

**CLOSING THE GAP IN THE PARIS RULEBOOK**  
**ASSESSING WAYS TO ADVANCE THE ENVIRONMENTAL INTEGRITY OF**  
**CARBON MARKETS UNDER ARTICLE 6 OF THE PARIS AGREEMENT**

Master of Arts in Law and Diplomacy Capstone Project

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17.04.2020

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**THE FLETCHER SCHOOL**

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## **Executive summary**

Article 6 remains a glaring gap in the Paris Rulebook and casts doubts on the prospects for future cooperation on international carbon markets. The latest iteration of the international climate change conference in Madrid witnessed 31 countries coalesce behind the San Jose Principles, demanding a higher standard of environmental integrity in market-based approaches to climate change. However, what is the meaning of environmental integrity in light of past and present regimes? This thesis argues that environmental integrity has evolved into a multi-dimensional issue which requires a generic approach, distinct from the dichotomous definition under the Kyoto era which largely centered on fulfillment of the additionality criteria. This revised definition is used to arrive at a novel analytical framework which is applied as a measuring rod to compare the negotiation positions of four countries and one coalition with different levels of involvement and experience using the market-based approaches of the Kyoto Protocol. The results suggest the potential for future cooperation on carbon markets aligned with a ‘strong form’ of environmental integrity is most promising along the 6.2 track of the Paris Agreement. Also, the findings indicate particular caution is warranted in order to avoid ‘weak form’ environmental integrity standards in Article 6.4, both with respect to accounting rules and unit quality. Future research should focus on better understanding China’s views of environmental integrity in the negotiations, and to consider the findings from this issue-based analysis in light of alternative perspectives that can account for other factors such as the influence of structure and process.

## **Acknowledgements**

I would like to thank Professor Miquel Muñoz Cabré, Professor Kelly Sims Gallagher, PhD Rishikesh Bhandary and Professor Jørgen Wettestad. I would also like to thank all of the interview subjects who agreed to entertain my questions. Finally, a big thanks to the Tufts Institute of the Environment (TIE) and the Center for International Environment and Resource Policy (CIERP) for sustained guidance and support.

Medford, 17 April 2020

Asgeir Barlaup

## **Abbreviations**

Assigned Amount Unit (AAU)

Certified Emission Reduction (CER)

Clean Development Mechanisms (CDM)

Conference of the Parties (COP)

Emissions Trading System (ETS)

Emission Reduction Unit (ERU)

Greenhouse gas (GHG)

Internationally Transferred Mitigation Outcome (ITMO)

Joint Implementation (JI)

Nationally Determined Contributions (NDC)

United Nations Framework Convention on Climate Change (UNFCCC)

## Introduction

Article 6 of the Paris Agreement (hereinafter ‘Article 6’) includes tools to encourage countries to meet their commitments and increase ambition through international cooperative approaches including market-based approaches (Bhandary 2017). During the latest iteration of the international climate change conference in Madrid, a number of delegates wore pins with the slogan “All I want for Christmas is Article 6” (Evans et al. 2019a), reflecting the notion that the Article 6 mechanisms are a central component of the post-Paris climate change regime.

Despite prolonged engagements by the Chilean Presidency to resolve the bundle of issues related to Article 6, parties did not manage to reach an agreement. Rather, in a last-minute turn of events, 31 countries announced their opposition to the proposed Article 6 draft texts by uniting behind the San Jose Principles for High Ambition and Integrity in International Carbon Markets (Dirección de Cambio Climático 2019). The lack of consensus on Article 6 leaves a glaring gap in the Paris Rulebook and highlights that *environmental integrity* is a key point of contention in the negotiations, motivating the following research questions:

- How has the principle of *environmental integrity* evolved from the Kyoto Protocol to the Paris Agreement?
- How do the Article 6 negotiation positions of AOSIS, Brazil, China, EU and Norway range on a scale between supporting a ‘strong form’ and a ‘weak form’ of *environmental integrity*?
- What are the potential ‘landing zones’ on which parties’ views converge the most?

By asking how the principle of environmental integrity has evolved and by charting the relative differences between a diverse group of coalitions and parties – some unaffiliated with and some who subscribe to the San Jose Principles - this thesis will attempt to flesh out a potent and topical fault line in international climate politics. More importantly, by including a heterogenous group of countries, the analysis can potentially identify the recourse most conducive to a successful outcome in future Article 6 negotiations.

The repercussions of not having a common understanding of environmental integrity under Article 6 are severe. First, it has halted the full-fledged realization of a new generation of

market mechanisms, or so-called flexible mechanisms, which could potentially lower the cost of global climate action - an essential ingredient if countries are to ‘ratchet up’ their individual pledges, and build momentum for other countries to do the same (Bodansky et al. 2016).<sup>1</sup> It might also jeopardize existing pledges, more than half of which include mention of carbon pricing to reduce emissions (World Bank Group 2019).<sup>2</sup>

Placing economic considerations aside, this impasse also highlights the glacial pace at which the United Nations (UN) negotiation track progresses, and will make it easier to question whether such a multilateral, consensus-based process can deliver results that satisfy public demand to act on the abundance of scientific evidence that cautions against the impacts of climate change (for example, IPCC 2018). The alternative to an UN-led track could be regional climate clubs or ‘minilateral’ venues (Falkner 2015). These tracks would be, by definition, less inclusive and less equitable by falling short of the universal participation under the Paris Agreement.

This thesis is organized in the following way. The first section is a literature review to provide the necessary background information. This section introduces the Kyoto-mechanisms and explains how the drawbacks of these mechanisms instigated the much-disputed principle of environmental integrity. Next, the new market-mechanisms of the Paris Agreement are presented as outlined in Article 6.2 and 6.4, with a view to arrive at an updated definition of environmental integrity. Thereafter follows the analytical section. This section develops a novel analytical framework which is used as a ‘measuring rod’ to assess whether the aforementioned parties support a weak form or a strong form of environmental integrity. Finally, I discuss the key insights from my analysis, potential options for further research and some tentative policy recommendations for future ‘landing zones’ in Article 6.

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<sup>1</sup> From the standpoint of economic theory, market-based approaches, such as taxes or cap-and-trade schemes, can achieve cost-effective outcomes by ensuring that abatement is carried out by the firms that can do it at least cost by shifting abatement from higher-cost firms to lower-cost firms (Keohane et al. 2016). The efficacy of global market-based climate policies is also amplified by the fact that climate change is a problem of the commons and because the cost of abatement varies across countries and jurisdictions.

<sup>2</sup> According to the World Bank (2019, p. 8), 96 out of 185 NDCs representing 55 percent of global greenhouse gas (GHG) emissions, “have stated that they are planning or considering the use of carbon pricing as a tool to meet their commitments”. These carbon pricing tools could involve engagements under Article 6 of the Paris Agreement.

## **Market-based policies from Kyoto to Paris**

### *i) Born in the USA*

While governments traditionally have preferred command and control regulations to deal with environmental issues, market-based instruments, such as taxes or quantity restrictions, are thought to reduce emissions more cheaply (Stern 2006). The conceptual underpinnings of market-based policies were introduced in the 1960s by Thomas D Crocker and J. H. Dales who each proposed a system of transferable permits to conduct pollution control (Stavins 2011). Some 20 years later, these ideas were implemented through the 1990 amendments to the Clean Air Act which introduced a sulfur dioxide (SO<sub>2</sub>) allowance trading system and an emission trading program for nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) in the United States (Schmalensee et al. 2017). The timing and relative success of these policies is important because they inspired the then emerging global response to climate change.

Around the same time, the 1992 Rio Summit brought together global decision-makers to formulate a common agenda on sustainability, comprising a number of milestone agreements, including the United Nations Framework Convention on Climate Change (UNFCCC). The adoption of the international convention signaled that climate change was a global concern and that countries should cooperate to ensure the “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system” (United Nations Framework Convention on Climate Change 1992, p. 9). Article 4.2 of the convention introduced a ‘Joint Implementation’ (JI) pilot program which was “seen as a window to develop market mechanisms by several European and North American countries” (Michaelowa et al. 2019a, p. 2). Five years later, the 1997 Kyoto Protocol was adopted to enhance global climate action, and included three distinct market-based mechanisms, termed flexibility mechanisms, to “provide additional flexibility for industrial countries to meet their specified targets” (Newell et al. 2013, p. 128).

### *ii) The flexible mechanisms of the Kyoto Protocol*

The three flexibility mechanisms of the Kyoto Protocol are the Clean Development Mechanism (CDM), Joint Implementation (JI) and emissions trading (Hepburn 2007). The CDM is a project-based mechanism by which developed countries can generate emission credits through investment in emission reduction or sequestration projects in developing



countries without binding targets (Kuyper et al. 2018). JI enables countries with binding targets to obtain credits from projects carried out in other countries with binding targets (Newell et al. 2014). Finally, emissions trading can occur between countries with binding targets, enabling countries to purchase allowances from other countries that have exceeded their targets, provided that trading is supplemental to domestic abatement (Hepburn 2007).



Figure 1: CDM, JI and emissions trading under the Kyoto Protocol.

The CDM was established to help developing countries achieve sustainable development, by allowing firms or countries with binding targets to receive offset credits from emission reduction activities in countries without binding targets, provided that these abatement activities were “real [and] measurable” (Kyoto Protocol to the United Nations Framework Convention on Climate Change 1997, p. 13). Criteria for project approval included, *inter alia*, assessing the emissions reduction from counterfactual baselines (Parson et al. 2013). Typical projects have included renewable energy investments, such as wind, small-scale hydro, renewable biomass or the capture and destruction of potent greenhouse gases such as nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs) and methane (CH<sub>4</sub>) (Hepburn 2007). By 2019, there have been “more than 7800 registered projects and more than 300 programs in over 100 countries, with over 1.9 billion CERs issued” (Michaelowa et al. 2019b, p. 10).<sup>3</sup>

Joint implementation allowed countries with binding targets to earn allowances from abatement activities in other countries with binding targets (Newell et al. 2014). The JI accreditation processes are largely similar to those of the CDM, except that the available allowances are issued from within the scope of each country’s emission budget under the Kyoto Protocol, putting a cap on the available allowances (Michaelowa et al. 2019b).

<sup>3</sup> Exchanged units in carbon markets are financial instruments that represent a ton of carbon dioxide removed or reduced from the atmosphere as a result of an emission reduction activity; the CDM program generated offset credits known as Certified Emission Reductions (CERs), while emissions trading or JI traded emissions allowances are denominated in Assigned Amount Units (AAUs) or Emission Reduction Units (ERUs) (European Commission 2015). Countries with binding targets under the 1997 Kyoto Protocol could use either CERs, AAUs or ERUs to reach their commitments (Laroui et al. 2004).

