerged for measuring, reporting, and verifying emission reductions (Green 2013: 1), such as the Verified Carbon Standard and the Gold Standard. Another group of private-led initiatives focuses on transparency. A key example is the CDP (formerly known as the Carbon Disclosure Project), which works together with companies to measure, disclose, manage, and reduce their emissions.¹⁰ Another set of initiatives consists of business-led initiatives. Examples include the various investor-driven initiatives that seek to limit the risks of climate change (and climate policies) for their sizable investment portfolios, such as the Investor Network on Climate Risk (representing over 120 investors and US\$14 trillion in assets in North America)¹¹ and the Institutional Investor Group on Climate Change (including over 120 institutional investors in Europe and nearly US\$13 trillion in assets).¹² But also other companies, from Apple to Unilever, have taken on commitments or have become involved in emission reduction initiatives. Lastly, non-state climate action can involve civil society as well as concerned citizens. For example, various climate marches held throughout the world have attracted over 1.55 million people in 2014 and 2015, and over 13 million people signed petitions calling for climate action (Hsu et al. 2015a).

⁷ <http://www.iclei-europe.org/ccp>.

⁸ <http://www.c40.org/>.

⁹ http://www.covenantofmayors.eu/about/covenant-of-mayors_en.htm.

¹⁰ <http://www.cdp.net>.

¹¹ <https://www.ceres.org/investor-network/incr>.

¹² <http://www.iigcc.org/>.

3 The Paris Agreement and non-UNFCCC climate action

So how is this wealth of climate action outside the UNFCCC context linked to the international climate regime? And what can Parties to the UNFCCC and the Paris Agreement, non-Party stakeholders, and other relevant actors do to strengthen the linkages, and realise the potential of this wider institutional complex? Before addressing these questions, this section will first examine what the UNFCCC, the Kyoto Protocol, and the Paris Agreement state about linkages to other legal regimes, multilateral climate coalitions, and non-state and subnational actors.

The UNFCCC and Kyoto Protocol contain several provisions regulating its relationships with other legal regimes. For instance, the treaties delimit their scope by only covering 'greenhouse gases not controlled by the Montreal Protocol'. The Kyoto Protocol further suggests that in the implementation of policies to protect and enhance sinks and reservoirs of greenhouse gases, Parties need to take into account their "commitments under relevant international environmental agreements" (Article 2.1(a)(ii) Kyoto Protocol). And, as mentioned above, the Kyoto Protocol contains a negotiating mandate for ICAO and IMO members to reach agreement on emission reductions in their respective sectors.

By contrast, the Paris Agreement says remarkably little about its relationship with actions taken outside of it. No references to other legal instruments or coalitions can be found. Moreover, the role of non-state and subnational actors is also addressed only tangentially in the Agreement itself (Chan et al. 2016).

Yet while the treaty is largely silent on non-UNFCCC climate action, Decision 1/CP.21 adopting the Paris Agreement offers much more clarity and positive encouragement. Although no specific legal instruments, coalitions, or initiatives are mentioned, the decision welcomes "the efforts of non-Party stakeholders to scale up their climate actions" (Decision 1/CP.21: para. 117), encouraging them to register their actions on NAZCA. The decision also specifies that a 'technical examination process' will continue beyond Paris, extending and strengthening its mandate up to 2020. The technical examination process started in the context of 'workstream 2' of the Ad Hoc Working Group on the Durban Platform for Enhanced Action, which focused on scaling up climate action before 2020. It entailed a series of mitigation-oriented technical expert meetings (TEMs), at which governmental and non-governmental experts shared experiences and views on specific actions, technologies, and policies with high mitigation potential, covering topics such as energy efficiency in urban environments, renewable energy, non-CO₂ greenhouse gases, and carbon capture and storage.¹³ The TEMs thus offer an opportunity for engaging with initiatives started outside the UNFCCC. Moreover, Decision 1/CP.21 calls for a 'high-level event' that, among others, "[p]rovides an opportunity for announcing new or strengthened voluntary efforts, initiatives and coalitions", "[t]akes stock of related progress and recognises new or strengthened voluntary efforts, initiatives and coalitions", and "[p]rovides meaningful and regular opportunities for the effective high-level engagement of dignitaries of Parties,

¹³ http://unfccc.int/focus/mitigation/technical_expert_meetings/items/8179.php.

international organizations, international cooperative initiatives and non-Party stakeholders” (Decision 1/CP.21: para. 120). It further introduces two ‘high-level champions’, which are “to facilitate ... the successful execution of existing efforts and the scaling-up and introduction of new or strengthened voluntary efforts, initiatives and coalitions” (Decision 1/CP.21: para. 121).

