Harvard Project on Climate Agreements

Governing Cooperative Approaches under the Paris Agreement

Michael A. Mehling
Massachusetts Institute of Technology

The eighth in a series of annual discussion papers supported by the Enel Foundation

November 2018
Discussion Paper ES 18-8

Governing Cooperative Approaches under the Paris Agreement

Michael A. Mehling

Center for Energy and Environmental Policy Research
Massachusetts Institute of Technology

November 2018

THE HARVARD PROJECT ON CLIMATE AGREEMENTS

The goal of the Harvard Project on Climate Agreements, which was established in 2007, is to identify and advance scientifically sound, economically sensible, and politically pragmatic public policy options for addressing global climate change. Drawing upon leading thinkers from around the world, the Project conducts research on policy architecture, key design elements, and institutional dimensions of international and domestic climate-change policy. The Project is directed by Robert N. Stavins, A. J. Meyer Professor of Energy and Economic Development, Harvard Kennedy School. For more information, see the Project's website: www.hks.harvard.edu/hpca

ACKNOWLEDGEMENTS

The Harvard Project on Climate Agreements is grateful to the Enel Foundation and the Enel Endowment for Environmental Economics at Harvard University for generous support of a series of annual discussion papers on climate-change policy and related topics in energy policy, of which this paper is the eighth.

The Harvard Project on Climate Agreements receives programmatic support or funding for other projects from the Harvard University Climate Change Solutions Fund; the Harvard Global Institute; the Belfer Center for Science and International Affairs and the Ash Center for Democratic Governance and Innovation – both located at the Harvard Kennedy School; the Harvard University Center for the Environment; BP; and Christopher P. Kaneb (Harvard AB 1990).

Previous sponsors of the Harvard Project on Climate Agreements include: ClimateWorks Foundation, the Doris Duke Charitable Foundation, the James M. and Cathleen D. Stone Foundation, the Qatar National Food Security Programme, the International Emissions Trading Association (IETA), and Shell.

The closely affiliated, University-wide Harvard Environmental Economics Program receives additional support from the Mossavar-Rahmani Center for Business and Government at the Harvard Kennedy School, and Chevron Services Company.

CITATION INFORMATION

Mehling, Michael A. "Governing Cooperative Approaches under the Paris Agreement." Discussion Paper ES 2018-8. Cambridge, Mass.: Harvard Project on Climate Agreements, November 2018.

GOVERNING COOPERATIVE APPROACHES UNDER THE PARIS AGREEMENT

Michael A. Mehling*

ABSTRACT

Parties to the Paris Agreement can engage in voluntary cooperation and use internationally transferred mitigation outcomes towards their national climate pledges. Doing so promises to lower the cost of achieving agreed climate objectives, which can, in turn, allow Parties to increase their mitigation efforts with given resources. Lower costs do not automatically translate into greater climate ambition, however. Transfers that involve questionable mitigation outcomes can effectively increase overall emissions, affirming the need for a sound regulatory framework. As Parties negotiate guidance on the implementation of cooperative approaches under Article 6.2 of the Paris Agreement, they are therefore considering governance options to secure environmental integrity and address the question of overall climate ambition. Drawing on an analytical framework that incorporates economic theory and deliberative jurisprudence, practical case studies, and treaty interpretation, this Working Paper maps central positions of actors in the negotiations and evaluates relevant options included in the latest textual proposal.

It concludes with a set of recommendations on how operational guidance can balance necessary safeguards for climate ambition with flexibility to contain transaction costs and allow for greater participation. Recalling the delicate equilibrium set out in the Paris Agreement, the Working Paper argues that neither over- nor underregulation will lead to efficient outcomes, or indeed be conducive to greater ambition. Theory and experience with carbon markets lend support to specific recommendations for guidance on Article 6.2, including design elements that should be included or avoided. Also, the Working Paper cautions against burdening the deliberation of primarily technical questions that need to be addressed in operational guidance with primarily political questions about ambition under the broader climate regime. Restrictions on the use of cooperative approaches should not seek to correct domestic choices or supplant political decisions on the appropriate form and ambition of national climate pledges under the Paris Agreement, which – where dealt with multilaterally – form part of a different negotiating agenda.

---

* Deputy Director, Center for Energy and Environmental Policy Research, Massachusetts Institute of Technology, Cambridge, MA, USA; Professor, School of Law, University of Strathclyde, Glasgow, UK. Contact: mmehling@mit.edu. The author gratefully acknowledges valuable comments on an earlier draft and concept note received from William Acworth, Thiago Chagas, Gilles Dufrasne, Eva Filzmoser, Thomas Kansy, Nicolas Kreibich, Kelly Levin, M.J. Mace, Andrei Marcu, Giuseppe Montesano, Wolfgang Obergassel, Robert N. Stavins, Robert C. Stowe, Jeff Swartz, Moritz von Unger, Karl Upston-Hooper, and Peter Zaman; Bryan Galcik for layout and design of the paper; and financial support from the Enel Foundation. The author remains fully responsible for any errors and all opinions expressed in this paper.

TABLE OF CONTENTS

List of Figures and Tables

LIST OF ACRONYMS

ADB	Asian Development Bank
AGN	African Group of Negotiators
APA	Ad Hoc Working Group on the Paris Agreement
BAU	Business-as-Usual
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CMA	Conference of the Parties serving as the Meeting of the Parties to the Paris Agreement
COP	Conference of the Parties
CPI	Climate Policy Initiative
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
ECX	European Climate Exchange
EEX	European Energy Exchange
EIG	Environmental Integrity Group
ETS	Emissions Trading System
EU	European Union
EUA	European Union Allowance
EU ETS	European Union Emissions Trading System
G77	Group of 77
GAO	Government Accountability Office (United States)
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GWP	Global Warming Potential
ICAP	International Carbon Action Partnership
ICE	Intercontinental Exchange
IETA	International Emissions Trading Association
IPCC	Intergovernmental Panel on Climate Change
ITMO	Internationally Transferred Mitigation Outcome
JI	Joint Implementation

LDC	Least Developed Countries
LMDC	Like-Minded Group of Developing Countries
MAC	Marginal Abatement Cost
MRV	Measurement, Reporting and Verification
MSR	Market Stability Reserve
MWh	Megawatt-hours
NDC	Nationally Determined Contribution
OECD	Organisation for Economic Co-operation and Development
OTC	Over-the-Counter
PAWP	Paris Agreement Work Program
PMR	Partnership for Market Readiness
QELRO	Quantified Emission Limitation and Reduction Obligation
REDD	Reducing Emissions from Deforestation and Forest Degradation
SBI	Subsidiary Body for Implementation
SBSTA	Subsidiary Body for Scientific and Technological Advice
SIDS	Small Island Developing States
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
VCLT	Vienna Convention on the Law of Treaties

1. INTRODUCTION

Although the Paris Agreement does not make express reference to carbon markets,[1] its Article 6 is widely held to be the "latest incarnation of these approaches in an international climate treaty" (Howard, 2018: 6) by allowing Parties to cooperate in the achievement of their Nationally Determined Contributions (NDCs). Recent scholarship has suggested that such cooperation can "increase the latitude of Parties to scale up the ambition of their NDCs" (Mehling, Metcalf and Stavins, 2017: 35), and recommended a balanced approach to the governance of Article 6 in order to avoid "restrictive quality or ambition requirements" that might "dampen incentives for cooperation" (Mehling, Metcalf and Stavins, 2018: 998; see also Bodansky et al., 2016: 960). By contrast, a growing body of literature – the vast majority of which originates from government-sponsored research in three Northwest European countries – has highlighted the potential of cooperative approaches to weaken aggregate efforts if unaccompanied by robust governance requirements.[2]

Under the Paris Agreement Work Program (PAWP), Parties are currently engaged in developing operational rules and guidance for the implementation of Article 6,[3] with a view towards adopting some – albeit not all[4] – of the operational details at the climate summit this December in Katowice, Poland.[5] How to address questions of ambition and environmental integrity in the governance framework for Article 6 has consistently proven one of the most contentious items in these negotiations. On matters related to ambition, Parties and observers have voiced widely divergent preferences about the appropriate balance between international prescription and national flexibility. Accordingly, successive iterations of draft negotiating text, including the latest textual proposals issued in October 2018 by the presiding officers of the bodies overseeing the negotiations, have featured long lists of options for potential inclusion in the "Paris Rulebook",[6] reflecting the diversity and – in many cases – irreconcilability of current Party views as expressed in earlier submissions and statements.

---

1 For a definition of such mechanisms and further discussion, with examples, see *infra*, Sections 3 and 3.2.

2 See *infra*, Section 2, for references and discussion.

3 UNFCCC, Decision 1/CP.21, "Adoption of the Paris Agreement." UN Doc. FCCC/CP/2015/10/Add.1 (29 January 2016), https://unfccc.int/sites/default/files/resource/docs/2015/cop21/eng/10a03.pdf, mandates the Subsidiary Body for Scientific and Technological Advice (SBSTA) with developing and recommending such guidance.

4 Already, a work plan is taking shape for such negotiating options that "do not have wide support" and where "further elaboration or technical understanding is needed for implementation", see para. 4 of UNFCCC, "Joint Reflections Note by the Presiding Officers of the Ad Hoc Working Group on the Paris Agreement, the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation. Addendum 2: Matters relating to Article 6 of the Paris Agreement and Paragraphs 36-40 of Decision 1/CP.21." UN Doc. APA-SBSTA-SBI.2018.Informal.2.Add.2 (15 October 2018), https://unfccc.int/sites/default/files/resource/APA_SBSTA_SBI.2018.Informal.2.Add_.2.pdf.

5 UNFCCC, Decision 1/CP.22, "Preparations for the Entry into Force of the Paris Agreement and the First Session of the Conference of the Parties serving as the Meeting of the Parties to the Paris Agreement." UN Doc. FCCC/CP/2016/10/Add.1 (31 January 2017), https://unfccc.int/resource/docs/2016/cop22/eng/10.pdf.

6 UNFCCC, "Joint Reflections Note", *supra*, note 4.

Relevant options proposed by Parties, groups of Parties, and observers fall along a continuum ranging from a high degree of prescriptiveness and central oversight to flexibility and delegation to individual Parties (Biniaz, 2017: 55-56).[7] Importantly, these options are not being negotiated in a legal vacuum. The mandate to elaborate guidance is enshrined in the Paris Agreement, a legally binding treaty, and the wording of that mandate as well as the intent of adopting Parties constrain what the Parties can and cannot include in operational details on Article 6. Conversely, anything Parties fail to agree on will likely remain within their sovereign discretion, given the permissive nature of international law. Resolving the tension between flexibility and prescription will need to occur within these legal confines, warranting a careful analysis of the scope and limitations of the current negotiating mandate.

In this Working Paper, the problematic tension between environmental ambition and flexibility in the governance of carbon trading is dissected through an analytical framework that builds on an established body of scholarship, and incorporates relevant insights from the practical operation of existing carbon markets. It begins with a survey of the theoretical literature on economic instruments for climate change mitigation, and focuses, in particular, on the rationale of such instruments, their governance requirements, and the implications of both under- and overregulation. Next, the Working Paper draws on experiences made with the Clean Development Mechanism (CDM) under the Kyoto Protocol and the European Union emissions trading system (EU ETS) to infer lessons from past regulatory choices on the appropriate balance between prescription and flexibility in carbon trading.

This analytical framework is then applied to the discussion of operational guidance for Article 6.2 of the Paris Agreement, which involves the use of internationally transferred mitigation outcomes (ITMOs) towards achievement of NDCs, and thus provides the normative framework for different variations of carbon trading across jurisdictions. To this end, the Working Paper proceeds to evaluate the legal mandate for guidance on Article 6.2 – as it relates to questions of ambition – based on the text and negotiating history of Article 6.2, and maps the positions of influential stakeholders on these questions to identify potential areas of convergence in the evolving negotiation process. Navigating within this legal and political opportunity space, the Working Paper relates the previous insights from theory and practice to key options currently under discussion to address the issue of ambition in Article 6.2 guidance, and concludes with a set of overarching principles that can help inform the further elaboration of cooperative approaches as negotiations progress towards the climate summit in Katowice and beyond.

7 For examples and discussion of Party positions, see *infra*, Section 4.3.

2. RESEARCH QUESTION: AMBITION, FLEXIBILITY, AND ARTICLE 6.2 OF THE PARIS AGREEMENT

Article 6 of the Paris Agreement allows Parties to engage in voluntary cooperation as they implement their nationally determined contributions (NDCs).[8] One such channel of cooperation – set out in Article 6.2 – involves the use of internationally transferred mitigation outcomes (ITMOs) towards achievement of NDCs. Although the provision omits explicit mention of markets, it "firmly anchors market mechanisms in the Paris Agreement" (Müller, 2018: 7) and thus harbors the promise of such mechanisms to lower the cost of achieving environmental policy objectives.[9] In practice, Article 6.2 could be implemented in different ways, including direct transfers between governments, linkage of emissions trading systems or other mitigation policies across two or more Parties, sectoral or activity crediting mechanisms, and other forms of cooperation involving public or private entities, or both (Howard, 2018: 7-8; Howard, 2017: 185; Kreibich, 2018: 7-8; Kreibich and Obergassel, 2018: 4; Mehling, Metcalf and Stavins, 2017: 2).

Typically, such cooperation will take place because emissions can be reduced at lower cost in the Party where the abatement occurs – the transferring Party – than in the Party acquiring the ITMO.[10] With the compliance flexibility introduced through Article 6.2, both Parties can leverage the difference in abatement cost for mutual benefit: the acquiring Party is able to reduce the cost of meeting its pledged NDC, whereas the transferring Party will receive some form of compensation, usually in monetary terms.[11] One estimate suggests that this ability to transfer mitigation outcomes across Parties can reduce the costs of global mitigation under currently submitted NDCs by one third by 2030, and by about a half by 2050 (World

8 Article 6.2 of the Paris Agreement, Paris, France, 12 December 2015, in force 4 November 2016, *International Legal Materials* (2016), Vol. 55, No. 4, 740-755. As of 1 October 2018, the Paris Agreement had been ratified by 181 parties, see UNFCCC, "Paris Agreement: Status of Ratification", https://unfccc.int/process/the-paris-agreement/status-of-ratification (accessed 1 October 2018).

9 For a brief discussion of carbon markets and their rationale as policy instruments for climate change mitigation, see *infra*, Section 3.1.1.

10 As Müller (2018), 14, explains, the Parties involved in Article 6.2 transfers have been designated in different ways in the draft negotiating texts, with Parties transferring ITMOs out of their jurisdiction variously referred to as "host Parties", "generating Parties", "originating Parties", or "transferring Parties", while those receiving them have been referred to as "acquiring Parties" or "using Parties."

11 Exceptions may exist when cooperation is motivated by political rather than economic considerations, for instance to build capacity and channel climate finance to developing country Parties. Likewise, compensation may be effected in non-monetary terms, for instance through the transfer of technology or a political concession in another issue area, such as international trade in goods and services.

Bank et al., 2016: 80).[12] Another estimate anticipates even greater cost savings of between 59 and 79 percent by 2035, with the higher end of the range contingent on inclusion of abatement from reduced deforestation and forest degradation (EDF, 2018: 2-3).[13] Research on the economic effects of regional rather than global trading also affirms substantial cost savings (Doda, Quemin and Taschini, 2018).[14]

Such cost reductions, in turn, can allow for greater climate ambition with available resources. By helping to achieve initial NDCs more easily, the ability to transfer mitigation effort can lower political resistance to more ambitious pledges in the future, and unlock additional resources that can be diverted to mitigation activities. As the recent Special Report of the Intergovernmental Panel on Climate Change (IPCC) on Global Warming of 1.5°C underscored, the pace and scale of mitigation efforts needed to achieve the temperature goals of the Paris Agreement[15] have "no documented historic precedent", and call for unparalleled levels of investment (IPCC, 2018: 4-8, SPM-29).[16] Because financial resources are limited, it is doubtful whether these investment levels can be met; assessments of current financial flows certainly affirm a considerable investment shortfall (CPI, 2017: 14). Any policy approach that strengthens the impact of a given level of investment may, therefore, prove critical to narrow the considerable ambition gap of existing NDCs (UNEP, 2017: 1).[17]

---

12 For 2030, the calculation was based on INDCs available at the time, with estimated cost savings – measured as economy-wide welfare changes when comparing a business-as-usual evolution of the energy system with an evolution where emissions are constrained in line with the INDC pledges – amounting to around US$ 115 billion per year. For 2050, the calculation assumes convergence of global per capita emissions in line with limiting global warming to 2°C in 2100, yielding estimated cost savings from trading of around 54 percent, or US$ 3,940 billion per year. Overall, this results in cumulative discounted savings in mitigation costs, using a 5 percent discount rate, of US$ 6.2 trillion between 2012 and 2050 (World Bank et al., 2016: 83, 86).

13 For this estimate, the authors compared expected total global costs for meeting currently pledged NDCs from 2020 to 2035 based on their existing use of markets and estimates of current sectoral plans and policies, with expected costs in a variety of scenarios including domestic and international emissions trading, with and without use of credits from Reducing Emissions from Deforestation and Forest Degradation (REDD) activities.

14 Applying a general model to quantify the economic gains of multilateral linking, the authors find that emissions trading between the power sectors in Canada, continental Europe, South Korea, the United Kingdom and the United States generates gains of up to US$ 370 million per year relative to autarky.

15 See Article 2.1 of the Paris Agreement, *supra*, note 8, which states as its objective "to strengthen the global response to the threat of climate change … by (a) [h]olding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels."

16 In the energy sector alone, the IPCC estimates that average supply-side investment needs to achieve the 1.5°C and 2°C temperature objectives amount to 3-3.5 trillion per year in 2010 US$ between 2016 and 2050, see IPCC (2018), 4-13.

17 As the report observes, current NDCs are "far from the level of ambition required for an emissions pathway consistent with staying below a 2°C, let alone a 1.5°C, temperature increase" and currently cover "only around one third of the emission reductions needed by 2030", UNEP (2017), 1.

By leveraging the cost savings from cooperation, countries could accelerate the progression of their mitigation pledges across NDC cycles. One modeling assessment suggests that global use of carbon markets would allow achieving almost twice the emission reductions at the same total cost (EDF, 2018: 3).[18] Another estimate considers the cost savings from international carbon trading to be sufficient for an additional 1.5 $GtCO_2$ of emissions abated by 2030 (World Bank et al., 2016: 86).[19] Overall, international cooperation under Article 6 thus has the potential of becoming "a powerful tool to promote more mitigation action … and pave the way for progress within the next NDC cycle" (Ahlberg, 2018: 23-24).

Lower costs may not automatically translate into greater ambition, however (Howard, 2018: 3). A growing body of research has discussed the potential of cooperative approaches to weaken aggregate efforts if Parties transfer ITMOs with questionable integrity or are discouraged from progressively strengthening their NDCs over time (Howard, 2018; Kreibich, 2018; Kreibich and Hermwille, 2016; La Hoz Theuer et al., 2017; Michaelowa et al., 2017; Schneider et al., 2017; Schneider and La Hoz Theuer, 2018; Spalding-Fecher et al., 2017; Warnecke et al., 2018). While it tends to concede the possibility of cost savings,[20] this research is more preoccupied with the risks that could arise from deployment of carbon trading, often with reference to examples from existing carbon markets. What the individual studies – a vast majority of which have been commissioned or funded by government agencies in only three Northwest European countries[21] – collectively affirm is the need for robust governance to address such risks, usually accompanied by conceptual proposals and policy options that should be included in a regulatory framework.[22]

Concerns about the environmental risks of ITMO transfers were also on the minds of Parties when they negotiated the Paris Agreement. Article 6.1 notes that use of cooperative approaches allows "for higher ambition" and serves to promote "environmental integrity." Article 6.2 goes

---

18 Using a partial-equilibrium model based on estimated marginal abatement cost (MAC) curves for major sectors within each country and region, and holding total discounted abatement cost constant, the authors estimated cumulative emissions reductions over the period 2020 to 2035 would increase from 77 $GtCO_2e$ in the base case to 147 $GtCO_2e$ in a scenario with full global emissions trading, reflecting an increase of 91 percent.

19 For this estimate, the authors calculated the mitigation effect of diverting US$ 115 billion in cost savings to abatement activities.

20 Interestingly, the potential for cost savings under Article 6 is usually affirmed, without offering any supporting evidence or references; see e.g. Howard (2018), 3: "The case for international carbon markets being cost-effective in mitigating climate change is well established."

21 Greiner and Michaelowa (2018), Howard (2018), Kreibich (2018), Kreibich and Hermwille (2016), Michaelowa and Butzengeiger (2017), and Warnecke et al. (2018) acknowledge the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety as client or sponsor; Schneider et al. (2017) was published by the German Environment Agency; La Hoz Theuer et al. (2017) and La Hoz Theuer, Schneider and Broekhoff (2018) acknowledge the Belgian Directorate-General Environment, under the authority of the Federal Public Service Health, Food Chain Safety and Environment, as client or sponsor; Spalding-Fecher et al. (2017) acknowledge the Swedish Energy Agency as client or sponsor.

22 For examples and discussion in the context of individual negotiation issues, see *infra*, Section 4.3.2.

further when it states that Parties using ITMOs towards their NDCs "shall … ensure environmental integrity and transparency, including in governance." Based on the options included in the latest textual proposals, at least some of these concerns will also be addressed by the operational guidance on Article 6.2 that is currently under negotiation. A survey of Party positions in the negotiating process reveals considerable disagreement, however, on the interpretation of these concepts and how they should be reflected – if at all – in relevant guidance.[23] What emerges from the mapping of Party statements and submissions is a range of views along a continuum between prescription and flexibility, inviting questions about the appropriate balance (Greiner and Michaelowa, 2018: 8).

This challenge is not new, of course. Ever since market approaches have been discussed in the international climate regime, some stakeholders have endorsed simplicity and speed in their operationalization, while others have placed greater emphasis on the need to secure environmental integrity and ambition (Michaelowa and Butzengeiger, 2017: 10). Each viewpoint can cite reasonable arguments, and any compromise will, by necessity, incur a number of tradeoffs. A highly prescriptive governance framework can increase transaction costs to the point of stifling investor interest and exceeding the technical and administrative capacity of some countries, becoming a deterrent against use of Article 6.2 and its ability to reduce abatement costs; regulatory flaws and lacking stringency, in turn, can result in ITMO transfers of questionable integrity that run counter to the mitigation objectives of the Paris Agreement and undermine confidence in its market mechanisms, echoing a pattern observed under the Kyoto Protocol.

So how should these competing priorities be reconciled? With around half of all Parties signaling their intention to participate in international carbon markets, either as a source of climate finance or as a means to achieve pledged emission reductions (IETA, 2018: 2; World Bank, 2018: 34), the importance of this question should not be underrated. Identifying an outcome that balances contending views and is acceptable to all Parties will be critical if Article 6.2 is to become, as one veteran of the negotiations has proposed, "the choice for up-scaled mitigation activities" to achieve the Paris Agreement objective of global carbon neutrality in the second half of the century (Forth, 2018: 6).

Any political outcome should hence be based on a robust understanding of its implications, including the inevitable tradeoffs, and factor in relevant insights from the research community. So far, however, the literature on this complex governance challenge has been to a certain degree self-referential, and difficult to disentangle from the viewpoints of a narrow group of countries commissioning or otherwise supporting the underlying research.[24] While this Working Paper cannot claim to reflect a greater geographic diversity of views – for now, there is a

23 For a mapping of Party positions, see *infra*, Section 4.3.

24 For references, see *supra*, note 18.

dearth of research and analysis on Article 6 from outside Europe and North America – it aims to expand the discussion based on an analytical framework drawn from broader academic enquiry across economic theory and political economy as well as deliberative jurisprudence, described in the next section.