Activities under JI have primarily consisted of Western European countries buying allowances from Russia and Eastern Europe (Hepburn 2007). By 2015, JI projects had issued total of 871 million ERUs (Kollmuss et al. 2015).

Emissions trading through direct country-to-country exchange of AAUs has been limited, despite initial expectations that emissions trading would “dwarf all the other mechanisms” (Michaelowa 2015, p. 399). Rather, emissions trading has fragmented into various national and subnational systems with different political, economic and legal design configurations, instead of converging into a single global market as originally envisioned (Newell et al 2013). The European Union (EU) has played an important front-runner role by designing their own trading and accrediting system, the EU Emissions Trading System (EU ETS) spurred by the 1997 Kyoto Protocol and failure to get an internal carbon tax adopted (Wettestad et al. 2018).<sup>4</sup> Recent years have seen a marked global diffusion, as new carbon pricing schemes have piloted in countries such as China, South-Korea and New Zealand, often influenced by the European cap-and-trade experience (European Commission 2018). The following section will review some of the challenges and lessons learned from the Kyoto mechanisms and their implications for the principle of environmental integrity.

### *iii) Challenges and lessons learned*

After more than 20 years, considerable research has addressed the challenges and lessons learned from the Kyoto mechanisms and independent market-based instruments (Hepburn 2007; Michaelowa et al. 2019a; Newell et al. 2013; Schmalensee et al. 2017). A full treatment of these considerations is beyond the scope of this paper, yet, they merit some attention, because many of these challenges shape the ongoing discussions on environmental integrity in the context of Article 6.

A drawback of emissions trading under the Kyoto Protocol was the issuance of too many AAUs compared to countries’ base level emissions, resulting in some countries simply ‘cashing in’ their allowance surplus instead of engaging in real emission reduction activities. In particular, the recession following the collapse of the Soviet Union left Russia and Ukraine

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<sup>4</sup> Allowances in the EU ETS are denominated in European Union Emission Allowances (EUAs) (European Commission 2015). Initially, more than half of total global carbon trading volume went through the EU ETS, because of the 2004 “Linking Directive” which enabled trade between the EU ETS and the CDM and JI programs (Hepburn 2007).

with a vast allowance surplus which were disproportional to these countries' actual emissions levels (Hepburn 2007). Sales of so-called hot air - large surplus of AAUs in some of the emerging economies - was effectively banned during the Kyoto Protocol's second commitment period, leading Russia and Ukraine refusing to sign up (Michaelowa 2015).

Another issue under the CDM and JI was perverse incentives for firms emitting highly potent greenhouse gases, such as HFC-23. Because of the high global warming potential of these gases, projects that destroyed such compound could receive enough credits to make it profitable to increase operations that emit HFC-23, just to destroy more of the gas in the future (Newell et al 2013).<sup>5</sup> In 2020, the Danish renewable energy company Orsted, recognized as one of the world's most sustainable companies, was revealed to have bought more than 1.5 million credits from bogus HFC-projects in India and China between 2008 and 2012 (Skjoldager et al. 2020).

The CDM also experienced exceedingly high transaction costs which favored large projects, and rigid validation requirements which favored countries such as China, India and Brazil with the capacity to meet these requirements, leading to a massive geographical imbalance in project distribution (Hepburn 2007). From 2006 and 2011 "over half of each year's CDM credits went to projects in China – topping out at 75 percent in 2007" (Newell et al. 2013, p. 137).

Finally, a wide-spread criticism of the CDM and JI has been their difficulty in demonstrating additionality, that is if "activities generating the credits would not have happened under 'business as usual'" (Michaelowa 2019c, p. 8). An analysis by the Stockholm Environment institute indicated that "about three-quarters of JI offsets are unlikely to represent additional emissions reductions (...)" (Kollmuss 2015, p. 5). Additionality concerns also created perverse incentives for countries not to adopt clean energy incentives in order not to risk potential CDM revenue (Hepburn 2007).

But how do these challenges relate to environmental integrity? It is the link between the additionality criteria and environmental integrity most strongly reinforced in the literature. Among the earliest approaches to environmental integrity in the early years of the CDM is the

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<sup>5</sup> HFC-23 has approximately ten thousand times the global warming potential of carbon dioxide (CO<sub>2</sub>) (UNFCCC 2020a).

World Wildlife Fund’s 2003 Gold Standard for voluntary emissions reductions. This standard defines the concept in the following way: ”Environmental integrity: (...) If non-additional credits enter a cap-and-trade system, emissions are actually increasing because the buyer of the non-additional offsets will continue to emit whilst no further emissions reductions are achieved through the offset projects.” (Kollmuss et al. 2008, p. 70). More recently, Michaelowa et al. (2019d) also made this link explicit by noting that “additionality is (...) a safeguard for environmental integrity”.<sup>6</sup>

The previous section highlighted some of the challenges related to the Kyoto-mechanisms and how the additionality criteria has emerged as the defining feature of environmental integrity. So then, to what extent is this approach to environmental integrity applicable to the new flexible mechanisms under the Paris Agreement? Is there a difference? To answer that question, it is necessary to first review the new flexible mechanisms, as codified in Article 6.2 and 6.4 of the Paris Agreement.

*iv) The flexible mechanisms of the Paris Agreement*

The contours of new flexible mechanisms were first included in a document known as the 2007 Bali Action Plan.<sup>7</sup> This document noted that countries shall consider “Various approaches, including opportunities for using markets, to enhance the cost-effectiveness of, and to promote, mitigation actions (...)” and tasked the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA) with leading the discussions on the issue (UNFCCC 2007, p. 4). The AWG-LCA provided continuous progress updates in the following years, eventually resulting in parties agreeing to define a new market-based mechanism during the 17<sup>th</sup> Conference of the Parties (COP-17) (UNFCCC 2011).<sup>8</sup>

During COP-18, the work program for various approaches and the task of creating modalities and procedures for the market-based mechanism were handed over to the Subsidiary Body for

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<sup>6</sup> A project that fails to meet the additionality criteria will be considered in violation of the environmental integrity criteria because the project will generate offset credits from emissions reductions that would have taken place in the absence of the project. Once these credits are used by another party, it will result in higher aggregate global emissions.

<sup>7</sup> This document was one of the adopted decisions following COP-13, outlining a two-year plan under the UNFCCC and the Kyoto Protocol to finalize a new climate change regime by 2009 (Earth Negotiations Bulletin 2013).

<sup>8</sup> During COP-16, the AWG-LCA decided to “consider the establishment (...) of one or more market-based mechanisms” at the next annual conference, essentially delaying a decision on market-based approaches by another year (UNFCCC 2010, p. 14).

Scientific and Technological Advice (SBSTA) (UNFCCC 2012).<sup>9</sup> At COP-21 in Paris, the cumulative work of the AWG-LCA and the SBSTA were codified into Article 6 of the Paris Agreement, amounting to two distinct market-mechanisms in Article 6.2 and 6.4 as presented in the following table.<sup>10</sup> The language in these articles is complex because they reflects a range of concerns and interests and it was only successfully adopted because it remained open to contradictory interpretations (Müller et al. 2019).

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<sup>9</sup> SBSTA is one of the two permanent subsidiary bodies of the COP (UNFCCC 2020b).

<sup>10</sup> Article 6.8 includes non-market-based approaches at a less conceptually developed level (Bhandary 2017).

<i>Excerpt</i>	<i>Key term</i>	<i>Meaning</i>
6.2 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.	‘Cooperative approaches’	UN process delivering guidance towards helping countries who are cooperating bilaterally or in groups to use their traded emissions reductions towards their NDCs.
6.4 A mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development is hereby established under the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to this Agreement for use by Parties on a voluntary basis. It shall be supervised by a body designated by the Conference of the Parties serving as the meeting of the Parties to this Agreement, and shall aim:  (a) To promote the mitigation of greenhouse gas emissions while fostering sustainable development; (b) To incentivize and facilitate participation in the mitigation of greenhouse gas emissions by public and private entities authorized by a Party; (c) To contribute to the reduction of emission levels in the host Party, which will benefit from mitigation activities resulting in emission reductions that can also be used by another Party to fulfil its nationally determined contribution; and (d) To deliver an overall mitigation in global emissions.	‘A mechanism’	Centrally organized system for rewarding emissions achieved in one country usually through a business investment decision and a process at a private sector level. These emissions reductions are created, and these credits are issued. And then they may be transferred freely between entities and parties and eventually used by another country towards its NDC. Is broader in scope but has many similarities to the ideas and function of the CDM.

*Table 1: Article 6.2 and 6.4 of the Paris Agreement, annotated. Adopted from Paris Agreement 2017, p. 7; UNFCCC 2019b.*

At a glance, the Paris Agreement mechanisms resemble two distinct approaches to international cooperation, namely the difference between global emissions trading (Article 6.2) and a crediting offset system (Article 6.4). They also mirror the difference between emissions trading and the CDM of the Kyoto Protocol. There are a few key differences, however.

First, it is worth pointing out that trading under Article 6.2 is more complex than emissions trading under the Kyoto Protocol, and that the tradable unit is denominated as an internationally transferred mitigation outcome (ITMO).<sup>11</sup> An ITMO can potentially cover an array of different types of engagement, such as performance standards, technology transfer or cap-and-trade and be used towards fulfilling a country’s individual pledge, or Nationally Determined Contribution (NDC) (Stavins 2019b). This transaction is a largely decentralized way for countries to cooperate (Michaelowa et al. 2019a).

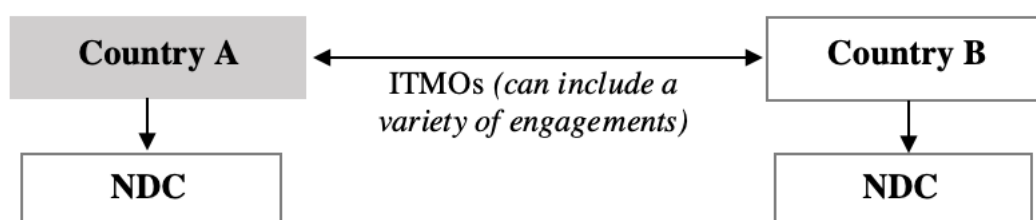


Figure 2: 6.2 cooperation covers a multiplicity of activities. Adopted from UNFCCC 2019b.

The Article 6.4 mechanism mirror the CDM by targeting firms seeking to invest in projects, and then use those credits towards their emissions reduction goals (Müller et al. 2019). The Article 6.4 mechanisms are also subject to a number of conditionalities included in the accompanying Article 6 provisions, many of which are similar to the strings attached the Kyoto-mechanisms.<sup>12</sup> A key difference is that all parties, not just parties with binding targets, can host projects under Article 6.4 (interview, 10 February 2020). Unlike an ITMO-transaction under Article 6.2, the units generated from a 6.4 project will be issued through a

<sup>11</sup> Unlike under the Kyoto Protocol which employed a limited supply of AAUs that were issued and traded, the Paris Agreement has a bottom-up approach which enables parties to submit their own heterogenous pledges (UNFCCC 2020c).