Following up on Paris, the two high-level champions released a ‘Road Map for Global Climate Action’ in June 2016 (UNFCCC 2016a), indicating that they will explore linking initiatives and coalitions with NDCs under the Paris Agreement, and that they will aim to improve the transparency of action outside the UNFCCC. This was followed a few months later by the launch of the Marrakech Partnership for Global Climate Action in November 2016 (UNFCCC 2016b).¹⁴ The Marrakech Partnership aims to: bring Parties and non-Party stakeholders together to strengthen collaboration and enhance implementation, through processes such as the technical expert process; showcase successes and offer a platform for new initiatives through events, such as the high-level event mentioned above; track progress through NAZCA; and report back to the COP. To achieve this, the Partnership offers further details on the role of the high-level champions, which are to produce a Yearbook of Global Climate Action. Moreover, the Partnership specifies minimum criteria for the inclusion of non-state and subnational action in NAZCA, including: (1) relevance to the goals of the Paris Agreement; (2) scale (of sufficient size to have an impact); (3) specificity (clear and quantifiable outcomes, with milestones along the way); (4) transparency in progress (e.g. annual reporting); (5) results-oriented (rather than, for instance, information sharing or calls for action); and (6) capacity to deliver.

In short, unlike the UNFCCC and the Kyoto Protocol, the Paris Agreement makes no effort to clarify the relationships with other international legal instruments. However, Decision 1/CP.21, together with the Marrakech Partnership, does take important first steps towards institutionalising the engagement with non-state and subnational actors and initiatives. Although this does not yet add up to a comprehensive framework for non-state action – something that some scholars have called for (Chan et al. 2015) – it strengthens the linkages between the intergovernmental process and the groundswell of non-state action. The question now is: can Parties and non-Party stakeholders do more to strengthen these linkages with action outside the UNFCCC? The next section will offer several suggestions in this regard.

4 Harnessing the institutional complex for climate change: possible ways forward

This section outlines three possible actions that Parties to the UNFCCC and the Paris Agreement, Parties to other international legal instruments, as well as non-Party stakeholders, can take in the near future to strengthen the linkages with non-UNFCCC climate action undertaken in other international legal regimes, through unilateral climate

¹⁴ The Marrakech Partnership replaces the ‘Lima-Paris Action Agenda’, which was established to encourage and support new initiatives by non-state and subnational actors by the Peruvian and French COP Presidencies, the UN Secretary-General, and the UNFCCC Secretariat (see Widerberg 2017).

coalitions and through non-state and subnational action, with a view to improving overall coherence in global climate governance. The suggestions assume a need to avoid a hierarchy between the climate regime and other legal regimes as well as the diversity of non-UNFCCC action (Betsill et al. 2015). The suggestions offered here primarily seek to establish an ongoing dialogue between the United Nations climate regime and action taken outside of it, with the role of the UNFCCC – and its institutions – approximating that of an ‘orchestrator’ or facilitator of climate actions by other institutions and actors (Abbott 2012; Hale and Roger 2014).

4.1 Enhancing the visibility of non-UNFCCC climate action

Enhancing the visibility of activities undertaken outside of the UNFCCC can strengthen the case for climate action. In addition to their potential contributions to climate action in terms of achieving emission reductions, building capacity, and promoting transnational cooperation on a range of issues, initiatives outside the UNFCCC have an important symbolic role: they showcase the wide variety of climate action already taking place, underscoring support for further action by different levels of governments, businesses, civil society and investors. They can help show that climate action in practice can be cost-effective or that it has certain co-benefits (e.g. for public health or energy security). Beyond the emission reductions achieved, the actions undertaken by these actors can therefore help normalise actions taken by governments under the Paris Agreement, and build support for more ambitious NDCs in future cycles.

Important steps in this direction were already taken before, in and after Paris. As mentioned above, the NAZCA platform offers a registry to highlight commitments by a wide variety of non-state and subnational actors, as well as a number of ‘cooperative initiatives’ (which include some of the minilateral climate coalitions mentioned above). It can be expected that the activities planned in the context of the Marrakech Partnership, including the annual high-level events planned between now and 2020, will ensure that non-UNFCCC action will continue to draw attention. In addition, the Momentum for Change initiative by the UNFCCC Secretariat, launched in 2011, puts specific climate actions (‘lighthouse activities’) in the spotlight.¹⁵ And finally, the technical examination process, reaffirmed by Decision 1/CP.21, offers an ongoing opportunity to showcase and discuss specific climate actions. And although

In other words, important efforts have already been made to increase the visibility of non-UNFCCC action, and Decision 1/CP.21 and the Marrakech Partnership offer a good indication that such efforts will continue in the short term. But more can still be done.