3. ANALYTICAL FRAMEWORK: THEORY AND CASE STUDIES

3.1 Theory: Carbon Markets and their Regulation

3.1.1 Markets, Market Failure and Corrective Intervention

To better understand the implications of alternative approaches to the governance of Article 6.2 and how these might affect its operation, a closer look at the theoretical underpinnings of carbon trading is warranted. Economic theory commonly ascribes environmental challenges to different market failures, caused by, *inter alia*, positive or negative externalities (Buchanan et al., 1962), market power and concentration, split incentives, and information asymmetries. For economists, such market failures denote an inefficient allocation of goods and services by the market, justifying an intervention in the form of public policy (Bator, 1958).[25] Policy makers seeking to address the causes and effects of climate change – once described as "the greatest market failure the world has ever seen" (Stern, 2006: viii) – can take recourse to a portfolio of policy instruments, including corrective pricing and quantity rationing, performance standards, subsidies, agreements, and informational instruments (IPCC, 2015: 1155; OECD, 2008: 18-22).

A subset of policy instruments influence behavior through price signals (OECD, 1991: 117), and are therefore commonly referred to as market-based or economic instruments (Opschoor et al., 1989; Stavins, 2000). Such instruments are generally credited with achieving climate policy objectives at the lowest cost because they incentivize abatement where it is cheapest (Fischer and Newell, 2008; Stavins, 1988: 15, 19). Abatement decisions are decentralized, moreover, helping overcome the information asymmetry between policy makers and polluters. By granting polluters flexibility to determine the allocation of resources, these instruments are thus better at avoiding path dependencies and sunk investments in dead-end technologies (Helm, 2005: 215).

One way of harnessing the benefits of economic instruments relies on quantity controls coupled with the creation of a market for tradable units (Crocker, 1966; Dales, 1968; Montgomery, 1972). While guaranteeing a defined policy outcome, such markets also generate an

25 Coase (1960) famously argued that no government intervention is necessary between parties affected by certain types of market failures if these can engage in unobstructed bargaining without transaction cost, since they could agree on a Pareto efficient outcome. Coase himself conceded that these conditions are never met in practice, limiting the practical significance of his theorem (Coase, 1992: 717).

explicit price, thereby internalizing some or all of the social cost of pollution in the private cost of underlying economic activity.[26] As prices for units rise in response to growing scarcity, the demand for them will gradually decrease, along with the associated emissions. Under conditions of perfect competition, this should result in an equilibrium where marginal abatement costs are equalized across all regulated entities, and abatement occurs where it yields the largest net benefit to society (Baumol et al., 1988: 177; Tietenberg, 2006: 27).

Applied to climate change, this quantity rationing approach involves issuance of tradable units conferring the right to discharge a specified quantity of greenhouse gas (GHG) emissions for a specified duration. Variations of this approach range from emissions trading systems based on a technological baseline or an emissions ceiling ("cap") to crediting systems based on mitigation efforts at project, sectoral or economy-wide level (OECD, 2001: 19). Collectively referred to as "carbon markets",[27] they have in common a quantity limitation which generates demand for units, and an ability of market participants to purchase or sell units at the respective market price, signaling the opportunity costs of pollution as determined by the forces of demand and supply. Cooperative approaches and the ability to transfer ITMO fall within this category of market-based instruments, explaining why Article 6 is frequently referred to as the "markets provision" of the Paris Agreement (e.g. Cames et al., 2016a: 7) despite lacking express reference to markets.

A market-based approach is particularly suited to address climate change because GHGs are not in themselves toxic and the damage function of their accumulation in the atmosphere is shallow in the short run,[28] which allows for spatial and temporal flexibility in the policy response (Helm, 2005: 223; Krupnick et al., 2012: 1). Climate change is unique, moreover, in that the underlying causes are diffuse, widely heterogeneous and virtually ubiquitous activities, necessitating policy solutions that are scalable and cost-effective. As abatement costs rise over time – with cheap abatement options being, by design, exhausted first (Stern, 2006: 63, 191) – the cost-effectiveness of market-based instruments will become increasingly important to sustain policy ambition over the long term, underscoring the potential role of Article 6.2 in the successive progression of NDCs.

26 While quantity controls with trading are fundamentally distinct from Pigovian pricing set at the level of the social cost of externalities (Pigou, 1920), the variable market price of transacted units does send a price signal to market participants, thereby internalizing the externality at least in part.

27 Although other greenhouse gases may be included, the term "carbon market" is widely used because carbon dioxide (CO_2) is the main GHG in terms of its overall contribution to climate change, and because tradable units are mostly denominated in terms of carbon dioxide equivalent (CO_2e), see Newell, Pizer and Raimi (2013): 124.

28 This is the case because climate change is a stock externality: its consequences depend not on emissions in a single year, but on the accumulated stock of emissions over time, see Newell and Pizer (2003): 417.

3.1.2 Markets and the Role of Governance

While carbon markets thus offer a powerful tool to address climate change, they also place high demands on the institutional and regulatory architecture created for their implementation (Bell, 2006: 29). Properly defined and enforced institutions – including property rights – are necessary for any market to achieve efficient outcomes (Coase, 1960), especially where they affect public goods and common-pool resources (Ostrom, 1990: 15; on the typology of goods, see Samuelson, 1954). Like other markets (Weber, 1947: 364), carbon markets are therefore embedded in and facilitated by government regulation (Lederer, 2012). Because they are premised on an artificially constrained supply of emission units, however, they are particularly dependent on a robust governance framework and credible policy mandates.

At a minimum, carbon markets require a process to ensure transparency of emissions, including a regulatory framework for measurement, reporting and verification (MRV), as well as the required infrastructure to track distribution and ownership of assigned and transacted units (e.g. PMR and ICAP, 2016; UNEP and UNCTAD, 2002). Establishing such structures is critical, yet frequently constrained by insufficient technical and administrative capacities, including resources and suitable personnel (Brewer and Mehling, 2014: 188). Different jurisdictions show great variation in their legal and administrative systems, their regulatory cultures, and their traditions of transparency, accountability, and access to information, likewise affecting the operation of carbon markets (Bell, 2003: 11; illustrated for China: Goron and Cassisa, 2017). As the conceptual notion of carbon trading moves from theory to implementation, its elegant simplicity gives way to complex governance challenges.

These are all the more relevant because incentive structures in carbon markets differ fundamentally from those in more established markets: buyers and sellers can afford indifference about whether transacted units reflect actual emission reductions, making evasion a positive sum game for both parties. Absent adequate safeguards, the intangible nature and limited, inelastic supply of emission units renders carbon markets relatively more susceptible to price volatility and strategic or fraudulent behavior (Hintermann, 2010: 327; Nordhaus, 2006: 33-34;[29] generally Hahn, 1984). Such risks to market integrity have prompted extensive debate about governance requirements, including the role of financial market regulation and its extension to carbon market governance (Monast et al., 2009; Whitesell and Davis, 2008).

Another challenge arising from the unique incentive structure of carbon markets are intertemporal – or dynamic – inefficiencies discussed in the theoretical literature (Baumol and Oates, 1988: 212), including in the context of emissions trading (Carbone, Helm and Rutherford, 2009; Helm 2003; Holtsmark and Sommervoll, 2012) and offset crediting (Strand, 2011). Applied to Article 6, such inefficiencies would translate into a perverse incentive for Parties

29 In an earlier version of his article, Nordhaus went so far as to say that "cheating will probably be pandemic in an emissions trading system that involves large sums of money" (Nordhaus, 2005: 19).

to weaken the ambition of their future climate pledges. Unlike the Kyoto Protocol, the Paris Agreement requires all Parties to participate in mitigation, altering the incentive structure for countries as they consider future climate pledges. A central feature of the Paris Agreement is its NDC cycle, which requires Parties to update their NDC every five years, ensuring a progression beyond the current NDC and reflecting "the highest possible level of ambition."[30] By offering the prospect of profitable transfers, Article 6 might induce Parties to adopt less ambitious targets in order to reserve a greater share of mitigation opportunities for eventual transfers under Article 6 (Howard, 2018: 6). Implementing regulatory safeguards to counter such a dynamic will be one of the most challenging and contested aspects of operationalizing Article 6.

3.1.3 Government Failure and the Limits of Regulation

As will be described in the next section,[31] several of these vulnerabilities have already been observed in practice, with harmful effects for the functioning of carbon markets and their support among market participants and the broader public. This latter observation mirrors the experience in other markets, where under-regulation has proven detrimental and ultimately prompted calls for regulatory reform from market participants themselves (Stiglitz, 2009: 15). Yet while the economic benefits of market-based instruments are predicated on an adequate governance framework, excessive regulation can prove equally detrimental. Just as market failures call for regulatory intervention to secure the conditions needed for an efficient allocation of resources, regulation that exceeds the level needed to correct those market failures will counteract the allocative efficiency achieved through corrective measures.

Regulatory intervention into the operation of markets raises questions that go beyond the appropriate level of such intervention, and also include the quality and objectives of intervention. In the literature, such questions have been discussed under the broader label of non-market or government failures, including cognitive, organizational, and political barriers (O'Dowd, 1978; Tullock, Brady and Seldon, 2002; Weisbrod, 1978; Wolf, 1993). Like other climate policies, for instance, carbon markets are exposed to rent seeking and regulatory capture at various stages of their implementation, but their technical complexity arguably expands the number of entry points for influencing behavior (Meckling, 2011; on the concepts, see Buchanan et al., 1975; Krueger, 1974; Stigler, 1971). More generally, governments tend to suffer from information asymmetries and capacity constraints that limit their ability to identify and implement the most appropriate intervention (Hayek, 1973: 14; Wallis and Dollery, 1999: 37). It has even been argued that climate change stretches the capability of governments to process and react to the attendant information (Bazerman, 2006). As a result

30 See Article 4 of the Paris Agreement, *supra*, note 8: "2. Each Party shall prepare, communicate and maintain successive nationally determined contributions that it intends to achieve. … 3. Each Party's successive nationally determined contribution will represent a progression beyond the Party's then current nationally determined contribution and reflect its highest possible ambition. … 9. Each Party shall communicate a nationally determined contribution every five years."

31 See *infra*, Section 3.2.

of these various factors, policy makers face considerable difficulties in identifying the optimal balance between too much or too little regulation, and any balance they might strike will in turn be subject to political pressures and stakeholder influences.

Even where these cognitive, organizational and political barriers could be overcome, some commentators have gone further and questioned the altruistic motivations of government actors to intervene in the public interest (Chang, 1996: 33; Downs, 1957: 136; Tullock, Brady and Seldon, 2002: 10). Contested arguments of this sort do not require further elaboration here; it suffices to acknowledge that regulation, like markets, suffers from its own failures. In the practical operation of carbon markets, such failures can manifest themselves in several ways. Stakeholder pressures can weaken the stringency of mitigation targets or influence the design of carbon markets in ways that favor certain market participants (Markussen and Svendsen, 2005; Vormedal, 2008). Conversely, policy makers may err on the side of caution, and opt for excessive regulation that contributes to high transaction costs. Transaction costs can significantly affect the operation of carbon markets (Stavins, 1995), diminishing liquidity and the efficiency of price discovery. Where individual transactions require prior government approval, they can also discourage trading (Hahn and Hester, 1989). Overly stringent restrictions can deter market actors from participating in the market altogether (Nordhaus, 2005: 18).

Overall, thus, reconciling contending visions of the appropriate balance between prescriptiveness and flexibility, or between securing ambition and reducing cost, encompasses inevitable normative and economic tradeoffs. Theoretical enquiry can only go so far in offering guidance for what ultimately remains a political question, but it does provide useful reminders of the rationale of market mechanisms, the need for and limitations of governance, and the trade-offs inherent to different political choices. These insights will be revisited in the interim conclusions in Section 3.3, but their manifestation in practice is first tested against two case studies of existing carbon markets: the flexibility mechanisms of the Kyoto Protocol, and the European Union Emissions Trading System, in the next subsection.

3.2 Case Studies: Experiences with Carbon Markets

3.2.1 Kyoto Protocol Flexibility Mechanisms[32]

Under the Kyoto Protocol to the UNFCCC, an international treaty adopted in 1997,[33] those developed country Parties that entered quantified emission limitation and reduction obliga-

32 This section partly draws on Mehling (2007).

33 Kyoto Protocol to the United Nations Framework Convention on Climate Change, Kyoto, 10 December 1997, in force 16 February 2005, *International Legal Materials* (1998), Vol. 37, No. 1, 22-43; as of 1 October 2018, the Kyoto Protocol remains in effect for 192 states, see UNFCCC, "The Kyoto Protocol: Status of Ratification", https://unfccc.int/process/the-kyoto-protocol/status-of-ratification (accessed 1 October 2018).

tions (QELROs) during the first commitment period from 2008 to 2012 were able to meet these through a set of flexibility mechanisms: international emissions trading and two project mechanisms, Joint Implementation (JI) and the Clean Development Mechanism (CDM).[34] A subsequent amendment to the Kyoto Protocol, adopted in Doha in 2012, defines the parameters of a second commitment period for the period between 1 January 2013 to 31 December 2020. Although this amendment has yet to enter into force, the few Kyoto Parties with QELROs participating in the second commitment period have collectively agreed to reduce GHG emissions by at least 18 percent below 1990 levels.[35]

Largely adopted in response to pressure from a group of advanced economies (Depledge, 2000: 61-68), the flexibility mechanisms were included in the Kyoto Protocol to help lower the cost of compliance with mitigation commitments by leveraging the differences in abatement costs between developed and developing countries (Goulder and Nadreau, 2002: 122-125). Although the relevant provisions of the Kyoto Protocol set out considerably more operational detail than Article 6.2 of the Paris Agreement, even creating a new supervisory body – the CDM Executive Board (CDM EB) – they still mandated Parties with subsequent elaboration of additional modalities, procedures, and guidelines. Such implementing rules were eventually adopted in 2001 as part of the Marrakesh Accords, a series of decisions that govern implementation of the Kyoto Protocol (Dessai and Schipper, 2003).

Under these rules, use of the flexibility mechanisms is voluntary, but subject to several eligibility requirements. To participate in international emissions trading, for instance, countries must have calculated their assigned emission budgets pursuant to specified accounting modalities, established a national system for the estimation of GHG emissions by sources and removals by sinks, and created the necessary infrastructure to account for the issuance, holding, transfer, cancellation and retirement of tradable units.[36] Annual submission of an accurate inventory is a key eligibility requirement,[37] as is maintenance of a "commitment period reserve" limiting the share of tradable units Parties may sell to ten per cent of their respective

34 Occasionally, joint fulfilment of commitments pursuant to Article 4 of the Kyoto Protocol has also been counted towards the flexibility mechanisms of the Kyoto Protocol. For details, see Freestone (2005).

35 Decision 1/CMP.8, "Amendment to the Kyoto Protocol pursuant to its Article 3, Paragraph 9 (the Doha Amendment)", UN Doc. FCCC/KP/CMP/2012/13/Add.1 (28 February 2013), https://unfccc.int/resource/docs/2012/cmp8/eng/13a01.pdf.

36 See Articles 3.7, 3.8, 5.1 of the Kyoto Protocol, Decision 18/CP.7, "Modalities, Rules and Guidelines for Emissions Trading under Article 17 of the Kyoto Protocol", UN Doc. FCCC/CP/2001/13/Add.2 (21 January 2002), https://unfccc.int/sites/default/files/resource/docs/cop7/13a02.pdf, and Annex of Decision 19/CP.7, "Modalities for Accounting of Assigned Amounts under Article 7, Paragraph 4, of the Kyoto Protocol", UN Doc. FCCC/CP/2001/13/Add.2 (21 January 2002), https://unfccc.int/sites/default/files/resource/docs/cop7/13a02.pdf.

37 Article 7 (1) of the Kyoto Protocol and paras. 3.a to 3.f of the Annex to Decision 22/CP.7, "Guidance for the Preparation of the Information Required under Article 7 of the Kyoto Protocol", UN Doc. FCCC/CP/2001/13/Add.2 (21 January 2002), https://unfccc.int/sites/default/files/resource/docs/cop7/13a03.pdf.

assigned amount.[38] Compliance with these requirements is assessed through an independent review process, and failure to observe relevant obligations can result in sanctions, such as exclusion from the use of the flexibility mechanisms (Yamin, 2005: 61-67).

Activity under the emissions trading system was limited (Shishlov, Morel and Bellassen, 2016: 778). One explanation for this limited uptake is that sovereign states are not motivated by cost-minimization or profit-maximization to the same extent private actors are, and instead tend to be driven by geopolitical and diplomatic considerations (Hahn and Stavins, 1999: 9). Limited market participation reduces liquidity and can increase opportunities for market manipulation. Discussing the importance of actors other than countries with compliance obligations, a contemporary observer of the international carbon market also noted that enhanced participation enhances the "likelihood that the price signal generated by trading is a reliable indicator for investment decisions" (Hedges, 2009: 311). If proven true, this observation has considerable relevance for Article 6 and discussions about potential participation restrictions, including exclusions of Non-state Actors (or non-Party Stakeholders), that is, subnational and private entities, from participation in the market.[39]

Much greater levels of market activity have been seen under JI and the CDM, which also have allowed for extensive involvement of the private sector. Both are subject to a separate set of rules from international emissions trading, reflecting their fundamentally different nature as project mechanisms that yield offset credits. Under both mechanisms, projects must satisfy an "additionality" test, demonstrating that the emission reductions would not have taken place without the project (Erickson, Lazarus and Spalding-Fecher, 2014). Projects must result in emission reductions that go beyond a baseline scenario and result in real, measurable, and lasting climate benefits.[40] This reliance on a counterfactual baseline scenario has been contested, as it involves predicting future energy consumption patterns, fuel prices, and energy policies, all of which presupposes highly subjective assumptions (OECD, 2000). With both parties to a mitigation project standing to benefit from its implementation, moreover, they share an incentive to overstate actual emission reductions (Wara and Victor, 2008: 23-24).

Particular concerns have been voiced against the CDM, which involves emission reduction projects in developing countries without mitigation commitments of their own under the Kyoto Protocol. Reflecting such concerns, the Marrakech Accords set out a highly detailed

38 Decision 5/CP.6, "The Bonn Agreements on the Implementation of the Buenos Aires Plan of Action", UN Doc. FCCC/CP/2001/5 (25 September 2001), https://unfccc.int/resource/docs/cop6secpart/05.pdf.

39 See relevant proposals discussed *infra*, in Section 4.3.2.2.

40 See, e.g., para. 44 of the Annex to Decision 17/CP.7, "Modalities and Procedures for a Clean Development Mechanism, as Defined in Article 12 of the Kyoto Protocol", UN Doc. FCCC/CP/2001/13/Add. 2 (21 January 2002), https://unfccc.int/sites/default/files/resource/docs/cop7/13a02.pdf, and para. 1 of Appendix B in the Annex to Decision 16/CP.7, "Guidelines for the Implementation of Article 6 of the Kyoto Protocol", UN Doc. FCCC/CP/2001/13/Add. 2 (21 January 2002), https://unfccc.int/sites/default/files/resource/docs/cop7/13a02.pdf.

procedure to determine the additionality of proposed mitigation projects. Under these rules, development and approval of CDM projects require evaluation and registration by the CDM EB, as well as independent project validation, verification and certification of reductions by accredited Designated Operational Entities (DOEs).[41]

Transaction costs resulting from this elaborate process have been considerable, disproportionately impacting smaller emission reduction projects (Chadwick, 2006; Krey, 2005; Michaelowa et al., 2003). Despite more relaxed rules for the smaller projects prevalent in least developed countries, these transaction costs have influenced the geographic distribution of investment from poorer regions (Martin, 2006: 13). Of the roughly 8,000 registered CDM projects to date, for instance, only about 3% are located in African countries,[42] where more diffuse emission patterns and generally challenging investment conditions have further exacerbated this uneven project distribution (Kreibich et al., 2016). Coupled with a bias for large industrial projects (Wara, 2007; Schneider, 2011), the strong regional dominance of Asian countries – and above all China – in hosting projects has prevented the CDM from realizing its separate objective of assisting developing countries in achieving sustainable development (Ellis et al., 2004: 34; Holm Olsen, 2007). Also, the average time to progress from project validation to registration, monitoring, and issuance of credits has been around 36 months, with a rising tendency in recent years.[43] Unsurprisingly, stakeholders have complained that the CDM approval process is "unclear, impractical, and resource intensive," suggesting that the regulatory framework "discouraged investment in the kinds of projects that would have the most benefits" without "necessarily result[ing] in a higher quality of credits" (GAO, 2008: 7, 47).

In effect, CDM procedures have been shown to suffer from various forms of regulatory failure. Documented shortfalls in the quality of critical validation and certification functions performed by DOEs prompted scrutiny and resulted in the suspension of accreditations (Young, 2008). Recurring instances of collusion between supposedly independent actors, such as project developers, national approval authorities (DNAs), and even the supervisory CDM EB itself, invited accusations of flawed governance and outright fraud (Flues et al., 2010; Green, 2008; Newell, 2012). Likewise, the design and operationalization of the CDM has evidenced susceptibility to regulatory capture by stakeholders (Vormedal, 2008). With up to a third of expected credits never generated and another third only delivered with significant delays, the CDM process has also manifested considerable project risk for developers (Cormier and Bellassen, 2013).

41 See generally Decision 17/CP.7, *supra*, note 37.

42 UNFCCC, "Annual Report of the Executive Board of the Clean Development Mechanism to the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol" UN Doc. FCCC/KP/CMP/2018/3 (21 September 2018), https://unfccc.int/sites/default/files/resource/03.pdf, 7.

43 UNFCCC, "Project Activities" (data as of 31 August 2018), http://cdm.unfccc.int/Statistics/Public/CDMinsights/index.html.

Soon after the entry into force of the Kyoto Protocol, moreover, several independent studies suggested that a considerable share of registered projects lacked additionality (e.g. Schneider, 2007; Wara, 2008)[44] or incentivized production of industrial GHGs in order to decompose them (Schneider, 2011). Such research quickly garnered attention in the mainstream media (e.g. Ball, 2008; Rosenthal and Lehren, 2012), and undermined public support for the CDM, which in turn pressured governments to introduce restrictions on the acceptance of CERs.[45] Notwithstanding a documented ability to dramatically reduce the cost of achieving mitigation commitments (Spalding-Fecher et al., 2012: 24; Burniaux, 2009: 54), the market for CERs subsequently suffered a dramatic decline. Within the space of a few years, CER prices fell 98% from previous highs, at one point earning them the headline of "worst performing commodity" (Wynn and Chestney, 2011). A major assessment of the CDM concluded in 2012 that the market had "essentially collapsed" (CDM Policy Dialogue, 2012: 67), with declining transaction volumes also causing a loss in institutional capacity as major market facilitators, including project developers, brokers, and other intermediaries, downsized their activities or ceased operations altogether (Buen, 2013: 3).

Overall, the experience with the CDM has been, in many ways, a cautionary one, evidencing how an attempt to correct a market failure has suffered from failures of its own. No simple answer can be inferred on the appropriate balance between regulation and flexibility. With the benefit of hindsight, it is clear that certain project methodologies should have been excluded from the outset. A cumbersome approval process has contributed to project risk and high transaction costs, without preventing questionable outcomes. As one veteran summarizes it, critics of the CDM process argue that "the testing was too complex and substantially increased transactions costs for project developers. Yet, it was required for safeguarding the environmental integrity of the mechanism" (Michaelowa and Butzengeiger, 2017: 5). At the same time, governance rules have been insufficient to deter market participants from undesirable and, in some cases, fraudulent behavior.

---

44 One reason for the prevalence of non-additional projects in the early years of the CDM was the possibility to rely on an ill-defined "barrier test" to demonstrate additionality, which was eventually replaced by an investment test, see Michaelowa and Butzengeiger (2017), 5.

45 In the European Union, for instance, industrial gas projects involving trifluoromethane (HFC-23) and nitrous oxide (N2O) from adipic acid production have been ineligible for compliance under the EU ETS since 1 January 2013, see Commission Regulation (EU) No. 550/2011 on Determining, Pursuant to Directive 2003/87/EC of the European Parliament and of the Council, Certain Restrictions Applicable to the Use of International Credits from Projects Involving Industrial Gases, OJ 2011 L 149/1, https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:149:0001:0003:EN:PDF; additionally, since 2013, credits from projects registered after 2012 have been ineligible unless they were generated in a least developed country (LDC), see Article 11a (4) and (5) of Parliament and Council Directive 2009/29/EC amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emission Allowance Trading Scheme of the Community, OJ 2009 L 140/63, https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0063:0087:en:PDF.