<sup>12</sup> Conditionalities to Article 6 activities include share of proceeds to adaptation measures in vulnerable countries (Article 6.6), “to facilitate the participation of public (...) and private entities (...)” (Article 6.4a) and “to deliver an overall mitigation in global emissions” (Article 6.4d) (Paris Agreement 2015, p. 7-8).

new, centralized governing mechanism, and not deducted from parties' NDCs (UNFCCC 2019b).

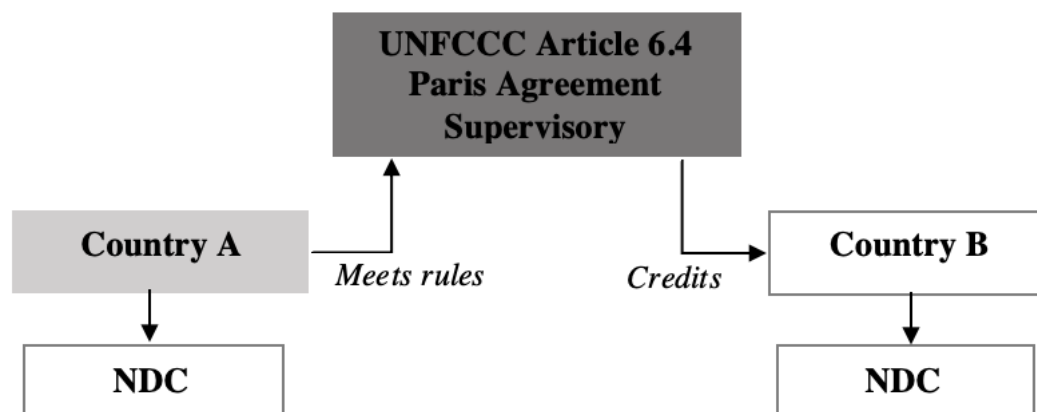


Figure 3: 6.4 mechanism transaction. Project activity in Country A is regulated through a UNFCCC supervisory body. Adopted from UNFCCC 2019b.

Currently, there exists a large degree of uncertainty in how the Article 6.2 and 6.4 market-mechanisms will be operationalized, as indicated by the ambitious language in the Paris Agreement. Even if parties manage to reach an agreement, the full operationalization of Article 6 is expected to take several years (Michaelowa et al. 2019b). A key challenge is: “(...) providing assurance to (...) investors who have spent considerable resources engaging with the UNFCCC and using Article 6 as an opportunity to learn from the CDM/JI by improving the nature of activities and projects that it supports” (Bhandary 2017). As previously identified, one such valuable piece of learning is that activities and units under the new mechanisms should satisfy the additionality criteria to ensure environmental integrity. But is this a sufficiently high bar in light of the new configurations of transactions under Article 6.2 and 6.4? The following section will discuss the meaning of environmental integrity in the context of the Article 6.

### Defining environmental integrity in the context of Article 6

How can environmental integrity be defined in the context of Article 6 of the Paris Agreement? To answer this question, it is useful to first take a step back and break down the term, word by word. A common definition of the word ‘environment’ is “the sum of all external conditions affecting the life, development and survival of an organism” (Lee 2005, p. 273). According to the Oxford English Dictionary, integrity originates from the Latin adjective ‘integer’ which refers to the state and quality of being complete or whole (OED



online 2020). It can mean being true to one's word or consistency between words and actions (Orlitzky et al. 2018). At the very least then, it follows that 'environmental integrity' in a climate policy context relates to aligning objectives – the most important of which is achieving emissions reductions - and outcomes. Conversely, in so far as a policy outcome does not result in emissions reductions, environmental integrity is compromised.

In the context of the international climate change regime, the term 'environmental integrity' is used in various UNFCCC documents but never defined (Schneider et al. 2019).<sup>13</sup> The closest thing to a definition appears in decision 1 CP/18 which notes that environmental integrity must be accounted for “in accordance with decision 2/CP.17, paragraph 79” (UNFCCC 2012, p. 9). This decision states that “[market approaches must] meet standards that deliver real, permanent, additional and verified mitigation outcomes, avoid double counting of effort, and achieve a net decrease and/or avoidance of greenhouse gas emissions” (UNFCCC 2011, p. 17). While this provision does not provide a conclusive definition of environmental integrity, it clearly connects the concept to the various challenges and lessons affiliated with the Kyoto mechanisms, such as the initially weak additionality criteria for CDM projects, while also incorporating elements such as “double counting of effort”. This highlights how the concept is expanding, making the additionality criteria a necessary but insufficient condition to ensure environmental integrity under Article 6.

Schneider et al. (2019, p. 377) provides the following definition in the context of Article 6: “environmental integrity is assumed to be ensured if the engagement in international transfers of carbon market units leads to the same or lower aggregated global emissions”. This generic definition is useful as it maintains the traditional notion of environmental integrity in the context of additionality, while expanding the scope to be applicable to all other engagements and features of Article 6. It is important to note that this definition of the principle indicates that engagements under Article 6 must not necessarily lead to reduced emissions, as long as increased emissions are avoided. This is not undisputed.<sup>14</sup> However, given that the language

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<sup>13</sup> Looking to other international regimes provides few clear answers. In the context of international trade Moltke (1999, p. 19) stipulates that: “Trade and development should respect and help maintain environmental integrity. This involves recognition of the impact of human activities on ecological systems”.

<sup>14</sup> SBSTA Chair Watkinson seems to link the two concepts in a memo issued in the lead-up to COP-25: “All Parties have made clear their determination that the rules agreed for Article 6 ensure environmental integrity and hence contribute to raising our collective ambition (...)” (UNFCCC 2019a, p. 14)

in Article 6 clearly distinguishes between the principles of ‘higher ambition’ and ‘environmental integrity’ (Paris Agreement 2015, p. 7), and to make the analysis less complex, I will employ the moderate definition of Schneider et al. (2019), which does not require emissions reductions. This will also increase the potential landing space for finding solutions that are appealing to multiple parties.

Now that environmental integrity in the context of Article 6 of the Paris Agreement has been defined and distinguished from its meaning under the Kyoto Protocol, it is possible to address how to operationalize it. The following section apply the previous generic definition to arrive at an analytical framework that can be applied as a measuring rod to assess whether selected parties’ negotiation positions support a strong form or a weak form of environmental integrity.

### **Arriving at an analytical framework**

Scholars employ different approaches to operationalize environmental integrity in the context of Article 6 of the Paris Agreement, but usually with a focus on specific design features.

Bodansky et al. (2016) outlines an operational, scaled version of environmental integrity, ranging from a limited definition influenced by factors such as robust accounting of ITMOs, to a broad definition influenced by factors such as robust accounting of ITMOs and corresponding adjustments, to a high degree of transparency and environmental characteristics expressed through standardized units. Schneider et al. (2019) identifies accounting of international transfers, quality of units generated, ambition and scope of mitigation target and (dis)incentives for transferring countries to take future mitigation action as key factors that influence environmental integrity. Drawing upon these distinct approaches, I suggest measuring environmental integrity based on the following factors:

- ITMO standardization and unitization under Article 6.2
- Avoidance of double counting under Article 6.2 and 6.4 transactions
- Transition of Kyoto units under Article 6.4

Each issue fits within one of the two broader conceptual dimensions of ‘unit quality’ or ‘accounting rules’. While far from exhaustive, these issues are key parameters of environmental integrity identified in the literature and with application to both Article 6.2 and

6.4 of the Paris Agreement. The issues are both sufficiently comprehensive to identify nuance, while also limited in scope to function as a framework through which parties' negotiation positions can be analyzed in a systematic way. Each factor can also clearly be traced back to whether they result in higher aggregate emissions reductions. Each issue is defined in the following paragraphs, and subsequently presented in a figure.

*i) ITMO standardization and unitization under Article 6.2*

ITMO standardization refers to whether an ITMO under Article 6.2 shall be transferred in the form of a standardized metric, such as CO<sub>2</sub>-equivalencies and unitization refers to whether exchange of ITMOs under Article 6.2 shall be conducted in legally defined units that can be easily associated with a serial number (Howard et al. 2017).<sup>15</sup> These are two important facets of the accounting rules that guide Article 6.2 transactions.<sup>16</sup> Defining common accounting principles of ITMOs will enhance credible and fungible international market transactions, and conversely will the lack of strict guidelines potentially lead to inaccurate or, at worst, dubious accounting of emission outcomes which could risk an increase in global aggregate emissions. This would be in violation the definition of environmental integrity as presented by Schneider et al. (2019).

*ii) Avoidance of double counting under Article 6.2 and 6.4 transactions*

Double counting occurs when two countries claim ownership of the same mitigation action under the Paris Agreement (Levin et al. 2019). Decision 1/CP.21 which accompanies the Paris Agreement, stipulates that SBSTA shall develop “guidance to ensure that double counting is avoided on the basis of corresponding adjustments” (UNFCCC 2015, p. 6).<sup>17</sup> Corresponding adjustments “means that when Parties transfer a [ITMO] to be counted against another Party’s [NDC], this mitigation outcome must be ‘un-counted’ by the Party that agreed to transfer it” (Greiner et al. 2019, p. 5). An accurate transaction can be ensured

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<sup>15</sup> A policy paper by OECD (2016, p. 11) suggests that “(...) [ITMOs could have] a common serial number system, so that even if information is held within peer-to-peer registries with only net information reported to UNFCCC, there is assurance over the uniqueness of units themselves in individual transactions” (2019).

<sup>16</sup> Other issues include, for example, single- and multi-year accounting.

<sup>17</sup> Double counting is mentioned twice in Article 6. Article 6.2 states that parties “shall apply robust accounting to ensure, inter alia, the avoidance of double counting” and similarly, Article 6.5 states that “(...) [6.4 emission reductions] shall not be used to demonstrate achievement of the host Party’s nationally determined contribution if used by another Party to demonstrate achievement of its nationally determined contribution” (Paris Agreement 2015, p. 7)

through an added or subtracted corresponding adjustment to each party’s total inventory.<sup>18</sup> In light of the definition by Schneider et al. (2019), double counting clearly leads to higher aggregate global emissions because the same mitigation outcome is used twice.<sup>19</sup>

*iii) Transition of Kyoto units under Article 6.4*

Transition of units refers to whether Kyoto Protocol allowances or credits, that are generated prior to 2020 should be applied after 2020. This would effectively undermine NDC commitments as “less action would be required to meet them, diluting mitigation” (Levin et al. 2019, p. 17). The Paris decision “encourages Parties to promote the voluntary cancellation by Party and non-Party stakeholders, without double counting, of units issued under the Kyoto Protocol” (UNFCCC 2015, p. 15). There is also the possibility that some of these units could be generated without meeting the additionality criteria (Kollmuss et al. 2015).<sup>20</sup> A higher degree of Kyoto unit carry-over leads to higher aggregate global emissions because it limits the incentive countries have to reduce their emissions and might enable the use of non-additional units. It is therefore in violation of the definition of environmental integrity by Schneider et al (2019).