First, a key precondition for improved visibility is that initiatives start performing. In other words, as the Marrakech Partnership (UNFCCC 2016b) specifies, initiatives should go beyond calls for action to be listed in NAZCA, and actually start with the implementation. Follow-up of the actions announced by non-Party stakeholders in NAZCA will be a key first step, as it would show that the voluntary commitments made are credible (see also Section 2.4.3). This means that those non-state and subnational actors that have made pledges –

¹⁵ http://unfccc.int/secretariat/momentum_for_change/items/6214.php.

not only through NAZCA, but also for example through the 2014 United Nations Climate Summit hosted by the United Nations Secretary-General Ban Ki-moon (see Chan et al. 2017) – should start taking the necessary steps to achieve their various commitments, and should be forthcoming in providing information on how much progress they are making.

Second, Parties should acknowledge that non-UNFCCC action is not only of relevance in the immediate future (i.e. the pre-2020 period, as Decision 1/CP.21 and the Marrakech Partnership seem to suggest). In other words, relevant mandates – e.g., for high-level events and champions, and for the technical examination process – should be extended to beyond 2020. If UNFCCC Parties confirm this as early as possible – e.g. during COP23 or during the 2018 facilitative dialogue – it would facilitate the institutionalisation of practices starting now (e.g. the development of Yearbooks), and send a strong signal to non-state and subnational actors that Parties are genuinely interested in supporting their actions.

Third, improved visibility should be promoted for all types of climate actions – i.e., including both mitigation and adaptation – and covering a wide range of countries – from small island developing states to major emitters. While the number of minilateral coalitions, and actions by non-state and subnational actors is growing (as can be observed in the NAZCA platform), they are still concentrated heavily in the Global North, and primarily focused on climate change mitigation in the energy sector (e.g. Chan and van Asselt 2016; Chan et al. 2017). To ensure global benefits – and strengthen the legitimacy of non-state action in the eyes of developing countries – the high-level champions, working with Parties, the UNFCCC Secretariat and non-Party stakeholders, should seek to identify gaps in actions (both thematically and geographically) and call for further actions in those areas.

4.2 Developing operational linkages

Connections with actions outside the UNFCCC can be made through the development of the rules and procedures necessary to make the Paris Agreement operate effectively. Such rules and procedures can pertain to the Paris Agreement’s use of the UNFCCC’s Technology Mechanism, its Financial Mechanism, or to new mechanisms created by the Agreement. Establishing such connections could help avoid the emergence of multiple, conflicting standards and could underline a harmonised global response to the climate problem.

For example, in the coming years, Parties to the Paris Agreement will need to adopt rules for the cooperative approaches and the sustainable development mechanism in Article 6. Such rules can be expected to specify conditions with a view to promoting sustainable development and environmental integrity. The negotiation of such rules should be of high relevance for the development of market-based measures outside of the UNFCCC, for instance ICAO’s new offsetting mechanism. Parties to the Kyoto Protocol already have significant experience with developing such rules in the context of the CDM. Operational linkages could mean that in the further development of a global MBM, ICAO members either use, or link to any standards developed under the Paris Agreement with a view to safeguarding the environmental integrity of offsets. Specifically, as Arvanitakis and Dransfeld (2017: 30) suggest, “one would need rules under the UNFCCC in order to avoid double counting between NDCs and CORSIA, i.e. ensuring that certified [greenhouse gas] emission reductions foreseen for offsetting under CORSIA have been, or will only be used,

counted and claimed once (i.e. under the CORSIA), and not used in other schemes or put towards other targets (NDCs) as well". Putting these operational linkages in practice, requires, first of all, action by ICAO members: for instance, they can decide to unilaterally adopt standardised baselines and methodologies developed and approved under the CDM for a large variety of offsetting projects, or draw on the rules developed by the Kyoto Parties and the CDM's Executive Board for pertinent questions such as additionality (i.e. would the emission reductions have taken place also without the offsetting project) and contribution to sustainable development.