Numerous changes have been made to reform the mechanism by closing regulatory loopholes, introducing greater standardization of methodologies and baselines, and streamlining the lengthy and bureaucratic approval process. Introduction of solid fee revenues from project registration and CER issuance has helped the CDM EB scale up its support staff, greatly accelerating the approval, registration and issuance processes (Buen, 4). Still, these reforms arguably come too late to undo the reputational damage and unilateral restrictions that have already been implemented in key jurisdictions as a response to the perceived shortcomings of the CDM (Michaelowa, 2013). Coinciding with historically low demand for CERs, these reforms are unlikely to an ailing market (Kreibich et al., 2016). What is more, the improvements they introduce may still be insufficient to prevent CDM projects with questionable additionality (Cames et al., 2016b). What they highlight, however, is the dynamic nature of carbon market mechanisms and their governance frameworks: no design is final, and growing experience with the operation of the market as well as changing circumstances will necessitate amendments and revisions over time (Newell, Pizer and Raimi, 2013: 139-140).

Information asymmetries, regulatory capture, and other dynamics discussed in the previous section[46] have contributed to the challenges experienced with the CDM, undermining its efficiency and possibly accelerating its dramatic demise. Importantly, however, the empirical track record seems to refute concerns that the CDM would incentivize host countries to weaken domestic climate policy trajectories, be it because they seek to improve their attractiveness for investors or because developed countries already harvested all attractive mitigation options (on such concerns, see Burniaux et al., 2009: 62; Hepburn, 2007: 386). Rather, empirical data, surveys, and case studies suggest that an abundance of affordable abatement options, the collateral benefits of many climate policies, and the raised public and institutional awareness of climate issues in host countries have outweighed any such negative incentives, while other domestic factors – including economic priorities and institutional power structures – have played a much greater role than carbon finance in driving the adoption of climate and energy policies (Buen, 2013: 5; Castro, 2012: 212; Spalding-Fecher, 2014: 11, with further references). If anything, the geographic and sectoral concentration of projects has provided strong evidence for the ability of private sector actors to identify and harness low cost abatement opportunities (Nobuoka, Ellis and Pyndt Andersen, 2015: 19).

Notwithstanding the various challenges encountered in the implementation of the market mechanisms under the Kyoto Protocol, it bears noting that all Parties with QELROs have fully complied with their mitigation obligations during the first commitment period (Grubb, 2016). During that period, the flexibility mechanisms collectively mobilized in excess of US$140 billion in climate finance, a vast majority of which went to developing countries, and a good share of which was invested in Green Investment Schemes (GIS) as a means of advancing sustainable development and other social and environmental benefits (Howard, 2017: 179;

46 See *supra*, Section 3.1.

Tuerk et al., 2013). For some Parties, such as Japan, use of the flexibility mechanisms proved essential to meet their committed emission reductions (Shishlov, Morel and Bellassen, 2016: 12), validating the underlying rationale of these market approaches. As the ongoing reform of the CDM regulatory architecture continues to unfold, questions about future demand for CERs and their eligibility under the Paris Agreement will need to be answered (Wolke, 2018).

3.2.2 European Union Emissions Trading System

Operational since 2005, the European Union Emissions Trading System (EU ETS) remains the largest carbon market currently in operation. It presently operates in 31 countries – all 28 EU Member States as well as Iceland, Liechtenstein and Norway – and covers around 12,000 emitters that account for roughly 2 billion metric tons of GHGs or 45% of EU emissions. This makes the EU ETS – itself the outcome of a policy turn after initial European resistance against carbon markets (Hardy, 2007; Wettestad, 2005) – a centerpiece of EU climate policy (Delbeke, 2006). Over a dozen directives, regulations and decisions set out the legal framework of the EU ETS, linking it to international offsets, extending the market to new sectors and gases, establishing a common registry, and providing technical guidance and procedural details on design features such as auctioning and MRV (Meadows, Slingenberg and Zapfel, 2015).

Governance of the EU ETS has evolved significantly since its inception, with competences in a number of areas – such as allocation of units and registry operation – becoming successively more centralized as implementation at Member State level proved inadequate. Features not yet envisioned in the original directive were added over time in response to observed regulatory gaps and design shortcomings. Two challenges have attracted particular criticism in the practical operation of the EU ETS: a prolonged price weakness coupled with high volatility in the European carbon market, as well as a series of criminal activities involving tax fraud, phishing, and outright theft. Both are discussed at greater length below.

During its first trading period from 2005 to 2007, the EU ETS was overshadowed by a widely publicized collapse of carbon prices due in large part to insufficient or inaccurate data (Betz and Sato, 2006: 352-354). European Union Allowances (EUAs) witnessed a price drop from originally more than €32 in the spot market in early April 2006 to a figure in the single digits only weeks later. A first set of independently verified emissions reports for the year 2005 had been released earlier that month by Member States,[47] revealing that aggregate emissions were significantly below the annual average allocation of allowances for the first period (Ellerman and Buchner, 2008: 286). Capacity constraints and an ambitious timeline contributed to this information shortfall, although political incentives for Member States to favor their domestic industries in the allocation process also influenced national allocation decisions (Convery and

47 European Commission, "EU Emissions Trading Scheme Delivers First Verified Emissions Data for Installations", Press Release IP/06/612 (15 May 2006), http://europa.eu/rapid/press-release_IP-06-612_en.htm.

Redmond, 2007: 94; Mehling, 2003: 156). Reports of substantial windfall profits for sectors able to pass through the cost of freely allocated EUAs added to the reputational damage for the EU ETS (Ellerman, Convery and Perthuis, 2011: 326; Sijm, Neuhoff and Chen, 2006: 49).

Carbon prices experienced continued weakness over the following two trading periods due to an economic slowdown across Europe, greater than expected abatement under complementary policies, and extensive use of offset credits from CDM and JI projects (Koch et al., 2014). When the value of EUAs fell to new lows early in the third trading period (2013 to 2020), what had been a simmering crisis of confidence erupted in calls for fundamental changes to the European carbon market ("ETS, RIP?", 2013; Monbiot, 2013). After years of resisting calls for intervention in the carbon market, the European Commission responded by initiating a discussion on structural reform options.[48] Following initial setbacks, the European Council and Parliament eventually approved a delay in the scheduled auction of allowances ("backloading")[49] as well as a dynamic supply adjustment mechanism, the Market Stability Reserve (MSR).[50] Carbon prices have since experienced a gradual recovery, strengthened by recent legislative changes for the fourth trading period (2021 to 2030) that introduced a steeper emission reduction pathway and accelerated the withdrawal of surplus allowances into the MSR.

Recent years have also seen a number of criminal activities and efforts to exploit regulatory loopholes in the EU ETS, highlighting a need for greater market oversight and governance. Individual market participants and speculators have been periodically reported to influence the price of EUAs and exaggerate price moves, with evidence that individual traders are seeking to move price. Between 2009 and 2010, value-added tax (VAT) fraud – also known as carousel fraud – in the course of EUA transactions deprived Member States of more than €5 billion in tax revenue (CMI, 2012: 13; Frunza, Guegan and Lassoudiere, 2011). 2010 and 2011 also saw scandals involving the sale of recycled CERs, phishing attempts on the German national registry, and a series of subsequent cyber-thefts affecting several million EUAs (Point Carbon, 2012: 3). Such events eroded confidence in the functioning of the market and prompted the European Commission to propose further regulatory reforms (World Bank, 2012: 30-31).

48 European Commission, "Report from the Commission to the European Parliament and the Council: The State of the European Carbon Market in 2012", COM(2012) 652 (14 November 2012), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52012DC0652&from=EN. Options identified in this report include: Increasing the EU greenhouse gas emissions reduction target for 2020; permanently retiring a certain number of allowances in the current trading phase; revising the annual reduction in the number of allowances; including more sectors in the EU ETS; limiting access to international credits; and introducing discretionary price management mechanisms such as a price management reserve.

49 Decision No. 1359/2013/EU of the European Parliament and of the Council of 17 December 2013 amending Directive 2003/87/EC Clarifying Provisions on the Timing of Auctions of Greenhouse Gas Allowances, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013D1359&from=EN.

50 Decision (EU) 2015/1814 of the European Parliament and of the Council of 6 October 2015 Concerning the Establishment and Operation of a Market Stability Reserve for the Union Greenhouse Gas Emission Trading Scheme and amending Directive 2003/87/EC, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015D1814&from=EN.

Aside from a directive extending application of the VAT reverse charge mechanism to emissions trading, the European Union also strengthened oversight of carbon market transactions by closing a substantial gap in the existing regulatory framework. Both primary and a majority of secondary market transactions had already been subject to regulatory oversight, but spot market transactions were still largely exempted. From the beginning of 2018, a change to the Markets in Financial Instruments Directive (MiFID) mandates trading of derivatives on regulated venues, introduces position limits and reporting requirements for derivatives, and – most importantly – classifies allowances as financial instruments under MiFID, triggering registration and licensing duties, disclosure and reporting requirements, and additional disciplines for the previously unregulated spot market.[51] Additionally, from 2012 onwards, the European Union has operated a single European registry for EUAs and other units, the European Union Transaction Log (EUTL), enabling centralized oversight of all transactions.

What the track record of the EU ETS highlights is, once again, the critical role of information. Regulatory decisions on the overall amount of allowances and their allocation have suffered from information asymmetries, a lack of accurate data, and uncertainty about fundamental trends, severely undermining the functioning of the European carbon market during its first trading periods. Implementing a policy solution for the supply and demand imbalance in the carbon market has taken over a decade, in part due to rent seeking behavior of affected sectors and Member States. Likewise, incidents of market power and abuse have required a regulatory response, although the additional restrictions – while justified to secure market integrity and restore confidence among its participants – may also impact market liquidity. As an intervention to correct the market failure of unpriced externalities, the EU ETS has, in other words, evidenced various forms of government failure and undergone a difficult process to address design flaws and identify the appropriate level of regulation.

Yet it also has demonstrated how continuous improvement helped ensure its durability as a climate policy, and while it is still early to assess the lasting impact of the latest reforms, a recent substantial increase in EUA prices[52] suggests that they are showing the desired effect. What is more, the EU ETS saw a liquid market for allowances emerge in the first years of trading, measured in terms of the frequency and size of transactions, the number and type of market participants, and the average size of spreads (Ellerman and Joskow, 2008: 16).[53] Since then, the EU ETS has reached maturity, with a number of competing trading platforms

51 Directive (EU) 2016/1034 of the European Parliament and of the Council of 23 June 2016 amending Directive 2014/65/EU on Markets in Financial Instruments, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L1034&from=EN.

52 Between 30 September 2017 and 30 September 2018, for instance, EUA prices in the secondary market increased almost threefold, from € 7.17 to € 20.95 per t/CO_2e, see European Energy Exchange (EEX), "EU Emission Allowances | Secondary Market", https://www.eex.com/en/market-data/environmental-markets/spot-market/european-emission-allowances.

53 A liquid market can be defined as one "where there are ready and willing buyers and sellers on a continuous basis", see Article 4 of Directive 2014/65/EU, as amended by Directive (EU) 2016/1034, *supra*, note 51.

– including the European Energy Exchange (EEX), the Intercontinental Exchange (ICE), and the European Climate Exchange (ECX) – as well as high trading volumes both through exchanges and over-the-counter (OTC) transactions, a wide range of traded products in the spot and derivative markets, and a diverse set of market participants, including compliance entities and various financial service providers and other intermediaries. As a result, price discovery has been efficient and transparent, highlighting the role of broad market participation – with implications for the debate about eligibility restrictions and a potential role of the private sector in cooperative approaches under Article 6.

3.3 Interim Conclusions

Striking the right balance between regulation and flexibility has posed a perennial challenge to policy makers looking to implement functioning markets. As shown in the previous sections, the theoretical literature supports regulatory intervention where it is necessary to correct market failures, which not only include the environmental externality of GHG emissions, but also information asymmetries and issues of market power. Aside from the political decision to introduce a carbon market with an appropriately ambitious target to begin with, this argues for a role of government in creating a governance framework that guarantees rights and enforces obligations (with tangible penalties, if necessary), ensures transparency of emissions and of market transactions, facilitates efficient price discovery, and secures the integrity of the market against market power and collusion.

Importantly, both theory and experience affirm the importance of stringent environmental objectives for robust market participation, scarcity in the market and price discovery (Schmalensee and Stavins, 2017: 583). As the case studies document, regulatory loopholes and integrity flaws undermine the confidence of market participants and create pressure for reform. Sometimes, as in the case of unilateral restrictions on the acceptance of CERs, such reforms can be abrupt and have unintended consequences. More often, however, reforms progress slowly, weakening public acceptance of the carbon market, and compromising its perceived legitimacy as a policy instrument.

To be a credible tool for climate change mitigation, in other words, carbon markets require a sound regulatory framework; ignoring that imperative in the interest of expedience or under pressure from interested stakeholders will ultimately backfire. That said, simplicity and transparency in applicable rules as well as streamlined procedures should be sought whenever possible. Transaction costs and capacity constraints have had a documented effect on the operation of existing carbon markets. Individual approval of transactions, in particular, tends to increase transaction cost and give rise to uncertainty (Hahn and Hester, 1989: 378), advocating for standardization to reduce layers of bureaucracy. Meanwhile, restrictions on participation – notably the exclusion of private sector participants from international emissions trading – have been shown to impact market liquidity, whereas greater market access in the EU ETS has

contributed to the emergence of a liquid and mature market with greater resilience against market power as well as efficient price discovery.

Beyond the essential governance requirements outlined above, therefore, the invariable tradeoffs caused by government failure suggest a higher burden of justification for regulatory intervention. Assumptions of the impartiality or rationality of government actors may be as misplaced as assumptions of always rational and profit-maximizing market participants. Not all risks that flow from the use of carbon markets can be averted through regulation, bar shutting down market activity altogether. Even after several reforms, for instance, the sophisticated rules designed to ensure the environmental integrity of CDM projects have proven incapable of preventing a considerable share of projects with little or no additionality (Cames et al., 2016b). Yet at the same time, there is an appreciable risk that pursuit of indefectible governance frameworks – however well-intended – will end up deterring uptake of market approaches (Nordhaus, 2005: 18), along with the cost savings these offer.

In short, the lessons from theory and experience cannot do away entirely with the need for balancing contending preferences. Perceptions of the relative importance of different objectives vary too much for that, as do interpretations of normative terms such as ambition and integrity. What may appear excessively burdensome governance to some may appear barely adequate to others (Michaelowa and Butzengeiger, 2017: 5). Where technically complex and normatively contested viewpoints are difficult to reconcile, and their proponents can draw on reasonable arguments and legitimate concerns, the required balancing act calls for a process that aggregates preferences to reach a mutually acceptable outcome.

Because it is geared towards a policy decision, the aggregating mechanism in this case is not a market, but the political process. As ideally conceived, it will afford equality of access to all affected stakeholders, and base formal decisions on informed deliberation and public reasoning (Habermas, 1984: 177; Rawls, 1993: 214). Such an ideal process can only be aspired to – and is certainly not realized – by the tenuous and often intransparent practices of international diplomacy (Allott, 2002: 380-398; Slaughter, 2004: 8). Nonetheless, an argument can be made for requiring that substantive choices, and especially those on contested and consequential matters, be made at the highest political level afforded in the international regime.

In practice, that means reserving the most eminent political questions for deliberation and decision making by the Parties, with the outcome reflected in a formal treaty and subsequently legitimized through national procedures in every acceding jurisdiction (Bodansky, 1999). Decisions by Conferences or Meetings of the Parties can still claim a degree of procedural legitimacy, but their normative character is already diminished, and, in fact, debated relative to that of the actual treaty (Brunnée, 2002; Klabbers, 1996). This applies even more to the outcomes of negotiations from subsidiary entities with limited participation and less transparent processes, which should therefore focus on technical matters, but not seek to reverse or reinterpret the consensus expressed in the actual treaty.

Applied to Article 6.2, this calls for identification of the mandate for operational guidance in the Paris Agreement itself, and ascertaining the extent to which Parties intended such guidance to apply to merely technical or also political questions about the appropriate balance of international oversight and national sovereignty. Likewise, the choices underlying ambition and environmental integrity have to be dissected to determine whether their center of gravity falls more on the political or technical side. Critically, this also means that questions which are clearly political in character – such as the ambition of domestic mitigation efforts, something the Paris Agreement fundamentally leaves to determination by the Parties – should not be reopened by way of technical deliberations on market design, where the negotiating dynamic and process will fundamentally differ from that of the negotiations preceding the Paris Agreement itself.

This is the analytical framework, based on insights from the theory and practice of carbon markets, that will be applied to the context of Article 6 negotiations in the following section. It identifies critical issues for governance, but also acknowledges the potential drawbacks of excessive regulation. It also proposes a distinction between technical and political questions, with implications for the appropriate venue and format of decision making. Applying this framework first necessitates an assessment of the negotiating mandate under Article 6.2 and subsequent decisions as it relates to the question of ambition, followed by a survey of Party positions and their reflection in the evolving negotiations, including the latest textual proposal. Concluding this assessment is an attempt to formulate principles for Article 6.2 guidance that reflect the analytical framework and fall within the identified political and legal opportunity space.

4. OPERATIONALIZING ARTICLE 6.2: THE PARIS RULEBOOK

4.1 Role and Status of the Paris Rulebook

With the adoption of the Paris Agreement, its 195 signatories committed to a collective "paradigm that, over time, catalyzes ever stronger global action to combat climate change" (Bodansky, 2016: 290). With its decentralized architecture built on nationally determined mitigation pledges, it departs markedly from its predecessor, the Kyoto Protocol. Many of its provisions – including Article 6.2 – are sparsely worded and replete with undefined or vague concepts, reflecting a lack of consensus on more detailed language at the time of adoption. When it comes to operationalization, however, such "constructive ambiguity" – often a deliberate inclusion in negotiated outcomes to accommodate conflicting viewpoints – is not helpful (Müller, 2018: 2). Not only does it contribute to uncertainty about various elements of the Paris Agreement, it also threatens to compromise effective implementation of key rights and obligations due to divergent interpretations (van Asselt, Kulovesi and Mehling, 2018: 173).

In the decision formally adopting the Paris Agreement and several provisions of the treaty itself, Parties have therefore set out mandates to elaborate more detailed operational rules, modalities, procedures, and guidelines on a broad set of issues ranging from mitigation and adaptation to transparency, accounting, compliance, and assessment of progress.[54] Collectively, these operational details are being elaborated as part of the "Work Program under the Paris Agreement" (PAWP),[55] which is colloquially referred to as the "Paris Rulebook." Following an ambitious timeline agreed in Marrakesh during COP23, this Work Program is scheduled for adoption by the Meeting of the Parties to the Paris Agreement (CMA) in December 2018 at Katowice, Poland.[56]

Working through three bodies of the UNFCCC, namely the Ad Hoc Working Group on the Paris Agreement (APA), the Subsidiary Body for Scientific and Technical Advice (SBSTA), and the Subsidiary Body for Implementation (SBI), Parties have successively come up with draft negotiating texts for the various agenda items. After the latest round of discussions, held from 4 to 9 September 2018 in Bangkok, Thailand, progress made across all three bodies was compiled into a single 307-page document that provides a basis for the negotiations in Katowice.[57] Across all agenda items, views on the structure and content of implementation guidance remained widely heterogeneous, prompting observers to characterize the outcome as "uneven" and explain the slow pace of negotiations with principled disagreement on several key issues, such as differentiation between developed and developing countries.[58]

Regarding Article 6.2, this compilation contained a 31-page section elaborated by SBSTA with draft elements of guidance on matters such as general principles; scope, and whether the guidance also applies to mitigation activities under Article 6.4; the characteristics of an ITMO, and whether units generated under other mechanisms – such as Article 6.4 and the CDM – as well as mitigation outcomes other than emission reductions can qualify as ITMOs; alternative forms of oversight and institutional governance; participation requirements and responsibilities, including institutional structures and types of NDCs a Party needs to have in

54 See Section III of UNFCCC, Decision 1/CP.21, *supra*, note 3.

55 See paras. 5-7 of UNFCCC, Decision 1/CMA.1, "Matters Relating to the Implementation of the Paris Agreement", UN Doc. FCCC/PA/CMA/2016/3/Add.1 (31 January 2017), https://unfccc.int/resource/docs/2016/cma1/eng/03a01.pdf.

56 Formally the Third Part of the First Session of the CMA, see para. 2 of UNFCCC, Decision 1/COP.23, "Fiji Momentum for Implementation", UN Doc. FCCC/CP/2017/11/Add.1 (8 February 2018), https://unfccc.int/resource/docs/2017/cop23/eng/l13.pdf. Given the early entry into force of the Paris Agreement, the first session – which began in 2016 – was extended to allow more time for negotiations of the PAWP.

57 Ad Hoc Working Group on the Paris Agreement (APA), "PAWP Compilation" (9 September 2018), https://unfccc.int/sites/default/files/resource/Latest%20PAWP%20documents_9Sep_0.pdf.

58 IISD Reporting Services, "Summary of the Bangkok Climate Change Conference: 4-9 September 2018" *Earth Negotiations Bulletin* (12 September 2018), http://enb.iisd.org/download/pdf/enb12733e.pdf, 1.

place to engage in cooperative approaches; how and when Parties should make corresponding adjustments for emissions covered by their NDC; and the modalities for the share of proceeds for adaptation.[59]

On 15 October 2018, the presiding officers of APA, SBI and SBSTA issued a "Joint Reflections Note" addressing progress made to date under all elements of the work program, with annexes containing new textual proposals meant to "facilitate completion of the PAWP at COP 24."[60] Among these is a new textual proposal for guidance on Article 6.2, which – while not superseding the outcome of the Bangkok meeting – tries "to advance the thinking of Parties by removing remaining duplication; streamlining where there are multiple options, including grouping options into suboptions where appropriate, and moving detail to the workplan where this may assist readability of the options; lightly editing the text; improving consistency of wording; and simplifying language where possible."[61] Already shorter at 24 pages, with an Annex listing follow-up work to be carried out in 2019, this document retains the options contained in the draft outcome of the prior Bangkok negotiations, but organizes them more efficiently. A table outlining the options and suboptions relevant to matters of governance, ambition, and environmental integrity is included in the Annex to this Working Paper.[62] As the number of options that still remain on the table – even on the least contested matters under negotiation – underscores, however, the final form and content of guidance on Article 6.2 is far from settled. Given the status of the textual proposal, it will only become clear in Katowice whether this latest text captures all major viewpoints and can become the basis of negotiations once Parties have had an opportunity to respond to the new proposal as negotiations resume during COP24.

Another development in the negotiations is expressly reflected in this textual proposal: a growing certainty that Parties will have to prioritize their efforts in 2018 and concentrate on those matters that already enjoy a measure of support, while leaving contested issues and purely technical details for continued negotiation throughout 2019.[63] As one participant in the negotiations has commented, COP24 is expected to result in "a very general decision, a one-pager with two annexes", where the first annex will contain basic decisions reached at COP24, and the second outline "a work plan for 2019 covering all remaining technical deliverables" (Forth, 2018: 4). Despite the narrowing down and partial deferral of options in the latest negotiating text, Parties still face a large number of choices in Katowice, and retain considerable latitude in how they address matters that are relevant to ensuring ambition in the

59 See APA, "PAWP Compilation", *supra*, note 53, 52-82.

60 UNFCCC, "Joint Reflections Note by the Presiding Officers of the Ad Hoc Working Group on the Paris Agreement, the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation." UN Doc. APA-SBSTA-SBI.2018.Informal.2 (15 October 2018), https://unfccc.int/sites/default/files/resource/APA_SBSTA_SBI.2018.Informal.pdf, para. 3.

61 UNFCCC, "Joint Reflections Note", *supra*, note 4, para. 5.

62 See, *infra*, Table 2, in the Annex to this Working Paper.

63 UNFCCC, "Joint Reflections Note", *supra*, note 4, para. 4.

guidance on Article 6.2. To better understand the parameters within which they will exercise this latitude, it is necessary to dissect the legal mandate governing the negotiations, as well as its relationship to other elements of the Paris Agreement and the work program. From there, the analysis can proceed to map the substantive options contained in the most recent textual proposal, and survey Party views as reflected in statements and submissions.