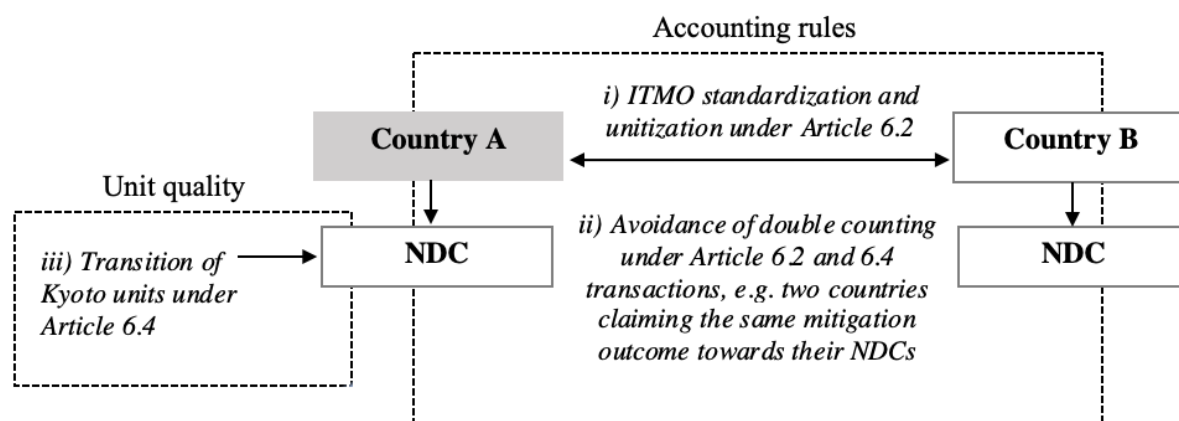


Figure 4: A framework of environmental integrity in the context of Article 6 of the Paris Agreement. Author’s elaboration.

<sup>18</sup> There exist different approaches to how corresponding adjustments should be implemented. One approach would be that the country that sells emission reductions adds that amount to their country’s emission inventory, while the country that buys emissions reductions subtracts that amount from their inventory (UNFCCC 2019b). The notion of corresponding adjustments mirrors Article 3.11 and 3.12 in the Kyoto Protocol, which states that parties shall add or subtract “emissions reductions to their assigned amount” (Kyoto Protocol to the United Nations Framework Convention on Climate Change 1997, p. 5).

<sup>19</sup> An analysis by the Environmental Defense Fund (2019) found that the volume of emissions at risk of being double counted could be greater than the volume of emissions reduced under all current NDCs.

<sup>20</sup> UNFCCC estimates that there will be around 2.3-5.4 billion CDM units available up to 2020, roughly equivalent to the EU’s entire annual emissions (Evans et al. 2019b).

It is important to note that these issues are not operating in isolation but are negotiated in conjuncture with other parts of the Paris rulebook, and that there also are other features of Article 6 that impact the level of environmental integrity.<sup>21</sup> To account for this limitation, the analysis will simply indicate whether parties support a strong form or a weak form of environmental integrity under each negotiation issue. It is also important to note that this approach to environmental integrity does not account for the relative weighting of each issue with respect their relative impact, but only whether they, in isolation, can lead to an increased in global aggregate emissions or not.<sup>22</sup>

This approach is meant to complement the fact that most research addressing environmental integrity under Article 6 of the Paris Agreement focuses on a single issue (Schneider et al. 2019). As indicated in the previous historical review, there clearly are multiple factors that can influence environmental integrity, and subsequently, taking stock of multiple factors is clearly more favorable than analyzing just one. This approach also mirrors other, practical approaches to operationalizing environmental integrity in the context of Article 6 of the Paris Agreement (such as Levin et al. 2019), but with the added advantage of collecting empirical data on actual country positions.

By comparing country's stated positions on a limited set of issues this approach resembles a decision analysis, an approach consisting of a "seriatim consideration of each player's outcome values, followed by a comparison between them" (Chasek 2001, p. 36).<sup>23</sup> Such an approach is informed by a specific set of assumptions regarding the nature of multiparty negotiations, namely that these negotiations are characterized by distributive bargaining or competitive negotiations. This assumes fixed preferences or positions which leads to a zero-sum game over limited resources, as opposed to analyzing underlying interests and generating creative options that can 'unlock value' (Fisher et al. 1981). This approach "can help clarify why a party or coalition chooses particular strategies and reject others [and the] attractiveness of strategy options" (Chasek 2001, p. 36).

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<sup>21</sup> The Paris Agreement have many interlinked provisions. Environmental integrity under Article 6 can also be seen in connection to Article 4.13 (NDC accounting) and Article 13.7 (national inventory reporting).

<sup>22</sup> Weighing the relative impact of each factor is difficult. The relative impact on global aggregate emissions due to weak accounting rules depend on the volume of transactions.

<sup>23</sup> This approach is less effective in analyzing structure and process. Raiffa et al. (2002) introduces a comprehensive taxonomy of decision-making which distinguishes between how decisions should be made (normative analysis), how real people behave (descriptive analysis) and how real people could behave more advantageously (prescriptive analysis). This analysis falls in the latter category.

In reality of course, cooperative and competitive strategies co-exist during negotiations.<sup>24</sup> Yet, despite years of informal negotiations between delegates, facilitators and experts, these positions have not been flexible enough to lead to an agreement. The prolonged stalemate surrounding Article 6 of the Paris Agreement merits a competitive analytical approach that assumes fixed preferences, expressed through parties' stated negotiation positions. It is also worth noting that even if Article 6 permanently remains in its present, unfinished state, the insights from this analysis can be useful in informing how parties may move forward when designing market-based mechanisms on their own terms. Interest in market-based mechanisms as a cost-efficient climate policy instrument will continue irrespective of whether there will be additional guidance on Article 6 under the UN-track.

### **Selection of countries**

To ensure the inclusion of a diversity of viewpoints, three broad criteria are used for selecting which countries to include in the analysis. These are i) the inclusion of countries with a large total share of global greenhouse gas emissions, ii) the inclusion of both Annex 1 and non-Annex 1 countries to the Kyoto Protocol and iii) the inclusion of both countries which are unaffiliated with and those that subscribe to the San Jose Principles.

China and the EU are included in the analysis because they are among the biggest emitters of global greenhouse gasses, and because of their significant involvement with the past, present and future development of flexible mechanisms. The EU took on the role as a front-runner and policy innovator by launching the EU ETS, and is continuing to take aggressive climate action up to this day.<sup>25</sup> China has hosted a significant number of CDM projects in its capacity as a non-annex 1 country to the Kyoto Protocol, and is currently piloting its own domestic carbon pricing schemes which upon completion are set to eclipse the total GHG coverage of the EU ETS (World Bank Group 2019). Michaelowa et al. (p. 4, 2019b) notes that: "The stability and strength of the Article 6 mechanisms will depend on the willingness of the EU to revive its role as the international leader on crediting schemes in the post-2020 period, as well as the demand from other large players such as China and the US". Finally, it is worth pointing out that a number of EU-countries has pledged their support to the San Jose

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<sup>24</sup> As indicated by the SBSTA continuously releasing new draft texts with a fewer brackets indicating that parties' negotiation positions are flexible and evolving (UNFCCC 2019c; UNFCCC 2019d).

<sup>25</sup> The European Green Deal is a set of policies aimed at making the EU climate neutral by 2050 (European Commission 2019).

Principles, while China has not (Dirección de Cambio Climático 2019). The United States is not included because the country has signaled its intention to withdraw from the Paris Agreement (Friedman 2019). An interview subject noted that “no one [in the U.S. government] is thinking about [the implications of Article 6] (...) because we will not be a party [during COP-26] in Glasgow. (...) Even talk about a U.S. position is suspect right now” (12 March 2020).

Brazil and Norway are included because of their long-standing involvement as buyers and seller of units on international carbon markets. Brazil is included as a non-Annex 1 country who has been a long-term proponent and host of a large number of offset activities (Hepburn 2007). Norway is a standalone member to the EU ETS with an active involvement in the development of the CDM (Climate and Clean Air Coalition, 2018). The Alliance of Small Island States (AOSIS) is included to account for Non-Annex 1 countries who are recipients of co-benefits, such sustainable development or adaptation funding from market mechanisms and which are also hosting a very limited number of CDM activities (UNEP DTU 2020). Both Norway and AOSIS has subscribed to the San Jose Principles (Dirección de Cambio Climático 2019).

### **Research design and methodology**

I have utilized a mixed methodological approach by conducting interviews with experts and official negotiators, in combination with analyzing parties’ written submissions, statements or interventions to the UNFCCC secretariat, draft negotiation texts and relevant reporting from the Earth Negotiations Bulletin (ENB) (McNabb 2010). There also exists a considerable amount of third-party policy briefs and reports that I have used to inform my questions and understanding of issues related to Article 6, and to contextualize the information I received through the interviews.

To collect empirical data, I have conducted six semi-structured interviews (Bogner et al. 2009). The interviews were conducted via phone or in-person. While face-to-face interviews would have been preferable, interviews via phone were used to accommodate different time zones, participant availabilities and logistical restraints. The interviewees were selected based on their in-depth knowledge of the Article 6 negotiations, either in their capacity as long-term observers or in their capacity as an official negotiator. Four respondents were physically

present at COP-25 as country negotiators or facilitators, and two respondents has been long-term observers of previous COPs.

The interviews were semi-structured to ensure consistency and to avoid leading questions. Officials were initially asked to identify a country's negotiation position in terms of Article 6 generally, and afterwards, with specific reference to the notion of environmental integrity and the elements identified in the aforementioned framework. A potential drawback by conducting interviews over phone is that the validity may be more easily questioned. To mitigate this risk, I made sure to have follow-up correspondence with my respondents in order to clarify any misunderstandings and to cross-reference the information they provided with other reliable sources. I have also decided to maintain the anonymity of the interviewees to ensure as candid responses as possible.

Another complicating factor is access to reliable information. Given the dynamic nature of the negotiations, there is not a guarantee that all my respondents had the most-up to date information. What information is available from the respondent's point of view might not be accurate or up to date. I have tried to iron out these inconsistencies by cross-referencing the information I received with reliable, open sources, such as official country submissions to the UNFCCC. In the following sections, the empirical data is presented through the my previously presented framework of environmental integrity in the context of Article 6. Each section concludes with a table that summarizes whether the respective negotiation positions reflect a strong form or a weak form of environmental integrity.