Further operational linkages can also be developed with non-state actors. Again, following the example of the CDM, private actors can be involved in the operation of the new sustainable development mechanism. Possible roles include the verification of emission reductions to ensure the environmental integrity of the mechanism, or monitoring compliance with standards to ensure that mitigation activities contribute to sustainable development. Similar roles were already played by a variety of non-state actors (including both businesses and civil society) in the context of the CDM (Green 2014).

Finally, further operational linkages can be made between the UNFCCC and subnational actors. For instance, in a first for the UN climate regime, the Canadian province of Québec became the first non-nation state to contribute to the Green Climate Fund at COP21 in 2015, a move that was followed by other subnational governments (Robinson, 2015). The Fund now accepts such pledges from subnational areas and cities (Green Climate Fund 2017), and similar pledges – or alternative methods of raising finance, such as crowdfunding – could also offer a boost to other UNFCCC funds (Müller 2016).

4.3 Monitoring and review

To ensure the credibility of the global response beyond the UNFCCC and to ensure that the actions undertaken in various forums are not at odds with each other, it is necessary to know what is happening – i.e., what are the commitments made, what are the actions taken to implement those commitments, and is the response in line with the long-term goals of the Paris Agreement? For this purpose, improving the transparency of non-UNFCCC climate action, through monitoring and review, is key.

Several transparency mechanisms are already in place. Some international organisations, including ICAO and the IMO, regularly report to the UNFCCC. And with the NAZCA platform, the UNFCCC Secretariat, the high-level champion, and other interested parties have a system in place to keep track of the commitments made by non-state actors and some multilateral coalitions; as was confirmed by the Marrakech Partnership (UNFCCC 2016b).

However, the monitoring of the wider landscape of climate action outside the UNFCCC could still be improved. This monitoring would need to go beyond aggregated analyses of the variety of climate action, and into more detailed analysis of the experiences of individual initiatives. Beyond the UNFCCC Secretariat, other actors including academia and think tanks, but also the actors involved in non-state and subnational climate actions themselves, can play a role in keeping track of how actions are performing. In doing so, care should be taken to ensure that monitoring and possible reporting will not stifle the

groundswell of climate action (Chan et al. 2015). Moreover, monitoring should take into account the sheer diversity of actions – with some initiatives possibly leading to measurable greenhouse gas emission reductions, and others focused on actions that are not so easily quantifiable, such as capacity building or strengthening cooperation on research and development of new mitigation technologies.¹⁶

In addition to the transparency mechanisms mentioned above, two processes established by the Paris Agreement could also play a role. First, the enhanced transparency framework of Article 13 offers an opportunity for Parties to report on actions relevant for achieving their NDCs by non-state and subnational actors (e.g. cities and regions) or by the minilateral coalitions they are involved in. The rules – which are currently under negotiation – could specifically encourage Parties to report on such action, including possible quantification of effects. Including this information may also mean that it can be subject to the technical expert review and the facilitative, multilateral consideration of progress under Article 13, shedding further light on the actions outside the UNFCCC. A related suggestion is that minilateral coalitions report themselves (rather than through the Parties involved in them) (Stewart et al. 2013). Such reporting may be feasible and of interest to some coalitions, for instance to showcase recent achievements and to receive recognition for the action taken. However, establishing formal relationships with the United Nations climate regime may also be challenging, precisely because some initiatives may have been established with a view to creating some distance to the politics of the climate change negotiations. Nonetheless, the Parties to the Paris Agreement – in the development of rules for the enhanced transparency framework – could offer guidance on how individual Parties can report the actions taken by non-state and subnational actors within their territories, or specify that – in addition to Party reports – inputs from non-Party stakeholders will be considered in the review process (see also van Asselt, 2016).

Second, the global stocktake, which starts in 2023, provides an important occasion to assess and review non-UNFCCC action. The stocktake could include various types of information that could help understand the performance of climate action outside the UNFCCC. This includes reports by the ICAO and IMO, but also by the Ozone Secretariat, on progress made. Such reports could clarify the contribution of these legal regimes towards the long-term goal of the Paris Agreement to keep temperature increases to well below 2°C. In the ongoing negotiations on the modalities for the global stocktake, it will be important for Parties to the Paris Agreement to leave the door open for such inputs from other international organisations. However, it will also be important to not limit the global stocktake to purely the actions undertaken by national governments. To that end, Parties can mandate the high-level champions, working with the UNFCCC Secretariat and non-Party stakeholders, to offer an assessment of initiatives by non-state actors and minilateral climate coalitions, to serve as an input into the stocktake. The Yearbook of Global Climate Action – drawing on the information in NAZCA – offers a good opportunity to synthesise the available information. However, the efforts by non-state actors themselves to track

¹⁶ Quantifying the contributions of such actions may be possible as well, as targets can be set in a variety of ways. For instance, rather than aiming to reduce emissions by X% or improve energy efficiency by Y%, an initiative can set fundraising goals, strive to train a certain number of people, aim to host a certain amount of events, and so on (see also Chan et al. 2017).

progress (e.g. through the UNEP Emissions Gap report) may also serve as useful inputs into the stocktake.