4.2 Legal Analysis: Mapping the Mandate of Article 6.2

4.2.1 Textual Analysis of Article 6.2

A literal reading of Article 6.2 of the Paris Agreement provides the first and most authoritative indication of the scope and limitations of the mandate to elaborate operational guidance. Because the provision forms part of an international treaty that has been ratified, accepted, approved or otherwise acceded to[64] in conformity with the domestic procedures of its Parties, the language in Article 6.2 is the most immediate manifestation of state consent that underlies the normative validity of the Paris Agreement. That said, the wording of Article 6.2 is sparse as far as the content and purpose of guidance is concerned. It states that:

> *Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions, promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to this Agreement.*[65]

What can be clearly inferred from the provision is a mandate for the CMA to adopt guidance. Less clear, however, is whether the mandate merely relates to the "robust accounting to ensure, inter alia, the avoidance of double counting" directly preceding its mention in Article 6.2, or whether it also extends to the other conditions spelled out therein for voluntary use of cooperative approaches involving the use of ITMOs towards NDCs, namely to "promote sustainable development and ensure environmental integrity and transparency, including in governance." Müller (2018: 8) draws attention to the conscious use of "inter alia" as a reflection of concerns among some Parties that avoidance of double counting is insufficient to ensure "robust accounting", although that still does not clarify whether guidance should go beyond accounting. Commentators have also drawn on the wording "consistent with guidance" to argue that such guidance is not meant to impose constraints on Parties using ITMOs, as they would have then opted for different language, such as "subject to guidance" or "subject to rules" (ADB, 2018: 19).

64 See Article 21.1 of the Paris Agreement, *supra*, note 8.

65 Article 6.2 of the Paris Agreement, *supra*, note 8.

While its normative character is significantly weaker relative to a treaty provision such as Article 6.2, the decision accompanying the Paris Agreement sets out additional detail on the mandate by requesting SBSTA to

> *… develop and recommend the guidance referred to under Article 6, paragraph 2, of the Agreement for consideration and adoption by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement at its first session, including guidance to ensure that double counting is avoided on the basis of a corresponding adjustment by Parties for both anthropogenic emissions by sources and removals by sinks covered by their nationally determined contributions under the Agreement.*[66]

Again, the wording of this decision fails to specify the precise scope of the guidance. By expressly referring to the avoidance of double counting "on the basis of a corresponding adjustment", this passage seems to imply that guidance only should cover accounting issues, and not the other substantive conditions mentioned in Article 6.2. Its mention of "including", however, could be interpreted to mean that avoidance of double counting is only one of several possible elements that might be included in operational guidance. While this provides an opening for arguments that Article 6.2 guidance should extend to considerations other than accounting, it is important to remember that its status as a COP decision is subservient to the actual treaty, the Paris Agreement (Brunnée, 2002; Klabbers, 1996).

Guiding principles for the interpretation of ambiguous treaty provisions are set out in the Vienna Convention on the Law of Treaties (VCLT),[67] which is reflective of international custom, as evidence of a general practice accepted as law (Aust, 2013). According to its general rule of treaty interpretation set out in Article 31.1, a "treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose." Relevant context can include "[a]ny instrument which was made by one or more parties in connexion with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty"[68] and "[a]ny subsequent practice in the application of the treaty which establishes the agreement of the parties regard-

66 Para. 36 of UNFCCC, Decision 1/CP.21, *supra*, note 3.

67 Vienna Convention on the Law of Treaties (VCLT), Vienna, Austria, 23 May 1969, in force 27 January 1980, *United Nations Treaty Series* (1980), Vol. 1155, 331-512, https://treaties.un.org/doc/publication/unts/volume%201155/volume-1155-i-18232-english.pdf.

68 Article 31.2.b VCLT, *supra*, note 63.

ing its interpretation."[69] Article 32 proceeds to list supplementary means of interpretation, stating that:

> *Recourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion, in order to confirm the meaning resulting from the application of article 31, or to determine the meaning when the interpretation according to article 31 … leaves the meaning ambiguous or obscure.*[70]

Together, these rules of interpretation affirm the relevance of other provisions in the Paris Agreement, including the remaining paragraphs of Article 6. They also clarify that other instruments and subsequent state practice can offer guidance when interpreting ambiguous treaty provisions, which, applied to Article 6.2, includes the decision accompanying the Paris Agreement. And finally, the interpretation rules highlight the importance of preparatory work and other evidence of the circumstances at the time the treaty was adopted, commonly referred to as the *travaux préparatoires*. All these sources of interpretive guidance will be drawn on next to further complement the textual interpretation of Article 6.2 and the mandate it contains.

4.2.2 Narrow Context: Elements of Article 6

When looking at other elements of Article 6, it is useful to begin with the first paragraph, which has been labelled a *chapeau*, or general introduction, to the use of cooperative approaches (Kreibich, 2018: 5; Müller, 2018: 8). Article 6.1 of the Paris Agreement introduces the general notion that Parties may choose, on a voluntary basis, to cooperate in the implementation of their NDCs. Its wording includes express reference to ambition and environmental integrity when it states that Parties choose to pursue such cooperation "to allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity."[71] Despite the fact that this language does not literally state an increase in ambition as a mandatory outcome of voluntary cooperation, that very effect has been described as "the requirement in the Paris Agreement to legitimize the existence of the option for renewed carbon market mechanisms" (Forth, 2018: 9). Use of "their" in Article 6.1 has, moreover, been interpreted as meaning that Article 6 should contribute to higher ambition in the mitigation targets and actions of both the originating or transferring countries as well as the acquiring or using countries (Kreibich, 2018: 3).[72]

---

69 Article 31.3.b VCLT, *supra*, note 63. Article 31.3 also states the relevance of "[a]ny subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions" and "[a]ny relevant rules of international law applicable in the relations between the parties." Likewise, it specifies in Article 31.4 that "[a] special meaning shall be given to a term if it is established that the parties so intended."

70 Article 32 VCLT, *supra*, note 63.

71 Article 6.1 of the Paris Agreement, *supra*, note 8.

72 On the terminology of originating, transferring, acquiring and using Parties, see *supra*, note 10.

Although variously mentioned throughout the Paris Agreement and in relevant decisions,[73] ambition remains an elusive term, suggesting that Parties intentionally opted for "constructive ambiguity" (Schneider and La Hoz Theuer, 2018: 2) in order to facilitate consensus. Attempts at a more tangible definition of the concept can be found in the literature. In the broadest sense, ambition has been said to reflect the global aggregate of mitigation action (Howard, 2018: 3); it would thus extend beyond the concept of environmental integrity, which can already be satisfied where emission reductions in one jurisdiction are accompanied by a commensurate increase in emissions elsewhere, without a decline in overall emissions (Kreibich, 2018: 5; Schneider and La Hoz Theuer, 2018: 3). Ambition is also distinct from the notion of "overall mitigation" mentioned in Article 6.4 of the Paris Agreement,[74] which is not linked to the actions of any one Party, but rather to the overall effect of the mechanism created by that provision (Kreibich, 2018: 6).

Aside from such initial boundaries, ambition remains "complex and difficult to determine" (Howard, 2018: 3), prompting commentators to propose elements or criteria to better identify the presence of ambition. Howard (2018) suggests the following six conditions that market policies should meet to embody high ambition and promote rising ambition over time: 1) NDC targets are set below expected emissions under a business-as-usual (BAU) scenario; 2) new demand for emission reductions is created; 3) mitigation action is broadened; 4) environmental quality is ensured; 5) coverage of emission inventories is expanded; and 6) communication of mitigation goals and policies is clear (Howard, 2018: 9-14).

Of these, the first may be the most critical, as it relates to the potential transfer of ITMOs which do not reflect any underlying mitigation efforts. A recent survey comparing NDCs and BAU emission projections has underscored this risk by revealing that such "hot air" – where NDC targets are likely to be achieved or overachieved without further climate action – could eclipse expected emission reductions from countries whose NDCs require actual abatement (La Hoz Theuer et al, 2017). Importantly, however, these understandings of ambition are not necessarily reflective of how Parties interpret the underlying concepts. It is also not clear from the wording of Article 6.1 that ambition is a mandatory condition for the use of cooperative approaches, nor that operational guidance on Article 6.2 has to necessarily incorporate ambition.

In effect, ambition does not even feature in the wording of Article 6.2. What Article 6.2 does, however, specify are conditions for use of cooperative approaches "that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions", making their observance mandatory by using the legally relevant term "shall" (Marcu, 2017a: 6). Of these conditions, the second refers to environmental integrity, for which there

73 "Ambition" is mentioned six times in the Paris Agreement, see *infra*, Section 4.2.3.

74 Article 6.4 of the Paris Agreement, *supra*, note 8: "… shall aim (d) [t]o deliver an overall mitigation in global emissions."

again is no generally accepted interpretation (ADB, 2018: 8). In the literature, definitions tend to relate environmental integrity to the ITMOs themselves, seeing it compromised if a transfer of ITMOs leads to global emission levels that are higher than they would be otherwise (Howard, 2018, 12; Kreibich, 2018: 4; Kreibich and Hermwille, 2016: 1; Schneider and La Hoz Theuer, 2018: 3).

At a minimum, that understanding of environmental integrity requires that reductions really occur as stated and have lasting mitigation effect (Howard, 2018: 12), and that they are accurately tracked and accounted for to avoid double counting (Ahlberg, 2018: 24). Some authors further list additionality (Howard, 2018: 12; see however Howard, 2017: 193), quality of units, ambition of the NDC targets of the transferring country, and presence of incentives and disincentives for further mitigation action (Wolke, 2018: 12) as conditions of environmental integrity, although the relevance of such criteria for Article 6.2 is debated (ADB, 2018: 20).

Given the diversity of NDC pledges and limited role of international oversight under the Paris Agreement, ensuring environmental integrity has been described as a challenge for implementation of Article 6 (Schneider and La Hoz Theuer, 2018: 2). Still, barring complex questions of additionality, it seems that integrity can be ensured through proper technical design and process (Howard, 2017: 193; Kreibich and Hermwille, 2016: 19). That would predestine issues of integrity for inclusion in operational guidance on the implementation of Article 6.2.[75] It bears noting, however, that there is still considerable ambiguity concerning how environmental integrity is to be operationalized under Article 6.1, and there has been no explicit work program associated with it in the decision accompanying the Paris Agreement (ADB, 2018: 8).

Accordingly, some commentators have taken a more cautious and literal approach to the interpretation of Article 6, recalling the decentralized, Party-driven nature of the Paris Agreement (e.g. Marcu, 2018: 1). As they argue, Article 6 is meant to cover all existing cases of cooperation; they highlight that "cooperation is noted, acknowledged, and recognized, rather than approved" under the Paris Agreement, reinforcing the "decentralized and bottom-up nature and ethos" of governance thereunder (ADB, 2018: 3). On this point, Howard (2017: 184) notes that Article 6 is "careful not to suggest that the Paris Agreement gives countries permission to cooperate, as many countries consider they do not need such permission." To support the view that Article 6.2 needs to be interpreted favoring flexibility over prescriptiveness, commentators also cite the wording of Article 6.4, which clearly states that the its mechanism is "under the authority and guidance" of the CMA, whereas Articles 6.2 and 6.3 make no such provision and instead refer to the respective role of Parties (Marcu, 2018: 5).

75 See *infra*, Section 5.

What remains is an overall impression of conceptual ambiguity. In view of the foregoing rules of treaty interpretation, and the primacy of a literal interpretation based on the ordinary meaning of relevant terms, it is clear that notions of ambition and environmental integrity cannot be conclusively defined based on the language of Article 6 alone. Viewpoints and proposals found in the literature cannot supplant or supersede the literal interpretation of relevant treaty text, especially when the literature is still narrowly dominated by authors from a small subset of affected Parties,[76] and thus not reflective of the full diversity of views across negotiating groups and geographical regions. What can be affirmed with confidence, however, is that ambition and environmental integrity form part of the broader Paris Agreement, and hence can play a role when exercising the mandate to adopt guidance on Article 6.2 – although, again, this does not predetermine a specific outcome or interpretation. An assessment of the broader context of Article 6 – notably the remaining provisions of the Paris Agreement – does not change this assessment, but it offers additional interpretive guidance.

4.2.3 Broader Context: The Paris Agreement

As mentioned earlier, the VCLT requires that an international treaty be interpreted "in the light of its object and purpose." This expands the range of relevant interpretive guidance on Article 6.2 and the mandate it contains to the entirety of the Paris Agreement, including its overarching objectives of "strengthen[ing] the global response to the threat of climate change" and "[h]olding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels" (Article 2.1). It also allows for consideration of other provisions with a bearing on Article 6.2, such as Article 4 on the NDC cycle, Article 13 on the enhanced transparency framework, and Article 15 on compliance (ADB, 2018: 5).

When it comes to ambition more specifically, the word is referenced in several other provisions of the Paris Agreement: Article 3 requires Parties "to undertake and communicate ambitious efforts" which "will represent a progression over time"; Article 4.3 requires that NDCs represent a "progression beyond the Party's then current nationally determined contribution and reflect its highest possible ambition"; Article 4.5 states that "enhanced support for developing country Parties will allow for higher ambition in their actions"; Article 4.11 allows Parties to adjust their NDCs at any time "with a view to enhancing its level of ambition"; and Article 6.8 – which relates to non-market approaches – mentions the general aim of such approaches "to promote mitigation and adaptation ambition."

76 It is also worth noting that a vast majority of the existing literature on the concepts has been commissioned by a limited number of governments, see *supra*, note 18; while this need not influence the research process and results, it does raise questions about the politics of research, and how a subset of stakeholders can influence a political discussion with resources potentially unavailable to other stakeholders.

Kreibich (2018) draws on these references to conclude that ambition relates to both targets and actions, which can thus express high or low ambition. He concedes that the discussion of ambition in the negotiations has largely focused on NDCs and the mitigation pledges contained therein, but points to the voluntary nature of NDCs as an argument for extending the relevance of ambition to actions alongside targets. His exegetic application also infers that use of the word "higher" in Article 4.5 means ambition levels can be compared, although the provision does not indicate how such a comparison might occur, nor how ambition can be increased. This, again, underscores that ambition may form an intrinsic element of the Paris Agreement and is, as such, a valid consideration in the interpretation of Article 6.2, but that it simultaneously does not dictate a specific material outcome.

4.2.4 *Travaux Préparatoires*

In his detailed account of the negotiating history of Article 6, Müller (2018: 8) recalls deeply held differences between country positions in the negotiations preceding adoption of the Paris Agreement. Among the tensions evident during the negotiations was a bifurcation between the view held mostly by a group of developed countries with market mechanisms in place that these could be more efficiently regulated domestically rather than under the UNFCCC, and a view that was more prevalent in the developing world – notably in Brazil and several countries from the G77 & China negotiating group – arguing that accounting and environmental integrity concerns called for rigorous standards and multilateral oversight (Howard, 2017: 182; Müller, 2018: 8). Some Parties were altogether opposed to market-based approaches for climate change mitigation, leading to an ideological divide between proponents and opponents of market mechanisms.

With regards to governance, several countries favored a top-down rules-based system such as that introduced with the Kyoto Protocol, whereas others supported non-prescriptive guidance without obligatory rules, instead suggesting that reliance on the general transparency framework being elaborated under the Paris Agreement would suffice. For some countries, notably the United States and Canada, prescriptive accounting rules raised fundamental sovereignty concerns because of subnational cross-border carbon market cooperation, for which they had little oversight. Growing heterogeneity of climate actions, including market approaches, further complicated the negotiations (Müller, 2018). Given the array of seemingly irreconcilable positions, few observers expected a consensus to emerge during COP21 in Paris, and it was only a concerted effort by a small group of Parties – led by Brazil and the European Union – that allowed the divisions to be overcome in the final days of the negotiations.

Article 6 was thus, literally, the last article to be added to the final version of the Paris Agreement before its release on 12 December 2015 for adoption by the COP (Howard, 2017: 183). Arguably, however, the tensions that characterized the negotiations on Article 6 remain enshrined in the ambiguous language on cooperative approaches in the Paris Agreement. While Article 6.2, for instance, makes reference to "governance" – an element that was added

to the final text to accommodate concerns of those Parties insisting on stronger multilateral oversight (Müller, 2018: 8) – its choice of words carefully avoids specifying what such governance entails, allowing for alternative interpretations.[77] Similarly, the omission of earlier references to the concept of additionality in the final text indicates that Parties were unable to agree on the material quality threshold this would have introduced for use of ITMO (ADB, 2018: 21). Overall, thus, the *travaux préparatoires* can only offer limited guidance for the interpretation of Article 6.2, aside from affirming the balancing act between contending Party views that is already apparent from a literal rendition of its text.

4.2.5 Interim Conclusions

Applying the recognized rules of treaty interpretation set out in Articles 31 and 32 of the VCLT offers only limited clarification on the ambiguous concepts of ambition, environmental integrity, governance, and the mandate to elaborate guidance set out in Article 6.2. What this exegetic process affirms, instead, is a recurring tension between elements that favor greater environmental stringency and multilateral oversight, and elements that reflect the decentralized and Party-driven dynamic that has found its embodiment in the Paris Agreement. As shown in the brief discussion of the *travaux préparatoires*, this paradigmatic tension can be traced back to the substantial differences between major groups of Parties in the negotiations leading up to the adoption of the Paris Agreement.

Both a literal interpretation of Article 6.2 as well as its context and negotiating history clearly indicate that ambition and environmental concerns are relevant considerations in the implementation of this provision; yet they also unmistakably attest to the unease some Parties felt at including prescriptive statements on oversight and spelling out substantive criteria for environmental integrity or ambition. Neither the general rule of treaty interpretation nor the supplementary means of interpretation can, moreover, conclusively answer whether the mandate to adopt guidance is limited to accounting, or extends to the other two conditions for use of ITMOs contained in Article 6.2.

Uncertainties about the implications of the Article 6.2 mandate do not stop there. As Bodansky and Rajamani (2018) explain in a recent assessment of the options for implementation of the Paris Rulebook, Parties retain considerable latitude when adopting operational rules, including the decision on whether to adopt such rules in the first place, and whether to frame such guidance in terms of a binding obligation, a recommendation, or merely an expectation of

77 Given the sequence of words, "Parties shall … promote sustainable development and ensure environmental integrity and transparency, including in governance", it could be argued that Parties either have an obligation to a) ensure transparency in governance, or b) ensure environmental integrity and transparency in governance, or c) promote sustainable development and ensure environmental integrity and transparency in governance.

conduct or outcome.[78] What is more, when Parties decide to adopt operational rules, the Paris Agreement affords them broad discretion on how detailed and precise these rules should be.[79] In general, the two scholars argue, more detailed and precise rules provide greater consistency, predictability, and international discipline, and lend themselves to assessments of compliance; but they require greater agreement and thus are more difficult to negotiate. By contrast, less detailed rules may be simpler to agree and enable the regime to evolve more easily in response to experience and emerging science. Importantly, they highlight that an absence of detailed or prescriptive provisions will default to national determination by individual Parties[80] or, in the case of international processes such as expert review, determination by the entities charged with implementing those processes (Bodansky and Rajamani, 2018: 185-188).

4.3 Political Analysis: Negotiating Issues and Party Views on Article 6.2

4.3.1 A Continuum of Views

As the previous Section established, a textual analysis of Article 6.2 including consideration of its context and negotiating history affirms considerable discretion for Parties as they exercise the mandate to adopt guidance on the use of ITMOs. Understanding the relevant views of Parties as expressed in statements and submissions is therefore useful to garner a better sense of how the numerous options still on the table in the latest textual proposal will be decided. Over the course of the negotiations on Article 6.2 guidance, Parties have voiced widely divergent preferences about issues of ambition, environmental integrity, and governance (Greiner and Michaelowa, 2018; Obergassel and Asche, 2017; Marcu, 2017b).

Specific positions will be broken down by relevant negotiating issues in the next section, but overall, Party statements and submissions reveal a distribution of views along a continuum between strong and weak prescriptiveness, oversight at the multilateral level and flexible self-determination at the level of Parties, and a greater or lesser degree of centrally defined criteria

78 Parties can calibrate the bindingness through their choice of verb, and a) make a rule legally binding by providing that Parties 'shall' act in accordance with it; b) recommend that Parties use a rule, by providing that Parties 'should' follow it; c) identify a rule but make its use optional, by providing that Parties 'may' follow it; or d) identify a rule and generate an expectation that countries 'will' follow it, see Bodansky and Rajamani (2018), 186.

79 Parties could, in descending order of prescriptiveness, a) adopt detailed, precise guidance; b) identify a number of alternative approaches, among which a Party could choose; c) prescribe minimum requirements, and allow Parties to nationally determine any additional rules; d) prescribe general standards that national rules must satisfy, but allow Parties to develop their own rules; e) allow Parties to develop their own rules, and simply require them to report on their rules; or f) not adopt any additional guidance at all, see Bodansky and Rajamani (2018), 187.

80 This is consistent with the permissive nature of international law more generally, which holds that States retain sovereignty over their actions except where they have expressly consented to limit their sovereignty, be it through a treaty or through customary practice recognized as law, see the *Case of the S.S. Lotus* (France v. Turkey), Judgment of 7 September 1927, Publications of the Permanent Court of International Justice (Series A) No. 10, https://www.icj-cij.org/files/permanent-court-of-international-justice/serie_A/A_10/30_Lotus_Arret.pdf, paras. 45-47.

related to ambition and environmental integrity (World Bank, 2017: 39). Accordingly, several Parties – including, in particular, the Umbrella Group[81] as well as the Like-Minded Developing Countries (LMDC)[82] – have taken the view that guidance should be restricted to accounting issues, such as avoidance of double counting,[83] while other groups of Parties – such as the African Group of Negotiators (AGN),[84] Brazil,[85] the Environmental Integrity Group (EIG),[86] the Least Developed Countries (LDCs),[87] and Small Island Developing States (SIDS)[88] – have tended to advocate for multilateral rules addressing all aspects of environmental integrity, transparency, sustainable development, and accounting contained in Article 6.2. Meanwhile, the European Union has tended to generally support more detailed rules across all elements of the work program.[89] Still, the dichotomy between Parties advocating more, or less, international oversight is reflected throughout the draft negotiating text, as this question translates into almost every aspect of guidance (Greiner and Michaelowa, 2018: 9).

Commentators have therefore suggested that overall governance of Article 6.2 can follow one of four alternative pathways, with additional variations and nuances (ADB, 2018: 12): a) a strongly decentralized governance framework with no multilateral standards or transparency provisions related to ambition and environmental integrity; b) a mostly decentralized gover-

81 The Umbrella Group is a coalition of Parties consisting of Australia, Belarus, Canada, Iceland, Israel, Japan, Kazakhstan, New Zealand, Norway, the Russian Federation, Ukraine and the United States, see UNFCCC, "Party Groupings", https://unfccc.int/process-and-meetings/parties-non-party-stakeholders/parties/party-groupings.

82 The Like-Minded Group of Developing Countries comprises Algeria, Bangladesh, Bolivia, China, Cuba, Ecuador, Egypt, El Salvador, India, Indonesia, Iran, Iraq, Jordan, Kuwait, Malaysia, Mali, Nicaragua, Pakistan, Saudi Arabia, Sri Lanka, Sudan, Syria, Venezuela and Vietnam, and thus over 50% of global population.

83 Australia, "Submission on the Content of the Guidance for Article 6.2, including the Structure and Areas, Issues and Elements to be Addressed" (October 2017), https://www4.unfccc.int/sites/SubmissionsStaging/Documents/261_344_131535633096840819-Australia%20Article%206.2%20Submission%20SBSTA%2047.pdf.

84 Republic of Mali, "Submission by the Republic of Mali on behalf of the African Group of Negotiators (AGN) on Guidance on Cooperative Approaches referred to in Article 6, paragraph 2, of the Paris Agreement (Agenda sub-item 10(a))" (2017), https://www4.unfccc.int/sites/SubmissionsStaging/Documents/586_344_131531477338494612-AGN%20Submission%20on%20SBSTA%2047%20Art.%206.2.pdf.

85 Brazil, "Views of Brazil on the Guidance referred to in Article 6, paragraph 2, of the Paris Agreement", https://www4.unfccc.int/sites/SubmissionsStaging/Documents/73_344_131520605369417046-BRAZIL%20-%20Article%206.2%20FINAL.pdf.