## **Analysis**

i) *Parties' positions on ITMO standardization and unitization under Article 6.2*  
EU's submission (2017, p. 7) to the UNFCCC secretariat stipulates the importance of "[ensuring] that NDCs, inventories and use of ITMO[s] are quantified in CO<sub>2</sub>e". Robust accounting rules were also outlined as one of the Commissions' key priorities in the lead-up to COP-25 and reiterated during opening statements (EU 2019a; Earth Negotiations Bulletin 2019a). The submissions do not specify unitization however, only that there should be an "electronic log of ITMO transactions to facilitate reporting [for Article 6.2 transactions]" (2017, p. 8). In sum, the EU supports a standardized metric under Article 6.2 transactions, but not the unitization of ITMOs by designating unique serial numbers.



Norway's submission (2017, p. 3) to the UNFCCC secretariat states that “ensuring robust accounting (...) is fundamental for public trust in the global climate regime” and that “ITMOs should be quantified in tCO<sub>2</sub>e”. The document also highlights the importance of an ITMO registry system and that “new technologies for keeping track of ITMOs should be considered” (p. 4). There is no mention of designation unique serial numbers however. In sum Norway is aligned with the EU's negotiation position on this issue, by supporting a standardized ITMO metric in CO<sub>2</sub>e and an electronic registry, and similarly, by stopping short of supporting unitization of ITMO transactions through the application serial numbers.

AOSIS's submission (2017, p 4) to the UNFCCC secretariat highlights the need for a “centralized registry [that] is available to enable the transparent transfer and acquisition of ITMOs”, and furthermore that “[ITMOs should have a] unique serial numbers that indicate the Party source, vintage and project type, to facilitate tracking” (p. 4). In an interview, an official negotiator stated that “it is preferable to have only tradable carbon measured in CO<sub>2</sub>e metrics” (27 February 2020). In sum, AOSIS supports a high degree of ITMO standardization and unitization by supporting a standardized ITMO metric in CO<sub>2</sub>e and by applying a unique serial number for each unit.

China has submitted no direct guidance on Article 6 to the UNFCCC secretariat. China has however, submitted UNFCCC guidance on the potential for linkages between Article 15 and Article 6. This document simply notes that (2017, p. 3) “it is not appropriate for the Committee to make a decision that prohibits or affects a Party's participation in the Article 6 mechanism”. A negotiator from Norway noted that “China has a relatively low profile (...) they don't know how they will participate. They expect a reasonable outcome” (5 March 2020). An official statement issued by the BASIC countries issued in November 2019 provided only sparse details on Article 6 (PRC Ministry of Ecology and Environment 2019).<sup>26</sup> An official advisor to the Chinese delegation clarified that “I don't think China has a very strong position [on standardization and unitization under Article 6.2]” (14 March 2020).

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<sup>26</sup> The BASIC coalition includes Brazil, South Africa, India & China. The statement read that “A robust accounting system shall be put in place [for Article 6], which shall have flexibility to accommodate different types of NDCs and a central log to register all transactions” (PRC Ministry of Ecology and Environment 2019). It is difficult to assess to what extent this reflects a unique Chinese negotiation position, or simply reflects the positions of the other BASIC countries.

Brazil’s submissions (2017a, p. 4-5) to the UNFCCC secretariat notes that “Parties wishing to engage in the 6.2 mechanism should quantify their mitigation commitments (...) into an equivalent pool of units, each corresponding to one tCO<sub>2</sub>e”. The submission (p. 5) also states that “every single unit within a quantified amount will count with a unique serial number and other relevant information necessary for its identification and tracking (...)”. In sum, Brazil supports a high degree of ITMO standardization and unitization by supporting both a common CO<sub>2</sub>e metric and by favoring a unique serial number for each unit.

*Standardization/unitization under article 6.2*

<i>transactions</i>	<i>ITMO standardization (-)</i>	<i>ITMO standardization (+)</i>
<i>ITMO unitization (+)</i>	-	AOSIS, Brazil ( <i>Strong form of environmental integrity</i> )
<i>ITMO unitization (-)</i>	- ( <i>Weak form of environmental integrity</i> )	EU, Norway

*Table 2: Parties’ positions on ITMO standardization and unitization under Article 6.2 transactions. China’s negotiation position is not included.*

All parties support standardization of ITMOs through CO<sub>2</sub>e conversion. Additionally, all parties support a form of electronic registry, but only AOSIS and Brazil explicitly express support to attributing unique serial numbers for each ITMO unit. This is an important distinction which suggests that EU and Norway have a less rigorous stance on unitization, which in turn has implications for environmental integrity as highlighted in the above table. China’s ambiguous negotiation position makes it difficult to assess implications for environmental integrity.

*ii) Parties’ positions on avoiding double counting under Article 6.2 and 6.4*

A document outlining EU’s priorities in the lead-up to COP-25 (EU, 2019a, p.8) reiterates that “(...) [the EU is committed to] avoid double counting through corresponding adjustment on all international transfers, including with respect to the Article 6.4 mechanism (...)”. This was also highlighted in EU’s opening statement (Earth Negotiations Bulletin 2019a) and in the EU submission (EU 2017, p. 12) to the UNFCCC secretariat which “note the high significance of avoiding double counting on the basis of corresponding adjustments”. The EU

hence support avoiding double counting through the application of corresponding adjustments to both Article 6.2 and 6.4 transactions.

Norway's submission (2017, p. 3) outlines "ensuring robust accounting, including corresponding adjustments to avoid double counting (...)" as a key objective, and highlights the importance of 6.2 guidance on "when and how corresponding adjustments should take place". Norway's submission does not directly address avoidance of double counting in the context of Article 6.4. However, by extension of supporting the San Jose principles, Norway supports that "(...) all use of markets toward international climate goals is subject to corresponding adjustments" (Direccion de Cambio Climatico 2019). Hence, Norway's negotiation position supports avoiding double counting through the application of corresponding adjustments to both Article 6.2 and 6.4 transactions.

AOSIS submission (2017, p. 3-4) to the UNFCCC secretariat states that "centralized oversight at the international level will needed to ensure (...) corresponding adjustments [that] are implemented in a transparent manner". In an interview, an AOSIS negotiator noted that "corresponding adjustments should apply in both Article 6.2 and Article 6.4" (27 February 2020). It therefore seems that AOSIS supports avoidance of double counting through the application of corresponding adjustments to both Article 6.2 and 6.4 transactions.

An advisor to the Chinese delegation noted that "[China] does not have a very strong position on corresponding adjustments" (14 March 2020). Indeed, China's opening statement (China 2019, p. 2) during COP-25 is extremely light on details, simply noting that "On Article 6-related items, the group looks forward to concluding the discussions in accordance with the mandates and principles set out in the Agreement and the accompanying decision." This reiterates that China's position is ambiguous on the avoidance of double counting through the application of corresponding adjustments on Article 6.2 and 6.4 transactions.

Brazil's submission (2017d, p. 1) to the UNFCCC secretariat notes that "while Article 6.2 is intended to ensure robust accounting, it does not directly involve (...) the mechanism under Article 6.4". Furthermore, a subsequent submission states that: "(...) international transfer of [6.4] credits cannot result in corresponding adjustments in the host party's inventory itself" and that "The issue of double counting should not be covered by the rules, modalities and procedures of the Article 6.4 mechanism. (...) (2017b, p. 5). Brazil's position is therefore that

the application of corresponding adjustments to avoid double counting is limited to Article 6.2 transfers.

<i>Avoiding double counting under article 6.2 and 6.4 transactions</i>	<i>CA does not apply to 6.4 transactions (-)</i>	<i>CA applies to 6.4 transactions (+)</i>
<i>CA applies to 6.2 transactions (+)</i>	Brazil	AOSIS, EU, Norway <i>(Strong form of environmental integrity)</i>
<i>CA does not apply to 6.2 transaction (-)</i>	- <i>(Weak form of environmental integrity)</i>	-

*Table 3: Parties’ positions on avoiding double counting under Article 6.2 and 6.4 transactions. China’s negotiation position is not included.*

All parties, with the exception of China, support the application of corresponding adjustments to avoid double counting with respect to Article 6.2 transactions. Brazil is the only party that opposes the application of corresponding adjustments to avoid double counting in the context of Article 6.4 transactions.

*ii) Parties’ positions on transition of Kyoto units under Article 6.4*

A document outlining the EU’s priorities in the lead-up to COP-25 notes that (2019b, p.8): “[the EU is committed to] setting up an ambitious new Article 6.4 mechanism (...) and agreeing to closure of the Kyoto Protocol mechanisms” and “expresses concern at the potential use [of] (...) units issued under the Kyoto Protocol, as it would seriously undermine the environmental integrity of future mechanisms established under Article 6”. The EU is opposed to the transfer of Kyoto units under the Article 6.4 mechanism.

Norway’s submissions to the UNFCCC secretariat do not explicitly address the transfer of Kyoto credits. However, Norway did express support for the San Jose Principles during COP-25, which “prohibits the use of pre-2020 units, Kyoto units and allowances (...) toward Paris Agreement and other international goals” (Direccion de Cambio Climatico, 2019). This was also suggested in an interview with a negotiator who indicated that: “Norway is closely aligned with the EU on carryover of Kyoto units” (5 March 2020). Norway is opposed to the transition of Kyoto units under Article 6.4.

During an engagement with the Chilean Presidency of COP-25, AOSIS “stressed the need for language prohibiting carryover of Kyoto Protocol emission reduction units into the Paris Agreement mechanisms (Earth Negotiations Bulletin, 2019b). One AOSIS negotiator noted that “most countries don’t support the transition of [Kyoto] units into the Paris Agreement. (...) These should not be carried over into the Paris Agreement as they do not achieve an overall reduction in greenhouse gas emissions” (27 February 2020). A key challenge outlined in AOSIS’s submission to the UNFCCC secretariat is also “carryover rules that [can enable] a build-up of surplus units” (AOSIS 2017, p. 6). AOSIS opposes transition of Kyoto-units under Article 6.4.

An official advisor to the Chinese delegation noted that “I don’t think that [carryover of Kyoto units] is a big issue (...) I don’t think China has a [a large volume of existing units]. That will be a bigger issue for other countries” (14 March 2020).<sup>27</sup> A long-time observer noted that: (...) at least at COP-25, [China] was not that much interested in their transfers (...). At least they didn’t make this issue a point of no negotiation. (...)” (26 March 2020).<sup>28</sup> China has an ambivalent negotiation position on the issue of transition of Kyoto units under Article 6.4.

Brazil’s submission (2017b, p. 7) to the UNFCCC secretariat notes that “the 6.4 mechanisms] shall also receive those CERs issued under the CDM”. A subsequent submission (2017c, p. 5) states that “(...) eligibility of existing CERs towards Article 6 of the Paris agreement could address demand issues”. A long-term observer noted that “Brazil seems to be uncompromising for imported CERs” (29 February 2020). Brazil’s negotiation position therefore seems in favor of carryover of Kyoto units under Article 6.4.