Well before the first global stocktake is launched, the 2018 facilitative dialogue offers an important initial opportunity to consider the contributions from actors and institutions outside the UNFCCC. To do so, the Moroccan and Fijian Presidencies (tasked with considering options for the organisation of the dialogue) can solicit views from non-Party stakeholders on how they can best be involved in the facilitative dialogue, and what kinds of inputs could be of use to Parties during the dialogue.

The involvement of non-Party stakeholders in the global stocktake (and the 2018 facilitative dialogue) is not only important from the perspective of achieving greater transparency of their own actions: non-Party stakeholders can also offer insights into the mitigation potential in countries, identify untapped sources of financial, technological and capacity-building support, and consequently help identify ways to strengthen the ambition of Parties' future NDCs (Galvanizing the Groundswell 2017). Parties should therefore not just consider the role of non-Party stakeholders in the 'input' stage of the facilitative dialogue and global stocktake, but also identify possible roles in the output and outcome stages (e.g. involving non-Party stakeholders in implementing follow-up actions).

In monitoring and reporting the contribution of non-state and subnational climate action or that of minilateral coalitions, care should be taken to avoid any double counting between national efforts and actions by non-state or subnational actors, or minilateral coalitions. As Widerberg and Pattberg (2015: 53) note: "If the achieved mitigation of [international cooperative initiatives] is incorporated into national reporting to the UNFCCC, then it is hard to see what additional emissions reduction they bring beyond supporting a country to fulfil its pledges". However, in the reporting process as well as in the assessment it should be borne in mind that not all actions taken can be easily quantified, let alone be translated into measurable emission reductions (van der Ven et al. 2017). Nonetheless, also qualitative information can offer further clarity on progress made. More importantly, by including information on non-UNFCCC action, a more complete picture would emerge, showing more accurately whether Parties, in aggregate, are on track to meet the long-term goals of the Paris Agreement.

5 Conclusion

The Paris Agreement reaffirms the crucial role played by the multilateral climate regime as a lodestar for climate action. Yet achieving the goals of the UNFCCC and the Paris Agreement will depend on more than just the actions announced by Parties in their NDCs. It will require an across-the-board governance strategy, involving a wide variety of international legal regimes, minilateral coalitions, and non-state and subnational actors. The main challenge for global climate governance after Paris will be to leverage this institutional complex and ensure that it coherently delivers on the common goal of keeping temperature increases well below 2°C.

It is encouraging that, as this paper has shown, there are already ongoing developments to strengthen the response in other venues. A global market-based measure under ICAO and an amendment on HFCs under the Montreal Protocol were both adopted within a year from Paris, helping to maintain the momentum. The increasing institutionalisation of a process to recognise and promote voluntary initiatives by multilateral coalitions and non-state and subnational actors in the Paris outcome also holds significant potential, and the Marrakech Partnership on Global Climate Action shows a strong awareness among the high-level champions of the importance of the groundswell of climate action.

However, the paper has also stressed that more could still be done by Parties to the UNFCCC and the Paris Agreement, as well as members of other legal regimes and non-Party stakeholders themselves. Specifically, Parties and non-Party stakeholders can ensure that non-UNFCCC action remains a visible part of the global response to climate change also after 2020, and that attention is paid to the large diversity of climate action outside the UNFCCC. Second, members of other legal regimes can seek to develop operational linkages with the mechanisms of the Paris Agreement. And third, Parties can ensure that the various review processes under the Paris Agreement – notably the enhanced transparency framework, global stocktake, and the 2018 facilitative dialogue – help to track and review the progress made outside the UNFCCC.