86 The Environmental Integrity Group, formed in 2000, comprises Mexico, Liechtenstein, Monaco, the Republic of Korea, Switzerland and Georgia, see UNFCCC, "Party Groupings", *supra*, note 77.

87 The Least Developed Countries group comprises 48 Parties, with group membership based on criteria defined by the United Nations, see UNFCCC, "Party Groupings", *supra*, note 77.

88 This negotiating group is a coalition of some 40 low-lying islands that are particularly vulnerable to sea-level rise, see UNFCCC, "Party Groupings", *supra*, note 77.

89 European Union, "Submission by Estonia and the European Commission on behalf of the European Union and its Member States" (6 October 2017), https://www4.unfccc.int/sites/SubmissionsStaging/Documents/783_344_131517552905177783-EE-06-10-SBSTA%2010%20a-b-c_EU%20Submission%20on%20Art%206.pdf.

nance framework with minimum standards provided by the CMA in the form of principles or guidelines, but without multilateral oversight or transparency provisions on environmental integrity; c) a moderately centralized governance framework with mandatory standards and transparency provisions on environmental integrity set out by the CMA, possibly subject to review by the technical peer review process of the transparency framework under the Paris Agreement, but no centralized approval of ITMO use towards NDCs; and d) a strongly centralized governance framework, with mandatory standards defined by the CMA, and institutional oversight in the form of an approval requirement for ITMOs or their transfer and use exercised by the CMA, the Secretariat, or a designated body.

As it were, these alternative options for guidance on Article 6.2 echo the viewpoints that already characterized the negotiations on the provision leading up to the adoption of the Paris Agreement. Broken down to individual negotiating issues, the options that call for a decision as Parties finalize their discussions on guidance for Article 6.2 – based on the textual proposal of 15 October 2018 – with relevance for the balance of ambition and flexibility are: institutional governance, various elements of environmental integrity, and accounting and transparency. Options related to environmental integrity can be further broken down into quality restrictions applicable to ITMOs, quantity restrictions applicable to ITMOs, eligibility requirements and responsibilities for cooperating Parties, issues of scope, and standardization – or unitization – of ITMOs (see *infra*, Table 1). Not all relevant options may be captured by this attempt at structuring several dozen individual options, and other classifications are conceivable; but for the purpose of mapping Party views and priorities on the main issues of interest in this Working Paper, the proposed categorization should offer an appropriate starting point.

Table 1: Relevant Negotiating Issues

Category	Options	Location in Textual Proposal
Institutional Governance	Role of CMA, Secretariat, or Designated Article 6.2 or Article 6 Body	Section IV.A.1, Para. 7 Section V.A, B.1 and 2, C., Paras. 14-32
Environmental Integrity	Quality Restrictions	Section IV.B., Para. 12 Section VIII.I., Para 83
	Quantity Restrictions	Section XI.A.-B., Paras. 103-115 Section XII., Paras. 116-117
	Participation Requirements and Responsibilities	Section VI.A.-B., Paras. 33-39
	Scope of ITMOs	Section IV.A.2, Para. 11
	Unitization of ITMOs	Section IV.A.2, Paras. 8-10
Accounting and Transparency	Reporting	Section VII, A. and B., Paras. 40-45
	Corresponding Adjustment	Section VIII.A.-G, Paras. 46-82

4.3.2 Individual Negotiating Issues

4.3.2.1 Institutional Governance

On the question of institutional governance, some Parties have favored a role for the CMA in overseeing and reviewing ITMO transfers, or even endorsed the creation of a designated body.[90] Others, by contrast, prefer leaving such governance decisions to the Parties engaged in the transfer, with little or no central oversight aside from guidance on "robust accounting."[91] Institutional functions fall into several groups. One relates to oversight, which primarily includes the review of cooperative approaches and related information for consistency with Article 6.2 guidance, but could also extend to additional functions, such as approval or creation of ITMOS, or overseeing a third-party review of the environmental integrity of ITMOs at creation.[92] Six options for institutional oversight arrangements are reflected in the latest textual proposal: a) establishment of a designated body for governance of Article 6.2 specifically; b) establishment of a designated body for the governance of Article 6 more generally; c) Article 13 technical expert review; d) Article 6 technical expert review; e) a combination of the above; or f) no oversight arrangement.[93]

Another institutional function relates to the responsibility for elaborating "what is an ITMO that is used towards achievement of an NDC", which could rest with the CMA, the Article 6 or Article 6.2 body, or be left to Parties participating in the cooperative approach.[94] A final governance function relates to the role of the UNFCCC Secretariat, which could be entrusted with carrying out activities such as reporting on overall mitigation in global emissions, or progress made by Parties participating in cooperative approaches in implementing and achieving NDCs.[95] Some oversight functions may already be provided at a domestic or regional level (Bodansky et al, 2016: 963), prompting legitimate questions about the appropriate governance level and a need for further elaboration of required governance functions and available governance structures.

---

90 Alliance of Small Island States (AOSIS), "Submission of Views on the Content of Article 6.2 Guidance and Article 6.4 Rules, Modalities and Procedures, presented by the Republic of the Maldives on Behalf of the Alliance of Small Island States" (November 2017), https://www4.unfccc.int/sites/SubmissionsStaging/Documents/167_344_131542508049675849-AOSIS%20Submission%20on%20Art%206.2%20and%20%206.4.Nov.2017.cleandocx.pdf, 4.

91 Japan, "Submission on SBSTA Item 10 (a). Guidance on Cooperative Approaches Referred to in Article 6, Paragraph 2, of the Paris Agreement" (2 October 2017), https://www4.unfccc.int/sites/SubmissionsStaging/Documents/579_344_131516859040704385-Japan_Submission_6.2_20171002.pdf, 1.

92 See UNFCCC, "Joint Reflections Note", *supra*, note 57, paras. 21-30.

93 UNFCCC, "Joint Reflections Note", *supra*, note 57, paras. 15-20.

94 UNFCCC, "Joint Reflections Note", *supra*, note 57, para. 7.

95 UNFCCC, "Joint Reflections Note", *supra*, note 57, paras. 31-32.

4.3.2.2 Environmental Integrity

On the broader issue of environmental integrity, a range of competing views and options for their operationalization have emerged. ADB (2018: 10) groups these in three categories: a) environmental integrity only relates to robust accounting of ITMOs, including corresponding adjustments;[96] b) environmental integrity relates to both robust accounting and transparency of ITMOs as well as their environmental characteristics, which therefore require some form of multilateral governance, ranging from broad principles applied by Parties to material quality criteria overseen by the CMA or another multilateral institution; and c) environmental integrity relates to both robust accounting and transparency of ITMOs and their environmental characteristics, requiring their expression through standardized units.

Where Parties have advocated for a need to go beyond mere accounting, they have endorsed various quantitative and qualitative safeguards to ensure the environmental integrity of cooperative approaches. Accordingly, some Parties have suggested including quality or quantity restrictions on the transfer or use of ITMOs, such as additionality requirements,[97] uniformly defined ITMO metrics,[98] quantitative limits calculated in percentages of Parties' mitigation targets, budgets, or actual emissions on the creation, transfer, acquisition, and carry-over of ITMOs,[99] or automatic cancellation or discounting of emission reductions by a set percentage to ensure achievement of "overall mitigation" (for details, see Howard, 2018: 19; La Hoz Theuer, Schneider and Broekhoff, 2018; Kreibich, 2018).[100]

Of these safeguards, the definition of uniform or standardized ITMO metrics – which has also been referred to as "unitization" or "commodification" of ITMOs (ADB, 2018: 16) – is of particular interest, because existence of a fungible and well-defined tradable unit can facilitate the creation of larger and more liquid carbon market (ADB, 2018: 16). It bears noting, however, that the wording of Article 6.2 does not require or mandate such standardization, or mention any specific metric (such as metric tons of CO_2 equivalent, or tCO_2e). Absent a uniformly defined metric, ITMOs can potentially be measured in a wide variety of ways, including non-GHG metrics such as Megawatt-hours (MWhs) of renewable energy, which then have to be converted before they can be accounted for against inventories (Howard, 2017: 185). Negotiators in Katowice thus need to decide whether the transfer of ITMOs requires the use of comparable metrics and units (Dagnet et al., 2018: 29), and have to examine the consequences of alternative options.

---

96 ADB (2018), 10 lists three sets of arguments advanced by Parties: a) environmental integrity is considered part of the environmental pillar of sustainable development, which is a national prerogative of the Parties; b) the mandate in Article 6.2 and Decision 1/CP.21 is limited to developing and recommending guidance on accounting; c) defining environmental integrity is not feasible given conceptual difficulties and the heterogeneity of NDCs.

97 See e.g. options A and C in para. 12 of UNFCCC, "Joint Reflections Note", *supra*, note 57.

98 UNFCCC, "Joint Reflections Note", *supra*, note 57, para. 8-11.

99 UNFCCC, "Joint Reflections Note", *supra*, note 57, paras. 103-115.

100 UNFCCC, "Joint Reflections Note", *supra*, note 57, paras. 116-117.

Among proponents of stringent safeguards, there is also debate as to where these additional transparency and reporting rules should be situated. While some argue that these should be drafted and included in the context of guidance for Article 6.2, others argue that such rules should be added to the enhanced transparency framework in Article 13, given that Article 6 negotiators may lack the necessary expertise to draft transparency rules themselves, and that doing so could endanger the coherence between the different articles in the Paris Agreement (ADB, 2018: 11). One submission – that of Brazil[101] – sees ITMOs as units with well-defined environmental characteristics, developed under the CMA, and only emerging from NDCs quantified into a budget.

Altogether, several options in the latest negotiating proposal relate to the definition and expression of NDCs.[102] With the decentralized approach introduced by the Paris Agreement, Parties enjoy significant leeway in defining their NDCs, and they have chosen to exercise this flexibility (Kreibich, 2018: 12). NDCs submitted to date display considerable diversity in terms of scope, type, metrics, and time frames[103] (Dagnet et al., 2018: 29; Graichen, Cames and Schneider, 2016), making it harder to compare contributions, assess individual as well as collective progress, and account for ITMOs (Hood, Briner and Rocha, 2014; Howard, 2018: 191). Focusing on the relevance of NDC features for environmental integrity, several Parties have proposed limitations on the scope of eligible mitigation outcomes, for instance regarding the eligible types of underlying activities (emission reductions, removals, emissions avoided, or a broader spectrum of mitigation outcomes),[104] or restrictions on participation in cooperative approaches based on the properties of NDCs, such as the sectoral coverage (economy-wide vs. specific sectors only), timing (single-year vs. multi-year), or the quantification of emissions and expression of mitigation targets in absolute terms.[105] Accordingly, one option under discussion involves a requirement for Parties desiring to transfer ITMOs from sectors that are not covered by their NDC to expand the latter so it encompasses that sector; a similar requirement could be imposed on ITMOs stemming from sectors subject to the conditional part of an NDC, mandating that these transition to the unconditional part of the NDC (Ahlberg, 2018: 25).

Inclusion of any of these requirements individually or in combination would have considerable implications for the scope of eligible transfers under Article 6.2. While such require-

101 See Brazil, "Views of Brazil", *supra*, note 81.

102 UNFCCC, "Joint Reflections Note", *supra*, note 57, para. 105.

103 For instance, some NDCs use a single-year target, while others use multiyear targets; whereas GHG targets ind different NDCs variously refer to a base year, intensity, baseline scenario, trajectory, or fixed-level targets, see Dagnet et al. (2018), 29.

104 UNFCCC, "Joint Reflections Note", *supra*, note 57, para. 11.

105 Brazil, for instance, has suggested limiting eligibility to Parties with quantified absolute reduction targets, see Brazil, *supra*, note 81. For reflection of such participation requirements and responsibilities in the latest textual proposal, see UNFCCC, "Joint Reflections Note", *supra*, note 57, paras. 33-39.

ments would reduce risks to environmental integrity (Kreibich, 2018), they would also mark a departure from the flexible and decentralized architecture of the Paris Agreement. Quantitative limits to ITMO transfers, especially absolute limits, can be an effective means of limiting transfers of large amounts of "hot air" (La Hoz Theuer, Schneider and Broekhoff, 2018: 10), but simultaneously curtail the ability to use cooperative approaches and leverage the economic – and, potentially, environmental – benefits they offer (Schneider et al., 2017). Unsurprisingly, therefore, several Parties strongly oppose imposing any type of restrictions on the participation in cooperative approaches and on the use of ITMOs, regardless of the type of NDCs (World Bank, 2017: 39). Requiring that NDCs be quantifiable and quantified, meanwhile, has been likened to the creation of carbon budgets, which likewise is rejected by some as a return to the centralized governance approach of the Kyoto Protocol (ADB, 2018: 23). Whether or not such limitations can secure enough support for inclusion in Article 6.2 guidance will depend on whether Parties negotiating in Katowice agree on extending safeguards beyond the mere transfer of ITMOs to their creation and use.

4.3.2.3 Accounting and Transparency

Given the explicit wording of Article 6.2 and the decision accompanying the Paris Agreement, there is no real debate that the mandate to adopt guidance extends, at a minimum, to accounting provisions, including corresponding adjustments, that are needed to avoid double counting. What "robust accounting" – as required under Article 6.2 – entails, is a process to reflect any transfer of ITMOs in the accounting of NDCs (Dagnet et al., 2018: 29). Howard (2017: 192) identifies several elements that are required for robust accounting, and which guidance under Article 6.2 may need to address: a) the definition of targets, in particular with regard to the metrics used, the scope of emissions sources, the timeframes covered, and the conditionality of the targets; b) the quantification of emission reductions, including relevant features such as baselines, global warming potentials (GWP), and other aspects of MRV, as well as measures to ensure reductions are not issued more than once; c) the tracking of transfers of mitigation outcomes, in particular with regard to the metric used, the unique identification of mitigation outcomes,[106] and the systems within which they are transferred and tracked; and d) the adjustments made in relation to inventory emissions or emission budgets, in particular how these map on to transfers between countries and across NDC cycles, how they take account of reductions inside and outside the scope of NDCs, and how these address differences between single and multi-year targets.

Corresponding adjustments are a critical element of the accounting system for Article 6.2, as they ensure that an ITMO transfer is reflected accurately on both sides of the transaction (Dagnet et al., 2018: 29), reflecting the double entry bookkeeping approach already deployed under the Kyoto Protocol (Howard, 2017: 186). Although conceptually straightfor-

106 This may include features such as the location, activity, and vintage year of reduction, and whether the reduction occurred within or outside the scope of an NDC, see Howard (2017), 192.

ward – corresponding adjustments can be effected in various ways, including budget-based, emissions-based, buffer registry based, and emission reduction based approaches (ADB, 2018: 60)[107] – they have prompted challenging questions in the negotiations, for instance as regards ITMO transfers that cannot be readily converted into a budget. Given the diversity of NDCs, negotiators have included the option of an "emissions balance" bookkeeping system, with double entry for additions and subtractions.[108] It bears noting, however, that elaboration of rules on accounting for NDCs is also part a work program under Article 4.13 of the Paris Agreement,[109] and that accounting for ITMOs will invariable have a bearing on the enhanced transparency framework being operationalized under Article 13. In view of the parallel processes and frameworks, some Parties have therefore suggested that no additional transparency provisions for Article 6.2 are required, arguing that Parties will instead select their own criteria to safeguard the environmental integrity of ITMOs, and hold each other accountable for observing the mutually agreed criteria and ensuring transparency in their reciprocal activities, while upholding transparency vis-a-vis the international community through the enhanced transparency framework (ADB, 2018: 11). Another overlap that has to be addressed is the relationship of guidance on corresponding adjustments under Article 6.2, and the rules on corresponding adjustment that are being simultaneously elaborated under Article 6.4 (Dagnet et al., 2018: 29).

4.3.3 Interim Conclusions

With a considerable number of options left in the latest textual proposal, negotiators face several difficult choices at the upcoming climate summit in Katowice. Party statements and submissions – many of which, where documented, may no longer reflect their latest positions – suggest that the distance between opposing views on a number of options related to ambition and flexibility in Article 6.2 guidance remains too large to be bridged before the end of COP24, explaining the decision to shift a number of matters to the work plan for continued negotiations during 2019. As the legal analysis in the preceding section indicates, outlier positions on the role of ambition and environmental integrity in Article 6.2 guidance – namely those suggesting that relevant considerations should be either entirely excluded from, or a central focus of, such guidance – are not supported by an interpretation of the provision in its regulatory context and in light of the object and purpose of the Paris Agreement. Beyond that, however, the textual interpretation offers few parameters. In that regulatory void, theory and experience with actual carbon markets can offer some broad insights, but only limited guidance on specific options.

These insights were already summarized above in Section 3.3, and they can now be translated to the context of Article 6.2. In particular, they caution against shifting what should

107 UNFCCC, "Joint Reflections Note", *supra*, note 57, paras. 58-61.

108 UNFCCC, "Joint Reflections Note", *supra*, note 57, para. 70.

109 UNFCCC, Decision 1/CP. 21, *supra*, note 3, para. 31.

be deliberation about a political issue – the appropriate level of national mitigation pledges – from political to technical negotiations. As mentioned earlier, any attempt to address insufficient ambition of NDCs with technical restrictions or quantity and quality limits on ITMO transfers may reduce the incidence or probability of transfers with questionable environmental integrity in the short term; by introducing uncertainty and additional transaction costs, however, it may also become a deterrent to use of cooperative approaches. Where restrictions take the form of quantity limits, moreover, they will proportionally reduce the scope for cost savings. In the long term, as the role of economic cost gains progressive importance, such effects can persist even after matters of ambition have been addressed through processes and rules pertaining to NDCs and the ambition mechanism of the Paris Agreement. Restrictions should therefore be imposed with caution, and potentially limited in scope and duration.

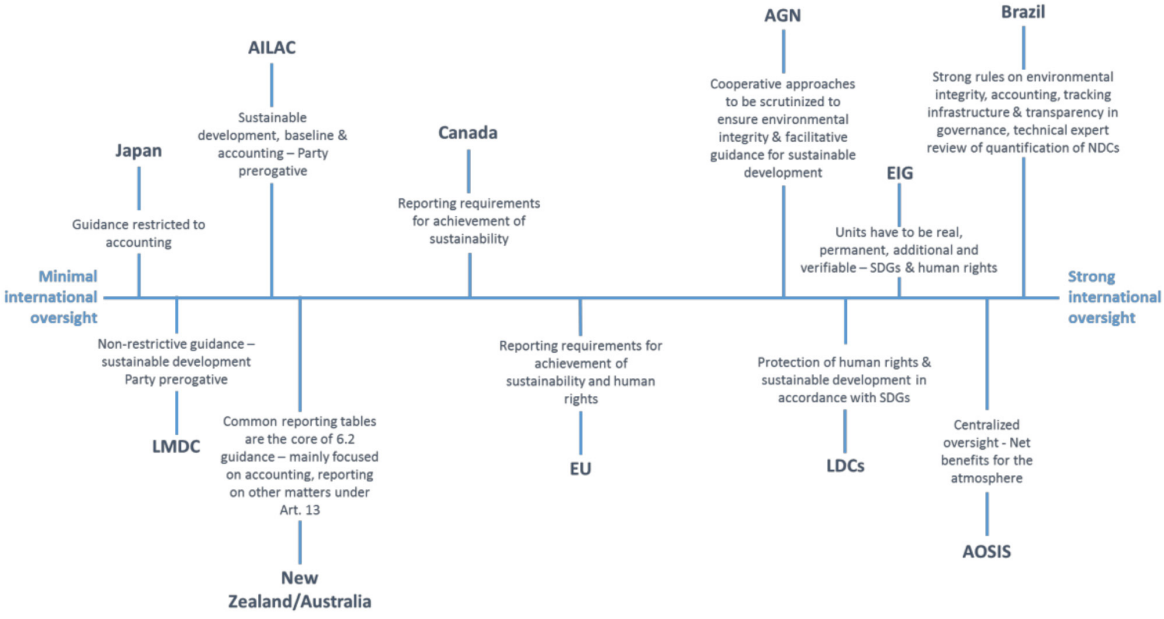
For those same reasons, oversight arrangements included in guidance on Article 6.2 should avoid setting out overly complex procedures and, in particular, an individual approval requirement for ITMOs or their transfer. While a governance framework that ensures robust accounting and prevents fraudulent market behavior is essential to ensure market functioning and credibility for its participants and the broader public, experience with the CDM also suggests that necessary safeguards should be streamlined and, where possible, standardized. In fact, common definitions and metrics, including a pathway towards a uniform understanding of ITMOs, as well as a shared infrastructure could greatly increase the prospects of linked climate policies (Bodansky et al, 2016: 961) and, eventually, even a global carbon market. As observed under the EU ETS, moreover, a mature and liquid market relies on diversity of participation, arguing against excessive restrictions on market access and in favor of a role for private entities – a decision that would also be in line with the expanded recognition of non-Party Stakeholders and their contribution to climate action under the Paris Agreement (Hale, 2016).[110]

Overall, given the mixed track record of quality restrictions under the CDM – with over a decade of reforms still unable to guarantee the additionality of mitigation projects (Cames et al., 2016) – and the invariable tradeoffs incurred by quantity restrictions, a legitimate question arises as to whether guidance on Article 6.2 should altogether avoid setting out rules on environmental integrity that go beyond robust accounting, as suggested by some Parties. Not only would such a limited scope be more securely based on the legal mandate contained in Article 6.2, reducing the likelihood of Parties subsequently challenging the validity or applicability of operational guidance, but it would also seem better aligned with the facilitative rather than prescriptive nature of the Paris Agreement itself.

110 See, in particular, paras. 117-123 and 133-136 of Decision 1/CP.21, *supra*, note 3; for instance, para. 117 "[w]elcomes the efforts of non-Party stakeholders to scale up their climate actions, and encourages the registration of those actions in the Non-State Actor Zone for Climate Action platform."

Mutual review and scrutiny, facilitated by the enhanced transparency framework and potentially also drawing on voluntary initiatives and standards (ICROA, 2017), may offer a more fitting solution that limits environmentally questionable transfers while retaining the flexibility and scale needed to fully leverage the economic benefits of carbon trading. More importantly, the appropriate level of ambition is, ultimately, a political question, and any centrally agreed prescriptions should therefore avoid taking the form of technical guidance if they are to find broad acceptance and eventual practice. That argues for locating questions of adequate baseline definition and avoidance of "hot air" in the PAWP negotiations on matters related to Articles 4 and 14 of the Paris Agreement, rather than in operational details for a specific instrument, namely ITMO transfers under Article 6.2.

Figure 1: Continuum of Views on Article 6.2 Guidance



Source: Greiner and Michaelowa (2018)

5. RECOMMENDATIONS AND OUTLOOK

5.1 Reducing Flexibility to Enhance Ambition?

Article 6.2 presents climate negotiators with a perplexing challenge. On the one hand, the opportunity to engage in voluntary cooperation involving the transfer of ITMOs promises to reduce the economic cost of Parties striving to achieve their NDCs. As the scale and depth of climate action – and by extension its attendant costs – increase over time, such flexibility offers a potential channel to lower political barriers against greater climate ambition and achieve greater abatement with available resources. At the same time, absent essential safeguards, the use of cooperative approaches could undermine rather than bolster overall mitigation

efforts. Both theory and experience highlight the importance of governance frameworks to ensure that market instruments for environmental policy function as they should, safeguarding the rights of market participants and stakeholders, ensuring transparency in the market, and preventing abusive behavior.

In the case of carbon markets, however, the role of governance goes well beyond a supporting framework: the very commodity traded in the market is a regulatory artifice, and its value therefore dependent on the scarcity induced by a political decision to limit GHG emissions. Without robust mitigation targets, carbon markets have proven susceptible to numerous challenges, including price extremes, high volatility, and eroding confidence among market participants and the broader public. A political decision creates the market, in other words, and continued governance is critical to sustain it. Ignoring that important lesson threatens to repeat a series of painful episodes in existing carbon markets that incurred significant reputational damage and destruction of value, all while also weakening their environmental performance.