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<sup>27</sup> An assessment by Climate Analytics (2019, p. 4) indicate that China has a large stock of Kyoto units; “even [by] restricting carryovers by 50% of their present volume, existing domestic units would (...) cover almost half (45 %) of China’s [NDC gap]”.

<sup>28</sup> Furthermore, the interview subject noted that: “the Chinese position on [carryover of Kyoto units] is more a G77 position than a real Chinese one”. It can therefore seem that China largely defers to the G77+China group position on this issue.

<i>Transition of Kyoto units under Article 6.4</i>	<i>Oppose (+) or support (-)</i>	<i>Strong form or weak form of environmental integrity</i>
<i>AOSIS</i>	Oppose	Strong form
<i>EU</i>	Oppose	Strong form
<i>Norway</i>	Oppose	Strong form
<i>Brazil</i>	Support	Weak form
<i>China</i>	Indeterminate	Indeterminate

*Table 4: Parties' positions on transition of Kyoto-units under Article 6.4*

With respect to transition of Kyoto units, the EU, Norway and AOSIS support an option which reflects a strong form of environmental integrity, while Brazil's option reflects a weak form of environmental integrity. China's negotiation positions on the issue is ambiguous. China and Brazil are among the countries with the largest share of CERs which potentially could be transitioned under Article 6.4.

*i) Summary and discussion of findings*

In summary, the results indicate that parties views converge the most on issues related to accounting rules, while their views diverge the most with respect to unit quality. In terms of accounting rules, the results indicate that Brazil, Norway and the EU support a mixed form of environmental integrity, while AOSIS supports a strong form of environmental integrity. This discrepancy is due to the fact that Norway and the EU are supporting a limited unitization of Article 6.2 transactions, while Brazil opposes the avoidance of double counting on the basis of corresponding adjustments under Article 6.4.

In terms of unit quality, the results indicate that Norway, EU and AOSIS support a strong form of environmental integrity, while Brazil supports a weak form of environmental integrity. This discrepancy is due to the fact that Brazil supports the transition of Kyoto units to the 6.4 mechanism. China's negotiation position is consistently ambiguous across all issues. These results are summarized in the figure below.

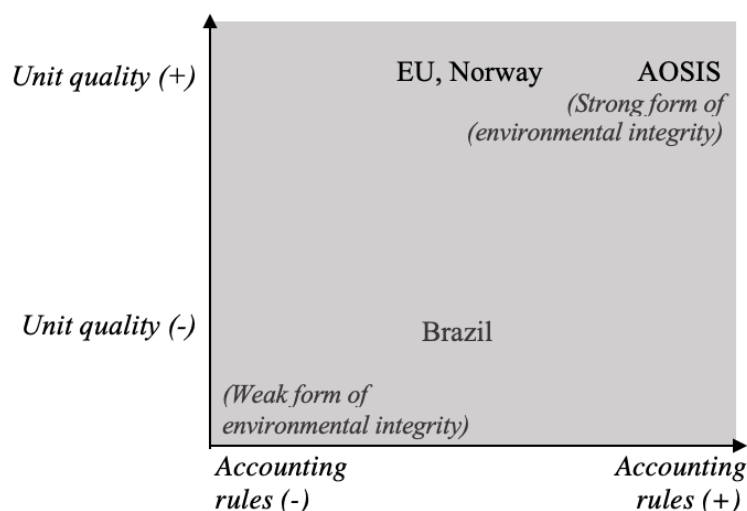


Figure 5: How parties' negotiation positions reflect environmental integrity in the context of Article 6. China's negotiation position is not included.

In summary, the results indicate that AOSIS supports the strongest form of environmental integrity both with respect to accounting rules and unit quality. Brazil support the weakest form of environmental integrity among all parties, while the EU and Norway supports a level of environmental integrity in the range between AOSIS and Brazil. It is difficult to assess China's support for environmental integrity. Unsurprisingly, the results indicate that parties who subscribe to the San Jose principles (AOSIS, EU, Norway) support a stronger form of environmental integrity than those countries not affiliated with these principles (Brazil, China).

A few concluding observations are in order. As a coalition of countries most vulnerable to the impacts of climate change, AOSIS has clearly been a long-term proponent for more ambitious emissions reductions, and subsequently, support a strong form of environmental integrity across both dimensions. EU and Norway also support a strong form of environmental integrity, with the exception of unitization under Article 6.2 transactions. This distinction could indicate a limited appetite to engage in international cooperation under Article 6.2, in favor of pursuing bilateral cooperation on their own terms.

Brazil on the other hand, supports a weak form of environmental integrity, with the exception of unitization and standardization under Article 6.2 transactions. Their position can be understood as a significant host country for offset projects, which gives the country an incentive to ensure that their existing stock of CERs are made eligible under the Paris regime.

Similarly supporting a mixed stance on accounting rules can be interpreted as an effort to maximize the utility of hosting domestic offset projects by allowing sellers to receive compensation to generate offsets they can use towards their own targets. Through double counting, sellers such as Brazil can reap double dividends in international carbon markets.

China has a very different negotiation position. Despite possessing a larger volume of CERs than Brazil and piloting their own domestic carbon programs, the country has an ambiguous stance on environmental integrity across both dimensions. One official advisor to the Chinese negotiation summarized their stance by noting that “China does not have very strong positions on Article 6, we can go along with most issues that have been debated (...)” (March 2020) Another interview subject also noted that China probably would have a hard time supporting rigid accounting rules because of their intensity-based NDC.<sup>29</sup>

What are the potential landing zones? The results also indicate that party’s views, on the whole, favor a higher level of environmental integrity with respect to accounting rules - and conversely, that environmental integrity is most at risk from weak unit quality-rules.

In operational terms, parties’ views converge the most on Article 6.2. This might reflect the fact that ITMO transactions under Article 6.2 entail a broad range of engagements compatible with the heterogeneity of NDCs which exist under the Paris Agreement. This catch-all approach can accommodate a number of approaches that makes it easier to arrive at consensus. Conversely, parties’ views diverge the most with respect to Article 6.4. One explanation for this could be that the 6.4 mechanism largely resembles the flexible mechanisms of the Kyoto Protocol. This issue leads to a relitigation of the merits of the CDM instead of generating new, creative solutions.

## **Conclusion**

*“All Parties have made clear their determination that the rules agreed for Article 6 ensure environmental integrity and hence contribute to raising our collective ambition to help put us on track to keeping global warming well below 2°C and pursuing efforts to limit it to 1.5°C.*

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<sup>29</sup> One negotiator noted that quantifiable versus non quantifiable targets were a major reason for why the Article 6 negotiations stranded. “(...) it is two different logical thoughts that collide. EU, and many countries from that group have quantifiable targets. (...) They have a way of thinking about how to resolve their NDC. But other countries have different types of NDC targets. Then, the EU and the US way of thinking does notwork. I have tried to converge these two ways of thinking, but I have not succeeded” (5 March 2020).



*However, they have different interpretations of how best to achieve this on several critical issues”.*

-Paul Watkinson, in Reflections note to all Parties in preparation for the fifty-first session of the Subsidiary Body for Scientific Technology and Advice (SBSTA), November 11 2019

The first part of the quote above highlights the centrality of environmental integrity as a key feature of Article 6, and the aspirations attributed to market-based mechanisms as a means to achieve transformative emission pathways. The second part of the quote highlights the reality of the current situation as countries continue to disagree on how to advance the environmental integrity of carbon markets in practice. This capstone thesis has been a modest attempt at lessening the gap between these two sentiments.

The first part of this thesis highlighted how environmental integrity has evolved into a multi-dimensional issue, which enables countries to support a strong form of environmental integrity on some issues but not necessarily on all. This is distinct from the dichotomous approach to environmental integrity which was employed under the Kyoto Protocol and largely centered on fulfillment of the additionality criteria. The additionality criteria is still part of the calculation in so far as non-additional Kyoto units are transferred into the new Article 6.4 mechanisms, but this is no longer the sole factor that impacts the level of environmental integrity. Or, to put it differently, under the Paris Agreement additionality is a necessary but insufficient criterion to ensure environmental integrity.

This expansion brings to light a new set of thorny issues in need of examination. Three of these issues, broadly categorized along the dimensions of unit quality and accounting rules, were analyzed in the second part of this thesis. The analysis indicates the following ranking of four countries and one coalition along a high-to-low scale of environmental integrity: AOSIS, EU/Norway, Brazil. The results indicate that the largest divergence of views is with respect to unit quality under Article 6.4, while the highest degree of convergence is with respect to Article 6.2. These findings suggest that the potential for future international cooperation on carbon markets will be most productive along the 6.2 track, and that particular guidance is warranted in the design of the Article 6.4 mechanism.

The fact that China, a country with significant involvement in the flexible mechanisms of the Kyoto Protocol and the world's largest emitter of greenhouse gasses remains ambivalent with respect to environmental integrity is a puzzling observation that should be explored in future research. If the country were to take a more active stand in the negotiations it potentially could break down entrenched positions and give the Article 6 negotiations a new dynamic.