References

- Abbott, K. W. (2012). The Transnational Regime Complex for Climate Change. *Environment and Planning C: Government and Policy*, 30(4), 571-590.
- Akanle, T. (2014) *Legal Implications and Pathways: Regulating HFCs under the Montreal Protocol or the Kyoto Protocol*. Cape Town: MAPS Programme. http://www.mapsprogramme.org/wp-content/uploads/Paper_HFCs_Legal-1.pdf.
- Andersen, S. O., Brack, D. and Depledge, J. (2014). *A Global Response to HFCs through Fair and Effective Ozone and Climate Policies*. London: Chatham House.
- Arvinitakis, A. and Dransfeld, B. (2017). *Design of an Offset System as Global MBM Scheme for international Aviation in the Light of the Paris Agreement*. Berlin: German Emissions Trading Authority (DEHSt). https://www.dehst.de/SharedDocs/downloads/EN/project-mechanisms/GMBM-abschlussbericht.pdf?__blob=publicationFile&v=3.
- Bansard, J. E., Pattberg, P. H. and Widerberg, O. (2017). Cities to the Rescue? Assessing the Performance of Transnational Municipal Networks in Global Climate Governance. *International Environmental Agreements: Politics, Law and Economics*, 17(2), 229-246.
- Bausch, C. and Mehling, M. (2013). Alternative Venues of Climate Cooperation: An Institutional Perspective. In Hollo, E. J., Kulovesi, K. and Mehling, M. (eds.), *Climate Change and the Law*. Dordrecht: Springer, 111-141.
- Bazari, Z. and Longva, T. (2011). Assessment of IMO Mandated Energy Efficiency Measures for International Shipping. http://schonescheepvaart.nl/downloads/rapporten/doc_1362490668.pdf.
- Betsill, M. M. and Bulkeley, H. (2006). Cities and the Multilevel Governance of Global Climate Change. *Global Governance*, 12(2), 141-159.
- Betsill, M., Dubash, N. K., Paterson, M., van Asselt, H., Vihma, A. and Winkler, H. (2015). Building Productive Links between the UNFCCC and the Broader Global Climate Governance Landscape. *Global Environmental Politics*, 15(2), 1-10.
- Bodansky, D. (2011). *Multilateral Climate Efforts beyond the UNFCCC*. Arlington, VA: Center for Climate and Energy Solutions.
- Bulkeley, H. (2010). Cities and the Governing of Climate Change. *Annual Review of Environment and Resources*, 35, 229-253.
- Bulkeley, H., Andonova, L. B., Betsill, M. M., Compagnon, D., Hale, T., Hoffmann, M. J., Newell, P., Paterson, M., Roger, C. and VanDeveer, S. D. (2014). *Transnational Climate Change Governance*. Cambridge, UK: Cambridge University Press.
- Chan, S. and van Asselt, H. (2016). *Transnational Climate Governance and the Global South*. Paper presented at the Conference Transformative Global Climate Governance après Paris, Berlin, 23-24 May 2016. http://www.diss.fu-berlin.de/docs/servlets/MCRFileNodeServlet/FUDOCS_derivate_00000006554/ChanxvanxAsseltxBerlinxdraftx100516.pdf.
- Chan, S., Brandi, C. and Bauer, S. (2016). Aligning Transnational Climate Action with International Climate Governance: The Road from Paris. *Review of European, Comparative and International Environmental Law* 25(2), 238-347.
- Chan, S., Falkner, R., Goldberg, M. and van Asselt, H. (2017). Effective and Geographically Balanced? An Output-based Assessment Non-state Climate Actions. *Climate Policy*. <http://dx.doi.org/10.1080/14693062.2016.1248343>.
- Chan, S., van Asselt, H., Hale, T., Abbott, K. W., Beisheim, M., Hoffmann, M., Guy, B., Höhne, N., Hsu, A., Pattberg, P. and Pauw, P. (2015). Reinvigorating International Climate Policy: A Comprehensive Framework for Effective Nonstate Action. *Global Policy*, 6(4), 466-473.
- CISL (Cambridge Institute for Sustainability Leadership) and Ecofys (2015) *Better Partnerships: Understanding and Increasing the Impact of Private Sector Cooperative Initiatives*. Cambridge: CISL.