That said, regulation of markets tends to increase transaction costs, and can go so far as to compromise the ability of market forces to identify the most efficient allocation of resources. In the case of carbon markets, restrictions that exceed what is needed to ensure efficient and secure market operation can prevent the market from allocating abatement effort to where it can achieve the greatest mitigation outcome. To the extent that reduced costs can create political and economic leeway for greater ambition, any regulatory intervention that stifles market activity can, conversely, prevent the progression of effort needed to address the climate challenge. Ironically, both a regulatory framework that is too weak and one that is too restrictive will stand in the way of harnessing those very benefits that prompted introduction of a market-based approach in the first place. In some measure, then, the solution to this predicament lies in identifying a reasonable balance between too much and too little regulation.

Identifying that balance is not straightforward, however. Not all policy interventions are created equal, and distinguishing those that are necessary to ensure a functioning governance framework from those that are needlessly restrictive is one of the central challenges facing policy makers in the operationalization of Article 6.2. Invariably, decisions will end up requiring a choice between competing priorities, inviting tradeoffs reflective of subjective preferences. This argues for the importance of process over substantive criteria – a process that is fair and transparent, and affords all affected stakeholders an opportunity to be heard. For all its undisputed shortcomings, the UNFCCC offers such a process, which, although often intensely deliberative and painfully slow, delivers legitimate and widely accepted outcomes. Negotiations on Article 6.2 have exemplified this core strength of multilateralism, facilitating an inclusive dialogue that has actively engaged Parties through workshops and other activities, and that has also been open to inputs from non-Party stakeholders.

But while the legitimacy of political decisions may stem primarily from their reflection of aggregated consensus or majority opinion and, to a lesser degree, the underlying process, it can also be strengthened when the outcomes are informed by data, research, and empirical evidence. That is also the channel through which this Working Paper seeks to contribute. As shown in the preceding sections, both theory and practice hold valuable lessons for Parties seeking the right balance between ambition and flexibility in the governance of Article 6.2. Aside from a suitably robust mitigation objective – the indispensable starting point of a functioning carbon market – the applicable governance framework has to protect the rights and enforce the obligations of market participants; ensure transparency of emissions and of market activity; provide the necessary infrastructure for transactions; and offer effective safeguards against fraud and manipulation.

Adoption of a regulatory framework that affords these governance features is thus not a question of "whether", but of "how". Still, regulation, whether domestic or international, is not free of its own shortcomings. Even just implementing these essential rules and procedures will reveal the government failures that affect all policy making due to information asymmetries, administrative capacity constraints, and regulatory capture. But again, an abundant and growing body of literature on the design and operation of carbon markets offers various lessons for policy makers to consider. What theory and experience likewise confirm, is that every additional policy restriction beyond these necessary governance features will increase the incidence of government failure, and counteract the benefits of addressing the initial market failure. Perhaps most clearly, this has been in evidence under the CDM, where participation in the carbon market has been dependent on a lengthy and complex approval process, as well as subject to detailed and continuously adjusted – yet ultimately still inadequate – rules on the additionality of mitigation projects.[111]

Two insights stand out, in particular: first, when the governance framework of carbon markets becomes so complex as to constrain all flexibility of market participants, the market ceases to function as it should, and begins to resemble the rigid performance and technology standards whose high cost prompted the transition to a market approach in the first place (see, e.g., Ackerman and Stewart, 1985). Second, when the political decision that lies at the foundation of the carbon market – the mitigation objective – lacks necessary ambition, it is both inefficient and, arguably, of doubtful legitimacy to try and secure greater ambition through technical design elements. Faced with such a situation, policy makers may need to ask themselves whether a market approach is the right instrument for the desired task, and whether the desired task is supported by the body politic. Attempting to circumvent the political process to recalibrate the equation of ambition and flexibility through technical or administrative means is unlikely to lead to a durable outcome.

111 See *supra*, Section 3.2.1.

Applied to Article 6.2 and the guidance being elaborated for its operationalization, there are a number of insights to be garnered from theory and experience. As the legal analysis – including application of the customary rules of treaty interpretation – affirm, the mandate in Article 6.2 neither requires Parties to include aspects related to ambition in future guidance, nor does it prevent them from doing so. Ambition and environmental integrity are sufficiently prevalent throughout the Paris Agreement to be considered part of its object and purpose, supporting calls of Parties and observers for guidance to extend beyond mere aspects of "robust accounting" and the prevention of double counting (which a purely textual interpretation might otherwise sustain). Still, that by no means equates to an obligation to include additional elements in guidance. Parties have considerable latitude when considering the appropriate level of prescription and specificity of operational details, and their consistent practice – as expressed in the negotiations of the CMA and in subsidiary bodies, as well as the decisions flowing from these processes – are the only reliable benchmark of what guidance on Article 6.2 will and will not contain.

In the negotiations to date, Parties have proposed widely divergent and at times irreconcilable options on governance of cooperative approaches under Article 6.2, including as it relates to ambition and environmental integrity. A continuum of views between prescriptiveness and flexibility is apparent from the statements and submissions of Parties, and is also reflected in the options set out in the latest textual proposal released in October 2018. While the analysis carried out in this Working Paper does not lend itself to highly specific recommendations, it allows formulating a set of broader principles that can inform the choice between alternative options. Based on practical experience with carbon markets, for instance, one such recommendation is to keep transaction costs as low as possible by avoiding lengthy procedures and individual approval requirements, opting instead for a more streamlined process and, where material conditions are unavoidable, standardized rather than individual requirements. Consideration should also be given to uniform definitions and metrics for ITMOs, which, while perhaps politically unappealing initially for some Parties, could be phased in over time. Such common reference points would increase transparency and comparability, and greatly facilitate linkage of domestic climate policies over time by allowing for the transfer of what would then be fungible units.

Experience to date has also shown that mature and liquid carbon markets rely on diversity of participation. Article 6.2 guidance should therefore avoid excessive restrictions on participation in cooperative approaches, and instead consider including opportunities for market access by non-Party Stakeholders, including the private sector. Quantity limits, while effective as safeguards against transfers of "hot air", impose a commensurate limit on the economic – and, potentially, mitigation – benefits that can be leveraged through use of cooperative approaches, and should therefore be used with caution or, alternatively, as a transition mechanism for a limited time period. Likewise, given the experience with additionality rules under the CDM, quality restrictions may add transaction costs without necessarily achieving the

desired outcome. In particular, technical safeguards should not to be thought of as an opportunity to make up for weak NDCs or insufficient collective ambition under the Paris Agreement: if anything, such questions call for a political decision under the respective elements of the PAWP, such as the work on matters related to Articles 4 and 14.

Because of the potential for regulatory failure caused, for instance, by imperfect information and regulatory capture, as well as the inevitable tradeoffs of restrictive procedures and substantive requirements, future guidance on Article 6.2 might ultimately achieve a stronger environmental outcome if it focuses on providing common metrics and definitions, elaborating a robust accounting framework, and ensuring the transparency and integrity of ITMO transfers. Such essential rules should ideally be formulated in precise and mandatory terms (Bodansky et al., 2016: 965). Where questions of ambition are not otherwise dealt with by the Parties, for instance in further guidance related to mitigation under Article 4, they may be better addressed through optional or soft guidance, or altogether left to the Parties engaged in an ITMO transfer to agree on the balance between flexibility and ambition they are most comfortable with. Other channels of quality assurance and scrutiny – including voluntary standards and review by non-Party stakeholders – are certain to emerge, adding to the incentive of acquiring parties to avoid the acquisition of evidently flawed mitigation outcomes. The resulting distribution of technical and political questions, and the attendant balance of flexible determination and multilateral prescription, may best reflect the delicate equilibrium that also defines the Paris Agreement. It would, finally, also find a solid basis in the legal mandate set out in Article 6.2, and thereby offer greater resilience against any future challenges that the guidance exceeds that mandate or is otherwise not aligned with the Paris Agreement.

In sum, the foregoing analysis affirms that: a) ambition can feature as a consideration in the guidance, even if the language of the Paris Agreement in Article 6.2 does not dictate a specific threshold or material outcome; b) the Paris Agreement pursues ambition as a goal, and is at the same time committed to a decentralized architecture that favors national determination by sovereign Parties; c) it is up to Parties negotiating operational details for Article 6.2 to agree on the appropriate balance between more prescriptive guidance that promotes ambition, and more flexible guidance that seeks to contain transaction costs and allow access for a greater number of participants; d) any acceptable compromise will fall somewhere between prescriptiveness and flexibility, reflecting the same balance that defines the Paris Agreement, and also the observation that neither completely unregulated nor excessively regulated markets are efficient, or indeed conducive to greater ambition; e) the elements of such a compromise should be negotiated in the appropriate forum, and guidance elaborated under the auspices of a more technical body (such as SBSTA) should not seek to supplant or correct political decisions on ambition and flexibility reached in a political forum (such as the CMA or APA).

5.2 Common Principles for Guidance on Article 6.2

- Carbon trading theory and experience affirm the need for robust governance in certain matters, such as transparency of emissions, accurate accounting of transfers, as well as avoidance of market power and abuse;
- Theory and experience also highlight the need to avoid an overly restrictive governance framework with high transaction costs, investor risk, and uncertain benefits, such as individual approval of ITMOs and transfers;
- Caution should be exercised when seeking to regulate environmental integrity risks, as different governance responses have suffered from their own failures, such as information asymmetries, capacity constraints, or regulatory capture;
- Some issues may defy a regulatory solution. Additionality tests, for instance, have failed to guarantee the additionality of mitigation projects despite a decade of attempts at reform, and yet contribute to transaction costs and project risk;
- Other restrictions, such as quantity limits on transfers, will proportionally curtail the economic benefits of trading, and thus impose commensurate limits on any potential cost savings and increased ambition these might allow;
- Some concerns may also be misplaced, such as those about a dynamic incentive of Parties to weaken future mitigation pledges, where empirical data confirms that domestic politics and institutional power structures are the decisive factors;
- Hence, guidance should focus on essential governance aspects such as common definitions, accounting, and oversight of market integrity, employing precise language and – where appropriate – mandatory terms;
- For other issues that merely might benefit from coordination, optional and aspirational terms may be preferable to safeguard the flexibility of Parties and ensure that markets can allocate resources efficiently;
- This includes participation or eligibility requirements, where allowing access to private entities can greatly increase market activity, liquidity, and efficient price discovery, as shown by the experiences with existing carbon markets;

- Standardization of metrics and other parameters of ITMOs may help streamline cooperative approaches and increase fungibility of traded units, potentially accelerating the emergence of a global carbon market with greater cost savings;
- Although ambition is not mentioned in Article 6.2, the broader context of that provision as well as the object and purpose of the Paris Agreement allow for its consideration in Article 6.2 guidance;
- Still, lacking ambition of NDCs should not be compensated with greater restrictions on cooperative approaches, as this may impede their future uptake even if NDCs are eventually strengthened;
- Instead, political questions related to overall ambition and ambition of individual NDCs require political deliberation at the appropriate level and in relevant elements of the PAWP to secure enduring acceptance and legitimacy;
- Guidance that thus reflects the multiple balancing acts struck in the Paris Agreement will also find a solid basis in the negotiating mandate of Article 6.2, and offer greater resilience against any future legal challenges.

BIBLIOGRAPHY

Allott, Philip. *The Health of Nations: Society and Law beyond the State*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511493676.

Ackerman, Bruce A., and Richard B. Stewart. 1985. "Reforming Environmental Law." *Stanford Law Review*, Vol. 37, No. 5, 1333-1365. https://doi.org/10.2307/1228633.

ADB (Asian Development Bank). 2018. *Decoding Article 6 of the Paris Agreement*. Manila: ADB. https://www.adb.org/sites/default/files/publication/418831/article6-paris-agreement.pdf.

van Asselt, Harro, Kati Kulovesi and Michael A. Mehling. 2018. "Negotiating the Paris Rulebook." *Carbon & Climate Law Review*, Vol. 12, No. 3, 173-183. https://doi.org/10.21552/cclr/2018/3/3.

Aust, Anthony. 2013. "Vienna Convention on the Law of Treaties (1969)." In *Max Planck Encyclopedia of Public International Law*, edited by Rüdiger Wolfum. 2nd ed. Vol. 10. Oxford: Oxford University Press. https://global.oup.com/academic/product/the-max-planck-encyclopedia-of-public-international-law-9780199689651.

Ball, Jeffrey. 2008. "U.N. Warming Program Draws Fire." *The Wall Street Journal*, 11 July 2008, A1. https://www.wsj.com/articles/SB121573736662544537.

Bator, Francis M. 1958. "The Anatomy of Market Failure." *The Quarterly Journal of Economics*, Vol. 72, No. 3, 351-379. https://doi.org/10.2307/1882231.

Baumol, William J., and Wallace E. Oates. 1988. *The Theory of Environmental Policy*. 2nd ed. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9781139173513.

Biniaz, Susan. 2017. "Analyzing Articles 6.2 and 6.4 of the Paris Agreement along a 'Nationally' and 'Internationally' Determined Continuum." In Robert N. Stavins and Robert C. Stowe (eds.), *Market Mechanisms and the Paris Agreement*. Cambridge, MA: Harvard Project on Climate Agreements, 55-58. https://www.belfercenter.org/sites/default/files/files/publication/2017-10_market-mechanisms-paris_v5.pdf.

Bazerman, Max H. 2006. "Climate Change as a Predictable Surprise." *Climatic Change*, Vol. 77, No. 1–2, 179-193. https://doi.org/10.1007/s10584-006-9058-x.

Bell, Ruth Greenspan. 2006. "The Kyoto Placebo." *Issues in Science and Technology*, Vol. 22, No. 2, 28-31. https://issues.org/p_bell.

Bell, Ruth Greenspan (2003). *Choosing Environmental Policy Instruments in the Real World*. Paris: Organisation for Economic Cooperation and Development (OECD). http://www.oecd.org/environment/cc/2957706.pdf.

Betz, Regina, and Misato Sato. 2006. "Emissions Trading: Lessons from the 1st Phase of the EU ETS and Prospects for the 2nd Phase." *Climate Policy*, Vol. 6, No. 4 351-359. https://doi.org/10.1080/14693062.2006.9685607.

Blandford, Laurence, Stacey Davis, and Paolo Cozzi. 2017. *Using Transfers to Enhance Ambition over the NDC Cycles*. Washington, DC: Center for Clean Air Policy (CCAP). http://ccap.org/assets/Center-for-Clean-Air-Policy-Using-Transfers-to-Enhance-Ambition-over-the-NDC-Cycles-Sept-2017-final-1.pdf.

Bodansky, Daniel M. 2016. "The Paris Climate Change Agreement: A New Hope?" *American Journal of International Law*, Vol. 110, No. 2, 288-319. https://doi.org/10.5305/amerjintelaw.110.2.0288.

Bodansky, Daniel M. 1999. "The Legitimacy of International Governance: A Coming Challenge for International Environmental Law?" *American Journal of International Law*, Vol. 93, No. 3, 596-624. https://doi.org/10.2307/2555262.

Bodansky, Daniel M., Seth A. Hoedl, Gilbert E. Metcalf and Robert N. Stavins. 2016. "Facilitating Linkage of Climate Policies through the Paris Outcome." *Climate Policy*, Vol. 16, No. 8, 956-972. https://doi.org/10.1080/14693062.2015.1069175.

Bodansky, Daniel M., and Lavanya Rajamani. 2018. "The Issues that Never Die." *Carbon & Climate Law Review*, Vol. 12, No. 3, 184-190. https://doi.org/10.21552/cclr/2018/3/4.

Brewer, Thomas L., and Michael A. Mehling. 2014. "Transparency of Climate Change Policies, Markets, and Corporate Practices." In *The Oxford Handbook of Economic and Institutional Transparency*, edited by Jens Forssbæck and Lars Oxelheim. 179-197. Oxford: Oxford University Press. http://dx.doi.org/10.1093/oxfordhb/9780199917693.013.0008.

Brunnée, Jutta. 2002. "COPing with Consent: Law-Making Under Multilateral Environmental Agreements." *Leiden Journal of International Law*, Vol. 15, 1-52. https://doi.org/10.1017/S0922156502000018.

Buchanan, James M., and Wm. Craig Stubblebine. 1962. "Externality." *Economica*, Vol. 29, No. 116, 371-384. https://doi.org/10.2307/2551386.

Buchanan, James M., and Gordon Tullock. 1975. "Polluters' Profits and Political Response: Direct Controls Versus Taxes." *American Economic Review*, Vol. 65, No. 1, 139-147. https://www.jstor.org/stable/1806402.

Buen, Jørund. 2013. *CDM Criticisms: Don't Throw the Baby out with the Bathwater*. FNI Climate Policy Perspectives 8. Oslo: Fridtjof Nansen Institute. https://www.fni.no/getfile.php/132209-1470209735/Filer/Publikasjoner/FNI-Climate-Policy-Perspectives-8.pdf.

Burniaux, Jean-Marc, Jean Chateau, Rob Dellink, Romain Duval and Stéphanie Jamet. 2009. *The Economics of Climate Change Mitigation: How to Build the Necessary Global Action in a Cost-effective Manner*. Economics Department Working Papers No. 701. Paris: OECD Publishing. https://doi.org/10.1787/224074334782.

Cames, Martin, Sean Healy, Dennis Tänzler, Lina Li, Julia Melnikova, Carsten Warnecke, and Marie Kurdziel. 2016a. *International Market Mechanisms after Paris*. Berlin: German Emissions Trading Authority (DEHSt). https://www.dehst.de/SharedDocs/downloads/EN/project-mechanisms/International_market_mech_after_Paris_discussion_paper.pdf.

Cames, Martin, Ralph O. Harthan, Jürg Füssler, Michael Lazarus, Carrie M. Lee, Peter Erickson and Randall Spalding-Fecher. 2016b. *How Additional is the Clean Development Mechanism? Analysis of the Application of Current Tools and Proposed Alternatives*. Berlin: Institute for Applied Ecology et al. https://ec.europa.eu/clima/sites/clima/files/ets/docs/clean_dev_mechanism_en.pdf.

Carbone, Jared C., Carsten Helm and Thomas F. Rutherford. 2009. "The Case for International Emission Trade in the Absence of Cooperative Climate Policy." *Journal of Environmental Economics and Management*, Vol. 58, No. 3, 266-280. https://doi.org/10.1016/j.jeem.2009.01.001.

Castro, Paula. 2012. "Does the CDM Discourage Emission Reduction Targets in Advanced Developing Countries?" *Climate Policy*, Vol. 12, No. 2, 198-218. https://doi.org/10.1080/14693062.2011.592658.

Chadwick, Bruce P. 2006. "Transaction Costs and the Clean Development Mechanism." *Natural Resources Forum*, Vol. 30, No. 4, 256-271. https://doi.org/10.1111/j.1477-8947.2006.00126.x.

Chang, Ha-Joon. 1996. *The Political Economy of Industry Policy*. London: Macmillan. https://www.palgrave.com/us/book/9780333588628.

CMI (Carbon Market Institute). 2012. *Carbon Market Integrity: Integrity and Oversight of the European Emissions Trading System*. Melbourne: CMI. On file with author.

Coase, Ronald H. 1992. "The Institutional Structure of Production." *American Economic Review*, Vol. 82, No. 4, 713-719. https://www.jstor.org/stable/2117340.

Coase, Ronald H. 1960. "The Problem of Social Cost." *Journal of Law and Economics*, Vol. 3, 1-44. https://doi.org/10.1086/466560.

Convery, Frank, and Luke Redmond. 2007. "Market and Price Developments in the European Union Emissions Trading Scheme." *Review of Environmental Economics and Policy*, Vol. 1, 66–87. https://doi.org/10.1093/reep/rem010.

Cormier, Alain and Valentin Bellassen. 2013. "The Risks of CDM Projects: How Did only 30% of Expected Credits Come Through?" *Energy Policy*, Vol. 54, 173-183. https://doi.org/10.1016/j.enpol.2012.11.016.

CPI (Climate Policy Initiative). 2017. *Global Landscape of Climate Finance 2017*. San Francisco: CPI. https://climatepolicyinitiative.org/wp-content/uploads/2017/10/2017-Global-Landscape-of-Climate-Finance.pdf.

Crocker, Thomas D. 1966. "The Structuring of Atmospheric Pollution Control Systems", in *The Economics of Air Pollution: A Symposium*, edited by Harold Wolozin. 61-86. New York, NY: W. W. Norton.

Dales, John H. 1968. *Pollution, Property & Prices: An Essay in Policymaking and Economics*. Toronto, ON: University of Toronto Press.

Delbeke, Jos. 2006. "The Emissions Trading Scheme (ETS): The Cornerstone of the EU's Implementation of the Kyoto Protocol." In *EU Energy Law, Vol. IV: The EU Greenhouse Gas Emissions Trading Scheme*, edited by Jos Delbeke. 1-13. Amsterdam: Claeys & Casteels.

Depledge, Joanna. 2000. "Tracing the Origins of the Kyoto Protocol: An Article-by-Article Textual History." UN Doc. FCCC/TP/2000/2, 25 November 2000. https://unfccc.int/resource/docs/tp/tp0200.pdf.

Dessai, Suraje, and E. Lisa Schipper. 2003. "The Marrakech Accords to the Kyoto Protocol: Analysis and Future Prospects." *Global Environmental Change*, Vol. 13, 149-153. https://doi.org/10.1016/S0959-3780(02)00082-1.

Doda, Baran, Simon Quemin, and Luca Taschini. 2018. *Linking Permit Markets Multilaterally*, Chaire Economie du Climat Working Papers 1804. Paris: Chaire Economie du Climat. https://www.chaireeconomieduclimat.org/wp-content/uploads/2018/03/WP-2018-04-en-ligne.pdf.

Downs, Anthony. 1957. *An Economic Theory of Democracy*. New York, NY: Harper Row.

Ellerman, A. Denny, and Barbara K. Buchner. 2008. "Over-allocation or Abatement? A Preliminary Analysis of the EU ETS Based on the 2005–06 Emissions Data." *Environmental and Resource Economics*, Vol. 41, No. 2, 267-287. https://doi.org/10.1007/s10640-008-9191-2.

Ellerman, A. Denny, Frank J. Convery and Christian de Perthuis. 2011. *Pricing Carbon: The European Union Emissions Trading Scheme*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9781139042765.

Ellerman, A. Denny, and Paul L. Joskow. 2008. *The European Union's Emissions Trading System in Perspective*. Washington, DC: Pew Center on Global Climate Change. https://www.c2es.org/docUploads/EU-ETS-In-Perspective-Report.pdf.

Ellis, Jane, Jan Corfee-Morlot and Harald Winkler. 2004. *Taking Stock of Progress under the Clean Development Mechanism (CDM)*. Paris: OECD Publishing. https://www.oecd.org/env/cc/32141417.pdf.

Environmental Defense Fund (EDF). 2018. *Catalyzing Carbon Markets Globally to Realize the Promise of Paris: The Power of Markets to Increase Ambition*. Washington, DC: EDF. https://unfccc.int/sites/default/files/resource/236_Talanoa%20submission%20carbon%20markets%20potential%20EDF%20April%203.pdf.

Erickson, Peter, Michael Lazarus and Randall Spalding-Fecher. 2014. "Net Climate Change Mitigation of the Clean Development Mechanism." *Energy Policy*, Vol. 72, 146-154. https://doi.org/10.1016/j.enpol.2014.04.038.

"ETS, RIP?" *The Economist*, 20 April 2013. https://www.economist.com/finance-and-economics/2013/04/20/ets-rip.

Fischer, Carolyn, and Richard G. Newell. 2008. "Environmental and Technology Policies for Climate Mitigation." *Journal of Environmental Economics and Management*, Vol. 55, No. 2, 142-162. https://doi.org/10.1016/j.jeem.2007.11.001.

Flues, Florens, Axel Michaelowa and Katharina Michaelowa. 2010. "What Determines UN Approval of Greenhouse Gas Emission Reduction Projects in Developing Countries? An Analysis of Decision Making on the CDM Executive Board." *Public Choice*, Vol. 145, No. 1-2, 1-24. https://doi.org/10.1007/s11127-009-9525-9.

Forth, Thomas. 2018. "Katowice and the 'Paris Rule Book.'" *Carbon Mechanisms Review*, No. 3, 4-9. https://www.carbon-mechanisms.de/fileadmin/media/dokumente/Publikationen/CMR/CMR_2018_03_Assembling_the_Parts_eng.pdf.