## References

- AOSIS. 2017. “Submission to the Articles 6.2 and 6.4 of the Paris Agreement by the Republic of Maldives on behalf of the Alliance of Small Island States”. Available from: [https://www4.unfccc.int/sites/SubmissionsStaging/Documents/201903130535---AOSIS\\_Submission\\_Art%206%202%20and%206%204%20of%20%20PA%2027%2004%202017%20FINAL.pdf](https://www4.unfccc.int/sites/SubmissionsStaging/Documents/201903130535---AOSIS_Submission_Art%206%202%20and%206%204%20of%20%20PA%2027%2004%202017%20FINAL.pdf)
- Bhandary, Rishikesh. 2017. “Markets and Non-Market Approaches for International Cooperation in the Paris Agreement: Open Questions in the International Negotiations”, Climate Policy Lab. Available from: <https://www.climatepolicylab.org/news/2017/8/25/markets-and-non-market-approaches-for-international-cooperation-in-the-paris-agreement-open-questions-in-the-international-negotiations>
- Bodansky, Daniel, Hoedl, Seth, Metcalf, Gilbert, Stavins, Robert. 2016. “Facilitating linkage of climate policies through the Paris Outcome”, *Climate Policy*, 16 (8): 956-72.
- Bogner, Alexander, Littig, Beate. 2009. *Interviewing experts*. New York : Palgrave Macmillan.
- Brazil. 2017a. “View of Brazil on the guidance referred to in Article, Paragraph 2, of the Paris Agreement”. Available from: [https://www4.unfccc.int/sites/SubmissionsStaging/Documents/525\\_317\\_1313544194777784\\_93-BRAZIL%20-%20Article%206.2.%20SBSTA46%20May%202017.%20FINAL.pdf](https://www4.unfccc.int/sites/SubmissionsStaging/Documents/525_317_1313544194777784_93-BRAZIL%20-%20Article%206.2.%20SBSTA46%20May%202017.%20FINAL.pdf)
- Brazil. 2017b. Views of Brazil on the process related to the rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement”. Available from: [https://www4.unfccc.int/sites/SubmissionsStaging/Documents/525\\_270\\_1311986567111788\\_21-BRAZIL%20-%20Article%206.4%20final.pdf](https://www4.unfccc.int/sites/SubmissionsStaging/Documents/525_270_1311986567111788_21-BRAZIL%20-%20Article%206.4%20final.pdf)
- Brazil. 2017c. “View of Brazil on the process related to the rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement”. Available from: [https://www4.unfccc.int/sites/SubmissionsStaging/Documents/525\\_318\\_1313544202704991\\_65-BRAZIL%20-%20Article%206.4.%20SBSTA46%20May%202017.%20FINAL.pdf](https://www4.unfccc.int/sites/SubmissionsStaging/Documents/525_318_1313544202704991_65-BRAZIL%20-%20Article%206.4.%20SBSTA46%20May%202017.%20FINAL.pdf)
- Brazil. 2017d. “Views of Brazil on the guidance referred to in Article 6, paragraph 2, of the Paris Agreement”. Available from: [https://www4.unfccc.int/sites/SubmissionsStaging/Documents/525\\_262\\_1311986562230454\\_34-BRAZIL%20-%20Article%206.2%20final.pdf](https://www4.unfccc.int/sites/SubmissionsStaging/Documents/525_262_1311986562230454_34-BRAZIL%20-%20Article%206.2%20final.pdf)
- Chasek, Pamela. 2001. *Earth Negotiations: Analyzing Thirty Years of Environmental Diplomacy*. New York: United Nations University Press.
- China. 2017. “China Submission on agenda item 7 of the Ad Hoc Working Group on the Paris Agreement on “Modalities and procedures for the effective operation of the committee to facilitate implementation and promote compliance referred to in Article 15, paragraph 2, of

the Paris Agreement”. Available from:

[https://unfccc.int/sites/default/files/chinas\\_submission\\_on\\_apa\\_item7.pdf](https://unfccc.int/sites/default/files/chinas_submission_on_apa_item7.pdf)

China. 2019. “Statement by China on behalf of BASIC at the opening plenary of COP25”. Available from:

<https://www4.unfccc.int/sites/SubmissionsStaging/Documents/201912111926---STATEMENT%20BY%20CHINA%20ON%20BEHALF%20OF%20BASIC%20AT%20THE%20OPENING%20PLENARY%20OF%20COP25.pdf>

Climate Analytics. 2019. “Article 6 needs ambition, not time wasting”. Available from: [https://climateanalytics.org/media/carry\\_over\\_ca\\_briefing\\_11dec2019.pdf](https://climateanalytics.org/media/carry_over_ca_briefing_11dec2019.pdf)

Climate and Clean Air Coalition. 2018. “The NEFCO Norwegian Carbon Procurement Facility”. Available from: <https://www.ccacoalition.org/en/resources/nefco-norwegian-carbon-procurement-facility-norcap>

Dirección de Cambio Climático, *32 leading countries set benchmark for carbon markets with San Jose Principles*. 14 December 2019, available from: <https://cambioclimatico.go.cr/press-release-leading-countries-set-benchmark-for-carbon-markets-with-san-jose-principles/>

Earth Negotiations Bulletin. 2013. “Summary of the Warsaw Climate Change Conference: 11-23 November 2013”, *International Institute for Sustainable Development*, 12 (154). Available from: <https://enb.iisd.org/download/pdf/enb12594e.pdf>

Earth Negotiations Bulletin. 2019a. “Chile/Madrid Climate Change Conference: Monday, 2 December 2019”, *International Institute for Sustainable Development*, 12 (765). Available from: <https://enb.iisd.org/download/pdf/enb12765e.pdf>

Earth Negotiations Bulletin. 2019b. “Summary of the Chile/Madrid Climate Change Conference: 2-15 December 2019”, *International Institute for Sustainable Development*, 12 (775). Available from: <https://enb.iisd.org/download/pdf/enb12775e.pdf>

Environmental Defense Fund. 2019. “Double counting risks for IMTOs within and outside NDCs”. Available from: [https://www.edf.org/sites/default/files/documents/NDC\\_Coverage\\_OnePager\\_June\\_2019.pdf](https://www.edf.org/sites/default/files/documents/NDC_Coverage_OnePager_June_2019.pdf)

EU. 2016a. “Submission on guidance on cooperative approaches referred to in Article 6, paragraph 2 of the Paris Agreement”. Available from: [https://www4.unfccc.int/sites/SubmissionsStaging/Documents/75\\_262\\_131203154548822673-SK-10-07-EU%20Submission%20on%20Art%206%202.pdf](https://www4.unfccc.int/sites/SubmissionsStaging/Documents/75_262_131203154548822673-SK-10-07-EU%20Submission%20on%20Art%206%202.pdf)

EU. 2016b. “Submission on the mechanism established by Article 6, paragraph 4 of the Paris Agreement”. Available from: [https://www4.unfccc.int/sites/SubmissionsStaging/Documents/75\\_270\\_131203155454108082-SK-10-07-EU%20Submission%20on%20Art%206%204.pdf](https://www4.unfccc.int/sites/SubmissionsStaging/Documents/75_270_131203155454108082-SK-10-07-EU%20Submission%20on%20Art%206%204.pdf)

EU. 2017. “Submission by the Republic of Malta and the European Commission on behalf of the European Union and its member states”. Available from: [https://www4.unfccc.int/sites/SubmissionsStaging/Documents/783\\_318\\_1313456860424605](https://www4.unfccc.int/sites/SubmissionsStaging/Documents/783_318_1313456860424605)

[24-MT-03-21-EU%20SBSTA%2012a%20b%20and%20c%20EU%20Submission%20Article%206.pdf](#)

EU. 2019a. *Preparations for the United Nations Framework Convention on Climate Change (UNFCCC) meetings (Santiago de Chile, 2-13 December 2019) – Council Conclusions*, 12796/1/19 (9 October 2019), available from:

<http://data.consilium.europa.eu/doc/document/ST-12796-2019-REV-1/en/pdf>

EU. 2019b. *Motion for a resolution*, 2019/2712 (14 November 2019), available from:

[https://www.europarl.europa.eu/doceo/document/B-9-2019-0174\\_EN.html](https://www.europarl.europa.eu/doceo/document/B-9-2019-0174_EN.html)

European Commission. 2015. “EU ETS Handbook”. Available from:

[https://ec.europa.eu/clima/sites/clima/files/docs/ets\\_handbook\\_en.pdf](https://ec.europa.eu/clima/sites/clima/files/docs/ets_handbook_en.pdf)

European Commission. 2018. “Emissions trading: European Commission and China hold first policy dialogue”. Available from: [https://ec.europa.eu/clima/news/emissions-trading-european-commission-and-china-hold-first-policy-dialogue\\_en](https://ec.europa.eu/clima/news/emissions-trading-european-commission-and-china-hold-first-policy-dialogue_en)

European Commission. 2019. “A European Green Deal”. Available from:

[https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en)

Evans, Simon, Gabbatiss, Josh. 2019a. “Key outcomes agreed at the UN climate talks in Madrid”, Carbon Brief. Available from: <https://www.carbonbrief.org/cop25-key-outcomes-agreed-at-the-un-climate-talks-in-madrid>

Evans, Simon, Gabbatiss, Josh. 2019b. “In-depth Q&A: How ‘Article 6’ carbon markets could ‘make or break’ the Paris Agreement”, Carbon Brief. Available from: <https://www.carbonbrief.org/in-depth-q-and-a-how-article-6-carbon-markets-could-make-or-break-the-paris-agreement>

Falkner, Robert. 2015. “A unilateral solution for global climate change? On bargaining efficiency, club benefits and international legitimacy”, Center for Climate Change Economics and Policy. Available from: <http://www.lse.ac.uk/GranthamInstitute/wp-content/uploads/2015/07/Working-Paper-197-Falkner.pdf>

Fisher, Roger, Ury, William. 1981. *Getting to yes: negotiating agreement without giving in*. New York: Penguin.

Friedman, Lisa. 2019. “Trump Serves Notice to Quit Paris Climate Agreement”, New York Times. Available from: <https://www.nytimes.com/2019/11/04/climate/trump-paris-agreement-climate.html>

Greiner, Sandra, Michaelowa, Axel. 2019. “Article 6 Corresponding Adjustments. Key accounting challenges for Article 6 transfers of mitigation outcomes”. Available from: [https://www.carbon-mechanisms.de/fileadmin/media/dokumente/Publikationen/Studie/2019\\_ClimateFocus\\_Perspectives\\_Corresponding\\_Adjustments\\_Art6.pdf](https://www.carbon-mechanisms.de/fileadmin/media/dokumente/Publikationen/Studie/2019_ClimateFocus_Perspectives_Corresponding_Adjustments_Art6.pdf)

Hepburn, Cameron. 2007. “Carbon Trading: A Review of the Kyoto Mechanisms”, *Annual Review of Environment and Resources*, 32, 375-393.

Howard, Andrew, Chagas, Thiago, Hoogzaad, Jelmer, Hoch, Stephan. 2017. “Features and implications of NDCs for carbon Markets”. Available from: [https://www.energimyndigheten.se/contentassets/2600659ecfa54ec995b835a4c99d75fb/ndcs\\_and\\_art.6.2.pdf](https://www.energimyndigheten.se/contentassets/2600659ecfa54ec995b835a4c99d75fb/ndcs_and_art.6.2.pdf)

IPCC. 2018. “Special report: global warming of 1.5 °C” Available from: <https://www.ipcc.ch/sr15/chapter/spm/>

Keohane, Nathaniel, Olmstead, Sheila. 2016. *Markets and the Environment*. Washington D.C: Island Press.

Kollmuss, Anja, Zink, Helge, Polycarp, Clifford. 2008. “Making Sense of the Voluntary Carbon Market. A Comparison of Carbon Offset Standards”, World Wildlife Fund. Available from: <https://www.worldwildlife.org/press-releases/go-with-gold-for-quality-carbon-offsetting-in-energy-sector>

Kollmuss, Anja., Lambert Schneider and Vladyslav Zhezherin. 2015. “Has Joint Implementation reduced GHG emissions? Lessons learned for the design of carbon market mechanisms”, Stockholm Environment Institute. Available from: <https://mediamanager.sei.org/documents/Publications/Climate/SEI-WP-2015-07-JI-lessons-for-carbon-mechs.pdf>

Kuyper, Jonathan, Schroeder, Heike, Linnér, Bjorn-Ola. 2018. “The Evolution of the UNFCCC”, *Annual Review of Environment and Resources*, 43, 343-368

*Kyoto Protocol to the United Nations Framework Convention on Climate Change*, Kyoto, 10 December 1997, FCCC/CP/1997/L.7/Add.1, available from: <https://unfccc.int/sites/default/files/resource/docs/cop3/107a01.pdf>

Laroui, Fouad, Tellegen, Egbert. 2004. “A Flexibility Mechanism of the Kyoto Protocol – First Explorations of JI between the EU and Russia”, *Environmental Sciences*, 1 (2), 168-200.