- Falkner, R. (2005). The Business of Ozone Layer Protection: Corporate Power in Regime Evolution. In Levy, D. and Newell, P. (eds.), *The Business of Global Environmental Governance*. Cambridge, MA: MIT Press, 105-134.
- Galvanizing the Groundswell (2017). *Submission to the UNFCCC from observer members of Galvanizing the Groundswell of Climate Actions* regarding our "views on opportunities to further enhance the effective engagement of non-Party stakeholders with a view to strengthening the implementation of the provisions of decision 1/CP.21".
<https://static1.squarespace.com/static/552be32ce4b0b269a4e2ef58/t/58c1c758cd0f68722c9b3864/1489094488416/14+GGCA+Submission+to+the+UNFCCC+on+non-Party+stakeholder+engagement.pdf>.
- Graichen, J., Healy, S., Siemons, A., Höhne, N., Kuramochi, T., Gonzales- Zuñiga, S., Sterl, S., Kersting, J. and Wachsmuth, J. (2016) *Climate Initiatives, National Contributions and the Paris Agreement*. Berlin: Öko-Institut.
- Green Climate Fund (2017). Resource Mobilization. <http://www.greenclimate.fund/how-we-work/resource-mobilization>.
- Green, J. F. (2013). Order out of Chaos: Public and Private Rules for Managing Carbon. *Global Environmental Politics*, 13(2), 1-25.
- Green, J. F. (2014). *Rethinking Private Authority*. Princeton, NJ: Princeton University Press.
- Grubb, M., de Coninck, H. and Sagar, A. D. (2015). From Lima to Paris, Part 2: Injecting Ambition. *Climate Policy*, 15(4), 413-416.
- Hale, T. and Roger, C. (2014). Orchestration and Transnational Climate Governance. *Review of International Organizations*, 9(1), 59-82.
- Hoffmann, M. J. (2011). *Climate Governance at the Crossroads: Experimenting with a Global Response after Kyoto*. Oxford, UK: Oxford University Press.
- Hsu, A., Cheng, Y., Xu, K., Weinfurter, A., Yick, C., Ivanenko, M., Nair, S., Hale, T., Guy, B. and Rosengarten, C. (2015a). *The Wider World of Non-state and Sub-national Climate Action*.
<https://campuspress.yale.edu/datadriven/files/2015/12/Assessing-the-Wider-World-of-Non-state-and-Sub-national-Climate-Action-2d5oghz.pdf>.
- Hsu, A., Moffat, A. S., Weinfurter, A. J. and Schwartz, J. D. (2015b). Towards a New Climate Diplomacy. *Nature Climate Change*, 5, 501-503.
- Lee, D. S., Fahey, D. W., Forster, P. M., Newton, P. J., Wit, R. C. N., Lim, L. L., Owen, B. and Sausen, R. (2009). Aviation and Global Climate Change in the 21st Century. *Atmospheric Environment*, 43(22-23), 3520-3537.
- Lee, D. S., Lim, L. and Owen, B. (2013). *Shipping and Aviation Emissions in the Context of a 2°C Emission Pathway*. Manchester: Manchester Metropolitan University.
- Müller, B. (2016). *Two Unconventional Options to Enhance Multilateral Climate Finance Shares of Proceeds and Crowdfunding*. Oxford: European Capacity Building Initiative.
http://www.oxfordclimatepolicy.org/sites/default/files/2016_ecbi_Policy_Brief_Finance_final.pdf.
- Naím, M. (2009). Minilateralism: The Magic Number to Get Real International Action. *Foreign Policy*, 173, 135-136.
- Nordhaus, W. (2015). Climate Clubs: Overcoming Free-Riding in International Climate Policy. *American Economic Review*, 105(4), 1339-1370.
- Robinson, D. (2015). In Paris it Became 'Chic' for Sub-nationals to Provide Multilateral Support for Climate Change Finance. Now it Must Become 'de Rigueur'! *Oxford Climate Policy* (23 December 2015).
<http://oxfordclimatepolicy.com/blog/in-paris-it-became-chic-for-sub-nationals-to-provide-multilateral-support-for-climate-change-finance-now-it-must-become-de-rigueur>.
- Roelfsema, M., Harmsen, M., Olivier, J. and Hof, A. (2015). *Climate Action Outside the UNFCCC: Assessment of the Impact of International Cooperative Initiatives on Greenhouse Gas Emissions*. Bilthoven: Netherlands Environmental Assessment Agency. http://www.pbl.nl/sites/default/files/cms/pbl-2015-climate-action-outside-the-unfccc_01188.pdf.