Freestone, David. 2005. "UNFCCC, the Kyoto Protocol, and the Kyoto Mechanisms." In *Legal Aspects of Implementing the Kyoto Protocol Mechanisms: Making Kyoto Work*, edited by David Freestone and Charlotte Streck. 3-32. Oxford: Oxford University Press. https://global.oup.com/academic/product/legal-aspects-of-implementing-the-kyoto-protocol-mechanisms-9780199279616.

Frunza, Marius-Cristian, Dominique Guegan, and Antonin Lassoudiere. 2011. "Missing Trader Fraud on the Emissions Market." *Journal of Financial Crime*. Vol. 18, No. 2, 183-194. https://doi.org/10.1108/13590791111127750.

GAO (Government Accountability Office). 2008. *International Climate Change Programs: Lessons Learned from the European Union's Emissions Trading Scheme and the Kyoto Protocol's Clean Development Mechanism*, Report GAO-09-151. Washington, DC: Government Accountability Office. https://www.gao.gov/new.items/d09151.pdf.

Goron, Coraline, and Cyril Cassisa. 2017. "Regulatory Institutions and Market-Based Climate Policy in China." *Global Environmental Politics*, Vol. 17, No. 1, 99-120. https://doi.org/10.1162/GLEP_a_00392.

Goulder, Lawrence H. and Brian M. Nadreau. 2002. "International Approaches to Reducing Greenhouse Gas Emissions." In *Climate Change Policy: A Survey*. 115-149. Washington DC: Island Press. https://islandpress.org/books/climate-change-policy.

Graichen, Jakob, Martin Cames and Lambert R. Schneider. 2016. *Categorization of INDCs in the light of Art. 6 of the Paris Agreement*. Berlin: German Emissions Trading Authority (DEHSt). https://www.carbon-mechanisms.de/fileadmin/media/dokumente/Publikationen/Studie/Studie_2016_Categorization_of_INDCs_Paris_Agreement.pdf.

Green, Jessica. 2008. "Delegation and Accountability in the Clean Development Mechanism: The New Authority of Non-state Actors." *Journal of International Law and International Relations*, Vol. 4, No. 2, 21-55. https://heinonline.org/HOL/LandingPage?handle=hein.journals/jilwirl4&div=11&id=&page=.

Greiner, Sandra, and Axel Michaelowa. 2018. *Cooperative Approaches under Art. 6.2 of the Paris Agreement: Status of Negotiations – Key Areas of Consensus and Contention*. Amsterdam: Climate Focus. https://climatefocus.com/sites/default/files/20180301%20Discussion%20Paper%20-%20Cooperative%20Approaches%20consent%20and%20dissens%5B1%5D.pdf.

Grubb, Michael. 2016. "Full Legal Compliance with the Kyoto Protocol's First Commitment Period: Some Lessons." *Climate Policy*, Vol. 16, No. 6, 673-681. https://doi.org/10.1080/14693062.2016.1194005.

Habermas, Jürgen. 1984. *Vorstudien und Ergänzungen zu einer Theorie des kommunikativen Handelns*. Frankfurt a.M.: Suhrkamp. https://www.suhrkamp.de/buecher/vorstudien_und_ergaenzungen_zur_theorie_des_kommunikativen_handelns-juergen_habermas_57651.html.

Hahn, Robert W. 1984. "Market Power and Transferable Property Rights." *Quarterly Journal of Economics*, Vol. 99, No. 4, 753-765. https://doi.org/10.2307/1883124.

Hahn, Robert W., and Gordon L. Hester. 1989. "Where Did All the Markets Go? An Analysis of EPA's Emissions Trading Program." Yale Journal of Regulation, Vol. 6, No. 1, 109-153. https://digitalcommons.law.yale.edu/yjreg/vol6/iss1/4.

Hahn, Robert W., and Robert N. Stavins. 1999. *What Has the Kyoto Protocol Wrought? The Real Architecture of International Tradeable Permit Markets*. Washington, DC: AEI Press. https://www.aei.org/wp-content/uploads/2011/10/20040218_book325.pdf.

Hale, Thomas. 2016. "'All Hands on Deck': The Paris Agreement and Nonstate Climate Action." *Global Environmental Politics*, Vol. 16, No. 3, 12-22. https://doi.org/10.1162/GLEP_a_00362.

Hardy, Brettny. 2007. "How Positive Environmental Politics Affected Europe's Decision to Oppose and then Adopt Emissions Trading." *Duke Environmental Law and Policy Forum*, Vol. 17, No. 2, 297-318. https://scholarship.law.duke.edu/delpf/vol17/iss2/6.

Hayek, Friedrich A. 1973. *Law, Liberty and Legislation*. Chicago, IL: University of Chicago Press.

Hedges, Andrew. 2009. "The Secondary Market for Emissions Trading: Balancing Market Design and Market Based Transaction Norms." In *Legal Aspects of Carbon Trading: Kyoto, Copenhagen and Beyond*, edited by David Freestone and Charlotte Streck. 310-334. Oxford: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199565931.003.0015.

Helm, Dieter. 2005. "Economic Instruments and Environmental Policy." *Economic & Social Review*, Vol. 36, No. 3, 205-228. http://hdl.handle.net/2262/60159.

Helm, Carsten. 2003. "International Emissions Trading with Endogenous Allowance Choices." *Journal of Public Economics*, Vol. 87, No. 12, 2737-2747. https://doi.org/10.1016/S0047-2727(02)00138-X.

Hintermann, Beat. 2010. "Market Power, Permit Allocation and Efficiency in Emission Permit Markets." *Environmental and Resource Economics*, Vol. 49, 327-349. https://doi.org/10.1007/s10640-010-9435-9.

Holm Olsen, Karen. 2007. "The Clean Development Mechanism's Contribution to Sustainable Development: A Review of the Literature." *Climatic Change*, Vol. 84, No. 1, 59-73. https://doi.org/10.1007/s10584-007-9267-y.

Holtsmark, Bjart, and Dag Einar Sommervoll. 2012. "International Emissions Trading: Good or Bad?" *Economics Letters*, Vol. 117, No. 1, 362-364. https://doi.org/10.1016/j.econlet.2012.05.034.

Hood, Christina, Gregory Briner and Marcelo Rocha. 2014. *GHG or not GHG: Accounting for Diverse Mitigation Contributions in the Post-2020 Climate Framework*. Paris: OECD et al. https://www.oecd.org/env/cc/GHG%20or%20not%20GHG_CCXG-sentout_May2014_REV.pdf.

Howard, Andrew. 2018. *Incentivizing Mitigation: Using International Carbon Markets to Raise Ambition*. Bonn: Koru Climate. https://www.carbon-mechanisms.de/en/publications/details/?jiko%5Bpubuid%5D=541.

Howard, Andrew. 2017. "Voluntary Cooperation (Article 6)." In *The Paris Agreement on Climate Change: Analysis and Commentary*, edited by Daniel Klein, María Pía Carazo, Meinhard Doelle, Jane Bulmer, and Andrew Higham. 178-195. Oxford: Oxford University Press. https://global.oup.com/academic/product/the-paris-agreement-on-climate-change-9780198789338.

ICROA (International Carbon Reduction & Offset Alliance). 2017. *Scaling Voluntary Action within the Framework of the Paris Agreement*. Geneva: ICROA. https://www.icroa.org/resources/Documents/ICROA_WhitePaper_Final.pdf.

IETA (International Emissions Trading Association). 2018. *IETA Input to the Talanoa Dialogue*. Geneva: IETA. https://unfccc.int/sites/default/files/resource/94_IETA%20input%20to%20TD_final.pdf.

IPCC (Intergovernmental Panel on Climate Change). 2018. *Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C Above Pre-industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty*. Geneva: IPCC. http://www.ipcc.ch/pdf/special-reports/sr15/sr15_draft.pdf.

IPCC (Intergovernmental Panel on Climate Change). 2015. *Climate Change 2014: Mitigation of Climate Change*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9781107415416.

Klabbers, Jan. 1996. "The Redundancy of Soft Law." *Nordic Journal of International Law*, Vol. 65, 167-182. https://doi.org/10.1163/15718109620294889.

Koch, Nicolas, Sabine Fuss, Godefroy Grosjean and Ottmar Edenhofer. 2014. "Causes of the EU ETS Price Drop: Recession, CDM, Renewable Policies or a Bit of Everything? New Evidence." *Energy Policy*, Vol. 73, 676-685. https://doi.org/10.1016/j.enpol.2014.06.024.

Kreibich, Nicolas. 2018. *Raising Ambition through Cooperation: Using Article 6 to Bolster Climate Change Mitigation*. Wuppertal: Wuppertal Institute for Climate, Environment and Energy GmbH. https://www.carbon-mechanisms.de/en/publications/details/?jiko%5Bpubuid%5D=533.

Kreibich, Nicolas, Lukas Hermwille, Carsten Warnecke and Christof Arens. 2017. "An Update on the Clean Development Mechanism in Africa in Times of Market Crisis." Climate and Development, Vol. 9, No. 2, 178-190. https://doi.org/10.1080/17565529.2016.1145102.

Kreibich, Nicolas, and Lukas Hermwille. 2016. *Robust Transfers of Mitigation Outcomes Understanding Environmental Integrity Challenges*. Wuppertal: Wuppertal Institute for Climate, Environment and Energy GmbH. https://epub.wupperinst.org/files/6496/6496_Robust_Transfers.pdf.

Kreibich, Nicolas, and Wolfgang Obergassel. 2018. *New Paths to Policy Crediting? Challenges and Opportunities of Policy-based Cooperation under Article 6 of the Paris Agreement*. Wuppertal: Wuppertal Institute for Climate, Environment and Energy GmbH. https://www.carbon-mechanisms.de/fileadmin/media/dokumente/Publikationen/Policy_Paper/PP_2018_04_Policy_Crediting.pdf.

Krey, Matthias. 2005. "Transaction Costs of Unilateral CDM Projects in India: Results from an Empirical Survey." *Energy Policy*, Vol. 33, No. 18, 2385-2397. https://doi.org/10.1016/j.enpol.2004.05.008.

Krueger, Anne O. 1974. "The Political Economy of the Rent-Seeking Society." *American Economic Review*, Vol. 64, 291-303. https://www.jstor.org/stable/1808883.

Krupnick, Alan, and Ian W.H. Parry. 2012. "What is the Best Policy Instrument for Reducing CO_2 Emissions?" In *Fiscal Policy to Mitigate Climate Change: A Guide for Policymakers*, edited by Rood de Mooij, Ian W.H. Parry, and Michael Keen. 1-45. Washington, DC: International Monetary Fund. http://dx.doi.org/10.5089/9781616353933.071.

La Hoz Theuer, Stephanie, Lambert Schneider and Derik Broekhoff. 2018. "When Less is More: Limits to International Transfers under Article 6 of the Paris Agreement." *Climate Policy*, online first. https://doi.org/10.1080/14693062.2018.1540341.

La Hoz Theuer, Stephanie, Lambert Schneider, Derik Broekhoff and Anja Kollmuss. 2017. *International Transfers under Article 6 in the Context of Diverse Ambition of NDCs: Environmental Integrity Risks and Options to Address Them*. Stockholm: Stockholm Environment Institute (SEI). https://www.sei.org/mediamanager/documents/Publications/SEI-2017-WP-international-transfers.pdf.

Lederer, Markus. 2012. "Market Making via Regulation: The Role of the State in Carbon Markets." *Regulation & Governance*, Vol. 6, 524-544. https://doi.org/10.1111/j.1748-5991.2012.01145.x.

Marcu, Andrei. 2018. *What is Standing in the Way of a Happy Ending: Reflections on Art. 6 before SBSTA 48*. Geneva: International Centre for Trade and Sustainable Development (ICTSD). On file with author.

Marcu, Andrei. 2017a. *Issues for Discussion to Operationalise Article 6 of the Paris Agreement*. Geneva: International Centre for Trade and Sustainable Development (ICTSD). https://www.ictsd.org/sites/default/files/research/article_6_of_the_paris_agreement_iii_final_0.pdf.

Marcu, Andrei. 2017b. *Article 6 of the Paris Agreement: Reflections on Party Submissions before Marrakech*. Geneva: International Centre for Trade and Sustainable Development (ICTSD). https://www.ictsd.org/sites/default/files/research/article_6_of_the_paris_agreement_ii_final_0.pdf.

Marcu, Andrei. 2016. *Carbon Market Provisions in the Paris Agreement (Article 6)*. Brussels: Center for European Policy Studies (CEPS). https://www.ceps.eu/system/files/SR%20No%20128%20ACM%20Post%20COP21%20Analysis%20of%20Article%206.pdf.

Markussen, Peter, and Gert Tinggaard Svendsen. 2005. "Industry Lobbying and the Political Economy of GHG Trade in the European Union." *Energy Policy*, Vol. 33, No. 2, 245-255. https://doi.org/10.1016/S0301-4215(03)00238-6.

Martin, Leslie. 2006. *Transaction Costs and the Regional Distribution of Projects of the Clean Development Mechanism*. Berkeley, CA: University of California. On file with author.

Meadows, Damien, Yvon Slingenberg and Peter Zapfel. 2015. "EU ETS: Pricing Carbon to Drive Cost-effective Reductions across Europe." In *EU Climate Policy Explained*, edited by Jos Delbeke and Peter Vis. 26-51. Abingdon: Routledge. https://www.taylorfrancis.com/books/e/9781317338123.

Meckling, Jonas. 2011. *Carbon Coalitions: Business, Climate Politics, and the Rise of Emissions Trading*. Cambridge, MA: MIT Press. https://mitpress.mit.edu/books/carbon-coalitions.

Mehling, Michael A. 2007. "The Flexible Mechanisms of the Kyoto Protocol: An Introduction." In *Implementing the Kyoto Protocol: Chances and Challenges for Transition Countries*, edited by Michael Rodi. 49-57. Berlin: Lexxion. https://books.lexxion.eu/books/view/9783939804246.

Mehling, Michael A. 2003. "Emissions Trading and National Allocation in the Member States: An Achilles Heel of European Climate Policy?" *Yearbook of European Environmental Law*, Vol. 5, 113-156.

Mehling, Michael A., Gilbert E. Metcalf and Robert N. Stavins. 2018. "Linking Climate Policies to Advance Global Mitigation." *Science*, Vol. 359, No. 6379, 997-998. https://doi.org/10.1126/science.aar5988.

Mehling, Michael A., Gilbert E. Metcalf and Robert N. Stavins. 2017. *Linking Heterogeneous Climate Policies (Consistent with the Paris Agreement)*. Cambridge, MA: Harvard Project on Climate Agreements. https://www.belfercenter.org/sites/default/files/files/publication/mehling-metcalf-stavins-final171019-1020.pdf.

Michaelowa, Axel. 2013. "A Call to Action: But too Late, in Vain?" *Climate Policy*, Vol. 13, No. 3, 408-410. https://doi.org/10.1080/14693062.2013.770964.

Michaelowa, Axel, and Sonja Butzengeiger. 2017. *Ensuring Additionality under Art. 6 of the Paris Agreement*. Freiburg: Perspectives Climate Research. https://www.perspectives.cc/fileadmin/Publications/Ensuring_additionality_under_Art._6_of_the_Paris_agreement_Michaelowa_Axel__Butzengeiger_Sonja_2017.pdf.

Michaelowa, Axel, and Stephan Hoch. 2017. "Guardrails for the Paris Mechanisms: Operationalizing Article 6 and Generating Carbon Market Credibility." *Carbon Mechanisms Review*, Issue 3/2017, 4-9. https://www.carbon-mechanisms.de/fileadmin/media/dokumente/Publikationen/CMR/CMR_2017_03_Writing_the_Paris_Rulebook_eng_bf.pdf.

Michaelowa, Axel, Marcus Stronzik, Frauke Eckermann and Alistair Hunt. 2003. "Transaction Costs of the Kyoto Mechanisms." *Climate Policy*, Vol. 3, No. 3, 261-278. https://doi.org/10.3763/cpol.2003.0332.

Monast, Jonas J., Jon Anda, and Timothy H. Profeta. 2009. *U.S. Carbon Market Design: Regulating Emission Allowances as Financial Instruments*. Durham, NC: Duke University. https://nicholasinstitute.duke.edu/sites/default/files/publications/u.s.-carbon-market-design-regulating-emission-allowances-as-financial-instruments-paper.pdf.

Monbiot, George. 2013. "This Faith in the Markets is Misplaced: Only Governments Can Save our Living Planet." *The Guardian,* 22 April 2013. https://www.theguardian.com/commentisfree/2013/apr/22/faith-markets-misplaced-governments-save-planet.

Montgomery, W. David. 1972. "Markets in Licenses and Efficient Pollution Control Programs." *Journal of Economic Theory*, Vol. 5, No. 3, 395-418. https://doi.org/10.1016/0022-0531(72)90049-X.

Müller, Benito. 2018. *Article 6: Market Approaches Under the Paris Agreement*. Oxford: European Capacity Building Initiative. https://www.ecbi.org/sites/default/files/Article%206%20Final_1.pdf.

Newell, Peter. 2012. "The Political Economy of Carbon Markets: The CDM and Other Stories." *Climate Policy*, Vol. 12, No. 1, 135-139. https://doi.org/10.1080/14693062.2012.640785.

Newell, Richard G., and William A. Pizer. 2003. "Regulating Stock Externalities under Uncertainty." *Journal of Environmental Economics and Management*, Vol. 45, No. 2, 416-432. https://doi.org/10.1016/S0095-0696(02)00016-5.

Newell, Richard G., William A. Pizer and Daniel Raimi. 2013. "Carbon Markets 15 Years after Kyoto: Lessons Learned, New Challenges." *Journal of Economic Perspectives*, Vol. 27, No. 1, 123-146. https://doi.org/10.1257/jep.27.1.123.

Nobuoka, Yoko, Jane Ellis and Sarah Pyndt Andersen. 2015. *Encouraging Increased Climate Action by Non-Party Stakeholders*. Paris: OECD. https://doi.org/10.1787/5jm56w74s5wg-en.

Nordhaus, William D. 2006. "After Kyoto: Alternative Mechanisms to Control Global Warming." *American Economic Review*, Vol. 96, No. 2, 31-34. https://doi.org/10.1257/000282806777211964.

Nordhaus, William D. 2005. *Life After Kyoto: Alternative Approaches to Global Warming*. NBER Working Paper No. 11889. Cambridge, MA: National Bureau of Economic Research. https://doi.org/10.3386/w11889.

Obergassel, Wolfgang, and Friederike Asche. 2017. *Shaping the Paris Mechanisms Part III: An Update on Submissions on Article 6 of the Paris Agreement*. Wuppertal: Wuppertal Institute for Climate, Environment and Energy. https://epub.wupperinst.org/files/6987/6987_Paris_Mechanisms.pdf.

O'Dowd, Michael C. 1978. "The Problem of 'Government Failure' in Mixed Economies." *South African Journal of Economics*, Vol. 46, No. 4, 360-370. https://doi.org/10.1111/j.1813-6982.1978.tb00582.x.

OECD (Organisation for Economic Co-operation and Development). 2008. *Climate Change Mitigation: What Do We Do?* Paris: OECD Publishing. https://doi.org/10.1787/9789264059610-en.

OECD (Organisation for Economic Co-operation and Development). 2001. *Domestic Transferable Permits for Environmental Management: Design and Implementation*. Paris: OECD Publishing. https://doi.org/10.1787/9789264192638-en.

OECD (Organisation for Economic Co-operation and Development). 2000. *Emission Baselines: Estimating the Unknown*. Paris: OECD. https://doi.org/10.1787/9789264188488-en.

OECD (Organisation for Economic Co-operation and Development). 1991. *Environmental Policy: How to Apply Economic Instruments*. Paris: OECD Publishing.

Opschoor, Johannes B., and Hans Vos. 1989. *Economic Instruments for Environmental Protection*. Paris: OECD Publishing.

Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9781316423936.

PMR (Partnership for Market Readiness) and ICAP (International Carbon Action Partnership). 2016. *Emissions Trading in Practice: A Handbook on Design and Implementation*. Washington, DC: World Bank. http://documents.worldbank.org/curated/en/353821475849138788.

Pigou, Arthur C. 1920. *The Economics of Welfare*. London: Macmillan & Co. https://archive.org/details/economicsofwelfa00pigouoft.

Point Carbon. 2012. *Carbon Market Monitor: A Review of 2012*. Oslo: Point Carbon. On file with author.

Rawls, John. 1993. *Political Liberalism*. New York, NY: Columbia University Press. https://cup.columbia.edu/book/political-liberalism/9780231130899.

Rosenthal, Elisabeth and Andrew W. Lehren. 2012. "Carbon Credits Gone Awry Raise Output of Harmful Gas." *The New York Times*, 9 August 2012, A1. https://www.nytimes.com/2012/08/09/world/asia/incentive-to-slow-climate-change-drives-output-of-harmful-gases.html.

Samuelson, Paul A. 1954. "The Pure Theory of Public Expenditure", *The Review of Economics and Statistics*, Vol. 36, No. 4, 387-389. https://doi.org/10.2307/1925895.

Schmalensee, Richard, and Robert N. Stavins. 2017. "The Design of Environmental Markets: What Have We Learned from Experience with Cap and Trade?" *Oxford Review of Economic Policy*, Vol. 33, No. 4, 572-588. https://doi.org/10.1093/oxrep/grx040.

Schneider, Lambert R. 2011. "Perverse Incentives under the CDM: An Evaluation of HFC-23 Destruction Projects." *Climate Policy*, Vol. 11, No. 2, 851-864. https://doi.org/10.3763/cpol.2010.0096.

Schneider, Lambert. 2007. *Is the CDM Fulfilling its Environmental and Sustainable Development Objectives? An Evaluation of the CDM and Options for Improvement*. Darmstadt: Öko-Institut. https://www.oeko.de/oekodoc/622/2007-162-en.pdf.

Schneider, Lambert R., Jürg Füssler, Stephanie La Hoz Theuer, Anik Kohli, Jakob Graichen, Sean Healy and Derik Broekhoff. 2017. *Environmental Integrity under Article 6 of the Paris Agreement*. Berlin: German Emissions Trading Authority (DEHSt). https://www.dehst.de/SharedDocs/downloads/EN/project-mechanisms/Discussion-Paper_Environmental_integrity.pdf.

Schneider, Lambert R., and Stephanie La Hoz Theuer. 2018. "Environmental Integrity of International Carbon Market Mechanisms under the Paris Agreement." *Climate Policy*, online first. https://doi.org/10.1080/14693062.2018.1521332.

Schneider, Lambert R., Michael Lazarus, Carrie Lee and Harro van Asselt. 2017. "Restricted Linking of Emissions Trading Systems: Options, Benefits, and Challenges." *International Environmental Agreements: Politics, Law and Economics*, Vol. 17, No. 6, 883–898. https://doi.org/10.1007/s10784-017-9370-0.

Shishlov, Igor, Romain Morel and Valentin Bellassen. 2016. "Compliance of the Parties to the Kyoto Protocol in the First Commitment Period." *Climate Policy*, Vol. 16, No. 6, 768-782. https://doi.org/10.1080/14693062.2016.1164658.

Sijm, Jos, Karsten Neuhoff and Yihsu Chen. 2006. "CO_2 Cost Pass-through and Windfall Profits in the Power Sector." *Climate Policy*, Vol. 6, No. 1, 49-72. https://doi.org/10.1080/14693062.2006.9685588.

Slaughter, Anne-Marie. 2004. *A New World Order*. Princeton, NJ: Princeton University Press. https://press.princeton.edu/titles/7712.html.

Spalding-Fecher, Randall. 2014. "National Policies and CDM: E+, E- or Both?" *Carbon Mechanisms Review*, No. 1, 9-13. https://www.carbon-mechanisms.de/fileadmin/media/dokumente/Publikationen/CMR/CMR_2014_01_JI_Abandoned_eng_bf.pdf.

Spalding-Fecher, Randall, Amrita Narayan Achanta, Peter Erickson, Erik Haites, Michael Lazarus, Neha Pahuja, Nimisha Pandey, Stephen Seres and Ritika Tewari. 2012. *Assessing the Impact of the Clean Development Mechanism*. No place given: CDM Policy Dialogue. http://www.cdmpolicydialogue.org/research/1030_impact.pdf.