Lee, C. 2005. *Environmental Engineering Dictionary*. Oxford: Scarecrow Press.

Levin, Kelly, Kizzier Kelley, Rambharos, Mandy. 2019. “Making Sense of Article 6: Key issues and What’s at Stake”, World Resources Institute. Available from: <https://wriorg.s3.amazonaws.com/s3fs-public/making-sense-article-6.pdf>

McNabb, David. 2010. *Research Methods for Political Science: Qualitative and Quantitative Methods*. New York: Routledge.

Michaelowa, Axel. 2015. “Opportunities for and Alternatives to Global Climate Regimes Post-Kyoto”, *Annual Review of Environment and Resources*, 40, 395-417.

Michaelowa, Axel, Shishlov, Igor, Brescia, Dario. 2019a. “Evolution of international carbon markets: lessons for the Paris Agreement”, *WIREs Climate Change*, 10(6). Available from: <https://doi.org/10.1002/wcc.613>

Michaelowa, Axel, Shishlov, Igor, Hoch, Stephan, Bofill, Patricio, Espelage, Aglaja. 2019b. “Overview and comparison of existing carbon crediting schemes”, Nordic Initiative for Cooperative Approaches. Available from: <https://www.nefco.org/wp-content/uploads/2019/05/NICA-Crediting-Mechanisms-Final-February-2019.pdf>

Michaelowa, Axel, Weldner, Kaja, Espelage, Aglaja. 2019c. “Ensuring Additionality of mitigation outcomes transferred through Article 6 of the Paris Agreement”, Perspectives Climate Group. Available from: [https://www.perspectives.cc/fileadmin/Publications/Ensuring Additionality in Article 6.pdf](https://www.perspectives.cc/fileadmin/Publications/Ensuring_Additionality_in_Article_6.pdf)

Michaelowa, Axel, Hermwille, Lukas, Obergassel, Wolfgang, Butzengeiger, Sonja. 2019d. “Additionality revisited: guarding the integrity of market mechanisms under the Paris Agreement”, *Climate Policy*, 19 (10), 1211-1224.

Moltke, Konrad. 1999. “Trade and the Environment. The linkages and the politics”, International Institute for Sustainable Development. Available from: <https://www.iisd.org/pdf/canberra.pdf>

Müller, Benito, Michaelowa, Axel. 2019. “How to operationalize accounting under Article 6 market mechanisms of the Paris Agreement”, *Climate Policy*, 19(7), 812-819.

Newell, Richard, Pizer, William, Raimi, Daniel. 2013. “Carbon markets 15 years after Kyoto: lessons learned, new challenges”, *Journal of Economic Perspectives*, 27(1), 123-46.

Newell, Richard, Pizer, William, Raimi, Daniel. 2014. “Carbon Markets: Past, Present and Future”, *Annual Review of Resource Economics*, 6, 191-215.

Norway. 2017. “Submission to SBSTA from Norway on Article 6 of the Paris Agreement”. Available from: [https://www4.unfccc.int/sites/SubmissionsStaging/Documents/854\\_344\\_1315382641885584\\_03-Article6\\_Norway.docx.pdf](https://www4.unfccc.int/sites/SubmissionsStaging/Documents/854_344_1315382641885584_03-Article6_Norway.docx.pdf)

OECD. 2016. “Joint OECD/IEA submission to the UNFCCC, September 2016”. Available from: <https://www.oecd.org/env/cc/CCXG-Submission-Art6-final.pdf>

OED Online. 2020. *Oxford English Dictionary*. Oxford University Press. <http://www.oed.com/viewdictionaryentry/Entry/>

Orlitzky, Marc, Monga, Manjit. 2018. *Integrity in Business and Management: Cases and Theory*. New York: Routledge.

*Paris Agreement*, Paris, December 12 2015. Available from: [https://unfccc.int/sites/default/files/english\\_paris\\_agreement.pdf](https://unfccc.int/sites/default/files/english_paris_agreement.pdf)

Parson, Edward, Kravitz, Eric. 2013. “Market Instruments for the Sustainable Transition”, *Annual Review of Environment and Resources*, 38, 415-440.

PRC Ministry of Ecology and Environment. 2019. “Joint Statement Issued at the Conclusion of the 29th BASIC Ministerial Meeting on Climate Change”. Available from: [http://english.mee.gov.cn/News\\_service/Photo/201911/t20191108\\_741602.shtml](http://english.mee.gov.cn/News_service/Photo/201911/t20191108_741602.shtml)

Raiffa, Howard, Richardson, John, Metcalfe, David. *Negotiation Analysis: The Science and Art of Collaborative Decision Making*. Cambridge: Harvard University Press.

*Report of the Conference of the Parties on its thirteenth session, held in Bali from 3 to 15 December 2007*, FCCC/CP/2007/6/Add.1 (14 March 2008), available from: <https://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf>

Schmalensee, Richard, Stavins, Robert. 2017. “Lessons learned from three decades of experience with cap and trade” *Review of Environmental Economics and Policy*, 11 (1), 59-79.

Schneider, Lambert, La Hoz Theuer, Stephanie. 2019. Environmental integrity of international carbon market mechanisms under the Paris Agreement, *Climate Policy*, 19 (3), 386-400.

Skjoldager, Morten, Arnfred, Carl, Kjeldtoft, Sebastian. 2020. “De røde lamper blinkede: Imens fortsatte Ørsted og Mærsk brug af klimaafload fra omstridte kinesiske gasprojekter”. Available from: <https://politiken.dk/indland/art7650487/De-r%C3%B8de-lamper-blinkede-Imens-fortsatte-%C3%98rsted-og-M%C3%A6rsk-brug-af-klimaafload-fra-omstridte-kinesiske-gasprojekter>

Stavins, Robert. 2011. “The Problem of the Commons: Still Unsettled after 100 Years”, *The American Economic Review*, 101(1), p. 81-108.

Stavins, Robert. 2019a. “Carbon Taxes vs. Cap and Trade: Theory and Practice.” Available from: [https://www.belfercenter.org/sites/default/files/files/publication/es-09\\_stavins\\_vers2.pdf](https://www.belfercenter.org/sites/default/files/files/publication/es-09_stavins_vers2.pdf)

Stavins, Robert. 2019b. “What to Expect at COP25 in Madrid”, Resources for the Future. Available from: <https://www.resourcesmag.org/common-resources/what-expect-cop-25-madrid/>

Stern, Nicholas. 2006. “Stern Review: The Economics of Climate Change”. Available from: [http://mudancasclimaticas.cptec.inpe.br/~rmclima/pdfs/destaques/sternreview\\_report\\_complete.pdf](http://mudancasclimaticas.cptec.inpe.br/~rmclima/pdfs/destaques/sternreview_report_complete.pdf)

UNEP DTU. 2020. “CDM/JI Pipeline Overview Page”. Available from: <http://cdmpipeline.org/overview.htm>

UNFCCC. 2007. *Report of the Conference of the Parties on its thirteenth session, held in Bali from 3 to 15 December 2007*, FCCC/CP/2007/6/Add.1 (14 March 2008), available from <https://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf>

UNFCCC. 2010. *Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010*, FCCC/CP/2010/7/Add.1 (15 March 2011), available from <https://unfccc.int/sites/default/files/resource/docs/2010/cop16/eng/07a01.pdf>

UNFCCC. 2011. *Report of the Conference of the Parties on its seventeenth session, held in Durban from 28 November to 11 December 2011*, FCCC/CP/2011/9/Add.1 (15 March 2012), available from <https://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf>



UNFCCC. 2012. *Report of the Conference of the Parties on its eighteenth session, held in Doha from 26 November to 8 December 2012*, FCCC/CP/2012/8/Add.1 (28 February 2013), available from <https://unfccc.int/sites/default/files/resource/docs/2012/cop18/eng/08a01.pdf>

UNFCCC. 2015. *Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015*, FCCC/CP/2015/10/Add.1 (29 January 2016), available from: <https://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf#page=2>

UNFCCC. 2019a. *Reflections note by the Chair of the Subsidiary Body for Scientific and Technological Advice* (11 November 2019), available from: <https://unfccc.int/sites/default/files/resource/SBSTA51%20reflections%20note.pdf>

UNFCCC. 2019b. “UNFCCC Webinar on Article 6 of the Paris Agreement”. Video. 1 October 2019. <https://www.youtube.com/watch?v=vM9GZsq2npY&feature=youtu.be>

UNFCCC. 2019c. *Draft text on Matters relating to Article 6 of the Paris Agreement: Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement* (14 December 2019), available from: [https://unfccc.int/sites/default/files/resource/DT.CMA2\\_i11a.1.pdf](https://unfccc.int/sites/default/files/resource/DT.CMA2_i11a.1.pdf)

UNFCCC. 2019d. *Draft text on SBSTA 51 agenda item 12(a) Matters relating to Article 6 of the Paris Agreement: Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement* (9 December 2019), available from: <https://unfccc.int/sites/default/files/resource/DT.SBSTA51.i12a.3.pdf>

UNFCCC. 2020a. “Global Warming Potentials (IPCC Second Assessment Report)”. Available from: <https://unfccc.int/process/transparency-and-reporting/greenhouse-gas-data/greenhouse-gas-data-unfccc/global-warming-potentials>

UNFCCC. 2020b. “What are governing, process management, subsidiary, constituted and concluded Bodies?”. Available from: <https://unfccc.int/process-and-meetings/bodies/the-big-picture/what-are-governing-process-management-subsidiary-constituted-and-concluded-bodies>

UNFCCC. 2020c. “What is the Paris Agreement?”. Available from: <https://unfccc.int/process-and-meetings/the-paris-agreement/what-is-the-paris-agreement>

*United Nations Framework Convention on Climate Change*, New York, June 4 1992. Available from: [https://unfccc.int/files/essential\\_background/background\\_publications\\_htmlpdf/application/pdf/conveng.pdf](https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf)

Wettestad Jørgen, Gulbrandsen, Lars. 2018. *The Evolution of Carbon Markets: Design and Diffusion*. New York: Routledge.

World Bank Group. 2019. “State and Trends of Carbon Pricing 2019”. Available from: <http://documents.worldbank.org/curated/en/191801559846379845/pdf/State-and-Trends-of-Carbon-Pricing-2019.pdf>