- Stewart, R. B., Oppenheimer, M. and Rudyk, B. (2013). Building Blocks for Global Climate Protection. *Stanford Environmental Law Journal*, 32, 341-392.
- UNEP (United Nations Environment Programme) (2007). *Technology and Economic Assessment Panel, Response to Decision XVIII/12, Report of the Task Force on HCFC Issues (with Particular Focus on the Impact of the Clean Development Mechanism) and Emissions Reduction Benefits Arising from Earlier HCFC Phase-out and Other Practical Measures*.
http://ozone.unep.org/Assessment_Panels/TEAP/Reports/TEAP_Reports/TEAP-TaskForce-HCFC-Aug2007.pdf.
- UNEP (United Nations Environment Programme) (2011). *HFCs: A critical Link in Protecting Climate and the Ozone Layer. A UNEP Synthesis Report*. Nairobi: UNEP.
http://www.unep.org/dewa/Portals/67/pdf/HFC_report.pdf.
- UNEP (United Nations Environment Programme) (2013). *The Emissions Gap Report 2013*. Nairobi: UNEP.
http://www.unep.org/sites/default/files/EGR2013/EmissionsGapReport_2013_high-res.pdf.
- UNEP (United Nations Environment Programme) (2015a) *Climate Commitments of Subnational Actors and Business*. Nairobi: UNEP. http://apps.unep.org/publications/pmtdocuments/-Climate_Ccommitments_of_Subnational_Actors_and_Business-2015CCSA_2015.pdf.pdf.
- UNEP (United Nations Environment Programme) (2015b). *The Emissions Gap Report 2015*. Nairobi: UNEP.
http://uneplive.unep.org/media/docs/theme/13/EGR_2015_301115_lores.pdf.
- UNEP (United Nations Environment Programme) (2016). *The Emissions Gap Report 2016*. Nairobi: UNEP.
<http://www.unep.org/emissionsgap/>.
- UNFCCC (2016a). Road Map for Global Climate Action. <http://newsroom.unfccc.int/media/658505/high-level-champions-climate-action-roadmap.pdf>.
- UNFCCC (2016b) Marrakech Partnership for Global Climate Action.
https://unfccc.int/files/paris_agreement/application/pdf/marrakech_partnership_for_global_climate_action.pdf.
- van Asselt, H. (2014). *The Fragmentation of Global Climate Governance: Consequences and Management of Regime Interactions*. Cheltenham, UK: Edward Elgar.
- van Asselt, H. (2017). *Climate Change and Trade Policy Interactions: Implications of Regionalism*. OECD Working Paper 2017/03. Paris: OECD.
- van Asselt, H. and Bößner, S. (2016). The Shape of Things to Come: Global Climate Governance after Paris. *Carbon and Climate Law Review*, 10(1), 46-61.
- van der Ven, H., Bernstein, S. and Hoffmann, M. (2017). Valuing the Contribution of Nonstate and Subnational Actors to Climate Governance. *Global Environmental Politics*, 17(1), 45-56.
- Velders, G. J. M., Andersen, S. O., Daniel, J. S., Fahey, D. W. and McFarland, M. (2007). The Importance of the Montreal Protocol in Protecting the Climate. *Proceedings of the National Academy of Sciences of the United States of America*, 104(12), 4814-4819.
- Victor, D. G. (2006). Toward Effective International Cooperation on Climate Change: Numbers, Interests and Institutions. *Global Environmental Politics*, 6(3), 90-103.
- Victor, D. G. (2015). *The Case for Climate Clubs, E15 Expert Group on Measures to Address Climate Change and the Trade System Think Piece*. Geneva: International Centre for Trade and Sustainable Development and World Economic Forum.
- Weischer, L., Morgan, H. and Patel, M. (2012). Climate Clubs: Can Small Groups of Countries make a Big Difference in Addressing Climate Change? *Review of European Community and International Environmental Law*, 21(3), 177-192.
- Widerberg, O. (2017). The 'Black Box' Problem of Orchestration: How to Evaluate the Performance of the Lima-Paris Action Agenda. *Environmental Politics*. <http://dx.doi.org/10.1080/09644016.2017.1319660>.
- Widerberg, O. and Pattberg, P. (2015). International Cooperative Initiatives in Global Climate Governance: Raising the Ambition Level or Delegitimizing the UNFCCC? *Global Policy*, 6(1), 45-56.

Xu, Y., Zaelke, D., Velders, G. J. M. and Ramanathan, V.. (2013). The Role of HFCs in Mitigating 21st Century Climate Change. *Atmospheric Chemistry and Physics*, 13, 6083-6089.

Yale Data-Driven Environmental Solutions Group (2016). *Taking Stock of Global Climate Action*.
http://datadriven.yale.edu/wp-content/uploads/2016/12/Data_Driven_Yale_Taking-Stock-of-Global-Climate-Action_Nov_2016_final.pdf.