Stavins, Robert N. 2000. "Market-Based Environmental Policies." In *Public Policies for Environmental Protection*, edited by Paul R. Portney and Robert N. Stavins. 31-76. 2nd ed. New York, NY: Routledge. https://www.taylorfrancis.com/books/e/9781136524806.

Stavins, Robert N. 1995. "Transaction Costs and Tradeable Permits." *Journal of Environmental Economics and Management*, Vol. 29, 133–148. https://doi.org/10.1006/jeem.1995.1036.

Stavins, Robert N. ed. 1988. *Project 88: Harnessing Market Forces to Protect Our Environment*. Washington, DC: Project 88. https://scholar.harvard.edu/files/stavins/files/project_88-1.pdf.

Stern, Nicholas H. 2006. *The Economics of Climate Change: The Stern Review*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511817434.

Stigler, George J. 1971. "The Theory of Economic Regulation." *Bell Journal of Economics and Management Science*, Vol. 2, No. 1, 3-18. https://doi.org/10.2307/3003160.

Stiglitz, Joseph E. 2009. "Government Failure vs. Market Failure: Principles of Regulation." In *Government and Markets: Toward a New Theory of Regulation*, edited by Edward J. Balleisen and David A. Moss. 13-51. Cambridge: Cambridge University Press. https://www.cambridge.org/vi/academic/subjects/economics/public-economics-and-public-policy/government-and-markets-toward-new-theory-regulation.

Strand, Jon. 2011. "Carbon Offsets with Endogenous Environmental Policy." *Energy Economics*, Vol. 33, No. 2, 371-378. https://doi.org/10.1016/j.eneco.2010.11.006.

Tietenberg, Thomas H. 2006. *Emissions Trading: Principles and Practice*. 2nd ed. Washington, DC: Resources for the Future. https://www.crcpress.com/Emissions-Trading-Principles-and-Practice/Tietenberg/p/book/9781933115313.

Tuerk, Andreas, Dora Fazekas, Helmut Schreiber, Dorian Frieden, and Clemens Wolf. 2013. *Green Investment Schemes: The AAU Market between 2008 and 2012*. Cambridge: Climate Strategies. http://climatestrategies.org/wp-content/uploads/2013/03/cs-gis-discussion-paper-formatted-final-rev2a.pdf.

Tullock, Gordon, Gordon L. Brady, and Arthur Seldon. 2002. *Government Failure: A Primer in Public Choice*. Washington, DC: Cato Institute. https://store.cato.org/book/government-failure.

UNEP (United Nations Environment Programme). 2017. *The Emissions Gap Report 2017*. Nairobi: UNEP. https://wedocs.unep.org/bitstream/handle/20.500.11822/22070/EGR_2017.pdf.

UNEP (United Nations Environment Programme) and UNCTAD (United Nations Conference on Trade and Development). 2002. *An Emerging Market for the Environment: A Guide to Emissions Trading*. Geneva: UNEP et al. On file with author.

Vormedal, Irja. 2008. "The Influence of Business and Industry NGOs in the Negotiation of the Kyoto Mechanisms: The Case of Carbon Capture and Storage in the CDM." *Global Environmental Politics*, Vol. 8, No. 4, 36-65. https://doi.org/10.1162/glep.2008.8.4.36.

Wallis, Joe L., and Brian E. Dollery. 1999. *Market Failure, Government Failure, Leadership and Public Policy*. London: Macmillan. https://doi.org/10.1057/9780230372962.

Wara, Michael W. 2008. "Measuring the Clean Development Mechanism's Performance and Potential." *UCLA Law Review*, Vol. 55, No. 6, 1759-1803. https://www.uclalawreview.org/measuring-the-clean-development-mechanisms-performance-and-potential.

Wara, Michael W. 2007. "Is the Global Carbon Market Working?" *Nature*, Vol. 445, No. 8, 595-596. https://doi.org/10.1038/445595a.

Wara, Michael W., and David G. Victor. 2008. *A Realistic Policy on International Carbon Offsets*, Program on Energy and Sustainable Development Working Paper No. 74. Palo Alto, CA: Stanford University. https://law.stanford.edu/publications/a-realistic-policy-on-international-carbon-offsets.

Warnecke, Carsten, Niklas Höhne, Ritika Tewari, Thomas Day, and Aki Kachi. 2018. *Opportunities and Safeguards for Ambition Raising Through Article 6: The Perspective of Countries Transferring Mitigation Outcomes*. Cologne: NewClimate Institute. https://www.carbon-mechanisms.de/fileadmin/media/dokumente/Publikationen/Studie/Studie_2018_NewClimate_AmbitionRaising.pdf.

Weber, Max. *Wirtschaft und Gesellschaft*. 3rd ed., Tübingen: Mohr.

Weisbrod, Burton A. 1978. "Problems of Enhancing the Public Interest: Toward a Model of Governmental Failures." In *Public Interest Law: An Economic and Institutional Analysis*, edited by Burton A. Weisbrod, Joel F. Handler and Neil K. Komesar. 30-41. Berkeley, CA: University of California Press.

Wettestad, Jørgen. 2005. "The Making of the 2003 E.U. Emissions Trading Directive: An Ultra-Quick Process Due to Entrepreneurial Proficiency." *Global Environmental Politics*, Vol. 5, No. 1, 1-23. https://doi.org/10.1162/1526380053243477.

Whitesell, William C., and Stacey L. Davis. 2008. *Preventing Market Disruptions in Cap-and-Trade Programs*. Washington, DC: Center for Clean Air Policy (CCAP). http://ccap.org/assets/Preventing-Market-Disruptions-in-Cap-and-Trade-Programs_CCAP-Oct-2008.pdf.

Wolf, Charles. 1993. *Markets or Governments: Choosing Between Imperfect Alternatives*. 2nd ed. Cambridge, MA: MIT Press. https://mitpress.mit.edu/books/markets-or-governments-second-edition.

Wolke, Frank. 2018. "A Balanced Transition: The Future of the CDM in Light of the Paris Agreement." *Carbon Mechanisms Review*, No. 3, 10-14. https://www.carbon-mechanisms.de/fileadmin/media/dokumente/Publikationen/CMR/CMR_2018_03_Assembling_the_Parts_eng.pdf.

World Bank, Ecofys, and Vivid Economics. 2016. *State and Trends of Carbon Pricing 2016*. Washington, DC: World Bank. http://hdl.handle.net/10986/25160.

World Bank. 2012. *State and Trends of the Carbon Market, 2012*. Washington, DC: World Bank. http://hdl.handle.net/10986/13336.

Wynn, Gerard and Nina Chestney. 2011. "Carbon Offsets Near Record Low, Worst Performing Commodity." *Reuters*, 5 August 2011. https://www.reuters.com/article/us-carbon-low/carbon-offsets-near-record-low-worst-performing-commodity-idUSTRE77442920110805.

Yamin, Farhana. 2005. "The International Rules on the Kyoto Mechanisms." In *Climate Change and Carbon Markets: A Handbook of Emissions Reductions Mechanisms*, edited by Farhana Yamin. 1-74. London: Earthscan. https://www.taylorfrancis.com/books/e/9781136569609.

Young, Tom. 2008. "UN Suspends Top CDM Project Verifier." *Business Green*, 1 December 2008. https://www.businessgreen.com/bg/news/1803220/un-suspends-cdm-project-verifier-lax-audit-allegations.

Table 2: Relevant Elements of Textual Proposal released 15 October 2018

Para.	Section	Subsection	Issue	Content
1.	I. Principles			*Option A* {list of principles} (a) Pursuant to Article 4, paragraph 3, cooperative approaches are consistent with the participating Parties' NDC and be designed and implemented in a manner that supports progression beyond the participating Parties' current NDC; (b) The type of its NDC does not exclude any Party from participating in cooperative approaches; (c) Cooperative approaches are "bottom up" and maintain national prerogatives by ensuring that such cooperative approaches are led by participating Parties (…) *Option B* {no list of principles}
7.	IV. Internationally transferred mitigation outcomes	A. ITMOs that may be/are used towards achievement of an NDC	1. Responsibility	The responsibility to elaborate what is an ITMO that is used towards achievement of an NDC [shall][should] be with: *Option A* {the CMA} (a) The CMA; *Option B* {the 6.2 body} (b) The 6.2 body; *Option C* {the Article 6 body} (c) The Article 6 body; *Option D* {participating Parties} (d) Parties participating in a cooperative approach.
8.			2. Measurement	An ITMO [shall][should] be: *Option A1* {in tonnes of carbon dioxide equivalent} (a) Measured in and equal to one metric tonne of carbon dioxide equivalent (CO_2e); *Option A2* {in tonnes of carbon dioxide equivalent and other metrics} (b) Measured in tonnes of CO_2e and other metrics; *Option A3* {in tonnes of carbon dioxide equivalent, with other metrics approved by CMA} (c) Measured in and equal to one metric CO_2e; (d) Measured in other metrics consistent with further decisions of the CMA relating to this guidance *Option B* {no guidance on measurement]
9.				An ITMO [shall][should] be calculated: *Option A* {by CMA, in accordance with IPCC} (a) In accordance with the methodologies and common metrics assessed by the IPCC and adopted by the COP/CMA; *Option B* {by implementing Parties}

Para.	Section	Subsection	Issue	Content
				(b) Determined by Parties participating in a cooperative approach; (c) To be consistently identified and defined by the participating Parties.
10.			3. Form	*Option A* {guidance on form} An ITMO [shall][should] be {see options below for combinations of (a) to (d)}: (a) A unit with a unique serial number; (b) A net flow between participating Parties in a given period; (c) Amounts, subject to a corresponding adjustment to the NDC balance sheet of the participating Parties, to be recorded in the database referred to in section X.C (Database); (d) A non-freely tradable unit. *Option A1* {(a) only} *Option A2* {(a) and (b) only} *Option A3* {(a) and (c) only} *Option A4* {(a), (b) and (c)} *Option A5* {(a) and (d) only} *Option A6* {(d) only} *Option B* {no guidance on form}
11.			4. Scope	*Option A* {guidance on scope} An ITMO may be created for any of the following: *Option A1* {emission reductions and removals} (a) Emission reductions and removals; *Option A2* {emission reductions, removals and emissions avoided} (b) Emission reductions, removals and emissions avoided; *Option A3* {emission reductions, removals and full spectrum} (c) Emission reductions, removals and the full spectrum of mitigation outcomes, including mitigation co-benefits of adaptation actions and/or economic diversification plans; *Option A4* {all of the above} (d) Emission reductions, removals, emissions avoided and the full spectrum of mitigation outcomes, including mitigation co-benefits of adaptation actions and/or economic diversification plans; *Option B* {no guidance on scope}
12.		B. Characteristics of internationally transferred		An ITMO [shall][should] be: *Option A* {RPAV} (a) Real, permanent, additional and verifiable;

Para.	Section	Subsection	Issue	Content
		mitigation outcomes		*Option B* {RPV} (b) Real, permanent and verifiable; *Option C* {RAV} (c) Real, additional and verifiable; *Option D* {RV} (d) Real and verifiable. *Option E* {no guidance on characteristics}
14.	V. Governance	A. Role of the CMA		The CMA may take further decisions in relation to this guidance.
15.-20.		B. Oversight	1. Arrangements	*Option A* {Article 6.2 body} and *Option B* {Article 6 body} *Option A1 and B1* {composition specified} *Option A2 and B2* {alternative composition/structure} *Option C* {Article 13 technical expert review for consistency with this guidance} *Option D* {Article 6 technical expert review to review for consistency with this guidance} *Option E* {combination of Options A or B and C or D above} *Option F* {no oversight arrangements}
21.-30.			2. Functions of oversight	*Option A* {Article 6.2 body} and *Option B* {Article 6 body} The X body [shall][should] also {potential list below}: (a) Approve creation of/issue ITMOs from cooperative approaches consistent with this guidance; (b) Oversee a third-party review of the environmental integrity of ITMOs at creation; (c) Develop rules and procedures that include a policy for addressing conflict of interest; (d) Determines whether a Party meets the participation requirements, pursuant to section VI.A (Participation requirements); (e) Reviews methodologies and standards, including against those approved under the mechanism established by Article 6, paragraph 4, used by participating Parties; (…) *Option C* {Article 13 technical expert review for consistency with this guidance} *Option C1* {Article 13 technical expert review} *Option C1.1* {Article 13 technical expert review confirms participation} *Option C1.2* {After review, submit review to Article 15 committee} *Option C2* {Option C1 plus further additional step, that relates to budget-based basis of corresponding adjustment} *Option D* {Article 6 technical expert review to review for consistency with this guidance} *Option D1* {Article 6 technical expert review}

Para.	Section	Subsection	Issue	Content
				Option D1.1 {Article 6 technical expert review confirms participation} *Option D1.2* {After review, submit to Article 15 committee} *Option D2* {Option D1 plus further additional step, that relates to budget-based basis of corresponding adjustment} *Option E* {combination of Options A or B and C or D above} *Option F* {no oversight arrangements}
31.-32.		C. Role of the secretariat		The secretariat shall report to the CMA pursuant to this guidance and further decisions of the CMA relating to this guidance, on the following {potential list below}: (a) The overall mitigation in global emissions achieved, pursuant to section XII (Overall mitigation in global emissions in context of Article 6, paragraph 2); (…) (c) Progress made by participating Parties in implementing and achieving NDCs.
33.-34.	VI. Participation requirements and responsibilities	A. Participation requirements		*Option A* {participation requirements} *Option A1* {participation requirements for cooperative approaches} 33. A Party may participate on a voluntary basis in cooperative approaches if the Party meets the following requirements {potential list below}: (a) It is a Party to the Paris Agreement; (…) 34. A Party may transfer and/or use ITMOs towards NDCs, consistent with this guidance and further decisions of the CMA relating to this guidance, if: (a) {same potential list as Option A1}; *Option B* {no participation requirements}
35.-39.		B. Participation responsibilities		*Option A* {participation responsibilities} *Option A1* {participation in cooperative approaches} *Option A2* {Parties transferring and/or using ITMOs} *Option B* {no participation responsibilities}
40.-43.	VII. Reporting	A. Ex-ante reporting		*Option A* {ex-ante reporting requires information contained in Participation Requirements} *Option B* {ex-ante reporting contains all the following steps for budget-based} *Option C* {ex-ante reporting contains all the following for emissions-based} *Option D* {combination of A and B or A and C) *Option E* {no ex-ante reporting}
44.-45.		B. Periodic and ex-post Party reporting		*Option A* {periodic: annually, biennially, matching reporting period} *Option B* {when demonstrating achievement of NDC} *Option C* {both *Option A* and *Option B*}
46.	VIII. Corresponding adjustment	A. ITMO information	1. Recording ITMO information	*Option A* {Parties record ITMO information} 46. Each participating Party [shall][should] record ITMO information through: *Option A1* {registries pursuant to section X (Infrastructure)}

Para.	Section	Subsection	Issue	Content
				Option A2 {international registry pursuant to section X (Infrastructure)} *Option B* {no obligation to record ITMO information}
47.-50.			2. Reporting ITMO Information	*Option A* {Parties periodically report ITMO data in tabular format} *Option B* {ITMO transaction data provided by the ITL / International registry *Option C* {no obligation to report ITMO transaction data}
51.-55.		B. Operationalizing the corresponding adjustment		*Option A* {corresponding adjustments consistent with basis and application, recorded in real time} Option A1 {through the ITL} *Option A2* {through the international registry} *Option B* {corresponding adjustment consistent with basis and application recorded through periodic/ex post reporting of accounting information in agreed tabular format in Article 13.7(b) reports} *Option C* {information reported in *Option B* is consolidated by the secretariat in the database} *Option D* {corresponding adjustment consistent with basis and application recorded in buffer registry}
56.-57.		C. Article 6, paragraph 2, corresponding adjustment	1. General	*Option A* {all Parties use the same basis for corresponding adjustment} *Option B* {a Party chooses which basis for corresponding adjustment and applies it consistently}
58.-61.			2. Basis for Article 6, paragraph 2, corresponding adjustment	*Option A* {budget-based} *Option B* {emissions-based} *Option C* {buffer registry based} *Option D* {emission reductions based}
62.-63.		D. Application of corresponding adjustment		*Option A* {Parties record a corresponding adjustment for first transfer and for use towards achievement of NDC} *Option B* {Parties record a corresponding adjustment for transfers and acquisitions} *Option C* {all transactions}
64.-75.		E. Use of ITMOs towards NDCs		*Option A* {budget-based corresponding adjustment} *Option B* {emissions-based corresponding adjustment} *Option C* {buffer registry-based corresponding adjustment} *Option D* {emissions reductions-based corresponding adjustment}
76.		F. Specific guidance for sectors/greenhouse gases/emissions and	1. General	A Party may create and first transfer an ITMO that is achieved in its jurisdiction: *Option A* {only inside NDC} (a) In sectors/greenhouse gases/emissions and removals covered by that Party's NDC; *Option B* {inside and outside NDC}

Para.	Section	Subsection	Issue	Content
		removals etc.		(b) In any sector/greenhouse gases/emissions and removals; *Option C* {inside NDC and may also be outside NDC if included in subsequent NDC} (c) In sectors/greenhouse gases/emissions and removals covered by that Party's NDC, and (d) In sectors/greenhouse gases/emissions and removals not covered by its NDC if the Party will include this sector/greenhouse gas/source of emissions in its subsequent NDC.
77.			2. Sectors/ greenhouse gases/emissions and removals covered by the nationally determined contribution	For ITMOs that are created and first transferred by a Party and achieved in sectors/greenhouse gases/emissions and removals covered by that Party's NDC, each participating Party [shall][should] make a corresponding adjustment consistent with section VIII (Corresponding adjustment) further decisions of the CMA relating to this guidance.
78.			3. Sectors/ greenhouse gases not covered by the nationally determined contribution	*Option A* {make a corresponding adjustment} *Option B* {no corresponding adjustment, reporting only} *Option C* {make an addition to inventory emissions} *Option D* {no action required}
79.		G. Specific guidance for single-year nationally determined contributions	1. General	*Option A* {all Parties use the same method} *Option B* {Parties choose one method and apply consistently}
80.			2. Methods of corresponding adjustment for a single-year NDC	*Option A* {single-year vintage creation, transfer and use only} *Option B* {cumulative corresponding adjustments} *Option C* {representative corresponding adjustments} *Option D* {reporting consistent with this guidance, periodically} *Option E* {no specific guidance}
83.		I. Specific guidance for uses for purposes other than towards achievement of nationally determined contributions		An ITMO [shall][should] not be used towards achievement of an NDC where it has been or is intended to be used {potential list below}: (a) Towards international mitigation action outside the UNFCCC; (b) Towards voluntary climate actions that are not mandatory in the relevant jurisdiction; (c) As a means of demonstrating climate finance provided pursuant to Article 9.

Para.	Section	Subsection	Issue	Content
93.-99.	X. Infrastructure	A. Registry requirements		*Option A* {registries} *Option B* {international registry} *Option C* {both *Option A* and *Option B* above, with Parties being able to use either *Option A* or *Option B*} *Option E* {no registry/registries required as reporting is the basis for tracking ITMOs/units}
100.-101.		B. International transaction log		*Option A* {international transaction log} *Option B* {no ITL required as reporting is the basis for tracking ITMOs/units}
102.		C. Database		*Option A* {database} *Option B* {no database required as reporting is the basis for tracking ITMOs/units}
103.-109.	XI. Safeguards	A. Limits on creation and first transfer		*Option A* {limits on creation, transfer and acquisition} {potential list below} 103. A Party [shall][should] create and first transfer ITMOs in a manner that avoids significant fluctuations in the prices and quantities available in the international market for ITMOs. 104. Compulsory limitation of tradable units [shall][should] be exclusively used for retirement purposes. 105. A Party [shall][should] not create or first transfer ITMOs where the ITMOs have been achieved in sectors that have a high degree of uncertainty. 106. A Party [shall][should] not first transfer any quantity of ITMOs over the reporting period/NDC implementation period that is greater than X per cent of its quantified budget of allowable emissions for that reporting period/NDC implementation period. 107. A Party [shall][should] maintain a holding balance equal to X per cent of its mitigation target for that reporting period/NDC implementation period throughout the reporting period/NDC implementation period. 108. A Party [shall][should] maintain a minimum level of allowable emissions in the NDC time frame reserve. 109. A Party's balance for the reporting period/NDC implementation period [shall][should] not exceed X per cent of its actual emissions and to not exceed emission levels for the reporting period/NDC implementation period that are consistent with NDC achievement. *Option B* {no limits on creation, transfer or acquisition}
110-115.		B. Limits on use towards achievement of nationally determined contributions		*Option A* {limits on use} {potential list below} 110. A Party's use of ITMOs towards achievement of its NDC [shall][should] be supplemental to domestic action and domestic action [shall][should] constitute a significant element of the effort made by each Party towards achievement of its NDC. 111. A Party [shall][should] not use any quantity of ITMOs towards achievement of its NDC that is greater than X per cent of the actual emissions of that Party calculated for the

Para.	Section	Subsection	Issue	Content
				reporting period/NDC implementation period. 112. A Party [shall][should] not bank/carry over ITMOs exceeding X from one reporting period/NDC implementation period to a subsequent reporting period/NDC implementation period. 113. A Party may carry over a quantity of ITMOs achieved in one reporting period/NDC implementation period to a subsequent reporting period/NDC implementation period equal to a maximum of X per cent of the actual emissions calculated for the reporting period/NDC implementation period. 114. An ITMO [shall][should] only be used by a Party towards achievement of its NDC or voluntarily cancelled. 115. A Party [shall][should] not use ITMOs from outside the scope of its NDC in order to achieve its own NDCs.; *Option B* {no limits on use}
116.-117.	XII. Overall mitigation in global emissions in context of Article 6, paragraph 2			*Option A* {overall mitigation in global emissions requirement} 116. Overall mitigation in global emissions [shall][should] be implemented in the context of Article 6, paragraph 2 as follows: *Option A1* {automatic cancellation} (a) On the basis of an automatic cancellation as follows: (i) Overall mitigation in global emissions [shall][should] be achieved by ensuring some ITMOs are not used by either creating or acquiring Party towards achievement of its NDC; (ii) At the time of issuance/first transfer of ITMOs, registry [shall][should] transfer X per cent of ITMOs to the cancellation account for overall mitigation consistent with section X (Infrastructure); (iii) Transferring Party [shall][should] make a corresponding adjustment for the full amount of ITMOs created/issued/supplied for first transfer; (iv) Acquiring/using Party [shall][should] make a corresponding adjustment for the amount of ITMOs acquired/used; (v) The cancelled ITMOs [shall][should] not be used for any further transfer or purpose, including use by any Party towards achievement of its NDC or voluntary cancellation; *Option A2* {discounting by Parties} (b) On the basis of a discounting by Parties as follows: (i) Overall mitigation in global emissions [shall][should] be achieved by ensuring some ITMOs are not used by either creating or acquiring Party towards

Para.	Section	Subsection	Issue	Content
				achievement of its NDC; (ii) Prior to first transfer, creating Party [shall][should] make a corresponding adjustment for the full amount of ITMOs to be first transferred; (iii) Acquiring/using Party [shall][should] make a corresponding adjustment for the full amount of ITMOs acquired/used, discounted by X percent. (iv) The discounted volume of ITMOs [shall][should] be transferred to the cancellation account for the overall mitigation of global emissions by the acquiring/using Party. (v) The discounted volume of ITMOs [shall][should] not be used for any further transfer or purpose, including use by any Party towards achievement of its NDC. *Option A3* {using Party to discount prior to use towards achievement of its NDCs} 117. The using Party [shall][should] discount by X per cent the total quantity of ITMOs acquired prior to use towards achievement of its NDC. *Option B* {no overall mitigation in global mitigation requirement}

HARVARD Kennedy School
JOHN F. KENNEDY SCHOOL OF GOVERNMENT

Harvard Project on Climate Agreements

79 John F. Kennedy Street
Cambridge, MA 02138

+1 617 496 8054
climate@harvard.edu

www.hks.harvard.edu/hpca

This publication was printed on 100% post-consumer-waste recycled paper.